

GENERAL SCIENCE

Toys Serve Child and Man

Many toys this Christmas will bring happiness to children. Some may shape your youngster's future. Still other "toys" have been at work all year saving lives.

See Front Cover

By ALLEN LONG

► AS CHRISTMAS nears, more and more toys will disappear from the counters of stores to be smuggled home in mysterious packages and stashed away in places considered incredibly clever by parents, stupidly obvious by their offspring.

On Christmas eve, the children will go to bed eager for four o'clock to come. In their shiny eyes, four o'clock is a perfectly respectable hour for getting up on Christmas day.

And at five o'clock, many parents will submit to their children and arise, even though worn out from a hard night's work.

The colorful lights of the Christmas tree will twinkle brightly in the early morning darkness. Electric trains will circle their tracks, movie projectors will whirl, doll babies will look up into soft, loving eyes and cry "Mama," and bicycles will be pushed outdoors into the breaking dawn.

Many children will feel they are as close to Heaven as it is possible to be on this earth.

Toys always have had a tremendous impact upon children. For centuries toys have made youngsters happy. In some cases, toys have even shaped the child's future. It could happen under your Christmas tree this year.

A toy microscope given at the right time might start Mary on a brilliant career in biology. A chemistry set capable of turning out stink bombs might open the door to Jack's later pursuit of a profession in nuclear chemistry.

A magnet; a string-walking gyroscope; a set of plastic modeling "clays" that can be baked into permanent form; an inexpensive telescope, or perhaps the make-it-your-

self kit; a spaceman's outfit—all these and more can hold the destiny of your child beneath their colorful Christmas festoons.

Although toys delight children the year around, they also serve man. Jurist, scientist and Indian alike have found that toys can be used to get ideas across, to test new theories, to explore new horizons.

Painted on the bench in an Atlanta traffic court is a street intersection. Toy automobiles from the five and dime store help officers and violators demonstrate graphically to the judge how the accident occurred.

Attached to the bottom of an overhead carrier car, a model airplane rests in a long rectangular tank of water at the National Advisory Committee for Aeronautics' laboratory at Langley Field, Va. As the car gathers speed and roars down its overhead track, the floating airplane hops up on new-design hydro skis, skims along the smooth water, then takes to the air.

Test Amphibious Designs

Armed with movie cameras and sharp eyes, scientists analyze the toy's performance, evaluate the new design, make improvements, then perhaps report to U. S. Navy officials that a solution has been found to the perplexing problem of lifting a half-submerged amphibious airplane from the water and getting it into the air.

In another large water tank at the Navy's David Taylor Model Basin, Carderock, Md., other scientists at the same time may be criticizing the performance of a model aircraft carrier. Perhaps it is of a radically new shape, a design aimed at converting into speed every ounce of power generated by a new atomic power plant.

These "toys" have been harnessed to science. They have been made to reveal facts of design and to predict performance.



HOPHI DOLL—This *kachina* doll represents a Hopi dancer impersonating a tribal deity. Dolls such as this are used to teach religion to the Hopi children.

They provide scientists with reliable data at a minimum of cost. In some ways they are shaping America's future.

Other such "toys" have been used where a hazard to life is involved. A bleeding dummy man is the Navy's latest artifice that can help First Aid students learn the elements of life saving.

Another dummy man, based on measurements taken of 1,200 British airmen, has been built to show what happens to an unconscious pilot who has bailed out of his high-flying supersonic plane. The dummy's "bones" snap at the proper pressures and

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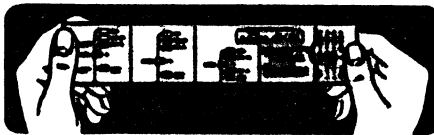
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he tumbles through the air at true-to-life speeds before his parachute opens. His checkered suit makes him easy to spot through field glasses as he plunges to his possible "death." But as a result of his trials, more safety is seeping into the Royal Air Force.

Complete with mustache, the propped-up dummy, shown on the cover of this week's SCIENCE NEWS LETTER, has helped Northrop Aircraft engineers with deceleration experiments conducted for the Air Force.

Automobile safety engineers have found that objects resting on the back-seat shelf of a car can be as deadly as shrapnel in an accident. Cans, books, screwdrivers, chalk, toys and other such things that accumulate on that small shelf have become deadly missiles in test crashes, flying through the air sometimes with enough force to smash the skulls of persons in their paths. Dummies proved the theory.

As scientists use toys to reveal the unknown, so do non-scientists use toys to instruct. Hopi Indians living in the Southwest make dolls for their children. The dolls are not toys to be played with. They are more like the scientist's toy. They instruct the children in Hopi religion.

Called kachina dolls, the little figures are given to Hopi children from December to July. They are hung up where the child can study them and learn about the supernatural spirits as they exist in the minds of the Hopis. Some of the dolls are carved from roots of dead cottonwood trees and represent masked Hopi dancers who impersonate the supernatural beings at religious ceremonies.

Dolls play a small part in Eskimo culture. Occasionally the Eskimos carve dolls of bone or ivory to represent deceased persons. The figurines are taken to big tribal feasts and are "fed" so that the departed may continue to enjoy the company and good times of old friends.

The motion picture industry uses "toys" to great advantage where it would be impossible or impractical to photograph the real thing. Models of great cities frequently are so excellently done that only the practiced eye can detect trickery.

Models also permit movie makers to present out-of-this-world shots found in some science fiction pictures.

Other "toys" that play big roles are mod-

els of buildings, parks, houses and the like. These models show in reasonable detail what the layman may be unable to visualize from a bundle of blueprints. The models often help sell the project to the customer. In some cases, they also can help the architect or contractor make more precise estimates of certain construction materials needed.

A scale model of a dam under construction near Kingsport, Tenn., helped TVA engineers provide for the proper discharge of water over the actual dam's spillway. Water flowed through a channel contoured to the physiography of the actual site. All elements affecting water flow were accounted for in the model, even to floating brush.

Situated in a large brick building which houses the TVA Hydraulic Laboratory at Norris, Tenn., the model gave engineers the needed data which enabled them to prevent destructive erosion downstream of the actual dam, and helped them circumvent destructive eddy currents. Both erosion and eddy currents are capable of endangering the dam itself.

By no means are these the only ways in which toys and "toys" can serve mankind. But the examples cited above should show that toys play big roles the year around. It probably is indisputable, however, that they reach their height of popularity each Dec. 25.

Science News Letter, December 12, 1953



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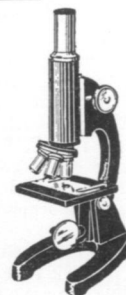
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