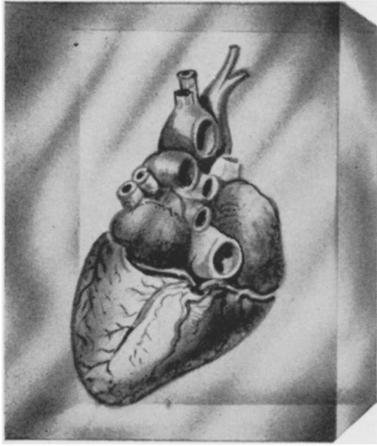


PLASTICAST

FOR PERMANENT PRESERVATION OF BIOLOGICAL SPECIMENS



PLASTICAST is a transparent clear liquid plastic (refractive index, 1.5). All forms of biological life, sections or whole small creatures, as well as organs, can easily and quickly be PRESERVED FOREVER without deteriorating simply by imbedding in PLASTICAST! *The entire process is as easy as pouring water out of a glass and takes less than 30 minutes!* A few drops of catalyst are added to the liquid plastic before imbedding. Ideal for biological work of all kinds. Price per gallon (including catalyst and complete directions), postpaid . . . \$19.50
Trial pint (including catalyst), postpaid . . . \$ 3.00

PLASTICAST COMPANY

P. O. BOX 987, Dept. 13

PALO ALTO, CALIF.

A Seashore Project Inshore

ERMA VANCE, Butler Township Elementary School, Vandalia, Ohio (photos by eighth-grader Fred Booher)

Assoc. Editor: This article shows vividly how a science project can tie in all subject matter areas in elementary teaching.

Christmas was over and we were back on regular school routine. I was searching for some project to stimulate my third grade class when one of our boys brought in a sand dollar, a starfish, and a sea urchin that he had collected along the coast of South Carolina. The children's intense curiosity about these prompted me to propose a study of sea animals during our project time the next day. Since our English period was rather lengthy, we often used part of it for a project period and, during previous projects, some more advanced children had been introduced to the use of dictionaries and encyclopedias.

The next morning two children came to school with copies of *National Geographic Magazine* containing illustrations of ocean life. We referred to our elementary science books and secured more advanced books. Even the more disinterested children were inspired to try to find some new facts from the dictionaries and encyclopedias.

Whenever possible the art teacher coordinated her work with our projects. I suggested that ocean life subject matter would be timely for a one-period lesson; I didn't expect this subject to hold the interest of third-grade children for long. From a high school

museum we secured many beautiful shells and skeletons, and a small octopus. The octopus was what really captured the children's enthusiasm. They could handle the animal and watch his tenacles move about a bit. News about the octopus soon spread throughout the school, and we had crowds around our door

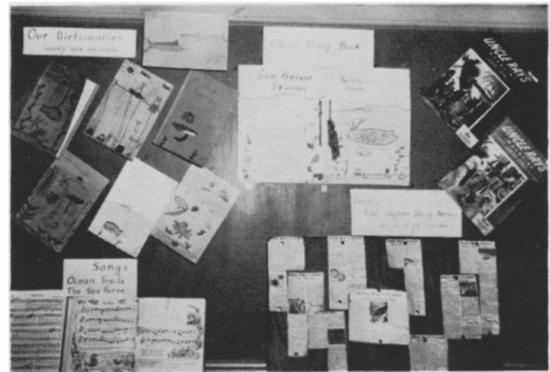


FIG. 1. Individually made and illustrated "dictionaries," news items, songs, story magazines, and a class story book form an interesting display.

wanting to see it. Finally we decided to have our children take turns carrying "Octopus Willy" to other rooms so that everyone could see him.

More shells and skeletons were brought to school. One child shared a very informative book written in a way that children can

understand, *Seashells of the Florida Coast*, By Francis Wyly Hall. A senior girl's classified sea shell collection had won honors in a science exhibit. She showed her collection to our class. The youngsters liked the idea of mounting the shells, and this prompted three children in the class to mount their own and to learn the names of a few of them.

Our departmental music teacher came to the next music period with two songs about the sea: "Oceans Trails," and "Sea Horse." "Sea Horse" was so short that some of the children wanted to add another verse (Fig. 1). The composer's words, as printed in *New Music Horizons*, Silver Burdett Co., N. Y. are:

The sea horse said to the little fish, "Do you want to ride with me?
I'll take you down to the ocean floor, at the bottom of the sea.
I'll show you things that you never saw, a great big whale and a shark:
And I'll take you back to your Mamma fish, again before it's dark."

This verse was added by two third-graders:

"If you take me to my home, Mother'll let me come again,
And that will be much fun for me, At the bottom of the sea.
Please take me to my Mamma fish, And she will say, 'All right.'
She'll put me in my little bed, And then kiss me good-night."

Another class member shared his records, "Bozo Under the Sea." He played these over and over, and I don't believe the class would ever have tired of them.

Interest in sea life seemed to be mounting instead of decreasing. Our art instructor was due again. She asked if we would like mount animals made in the previous class in a shadow box. She located an enormous mattress carton. We cut out an entire side except for a four-inch border. The children all clamored for a chance to paint the ocean waves, and put in the sandy beach of glue sprinkled with sawdust. By the time we suspended the first cut-out animal figure, by heavy thread through the top of the huge box, our youngsters had advertised well our project. When a child had extra time from routine work he spent it on making more animals for the "aquarium." As time progressed, we filled the box with many wierd figures that would sway with each movement of air.

Someone suggested using Christmas tree lights inside the border of the box. This was unsuccessful as the small lights didn't give enough illumination. We tried outdoor Christmas tree lights, using mostly green and blue bulbs with some white ones for added light. This was very effective at night. In front, just inside the border, we stapled cellophane to give the effect of water. Every class member seemed truly proud of his part in the project, and appeared to feel that much had been accomplished (see cover page photo).



FIG. 2. Cut-out figure of each sea animal holds on display a child's original poem about that animal.

Our English course of study introduced story-writing. For one of our "story adventures," each child assumed the identity of some kind of ocean animal and wrote a story telling of an experience. The following was written by a third-grade girl:

Octopus Willy

I am Willy, the octopus. For a long time I was the only octopus in this ocean. All of the other animals made fun of me, and called me "Eight Arms." One day I saw something I had never seen before. It was shaped like a star. I asked this strange thing his name. He answered "Jupiter Starfish." Then Jupiter asked me why I always looked so sad. I told him how the other animals made fun of me. Jupiter told me not to be sad any more, and he gave me some ink. Now I protect myself by squirting ink between my enemies and me.

Each child contributed a story for our class story book. We circulated this through the other third grade rooms, and then kept the book on display. The cover was decorated appropriately (Fig. 1).

In the third grade English curriculum we study rhymes and try to compose original ones. Since our project furnished endless sub-

ject matter, this seemed a good time to introduce the unit. The following was written by one of our boys:

I'm a mighty sword-fish,
In the bottom of the sea;
I came upon a sunken ship,
It might be a trap for me.
I started to explore the wreck;
I came upon a treasure chest.
It was filled with gold and silver;
The rubies and diamonds I liked best.

The poems were mounted on some of the animal figures made in art class (Fig. 2).

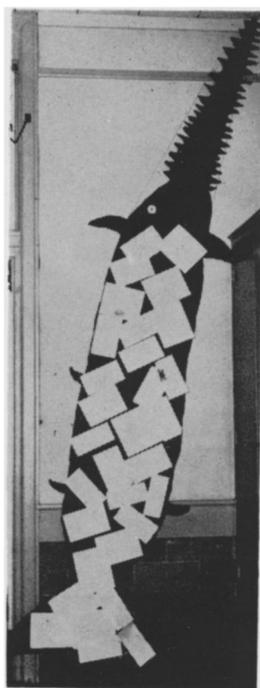


FIG. 3. "Mr. Saw" displays children's reading research reports.

They went to work at recess and noon, using the cardboard left from the mattress carton. "Mr. Saw" was cut out and painted brown. One of our young scientists made a correctly-sized eye, covered with cellophane. This was a scary-looking object hanging from the ceiling. It made an unique mounting for reports, also written in English class (Fig. 3).

Someone thought we really should thank Uncle Ray for helping us. This was a fine incentive for a letter, since we endeavor to teach correct letter form. Usually we choose our best two or three letters to send, but this

time each child tried so hard to write a letter that would rate a place in the mail that I finally gave up trying to choose, and sent each one of them. Uncle Ray not only sent a reply, but also sent five magazines with stories of the sea.

Earlier in the year we experimented with making slides for projection. We found we could work best on clear glass with colored ink. Some of the children wanted to make ocean-animal slides. They drew pictures on paper cut $3\frac{1}{4}'' \times 4''$, taped a drawing to the underneath side of the standard glass lantern slide, and transferred the picture to the glass with colored ink. Several more advanced pupils learned how to use the lantern slide projector, and were trusted to set it up and run it. This proved intensely interesting not only to our class but to almost every other class in the building. A child explained each picture as it appeared on the screen.

During the entire time we collected quite a museum through the efforts of the children, their parents and friends. When our project was about half finished, open-house night was planned. Because the youngsters were so proud of what they had done, they wanted to show it to everyone. The open-house offered an opportunity for the children to explain the project to visitors. They gave two complete demonstrations without any adult help.

We do not have science instruction in the third grade, as a formal subject, but I am sure that many of the children will remember the things learned through our project for a long time. I feel that, where formal classes are still used to teach basic subjects, some time spent on this sort of thing gives the advanced child a chance to use his superior mentality when basic work is completed. In this particular project we discovered that one boy with a high I.Q., who had not shown too much enthusiasm in routine class work, was intensely interested in science and was far beyond his years in knowledge of such things. He read every thing he could find about ocean animals. The open-house demonstrations gave him a chance to explain some things in a way that astonished all who heard. It gave others a chance to work with their hands in learning some of the mysteries of living things, and those who liked music participated in that way.

I believe this is a truly meaningful way to teach science in the lower grades, and it gives

the learner a real reason for using what has been taught in formal subjects. Project material is unlimited. I would not have considered presenting "Seashore Animals Inshore" in the third grade. The children presented it themselves. Children, who are encouraged to bring interesting things to school to share with others, can furnish far more project material than ever can be used.

The Use of Balsa Wood in the Preparation of Skins of Small Mammals

ALLEN H. BENTON, New York State College for Teachers, Albany, N. Y.

Many biology teachers in high schools and colleges maintain a small collection of mammal skins for teaching use. These collections are subject to much unskilled handling and as a result there is likely to be considerable damage to even the best-made specimens. Legs and tails are frequently lost, so that replacements are constantly needed. In the case of common species this is no more than a nuisance, but specimens which cannot be

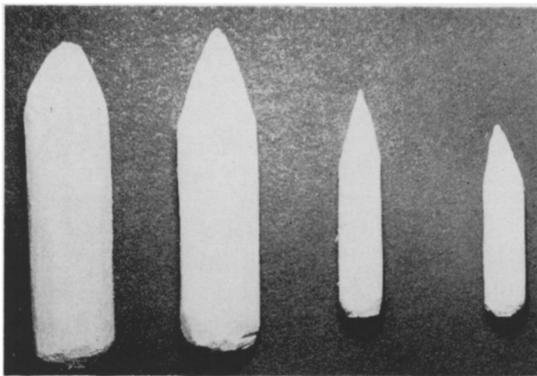


FIG. 1. Pre-shaped balsa wood body forms for small mammals. From left to right, *Pitymys pinetorum*, *Blarina brevicauda*, *Sorex fumeus*, *Sorex cinereus*.

readily replaced present a real problem. Often these specimens are not put out for class use, thus rendering them essentially valueless. The proper solution is to make specimens less destructible.

The use of pre-shaped balsa wood bodies offers much promise in this connection. These bodies (Fig. 1) can be whittled from one inch stock for animals from the size of a deer mouse to the size of a chipmunk, and

from $\frac{1}{2}$ inch stock for smaller shrews and mice. The bodies are shaped roughly in advance with a scalpel or razor blade, and modified slightly to fit the individual when the specimen is prepared. The tail wire is firmly imbedded in the balsa body, and insect pins or steel wires are put through the legs and into the body. Small slots may be made in the body on the ventral surface to facilitate placement of the wires. Care should be taken that the body is not too large, so that it

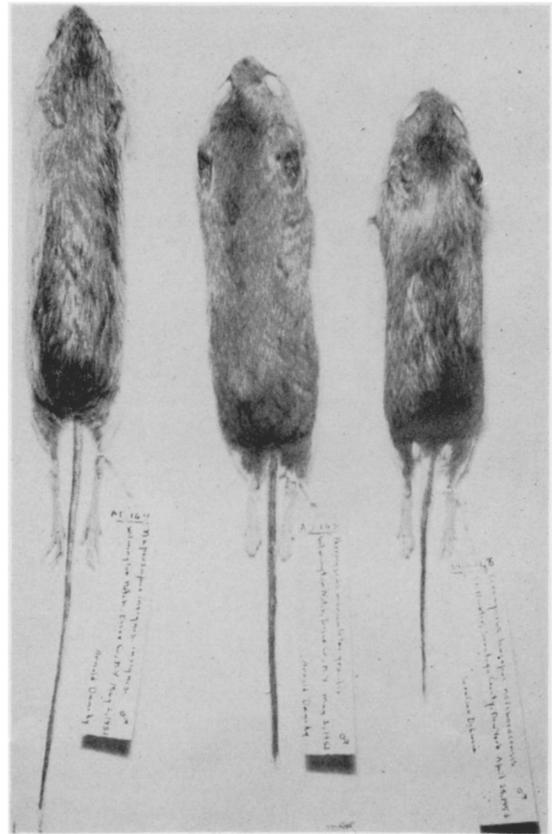


FIG. 2. Mammal skins prepared with pre-shaped balsa wood body forms. Left to right, *Napeozapus insignis*, *Peromyscus maniculatus gracilis*.

stretches the skin, since this will change the arrangement of the hairs and result in change of color. Cotton pads may be placed under the eye openings, so that the specimens will be externally uniform with those stuffed with cotton.

Besides the increased durability thus achieved, there are several other advantages of the balsa wood method. Body shape can be more accurately approximated with balsa than with cotton. The balsa is much easier to insert and if prepared in advance will re-