

Start Early in Science

We may be overlooking an important potential source of budding scientists—the toddlers—By Forrest L. Snakenberg

➤ **STOP STIFLING** science talent! Yes, you, mothers and fathers. When your tot asks why flies can walk on the ceiling or why the sky is blue, or how the cuckoo knows when to come out of the clock, do you answer “Because,” or “You’re too young to understand?” If so, you may be nipping potential science interest in the bud. Busy parents often bypass such questions for lack of time, and often the “you’re too young to understand” answer really means that the parent does not understand the reasons behind the common, everyday occurrences the child is trying to fathom.

Annual surveys of International Science Fair finalists conducted by Science Service have shown that three out of four experienced their first real interest in science between the ages of eight and 15. This is the group on which has been concentrated the most effort. It is the age range for the greatest number of science activities and courses. Is this great spurt in the development of science interest the reason for, or the result of this effort? That this is when our budding young science-minded students are produced is obvious.

Interest Starts Early

Another finding of these surveys is that over 10% of International Science Fair finalists were interested in science before they reached first grade. This despite such prevalent “because” and “you’re too young to understand” answers to their many questions about the world in which they find themselves, the world which fascinates them so, and which they have not yet learned to take for granted.

Parents are warned by the experts that they should not make up answers to questions they find baffling. Even small children soon learn when their parents are bluffing. It is important to hold the child’s confidence. A far better approach is to frankly seek answers together. This serves the dual role of answering the child’s present questions as well as introducing him to sources of knowledge—forming a habit that will serve him well throughout his life.

Different approaches are needed for the many personality types found even in early childhood. Some youngsters need to be encouraged, some prodded, others dared. But all should learn to seek truth—wherever it may be found.

Parents should see that scientific toys and experimental kits are in the home or nursery school. Many firms

now manufacture good ones which serve to encourage an interest in science and its study.

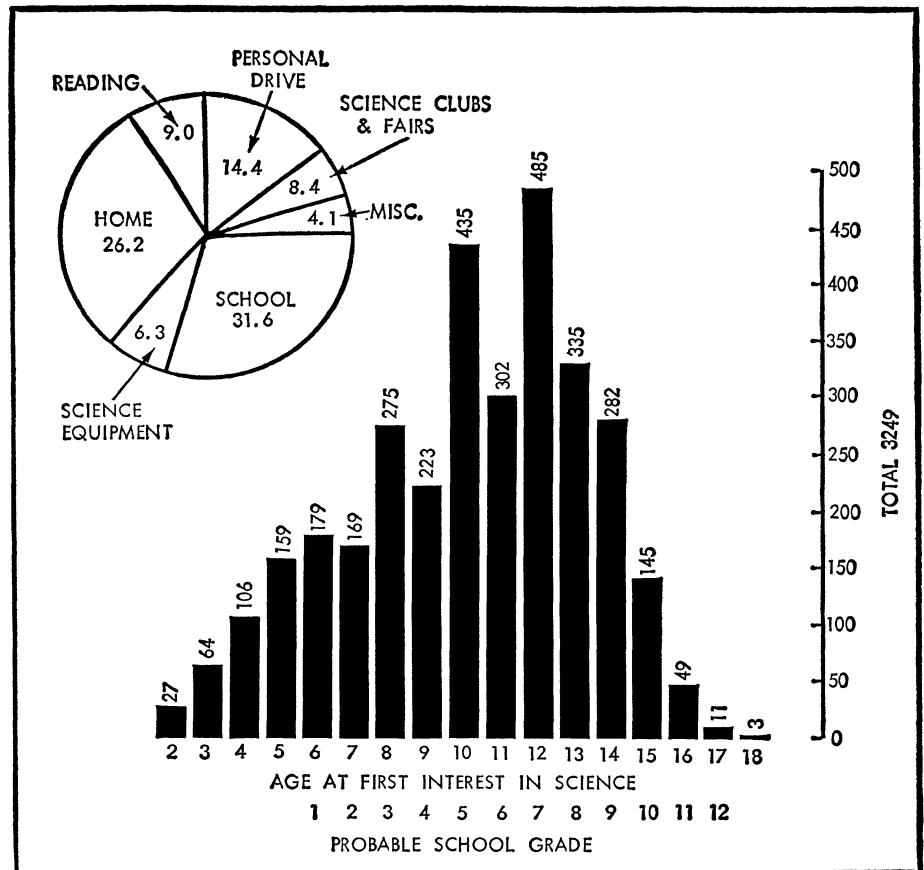
They should see that science is taught in the school, beginning with kindergarten. And see that at least the school science fair encourages and displays science projects right down to the kindergarten level. It will not always be possible for city, county or regional science fairs to cover the entire range, but parents should see that at least the local school science fair does so.

Parents should see that science clubs are formed not only for junior and senior high school students, but for elementary grades as well. Youngsters should have their own clubs at their own level lest they get lost in the world of their elders. But they should have contact with the world that will be theirs and which they are aspiring to attain.

Parents can help their children plant seeds and watch the plants develop and mature; help them catch tadpoles and watch the tadpoles develop into frogs; show them rivers, dams, rocks, trees, museums, zoos, farms, factories, airports, mines, caves and hydroelectric plants. It is a great, big wonderful world they can discover with their youngsters. By helping them find their natural interest in science, someday they will help make the world even better.

Are we, then, wrongly concentrating our efforts on the 8-to-15 age bracket? The answer is a firm and definite no. If we have overlooked their natural curiosity as toddlers, we must continue to do everything possible to recapture that interest through science clubs, classes, fairs, tours and trips.

We are not concentrating too much effort on this age group, but we should be extending that same effort to all



SCIENCE INTEREST IN YOUTH—These graphs, compiled from a SCIENCE SERVICE study, depict the complete range of age and source of first science interests in the 3249 finalists at the International Science Fair.

potential scientists, whatever their ages may be.

Look at the accompanying bar graph. The peak of first science interest is at the time of entry into junior high school. Help to reach that peak at an earlier age so that vital elementary school years are fully utilized. Reading, writing and arithmetic are vital, but so is research. Elementary students have shown they are capable of grasping concepts which prove more difficult to older students with preconceived notions and set ways.

The sources of science interest are both internal and external. The home is responsible for the first science interest in 26.2% of International Science Fair finalists; personal drive, for 14.4%; and scientific toys and equipment is credited by another 6.3%. All are sources that could influence the preschoolers just as easily as their older brothers and sisters.

Among International Science Fair finalists school (31.6%) and science clubs and fairs (8.4%) are sources of first science interest. They could just as easily be sources of science interest in the early years of elementary school as they are in junior and senior high school. However, some science activities must necessarily wait until students are older, more mature.

Many high schools now teach what once were college introductory courses. Certain honors groups go far beyond. The junior high school students thus must learn what formerly were senior high school courses. The elementary schools must take up science earlier to prepare the students for the advanced work awaiting them in their secondary years. The trend is good,

and becoming more prevalent. It will become commonplace rather than exceptional. Our brightest youngsters should not be gazing into space, with minds wandering, bored with school because there is no challenge.

A child's world is filled with science. At present, of this group, only one child in 10 grasps that simple fact before entering school. Nine children out of 10 are in a sense blind to the science in their world. One can see, one can grasp, nine cannot. Or can they, if we let them?

Parents and grandparents have their work cut out for them. Those who have no children, retired scientists and engineers, teachers and science-minded laymen all can help interest youngsters in science.

The need for volunteers in boy and girl scouting, Campfire Girls, Boys' Clubs, 4-H, science clubs and other similar programs is great. Many organizations have study hall programs, giving extra help to students needing personal attention, whose parents are unable to assist them.

Many children could become interested if someone took the trouble to introduce them to science reading through *SCIENCE NEWS* or other good periodicals, and combine the reading with experimentation and experience.

Teachers or other adult sponsors of groups organized in or out of science classes should affiliate with Science Clubs of America. Free affiliation brings a wealth of information and guidance materials, mailed early in each school year to affiliated groups. SCA, an activity of *SCIENCE SERVICE*, is at 1719 N Street, N.W., Washington, D.C. 20036.

• *Science News*, 89:367 May 14, 1966

MEDICINE

Poi Can Save Lives Of Allergic Infants

► **BABIES** allergic to cereal thrive on poi, the popular Polynesian food that looks like wallpaper paste, the American College of Allergists meeting was told in Chicago.

In some instances poi has been life-saving, Dr. Jerome Glaser of Rochester, N.Y., said.

Poi is prepared from the taro root. A carbohydrate, but not related to cereals, it was the staple carbohydrate food of Polynesian people for centuries, and is credited with being responsible for the excellent bone structure and teeth of the early Hawaiians.

Dr. Glaser's studies showed that young infants, including premature babies to whom poi can be fed as early as three days of age, take the food without difficulty and thrive as well as did a control group fed rice cereal.

Poi is also being studied as a food for patients with celiac disease, in which there is faulty absorption of food from the intestines, and for those with cystic fibrosis.

• *Science News*, 89:368 May 14, 1966

MEDICINE

Automatic Blood Tests Frees Lab Technicians

► **A NEW AUTOMATED** system for grouping and typing 120 blood samples an hour literally records the results of its analysis in blood.

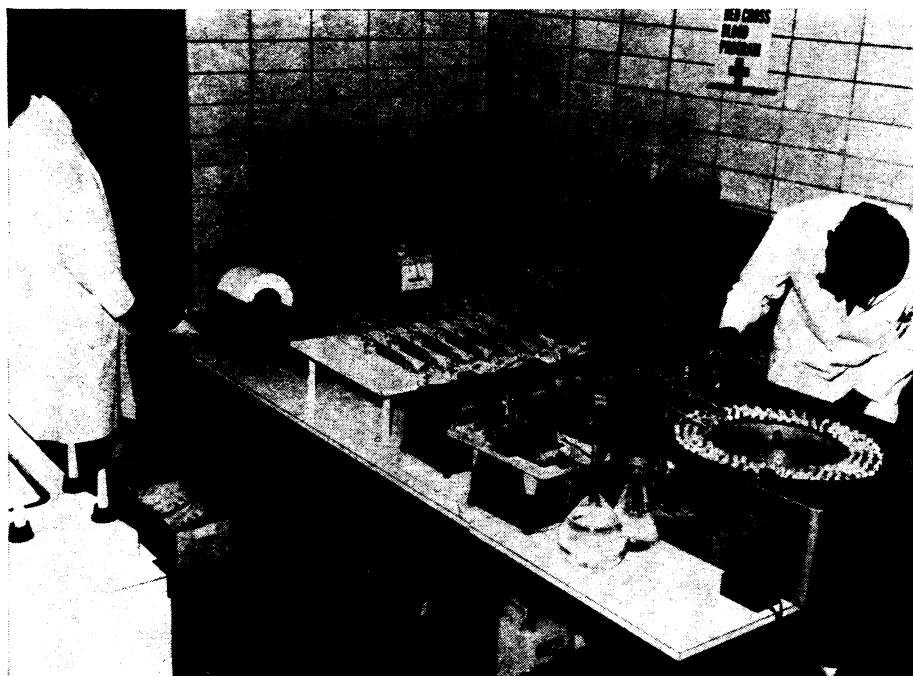
The new system is a further refinement, through simplification, of a pioneering automatic blood processing machine developed jointly by Technicon Instruments Corporation, Chauncey, N.Y., and the Red Cross. It was developed to determine automatically whether blood is type A, B, AB or O and whether it is Rh positive or negative, usually the most important considerations in blood transfusions.

The new system has been undergoing "shake-down" operation at the Red Cross blood center in New York City since last August, with readings matched against those found by routine groupings and typing by hand in the blood program laboratory. Over 17,000 samples have been processed through the new system without any incorrect typing.

The new system samples blood cells and plasma and pumps agglutinated, or clumped, cells onto a continuous, moving strip of filter paper. The appearance or absence of cell clumps across eight channels on the filter paper, considered in relation to their reaction to specific reagents in each channel, indicates the blood type.

Automated blood typing can have important implications for the Red Cross which processes 2.5 million pints of blood each year through its national blood program.

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Technicon Instruments Corporation

BLOOD TESTER—Laboratory technicians are freed from some of the routine chores of blood testing by this automatic processing system which can handle 120 blood samples an hour. Carl Goldstein, chief technician at the New York-New Jersey Red Cross Blood Program, is "reading" the results of some tests.