

# Color Plays Larger Part In Our Lives Than Many Realize; Rules Life

By MARGARET KNOLL

Color plays a large part in the lives of people. Color can affect disposition; make us happy, sad, irritate us or give us a feeling of well-being. Color has found its way into our daily speech. Expressions such as a gray day, seeing red, a dark brown taste or I'm so blue are common.

Colors are the tools of the artist. Colored threads are the tools of the weaver just as much as a hammer and nails are the tools of a carpenter.

Today when you want to paint a picture, a house or make a dress you walk into the store and come out with a tube, a can or a few yards of any combination of colored material that appeals to you. This was not always so.

Let's trace a few colors back to their beginnings and find out where they came from.

The painter's original color chart



**ELSIE McNEE**, now of San Francisco, was a charter member and first vice president of the Klamath Art Association established in July 1947. Articles of incorporation were granted to LaVern Swanson, Elsie I. McNeen and Helen J. Balentine. Mrs. McNeen is presently church secretary, Glide Memorial Methodist Church in San Francisco.



**DR. MARION LUTEN M.D.**, a member of the Art Association, is one of few enthusiasts who work in metals. She displays exquisite sterling silver teapot and sugar bowl, left foreground made in Portland under instruction of Lambert Deutschman, Allied Arts and Metal Workers. The two pieces complete a handsome set matching the coffee server and cream pitcher, heirloom pieces. Dr. Lutten, who has practiced in Klamath Falls about one year, also works in copper and enamels, a combination which resulted in the necklaces and earrings in foreground of picture.

might well have been the rainbow. We can't make color more beautiful than the sky colors but with the use of pigments we can imitate them.

Many pigments are found in nature: Yellow ochre is a clay dug from the earth; cobalt blue comes from a mine in the form of ore; gamboge is a native yellow gum from Siam; green earth is also a native clay colored by small amounts of iron and manganese.

Brazil wood yields a blood red extract used from very early times. When the Americas were discovered there was so much of it that the state of Brazil was named for it.

Ivory black was made from burned chips of ivory, while lamp black is the soot from burning oils and fats.

Umber is a natural earth color. Yellow was obtained from the dried petals of saffron (*terocus sativus*).

Ultramarine was originally made by grinding a semi-precious stone, lapis lazuli, and purifying it by a long process to remove the gray rock.

There are three colors to consider particularly: indigo, madder and purple.

Excerpts are from "The History of Indigo," by W. A. Vetterli, and "The Production of Indigo" by R. Haller, published in the *Ciba Review*, April 1951.

"In the history of the dyeing industry indigo holds a unique place by reason of its irresistible rise to supremacy among dye-stuffs and its equally rapid dethronement by the modern chemical colors. Though well known it was so precious that it remained rare in use even in the Middle Ages. But the discovery by Vasco da Gama (1498) of the sea route to the East Indies put it on the market where it ousted its most dangerous competitor, only to be in turn defeated by the rapid advance of the coal tar color industry.

"Indigo is primarily obtained from the sub-tropical plants of the genus *Indigofera*, which belongs to the family of the *Papilionaceae*. Of the bush-like varieties numbering about 350 *Indigo-*

*fera tinctoria*, a semi-bush about five feet high, is the most important.

"Success in growing indigo depends largely on the careful selection of the seed, which must be fresh and absolutely ripe. It should be sown on high ground enjoying a good rainfall in fairly rich soil. Little furrows are drawn about 16-18 inches apart and the seeds planted at intervals of two and one half inches.

After three to five days germination sets in, and the plant rapidly grows to a height of eight to nine and one half inches, bursting into blossom for the first time after about three months. It is at this stage that the plant bears the maximum yield of indigo, so the first crop can be harvested, as soon as, among other things, the leaves display a slightly yellow coloring. The natives cut the plant with sharp sickles close to the ground. The plants are tied in bundles and immediately processed. They are either put in steeping tanks the same evening or dried in wooden frames till the green color has turned to an even bluish gray. The bundles quickly begin to ferment in the tanks, a process reducing the indican contained in the plants and producing indigo white. With an outside temperature of about 95F fermentation takes about 18 hours. When the liquid takes on a greenish yellow color and becomes pleasantly sweet smelling it is time to interrupt the fermenting process.

The liquid is now run off into a tank on a lower level, the beating tank, in which it is beaten with sticks for 1 1/2-3 hours. This procedure serves not only to add oxygen but also to release whatever carbonic acid may be present. The oxygen converts indigo white by oxidation to water insoluble dye stuff, which during the beating operation is formed into solid grains or flakes and is ultimately precipitated to the bottom of the tank.

To insure the removal of all impurities it is placed in separate vessels and again raised to the boiling point in water whereby the indigo gets the typically violet, satin-like color. When the doughy mass has cooled and the water has been run off it is filled into bags and carefully pressed to dry.

Drying is done either in frames out in the open or in tall well-aired drying sheds. By means of brass wires the caked indigo is cut into cubes of about 200 grams and left to dry for at least 60 days, the pieces being turned every two or three days. Indigo is now ready to go to the dye makers."

Purple: Excerpts on the subject by Wolfgang Born, published in the *Ciba Review*, December 1937:

"An ancient legend explains the discovery of purple as follows: The sheep dog of the Phoenician God, Melkarth, once bit a shell fish from which its jaws were stained a bright red that turned to purple. His master seeing this realized the significance and dyed a gown in the new color which he duly presented to his mistress the nymph Tyros."

"The oldest place where the

### FANCY THIS

CHICAGO (UPI)—Packaged cereal is so fancy it turns up these days in desserts at lunch and dinner. Make strawberry sundaes by placing sliced, sweetened fresh berries, puffed rice, puffed wheat, and sweetened whipped cream in layers in parfait glasses, ending with strawberries. Serve immediately after preparing. For two cups of berries, use equal amounts of each cereal and one cup cream, whipped.

dye was manufactured was the Phoenician town of Tyre. Already in the eighth century the prophet Ezekiel mentions purple as a Tyrian specialty. The purple industry of Tyre survived the political decline of Phoenicia. From the time of the Emperor Diocletian (300 A.D.) the factories of Tyre were run by the state. The industry was not destroyed until the conquest of Tyre by the Arabs in 638.

"Purple is the mucus of a gland adjacent to the respiratory cavity in the shell fish *Purpurae* found in warm seas.

"The production of purple was a laborious and expensive process in ancient times. That explains why it was one of the costliest articles of luxury. Enormous numbers of shell fish were necessary to yield a very small quantity of the dye. Pliny reports in detail on the manner of catching them, and his descriptions, supplemented by other authorities, enable us to form a fairly accurate opinion on the process.

"The method of capture was based on the observation that they preyed on other shell fish. It is reported that other shell fish were lowered in baskets as bait and when the purple shell fish attached themselves to the bait the baskets were hauled to the surface. In all cases the fish were kept alive until a sufficient quantity had been gathered, as only the freshly killed supply the right juice for the dye."

Madder: Excerpts from the cultivation of madder by G. Schaefer published in *Ciba review* May 1941:

"How closely the madder plant is linked with the ideas of red is revealed by the names given to it in various languages. The Greeks called madder "erythronon," the Romans "rubia" and the German for the plant was "rote." All these names are the commonest terms for red in the respective languages. Like wood-tuff, which also furnished a red dye of considerable fastness, the herbaceous madder plant, a member of the family of *Rubiaceae*, is a hardy growth; it reaches a height of between two and four feet. The genus *Rubia* occurs in many countries of the tropical and temperate zones; it is native to Mexico, but is most widespread in Europe and Asia.

"The part of the madder plant which contains the dye is the root: the bulk of the pigment is contained in the red mass situated between the outer skin and the woody heart of the root. The dye is present in the form of glucosides, which may be separated comparatively easily. The most important of these is ruberythric acid, which is split up into sugar and alizarin, the dyeing agent. The tops of the madder plant formed an excellent feed for cattle, though they had the peculiarity of imparting a reddish hue to milk and a yellowish hue to the butter.

"Madder was known to the Ancients; but very few details of its cultivation have come down to us. The Mishna, the collection of ancient Hebrew laws and precepts which formed the basis of the Talmud, permitted the growing of madder, though only for domestic, and not for commercial, use. It also decreed that only wooden implements were to be used in the harvest. Pliny the Elder (A. D. 23-79) tells of madder cultivation in the neighborhood of Rome."

"In Europe the process of refining the madder consisted in pounding, grinding, and sieving the roots in order to separate the heart of the root, which contained the largest quantity of pigment. The Dutch were not only the leading growers of madder, but also highly skilled refiners.

"The roots were dried by means of peat or coal fired in special drying houses which were under the supervision of an experienced dryer. The madder roots were then pounded in a mill driven by horses, scrupulous care being taken that this work was not performed in bright daylight, but rather at night by lamplight. It was a firmly rooted belief among the Dutch madder growers that pounding roots in the sun would destroy the luster of the pigment. The mortars in which the roots were pounded consisted of hollow oak blocks; the pestles used were of wood shod with iron.

"In southern France where the weather was more favorable, it was possible to dry the roots on paved ground in the open air, though they were never exposed to the rays of the sun. This process required between three and four days, but it did not suffice to dry them completely. For the final stage of drying an oven was necessary.

The roots were placed in an ordinary baker's oven after the bread had been removed. After that the dried roots were threshed. Before the madder was taken to the mill it was treated in a mixture of potash and cow dung which had been kept for a year. The duration of this treatment varied between three and four days according to the grade of the madder."

These are some of the old ways; we've come a long way since then. Modern machinery and chemistry have taken the work out of making or mixing color today. Yet some of us want to try our hand at making our own dyes and producing from native materials things of beauty. This is not because we need to, but because of the feeling of creative achievement earned the hard way. Making something with our own hands gives us a sense of satisfaction. Our own Klamath Basin holds much in the way of material for those who want to use them.

Dyes and pigments can be made from the things around us. Stag horn moss yields a yellow green dye; there is some iron and manganese so possibly there is a nice green clay; as near as Quartz Mountain there is cinebar, or here in town the root of Oregon grape makes a beautiful yellow. The berries make a deep red dye.

There are many other possibilities in original colored ceramic glazes as well as dyes for yarns.

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