

length of the Concorde is to be 184 feet 2 inches; wingspan 83 feet 10 inches; maximum takeoff weight 326,000 pounds, and maximum payload 26,000 pounds. The Olympus engine will develop 32,000 pounds thrust.

As long as this competitor was being pushed ahead by Britain and France, U.S. officials operated under a sense of urgency to develop our SST first. Shortly after the new Labor Government took office in Britain, however, the project was left in doubt.

Labor officials announced the beginning of an entire reevaluation of the British supersonic program. Subsequent meetings at cabinet level between British and French officials solidified the American interpretation that Concorde was off for the foreseeable future. Therefore, according to Sen. Monroney, "we are not going to be in a race any more and can give more time for research."

Sen. Warren G. Magnuson (D-Wash.), another key member of the aviation subcommittee, said, "we can't afford to rush. We are developing an airplane to carry America and the world into the turn of the century."

Sen. Norris Cotton (R-N.H.), ranking Republican member of the subcommittee, stated, "the British-induced slowdown in the development of the Concorde will certainly give the United States additional breathing room in developing our own supersonic transport program. It ends the necessity for a money-wasting crash program."

Another less optimistic view cites Russian progress in the supersonic transport field. Last summer, the head of Aeroflot, the Soviet airline, said that the Russians were working on an SST and that they hoped to have one flying before the United States.

Third basic reason—time for consideration of the report by a Presidential study group to Mr. Halaby. This report will offer substantive guidelines to policy makers.

To Select Designs

Following this study, airframe and power plant design are to be selected. Two aircraft companies, Boeing Company and Lockheed Aircraft Corporation, and two power plant companies, General Electric and the Pratt and Whitney Division of United Aircraft, submitted designs Nov. 5, 1964. The four bidders were named by the President to conduct additional research and submit proposals.

For efficient supersonic flight, an airplane should be long and slender with thin short wings that are sharply swept back. But taking off, approaching and landing at low speeds calls ideally for long wings jutting straight out from the plane's body.

Boeing's version of the SST features variable sweep wings. For landing or take-off, wings are in a fully extended position. For supersonic flight, the wings are in a fully retracted position. During the transition from subsonic to supersonic, the wings are retracted to an intermediate position for transonic flight.

Lockheed's SST has a double delta wing. The forward delta sweeps back at an 80 degree angle from a point just aft of the

pilot's compartment to about the mid-point of the fuselage. The aft delta sweeps back at a 60 degree angle. There is a movable nose section which is lowered 15 degrees for landing, 10 degrees for takeoff to improve pilot's visibility.

Recently, the Air Force XB 70 was turned into a research plane and assigned the sole job of gathering data on supersonic flight. It is considered the forerunner of the SST.

This plane is 185 feet long, with a 105-foot wingspan. The twin vertical tail is 30 feet high. Underneath in a 30-foot bay are six General Electric J-93 engines, each in the 30,000 pound thrust class.

The plane weighs more than 450,000 pounds.

In solving the complicated problems of the SST program, Government, industry and the Congress agree that seldom if ever before has there been a Government program involving so many parties of interest.

The program is truly national in scope and demands mutual confidence and cooperation to develop through a businesslike combination of Government and industry resources the finest airliner in the history of aviation.

• Science News Letter, 87:106 February 13, 1965

Nature Note

Mountain Goat

► THE NORTH AMERICAN mountain goat is one of nature's most exciting sights in the cold and snowy ranges of the Rocky Mountains.

Unless pursued, he is a slow moving creature, but his climbing ability enables him to reach high pinnacles of slippery rock. His sure-footedness is due to hooves having sharp, hard rims and soft inner pads.

Both the male and female of this species have heavy white coats contrasting with their black hooves, snouts and horns. The bearded beast appears to be hunch-backed because of a growth of stiff long hair that forms a ridge along the mid-line of its neck and shoulders.

The mountain goat moves in an unhurried fashion over rugged terrain, grazing on a small variety of vegetation, including lichens, grasses and scrub.

When November arrives, the males battle for possession of the females and mating takes place.

In late spring, the female may give birth to one or two kids. Within a matter of minutes after birth, a kid can stand, and within less than an hour he is able to jump.

Though various predators such as cougars, wolves and bears stalk this mountain creature, his ability to scramble along narrow ledges and climb the faces of steep cliffs usually keeps him out of danger. His chief worries are the snowslides and the deep snow of his environment.

The term 'mountain goat' is deceptive in that the animal is more closely related to the antelopes than to the true goats. Its latin name, *Oreamnos americanus*, taken from Oreas, a spirit of the high mountains, seems to be more apropos.

• Science News Letter, 87:107 February 13, 1965

SCIENCE BARGAINS

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

NEW! SCIENCE FAIR PROJECT KITS

Edmund Kits are carefully planned to give any boy or girl the fun and excitement of discovering science facts. Such carefully planned projects can lead the student to awards or scholarships. Adults too will find them an excellent introduction to the various fields of science. Write for Free Bulletin 47-Q "Your Science Project" covering all phases of Science Fair projects.



MOLECULE KIT

This low-priced kit can be used to make many molecular and crystal models. Consists of 50 sponge-rubber balls, 1 inch in diameter and 50 wooden sticks, 6" x 1/4" that can be cut to any desired length. Balls may be painted, after assembly, to standard molecular colors. With this one kit, molecules with up to 50 atoms can be made. Several kits can be used to make up more complex models. Stock No. 30,413-Q.....\$2.50 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 one Fresnel Lens—11" Sq. f. l. 19". Stock No. 70,533-Q.....\$6.00 Pstpd.



SCIENCE TREASURE CHESTS

For Boys—Girls—Adults! Science Treasure Chest—Extra-powerful magnets, polarizing filters, compass, one-way-mirror film, prism diffractors, gratings and lots of other items for hundreds of thrilling experiments, plus a Ten-Lens Kit for making telescopes, microscopes, etc. Full instructions included. Stock No. 70,342-Q.....\$5.00 Pstpd. Science Treasure Chest Deluxe—Everything in Chest above plus exciting additional items for more advanced experiments, including crystal-growing kit, electric motor, molecular models sets, first-surface mirrors, and lots more. Stock No. 70,343-Q.....\$10.00 Pstpd.



WOODEN SOLID PUZZLES

12 Different puzzles that will stimulate your ability to think and reason. Here is a fascinating assortment of wood puzzles that will provide hours of pleasure. Twelve different puzzles, animals and geometric forms to take apart and reassemble, give a chance for all the family, young and old, to test skill, patience and, best of all, to stimulate ability to think and reason while having lots of fun. Order yours now. Stock No. 70,205-Q.....\$3.00 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. 70,336-Q.....\$9.50 Postpaid



MINIATURE WATER PUMP

Wonderful for experiments miniature waterfalls, fountains, H₂O gas, railroad back-drops, etc.: Tiny (2 1/2" x 1 1/2") electric motor and pump, ideal for hobbyists, labs, schools. Pumps continuous flow of water at rate of one pint per minute at a 12" head. With 2 D Batteries in series will pump to 24" high. Runs 48 hours on battery. Works in either direction. Self-priming. Stock No. 50,345-Q.....\$2.25 Postpaid



Terrific Buy! American Made!

OPAQUE PROJECTOR
Projects illustration up to 3" x 3 1/2" and enlarges them to 85" x 30" if screen is 6 1/2 ft. from projector; larger pictures if screen is further away. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volts A.C. current . . . 6-ft. extension cord and plug included. Operates on 60 watt bulb, not included. Size 12" x 8" x 4 1/2" wide. Weight 1 lb. 2 ozs. Plastic case. Stock No. 70,199-Q.....\$7.95 Postpaid
FASCINATING NEW KALEIDOSCOPE INSERT. Same unit as above, but provides endless additional projects with everchanging kaleidoscope patterns. Stock No. 70,714-Q.....\$10.00 Ppd.



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

MAIL COUPON for FREE CATALOG "Q"

EDMUND SCIENTIFIC CO.
Barrington, New Jersey

Completely new 1965 Edition. 148 pages. Nearly 4000 BARGAINS.
Please Rush Free Catalog "Q"

Name.....

Address.....

City.....Zone...State.....

