TECHNOLOGY

The New Look in Paint

Rubberized masonry paint that waterproofs buildings, paint that keeps houses cooler and paint that can withstand 1,300-degree heat are some of new developments.

By HENRY W. PIERCE

➤ SITTING BULL never knew what really good war paint was. He had to dab colors on his skin one at a time, and wait for each to dry.

Today the famed Indian Chief could spray them all on almost at the same time and they would stay separate.

Barber pole paint, as the multi-colored spray has been called, is only one of a whole rainbow of new paint developments. Others include:

Jelly paint that will not splash, spill or run down the brush.

Rubberized masonry paint that waterproofs building exteriors.

A lacquer emulsion finish consisting of gray, white and brown flecks that gives a multi-colored effect when sprayed on regular surfaces.

A universal system of colorants that provides 300 hues from just two tinting bases.

Catalytic-cured finishes that dry faster and look better.

The American people have become acutely tint-conscious. Car owners paint their vehicles to match their houses. Home owners paint their houses to match their cars. There have even been cases of dog owners dyeing their pets to match the furniture.

Do-It-Yourself Paint

Partly because of this newly awakened color-awareness, the do-it-yourself movement has hit the paint industry full force. A do-it-yourself painter using a single set of paints can color upholstery, stone, brick and tile in matching or complementing shades. The completely coordinated series of colors employs tinting bases and tube colorants that include exterior house paints, latex emulsion and interior wall paints, masonry paints, and gloss and satin sheen enamels.

For furniture and interior woodwork, a paint series has been developed with 24 interior finishes. Tube colorants are simply added to extra pale clear varnish at the rate of two ounces to a gallon. Besides popular wood tones, the set provides blues, greens and reds.

Some scientists foresee the day when paints, custom-mixed, will be ordered over a color picture-telephone!

These developments are only a drop in the paint can. Technologists say paint has a rosier future today than ever before.

In industry, paint has been made to withstand extremes of temperature, greatly increasing its possible technological uses. The heat-resistant paint, which combines titanium dioxide and aluminum, has been exposed to laboratory-created temperatures of 1,300 degrees Fahrenheit without burning. An exterior aluminum paint has been developed that reflects the sun's heat, light and infrared rays, reducing air conditioning bills.

Army engineers are working on a paint that will retard fire. Their aim is to develop a paint that will protect highly heated barracks in arctic regions. They are not looking for a paint that will make wood completely fireproof, but they do want one that will slow fire down until extinguishing measures can be taken.

In the Army, in government and in private industry, paint research is tending more and more toward synthetic products developed from such bases as coal and petroleum, rather than natural products derived from linseed oil. The trend was launched with the development of phenolic resins in the early 1900's and was given impetus by two world wars.

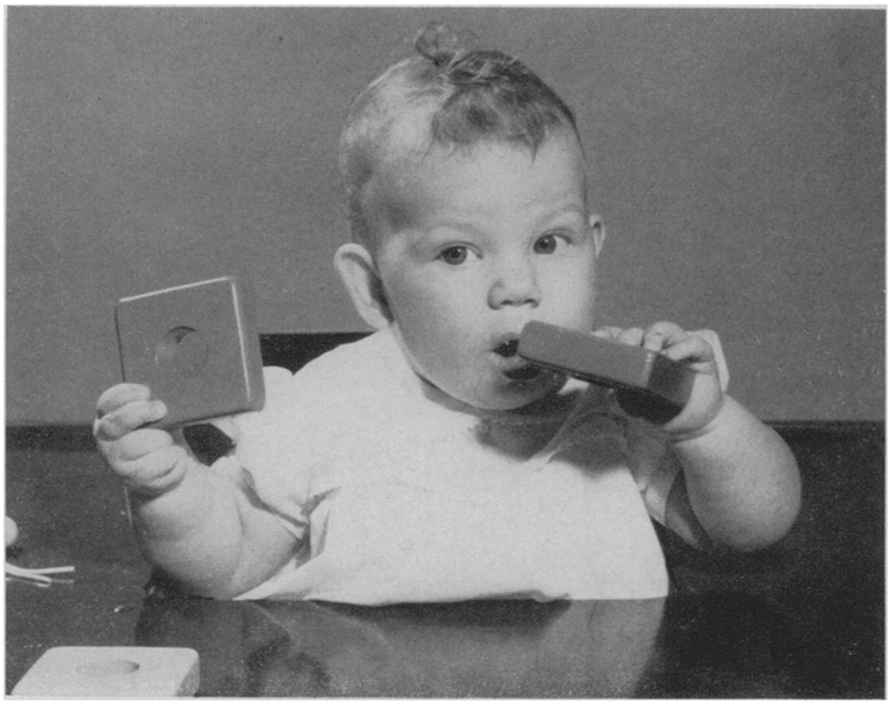
During World War I, large amounts of organic solvents were produced, cutting the post-war price of these synthetic chemicals to about one-tenth of their original cost. This meant synthetic paints could be produced more economically. It also encouraged research.

Modern lacquer is an outgrowth of the post-World War I abundance of organic solvents.

During World War II, many paint-essential gums and pigments were channeled into all-important defense uses. Paint scientists substituted China's blockaded tung oil with South American fish and vegetable oils, only to find shipping shortages cut the flow to a trickle. Natural gums were no longer obtainable because the countries that supplied them had become war zones. Synthetic products were needed to make explosives. Essential metals such as lead, zinc and aluminum were at a premium.

This meant technologists had to develop workable substitutes. They learned to make metallic finishes without critical metals. They learned to coat "tin" cans without tin. They found a replacement for the zinc "galvanized" coating once thought indispensable for protecting metals from corrosion. The wartime search for synthetic rubber yielded styrene, a compound that was later used in latex paints.

A new kind of war paint was developed during World War II. Unlike the bright



MMMmmmmm! "MINT GREEN!"—The baby shown here is sucking a building block coated with one of the new enamels that cannot cause lead poisoning if eaten by children. Nonpoisonous green and yellow paints have been especially difficult to develop.

body paint used by primitive tribesmen, the modern war paint's chief purpose was camouflage. Since enemy air observers used cameras, strategic objects had to match their backgrounds on infrared film as well as to the naked eye. This meant devising a paint that would appear green to the naked eye but that, when photographed in infrared, would match chlorophyll, which comes out light on infrared film.

In war and peace, paint has been used since before the beginnings of recorded history. Stains from grasses and berries are used by present-day primitive tribes to symbolize their desires for rain, for abundant harvests or for victory in war. Early man may well have used them for similar purposes.

Ancient Cave Paintings

The ancestors of modern man painted remarkably artistic likenesses of animals on the walls and roofs of caves in southern Europe 20,000 years ago. The crude paints were made of lampblack, ochre and iron oxide. Ancient men may also have experimented with mixtures of fat and wood ashes to paint their bodies against cold and insects.

Paint was widely used in the first record-keeping civilizations, since colored compounds were among the first tools for recording symbols. Ancient Egyptians used paint for religious purposes and probably for recording laws and business transactions. Greeks and Romans used paint for decoration and as a preservative, much as we do today.

Ancient peoples knew that such ingredients as white lead, iron oxide, red lead and yellow ochre could be mixed and used to protect as well as decorate clay jars.

American Indians understood paint long before Columbus hoisted a sail. They painted symbols on robes, tepees and totem poles.

When scientists 30 years ago decided to restore British Columbia's totem poles, they had to hire an old Indian as an adviser. The Indian was one of the few people alive who recalled how the poles had been painted. Even so, the scientists used modern commercial paint.

Modern paint consists chiefly of pigments, which are colored solids, and liquid vehicles that hold the pigments in suspension and bind them together in a durable and protective film. Paint may also contain volatile thinners, such as mineral spirits, and driers composed of metallic compounds that tend to harden the paint film. Other chemicals may be added to regulate the paint's consistency.

When paint is manufactured, the pigments are ground to a paste in a liquid vehicle. Oils, thinners and driers are mixed in, and the paints are tinted to the desired shade with colored pastes.

For many years colonial America imported its paints and varnishes. The color-giving pigments, chiefly white lead, and the vehicles with which they were mixed were purchased separately. There is a story that an early American artist once used the blood of a butchered hog, ink and coffee for pigments.

At any rate the paint industry never got a foothold in this country until 1804 when a Philadelphia firm began manufacturing white lead. Grinding pigments in oil for commercial use was not begun until even later.

Science News Letter, October 6, 1956

VETERINARY MEDICINE

Animal Disease Germs Hitch-Hike by Air

➤ SWIFT international air travel now gives animal as well as human disease germs a chance to hitch-hike into this country, Secretary of Agriculture Ezra Taft Benson said at the dedication of the Plum Island Animal Disease Research Laboratory on Long Island, N. Y.

Animals coming to this country by ship, if infected with some disease, would die before they reached this country. Now they can come in by plane from any part of the world in 48 hours. Nearly all of our poultry and over half of all livestock coming into this country from overseas now travel by air.

An animal might seem healthy when shipped, but harbor unsuspected germs of dangerous diseases. The disease would not develop until some time after the animal's arrival, by which time it might have spread to herds in this country.

Science News Letter, October 6, 1956

ICHTHYOLOGY

Find Rare Fish Off Chilean Coast

➤ A FISH that looks like a swimming pine cone has been identified as an hitherto unknown species. The unique specimen was caught off the Chilean coast and sent to the Smithsonian Institution for identification.

Belonging to a distinctive genus, *Monocentris,* described as having "an isolated niche in ocean life," the fish looks like a pine cone, alive or dead. The largest of such fishes are a little more than three inches long.

One genus "carries lanterns," luminous organs on each side of the mouth.

The swimming pine cone was found by Dr. Edwyn P. Reed, chief of the biological service of the Chilean Fish and Game Department, off the Robinson Crusoe island, Juan Fernandez. It was identified by Dr. Leonard P. Schultz, curator of fishes at the U. S. National Museum, Smithsonian Institution.

Dr. Schultz described it further as the "first of the entire family known in the American Pacific." Called "rare anywhere," the small fish were formerly associated with the tropical western and central Pacific.

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