

EVOLUTION OF PAINT AND OTHER PROTECTIVE COATINGS

The use of paint as a decorative and protective coating has come to us down through the ages from prehistoric times. Noah "pitched the ark" within and without - Genesis 6-14. There are other references to paint in the scriptures. Its use for decoration and picture painting began much earlier in Altamira, Spain and other locations in Western Europe where remarkable pictures have been found which were drawn by cavemen possibly 25,000 years ago. These prehistoric pictures are real masterpieces and are far superior to pictures of battles and hunting scenes on the walls of Babylon erected about 2500 years B.C., and wall paintings found in tombs in Thebes dating from 1500 B.C.

In the British Museum are many mummies elaborately decorated, the oldest of these is that of Menkara who lived about 4000 years B.C. Many beautifully painted things were found in the tomb of King Tutankhamen where they had lain undisturbed for 3300 years. These references seem to establish the use of paint at least 4000 years before the coming of Christ.

In New England are many frame houses which have been kept in good condition as long as 300 years through continued protection by good paint. Among the best of these are:

- 1646 - Noyes House, Newbury Port, Mass.
- 1680 - Samuel Clarke House - Newport, Rhode Island
- 1680 - Pardee Morris House - New Haven, Conn.
- 1680 - Edward Devotion House - Brookline, Mass.
- 1680 - George Bradfield House - Kingston, Mass.

Beyond these there are many others from 100 to 200 years old.

One of the best examples of paint protection is George Washington's home at Mount Vernon. See the attached booklet by Lenore Kent, "Armour Against Time". This fine old mansion greatly suffered for lack of attention up to about 1856 when a group of women organized the Mount Vernon Ladies Association to care for this estate. Washington's home records indicate that Mount Vernon was painted with white lead thinned with "oyle" and turpentine. Before the paint was dry the painter was to sprinkle white sand on it so as to make it look like stone.

At the above time practically all the paint used was mixed up by the painter from primary raw materials, white being made by the method just described. The first offering of a prepared paint was by a man named Quarterman in New York in 1842. He had been a practical painter beginning in 1827 and later gave up this profession and established a paint store selling paint in cans. Being made of white lead at that time, the paint naturally set very hard and was very difficult to stir up.

In 1860 the Waterall Company of Philadelphia also entered into the manufacture and sale of prepared paint. Heckel records Waterall's statement to the effect that he "put up paint in pint to one-gallon cans and illustrated same with color cards." This was probably the first color card of the industry.

On July 16, 1867 D. R. Averill of Newburg, Ohio (suburb of Cleveland) received patent No. 66773 on a paint compound in ready-mixed form. Research developed that Averill sued other manufacturers for infringing on his patent. The courts decided that the work of Quarterman, Waterall, and others did not infringe, and thus definitely established that 1842 was the date of the earliest manufacture of prepared paint in the United States.

The above facts were revealed through research by Mr. Heckel some years after the publication of his book entitled, "The Paint Industry", in 1928.

The paint made on Averill's patented formula was of such poor quality that painters soon developed well-deserved prejudice against any prepared mixture. This prejudice still survives to some extent and many painters think that lead and oil is the very best paint. Even the National Lead Company until November, 1946 stated in their advertising that Dutch Boy White Lead mixed with linseed oil was the very best paint. For some months they did not advertise at all and then came out with an advertising campaign extolling the virtue of a new paint made with blended pigment containing lead, zinc, and titanium. This paint might have been "new" for them, but the paint industry had been supplying paint made with lead and zinc since 1880 and lead, zinc, and titanium since about 1920. The U. S. Government decided about 1940 that lead, zinc, titanium paint was the best for painting exterior wooden buildings.

~~Coincident with the development of exterior house paint, many other~~
~~paints for such uses were offered.~~ The Sherwin-Williams Co. offered the first high-grade exterior paint in 1880. Among other things it was recommended for floors, but slow-drying made it not altogether satisfactory. In 1884 The Sherwin-Williams Co. first introduced special floor paint which "dried over night".

In 1896 Sherwin-Williams developed a complete line of prepared flat interior wall paints. In 1903 a line of interior enamels was introduced modified with oil to facilitate the brushing quality.

Coincident with the development of new products for household use, The Sherwin-Williams Co. were making special paints for railways, steamships, bridges, agricultural implements and many other industrial products. In 1875 W. H. Glover, one of the partners who was selling paints to implement manufacturers, developed a method of dipping irregular shaped objects into a tank of liquid paint, allowing the surplus to drain back into the tank.

Up to about 1920 there were many varieties of prepared paints, enamels, and varnishes produced to suit special requirements. At the close of World War I in 1917-18, the duPont Company found themselves with large chemical plants which had become idle through discontinuing the production of explosives. Casting about for some other product to occupy this equipment they experimented with celluloid and other nitro-cellulose compounds. At that time special ingredients were used only in lacquers for coating brass, etc. Research developed a formula which would carry the pigment and also so modified as to be more elastic and have better wearing qualities.

About the same time the automobile industry found that the painting of cars proved to be a bottleneck in their production. Cars were then painted with a coat of primer, four or five coats of rough stuff filler, one or two coats of flat color, a coat of color and varnish, and a final finishing varnish. It took about three weeks to paint a car.

DuPont research had developed sufficiently by 1920 to produce a pigmented lacquer. It was tried on the Oakland cars in 1923 year. It was found to be entirely satisfactory and in 1924 was adopted as a standard on all Oakland cars. By 1925 practically all cars were finished with lacquer and thus "Duco" became the standard automobile finish.

About the same time Sherwin-Williams were devoting research to this same problem and Opex lacquer for automobiles was developed in 1922.

This development of lacquer took business away from the oil, varnish, and enamel manufacturer, and to save his product, research developed a "four-hour" enamel which was found more satisfactory than lacquer for some parts of automobiles.

These conditions brought about the development of synthetic varnishes, it being found that the natural resin varnishes could not be produced satisfactorily or in sufficient quantity to take care of the greatly increasing demand. These synthetic varnishes are very superior in quality of working, drying, and durability and economy, and consequently natural resin varnishes have almost disappeared from the market.

Ingenuity of the paint manufacturer and the requirements of industrial manufacturers have brought about the development of a wide variety of entirely new products. These are made to specially resist the corrosive action of chemicals, to provide better and harder finishes on furniture, and one thousand and one special conditions. Sherwin-Williams has been the leader in several of these developments. Among them are the following:

Dimenso, a lacquer to apply a two-tone effect with one coat to furniture and appliances.

Heetclad, hot spray lacquer greatly minimizing the thinner necessary to produce spraying consistency. This also applies in one operation a protective coating equivalent to that resulting from two coats of the lacquer.

Homoclad, a finishing system for wood furniture combining the primer and finishing coat in one operation.

Day-Glo and a great many other special products.

Continuing research and development are applied to satisfying demands from the consumers for special purposes. Also, many new products are developed through ingenuity of the formulators.