

AERONAUTICS

New Agricultural Airplane

➤ AG-1, AG standing for agriculture, is a new airplane, the first designed especially for a single job—applying to the land from the air insecticides, crop seeds and fertilizers. It is well suited for this job because it can carry a heavy load, fly low and slow, and take off and land on a short unimproved runway.

The plane was constructed under contract with the U. S. Civil Aeronautics Administration by an aircraft research center at the Texas Agricultural and Mechanical College. At a recent demonstration by the CAA, the plane took off from a rough runway, flew at speeds as low as 45 miles an hour, made tight turns at the ends of the field, and was brought to a stop in a space about three times its length after it touched the ground.

The plane can carry 1,200 pounds of insecticide spray or dust, and it can operate

for three hours without refuelling. In its design, safety was a prime factor. Its high-lift wing, full-span slotted flaps and slot-lip ailerons all contribute to safety. Many other safety devices are included. Important is the wide landing gear with heavy tires.

Spraying and dusting farm crops with ordinary planes is accompanied by many hazards. The necessary low-flying constitutes one; quick turns at the ends of the field present another. CAA records show that some 5,000 planes are now used in America for dusting, spraying, seeding and fertilizing purposes. Many of them are war surplus and other converted planes. During 1950, 439 accidents in crop-control flying are recorded. The new plane is expected to cut this accident rate down substantially.

Science News Letter, July 14, 1951

MEDICINE

Child "Dope" Addicts

➤ ONE BRIGHT spot in the grim picture of child "dope" addicts now publicized is that rehabilitation of these youngsters into healthy citizens should be easier than it is with grown-up addicts.

Here is a second bright spot: Addiction of children and adolescents to narcotic drugs, from marihuana to heroin and morphine, apparently is not so widespread throughout the whole nation as it seems from accounts of the current investigations. There has been some increase among certain groups and in quite selected areas. Children in certain racial groups, Negroes and Puerto Ricans, apparently have been the chief victims.

Some teen-agers have been admitted for treatment at the U. S. Public Health Service's hospital for narcotic addicts at Lexington, Ky. Experience with these youngsters shows that children are not likely to be more susceptible to drug addiction than grown-ups. Physically and mentally, they respond to the drugs in the same way grown-ups do, except that a child's psychological problems may be different from those of grown-ups.

Treatment to cure them is the same as for grown-ups. It consists in withdrawing the drug while keeping the patient, child or adult, under careful supervision. Physical health is built up through proper diet and regulated activity and sleep.

Rehabilitation through education is part of the treatment. In this, the child's youth counts for him, since re-education is simpler at earlier than at later ages.

Science News Letter, July 14, 1951

ICHTHYOLOGY

Death Barrier for Lampreys

➤ AN ELECTRICAL "death fence" and a physical barrier have so far kept every sea lamprey from reaching spawning grounds at the head of the Ocqueoc River in Michigan.

An eel-like fish with a suction cup mouth, the sea lamprey threatens the Great Lakes commercial and game fishing with destruction unless stopped. A similar electrical screen was used last fall to keep the small sea lampreys from reaching Lake Michigan, but that method proved too expensive, Paul Thompson of the fishery biology division of

the U. S. Fish and Wildlife Service told SCIENCE SERVICE.

The sea lamprey is now, about the middle of July, at the end of its spawning season. Scientists hope that by keeping the lamprey from its spawning grounds in this trial run, they will be able to stop the parasite. If successful, the electrical death fence will be put up on every possible stream, but first scientists want to know whether the barrier effectively prevents the sea lamprey from spawning.

Another method for ridding the Lakes

of the lamprey has been suggested by Dr. Alfred Perlmutter of the New York State Conservation Department. He has shown that the American eel will gobble up the young sea lamprey, or ammocoete, attracted to it by its wiggling in the mud. The American eel is also mud-burrowing.

This would be setting one predator to prey upon another, an attack method that has worked in getting rid of other pests. The American eel would be self-liquidating, since it does not spawn in fresh water. It has, however, a rather long life, believed to be 12 or 15 years.

Science News Letter, July 14, 1951

LET THESE GREAT CONTRIBUTORS TEACH YOU SCIENCE



1. P. W. BRIDGMAN, winner of the Nobel prize in physics. His "NATURE OF PHYSICAL THEORY" explains relativity theory, wave mechanics, other advanced concepts. "It can easily be read in about three hours, but it will then demand to be reread, parts of it several times over."—Review of Scientific Instruments. 149pp. 5½ x 8. \$2.25

2. MAX BORN, who helped develop quantum theory. In "THE RESTLESS UNIVERSE," Prof. Born explains the workings of electrons, cathode rays, invisible light and other "mysteries" of modern science. New 1951 revised ed. Almost 1000 illustrations. 7 animated diagrams. 325pp. 6½ x 9¼. \$3.95

3. HERMANN WEYL, important contributor to relativity theory. Masterly intro. to Maxwell's theory, analytic geometry, tensors, relativity, etc., in "SPACE-TIME-MATTER." 348pp. Index. 15 diagrams. Bibl. ref. 5½ x 8. \$3.95

4. WERNER HEISENBERG, Nobel prize winner in physics. His "PHYSICAL PRINCIPLES OF THE QUANTUM THEORY" gives complete physical picture of contributions of Simon, Compton, Einstein, Bohr, et al. Ideal for chemists and physicists not in immediate quantum theory field. 192pp. 5½ x 8. \$2.75

FELIX KLEIN, world-famous teacher. Two volumes on "ELEMENTARY MATHEMATICS FROM ADVANCED STANDPOINT" called "Interesting and valuable to experienced teacher" by School Science and Math. 5. Volume I: Arithmetic, algebra, analysis. Transl. from third German ed. 298pp. 125 ill. 5½ x 8½. \$3.75

6. Volume II. Geometry. "Required reading for anybody planning to teach high school geometry."—School Science and Math. 5½ x 8½. 223pp. 141 ill. \$3.50

7. LOUIS DE BROGLIE, winner of Nobel prize in physics. 21 brilliant essays on electricity, light and radiation, wave mechanics, etc., in de Broglie's "MATTER AND LIGHT: THE NEW PHYSICS." 304pp. 4½ x 7¾. \$2.95

8. LEWIS AND LANGFORD, two well-known contributors to the literature on math. logic. Their "SYMBOLIC LOGIC" is one of the most frequently cited works on the subject. Recommended by most teachers and authorities in field. Covers logical paradoxes, historical development of symbolic logic, truth-value systems, matrix method, modal logic, many-valued logic, existence theorems, etc. "An authoritative and most valuable treatise on symbolic logic by two of the most distinguished exponents of that science . . . Of great assistance to the student approaching the subject for the first time . . . deserves the serious consideration of specialists."—London Times. 5½ x 8. 512 pp. \$4.50

All books were reprinted to meet persistent demand among librarians and scientists. They are carefully printed and durably bound for long usage. In most cases the edition is only 1000-1250 copies. We therefore recommend that you request your copies (which may be returned for full refund if unsatisfactory) immediately.

Dover Pubns., Dept. 16, 1780 B'way, N.Y. 19, N.Y.

Send books whose numbers are checked: 1 2 3 4 5 6 7 8 UNCONDITIONAL CASH-BACK GUARANTEE: Return book(s) in 10 days for full cash refund if unsatisfactory for any reason whatsoever.

NAME

ADDRESS

.....

I am enclosing \$..... in full payment.

....Send FREE science catalog.