PAINT

By W. McSpadden
Written about 1938
for an encyclopedia

The use of paint as a decorative and protective coating comes down to us from antiquity. Pictures drawn with natural colors have been found in European caves dating from the Paleolithic age, probably over 25,000 years ago. Colors were used to ornament the body for religious ceremonies and war. Noah painted the Ark "within and without with pitch." (Gen. 6-14)

A satisfactory coat of paint will help to arrest decay and corrosion, prolonging the life of the surface protected. Paint is applied by several methods—brushing, spraying, dipping, roller-coating, or flooding.

Up to the beginning of the 20th Century paint was usually a mechanical mixture of white lead and linseed oil, mixed by hand on the job. Now it is prepared especially for many purposes, and formulas cover marvelous new chemical compounds.

The best exterior building paints are compounded from lead carbonate and/or sulphate, zinc oxide, titanium oxide, inert, and coloring pigments, linseed oil, soybean oil, dehydrated castor oil, and other seed oils, metallic driers, turpentine, and mineral spirits. Interior wall paints for general household use dry with flat or semiluster finish. Some flat wall paints are made with emulsifiable oil and synthetic resin and reduced with water for quick and odorless drying. Special hard-drying and long-wearing enamels are prepared for floors. Waterpaints, pigment with casein or glue binder, are supplied to be mixed with water for interior wall finishes. Some casein paints are made for exterior use, for decorating temporary exhibition buildings, etc.

Furniture and woodwork are finished with stain and filler, shellac and varnish or lacquer. Waxes for finishing and polishing floors and other woodwork, automobiles, etc. are composed of vegetable or mineral waxes and are blended and reduced with turpentine or mineral spirits to a paste or liquid consistency. Roof paints are composed of red iron oxide, linseed oil, drier, etc. Coal tar or asphalt are much used for black roof coating.

Bridges and structural steel are primed with red lead or more modern primers using lead or zinc chromate, iron oxide, red lead, and treated oils, and are finished with synthetic or oil exterior paints. Marine paints similar to those used on buildings and structural steel are made as waterproof as possible. Ship bottom paints contain poisonous ingredients, such as copper oxide or mercury bichloride, to destroy various marine organisms.

A wide variety of paints and enamels are made for automobiles, airplanes, railway equipment, and industrial products. Drying of such paints is accelerated by baking in an oven or before infra-red heat radiating electric lamps. Highway maintenance paints are prepared especially for guard rails, signs, and for making traffic lanes. Some white or yellow traffic and direction sign paints are rendered more luminous by the application of a small quantity of minute glass spheres.

Paint in enormous quantities is used on war equipment and ammunition. Much paint is also used for camouflage to provide protective concealment rendering buildings, equipment, vehicles, airplanes, or ships less conspicuous. For different purposes it is supplied as an oil paint, emulsified asphalt paint, or emulsifiable oil paint supplied in heavy consistency to be reduced with water, or in frigid weather with petroleum spirits.

1938

Paint making equipment also has greatly advanced from the slab and muller or the Boston Stone of 1737 (a stone trough in which earth pigment and oil was put, then ground with a round granite ball, rolled back and The use of paint as a protective coating has come down to us from remote antiquity. In caves in Europe and some other places are found pictures evidently dated from the Paleolithic age, probably 50,000 years ago. The caveman at that time used natural earth soot mixed with animal fats. Noah pitched the Ark within and without with pitch and there was record of a Blue made in Egypt about 3000 B.C., colloidal and many other things.

Mummy cases in the British Museum dating back to 4000 B.C. were elaborately decorated. The Greeks used melted wax mixed with natural earth as pigment for paint. Other paintings were natural earth pigments with some organic dyes derived from plants of ancient or medieval times.
Painting methods have changed from the old methods of brushing to now Linseed Oil seemed to be used as early as the 7th century. etc., to keep pace with the rapid production of modern machines and these paint White Lead, as we know it today, was first made about 300 years ago by a Dutchman named Stratingh. Zinc Oxide was first made in France in 1782. Titanium Oxide as a paint pigment dated 1869. Among the colors Prussian Blue was first made in 1710; Ultramarine Blue dated 1828 in Paris. Chrome Yellows and Chrome Greens dated early in the 19th century. Organic Reds follow Dr. Perkins discovery of aniline dyes in 1856.

Up to about 100 years ago, the only material available for painting was White Lead tinted with earth colors and later a few of the chemical pigments. The research in connection with the restoration of Williamsburg developed that the paint used was Lead, Linseed Oil, etc.

Prepared Paint was first made in New York by Quarterman about 1842. In 1867 Averill of Newburgh, suburb of Cleveland, took out a patent on a prepared paint which would remain in suspension in the package. This was of such poor quality and so heavy and adulterated that it proved to be of very little value and immediately ready mixed paint acquired a bad reputation and reputable manufacturers would have nothing to do with it.

In 1880 The Sherwin-Williams Company, realizing that prepared paint filled a long felt want, placed on the market an S-W paint prepared made on a formula of the highest quality possible under the circumstances. This soon proved its value, led the field and has been in advance to the other manufacturers ever since. There has been a great advance since that time and materials now on the market are of quality infinitely superior to the best available at that time.

Many new primary materials have been developed. Many Oils such as China Wood and Perilla have been found useful and marvelous development of synthetic resins has come into prominence during recent years. Nitrocellulose lacquers have, during the past twenty to twenty-five years, occupied a very prominent place in the Industry so that paint formulae now are complex chemical compounds as compared with the simple mechanical mixtures of a generation ago.

Paint making equipment also has greatly advanced from the slab and muller or the Boston Stone of 1737 (a stone trough in which earth pigment and oil was put, then ground with a round granite ball rolled back and forth by manpower); [illegible] dated from the Paleolithic age, probably 50,000 years ago. Early mills were all of the old "muller and heather mill stones" type and like the Mills of the Gods ground slowly but exceedingly fine. Modern equipment includes many types of roller mills, cylindrical mills with fitted balls, colloidal, and many other types.

Varnish making equipment from the old open kettle cooked over coke fire, has developed into modern closed pressure vacuum equipment.

Painting methods have changed from the old methods of brushing to modern spraying, dipping, tumbling, roller coating, flooding, etc., to keep pace with the rapid production of modern machines and thus paint, varnish and lacquer products have been improved in finish, drying time and wearing quality until they are as superior to old products as modern electric lamps are to the old tallow dips.

Up to about 100 years ago, the only material available for painting was white lead tinted with earth colors and later a few of the mineral pigments. The research in connection with the exploitation of coal tar, developed that the paint used was lead, linseed oil, etc.

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In 1880 The Sherwin-Williams Company, realizing that prepared paint filled a long felt want, placed on the market an S-W paint prepared ready as a formula of the highest quality possible under the circumstances. It has proved its value, led the field and has been in advance of the other manufacturers ever since. There has been a great advance since that time and materials now on the market are of quality undoubtedly superior to the best available at that time.

Many new primary materials have been developed. Soy Bean oils as China Wood and Perilla have been found useful and marvelous development of synthetic resins has come into prominence during recent years. Nitrocellulose lacquers have, during the past twenty to twenty-five years, occupied a very prominent place in the industry so that paint formulas now are complex chemical compounds as compared with the simple mechanical mixtures of a generation ago.

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The World War brought about many requests for materials for a wide variety of uses. Special camouflage colors were made for painting ships. A great many different finishes were produced for shells, varnish, and other materials for airplanes. Enormous quantities were made for buildings. Finishes for motor transports were supplied to many manufacturers of trucks and automobiles.

For a number of years we had been making pyroxylin enamels and lacquers in a small way and during the fall of 1921 a new department was created at Chicago to produce it in commercial quantities, thus keeping abreast of the times with the new development in these artistic and quick drying finishes. This type of finish was first made in England by Alexander Parkes in 1855, but its use had been restricted to clear lacquer for brass and other metals. At the close of the World War several manufacturers found themselves with big plants and efficient organizations not occupied for further manufacture of gun powders. They set their chemical research departments to work to develop something for which these plants could be used. The primary raw materials used for gun powders are very similar to those used for Nitrocellulose Lacquers. In a short time there was developed a pigment lacquer suitable for finishing automobiles and many other surfaces. This was found so satisfactory that it largely displaced the former type of Oleoresinous finishes.

Up to that time it took about two weeks to finish an automobile and production lines were greatly delayed. This new lacquer made it possible to finish a car in a few hours and therefore contribute greatly to the mass production of the automobile.

This quick drying feature of lacquer attracted much attention and its use was extended into some fields for which it was not well suited. Brushing lacquer, for household use, was developed but later found to be quite unsatisfactory. However, insistant demand demand did develop quicker drying finishes and four-hour enamels were produced which gave great satisfaction. As lacquer displaced earlier enamels it was quite natural for varnish manufacturers to do everything possible to meet this demand for quick drying varnishes. This resulted in an entirely new development in fast drying synthetic enamels which are now making very rapid progress and displacing lacquers to a large extent.

As the country recovered from the depression of 1921 and 1922, many additions were made to the line and many warehouses and stores were added and the plants were improved with considerable additional machinery.

In 1922 Mr. Cottingham resigned as President of The Sherwin-Williams Co., though retaining the position as Chairman of the Board of Directors. Mr. G.A. Martin became President. We added to the line complete automobile lacquers; also Flat-Rite and traffic zone paints. and Exolvent.

In 1923, 24 and 25 several other new products were added, including a full line of products for petroleum oil producers and several spray materials, including Free-Mulsion. Also Semi-Lustre was put on the market. The name of Mill White was changed to Save-Lite.

In 1926, added to the list was Rogers Brushing Enamel; Enamelastic; Wall Primer and Sealer; Wood Finishes, and Mulsiod Sulphate.

Mr. S.P. Fenn died in 1927. Additions to the line included Fast-Dri varnishes and a full line of Master Painter Enamels and undercoaters. Also Wall-Tex.

In 1928 Mr. Beardslee died. New products added to the line in this year included Airplane finishes, Lyne Kote, Old Dutch Truck and Bus Enamels, and Soft Paste White Lead. [illegible] There was added a complete line of [illegible] finishes, Interior Glass Enamels, [illegible] Paint, and also a complete [illegible]

To keep pace with the development in Synthetic resins, we entered into the manufacture of such resins in 1929 and produced a complete line of varnishes and enamels. These were under the name of "Kem" and included Kem Air Drying, Kem Baking, [illegible] Kem Transport, Kem Art Metal, Kem Bulletin, and Kem Finishes, etc. [illegible]

Lowe Brothers Company, who had been established in 1872 were acquired in this year of 1929. John Lucas & Company, established in 1849 was also bought this year.

For many years research had been conducted attempting to produce dispersed or paste colors direct from dry color pulp without resorting to the process of drying out the water, breaking up the lumps into a powdered dry color and then mixing and grinding in oil or varnish. This effort finally resulted in a process in 1929, of flushing out the water and mixing the particles, with oil or varnish, to a smooth paste of fine and brilliant texture. A complete line of dispersed colors and flushed inks were put on the market.

Conditions in Cuba had become unsatisfactory for our agents and in 1930 the plant and business of the Bredell Paint Company of Havana was bought and a complete line of trade and industrial products have since been made there.

Other quick drying finishes were added to the line, such as Two-Coat-a-Day paint, Fast-Drying enamels, etc.

In 1931 the controlling interests of The Sherwin-Williams Co. of Canada was acquired thus bringing the Canadian organization back to the U.S. companies. Asphalt roofing coatings, Silver-Brite Aluminum, and further Kem finishes were added to the line.

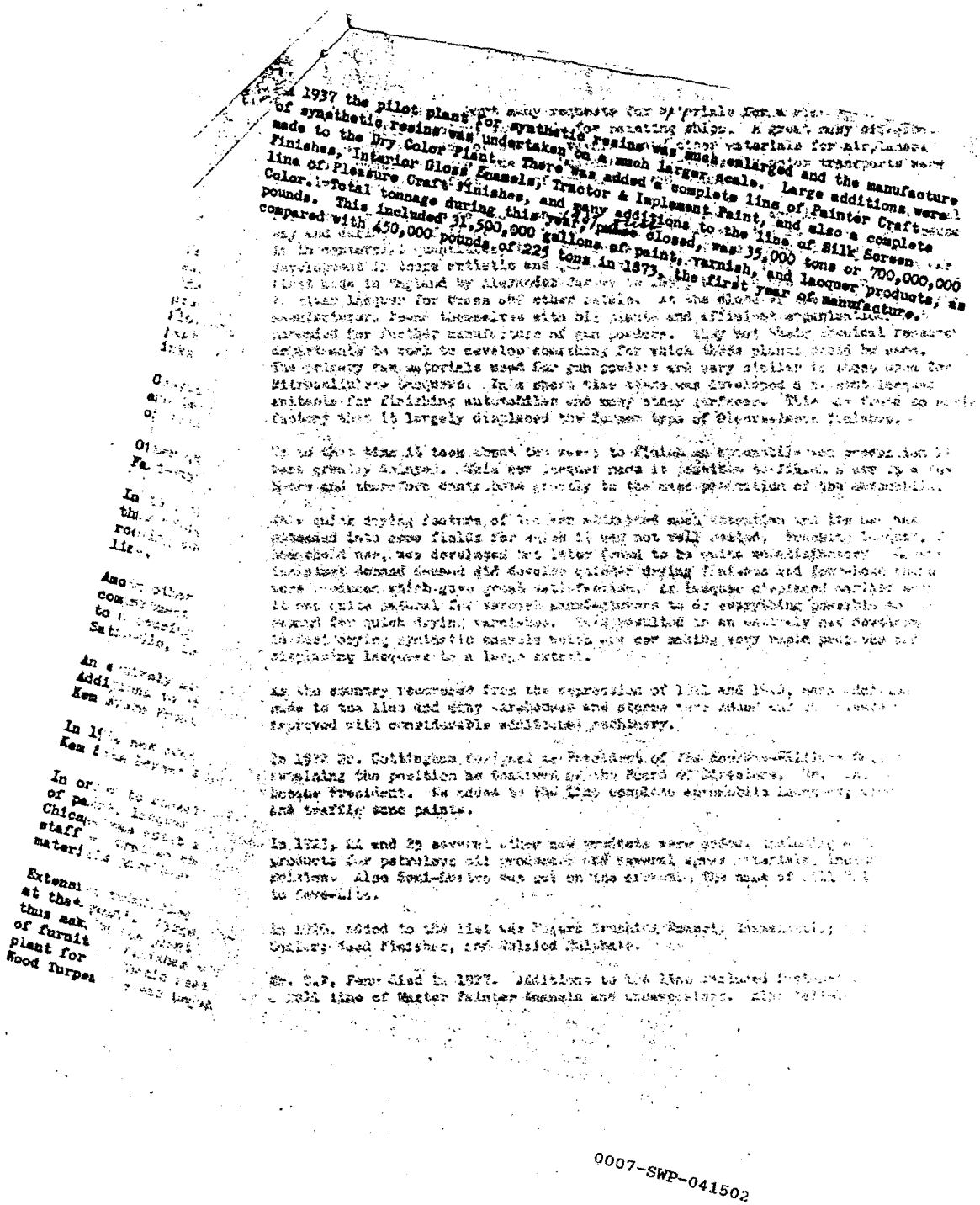
Among other new products in 1932 were included Silver and Gold Enameloid in double compartment cans. The long established line of First Quality Colors was modified to a pouring consistency to satisfy the changing demand. Kem Railway Enamels, Satin-Glo, Seal-Rite were added. Also the Opex Color Match Line and Color Match Guide.

An entirely new type of pouring can was developed in 1933 and covered by patent. Additions to the line included Metro-Namel, Tri-seal, Dex, Opex Auto Wax, and Kem Store Front Finishes.

In 1934 new additions included Trim-Brite Colors; Solfast Beds, Opex Kem Enamels, Kem Silk Screen Colors, and Exolvent.

In order to consolidate the development of new products and research in every field of paint, lacquer and color manufacture in 1935, the Allied Research Laboratory at Chicago was established as headquarters for the Institution. This included a large staff of trained chemists and many new products have been developed and many new materials have been adopted.

Extensive rebuilding was undertaken at Bound Brook and manufacture of Insecticide at that point. Large addition was made to the plant at Dallas to manufacture varnishes, thus making the plant at this point quite self-contained. A plant for the development of furniture finishes was established at Winston-Salem, South Carolina. A new pilot plant for synthetic resins was established at Chicago. The manufacture of Sulphate Wood Turpentine was begun at Chicago.



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RECORD OF FIRST CAN OF SWP

This package is filled from some of the earliest S.W.P manufactured, It was made September 13th, 1880, and known as shade "K", now Rx 355.

The formula was -

400 lbs.	Zinc Oxide
200 lbs.	Lead Carbonate
200 lbs.	Barytes
24 lbs.	Golden Ochre
9 lbs.	Raw Umber
22½ lbs.	Medium Chrome Green (25% Pure)
10 oz.	Lamp Black
90 Gal.	Raw Linseed Oil
10 Gal.	Turpentine
10 Gal.	Benzine
10 Gal.	(12)
2½ Gal.	(10) Drier

It was in Mr. Sherwin's personal possession until his death. At the Golden Jubilee Convention, November 13th, 1916, during Mr. Geo. A. Martin's session covering Manufacturing Department matters, it was opened by Philip Steyer, the foreman of the S.W.P. Grinding Department of the Cleveland Factory. Philip Steyer entered the employ of the Company in 1874, and was foreman of the S.W.P. Department when this S.W.P. was made. The can was made in the Cleveland Tin Can Department under a patent granted to Mr. Sherwin August 28th, 1877.

On opening the package, it was found to be in good condition, stirred up easily. The change in shade was only what is normal with color of this kind. Though the paint had thickened up slightly it would have been in perfect condition for use by the addition of a slight amount of Linseed Oil.

It was also examined by the Manufacturing Committee; then hermetically sealed and put into the historical collection.

J.C.Beardslee)
H.J.Hain)
E.W.Lutes)
P.D.George) Manufacturing Committee
E.C.Holton)
F.R.Bigelow)
W.R.Sieplein)

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