

Story of the Dyfent Paint Business by W. M. Zintz

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HISTORY OF THE DU PONT PAINT BUSINESS

Human nature being what it is, man is forever pausing to ask: "By what route did I come to this place? What were the more important milestones that marked my progress?" So it is with a business.

There are those who maintain that the story of the growth of a business is a ledger filled with dry and dusty facts; that nowhere within its covers will you find the wine of that which we call romance, or the senses of achievement and frustration that are so peculiarly human.

I do not believe these people.

I believe that the story of Du Pont and its part in the paint business is a history of growth and achievement, of men who played a vital part in that growth, a reaffirmation of industry's role in the American Scene.

Perhaps this is the time for us to pause and ask ourselves how we came to this point in our history. I believe it is, and I am not alone in that thought. Within the past few months Dr. Horace H. Hopkins interjected a comment into a luncheon discussion of the early years of Du Pont's entry into the paint business, expressing a desire to see a history of our growth recorded. Later, Mr. J. Warren Kinsman, in preparing a report for the Executive Committee, wanted some information regarding the histories of certain buildings within Finishes plants acquired by Du Pont through purchase. He added his recommendation to Dr. Hopkins' earlier remark, and suggested that perhaps I might be the historian.

I make no pretense of being an H. G. Wells or Emil Ludwig. However, I have assembled all of the available facts and dates, and, taxing the memories of several of my associates, have thus been able to piece together a story I believe tells fairly the history of Du Pont in the paint business.

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I could not begin this story without first extending my sincere thanks to the associates whose help has been invaluable in making this task easier:

A. K. Burke
M. J. Callahan
C. W. Clark
E. G. Daugherty
M. Denning
H. E. Eastlack
J. T. Edgerly
E. J. Furst
Dr. G. C. Given
S. L. Johnston
H. E. Lackey
H. Longstreth
R. A. Macfarlan
John Marshall
H. E. Monk
J. J. Moosmann
G. W. Sherin
J. D. Shiels
S. B. Woodbridge.

The list, I know, should be longer.

If any errors appear in the following, they do so inadvertently. I accept the responsibility for their presence, and offer my apologies.

WYZ:MS

May 1, 1947

W. M. ZINTL.

Wm Zintl

COMPANY STATUS AT TIME OF DU PONT ENTRY IN THE PAINT BUSINESS:

The general belief prevails that Du Pont entered the Paint business as a postwar development and that it came about coincidental with the Company's purchase of Harrison Brothers & Company who were manufacturing certain important chemicals which Du Pont needed during World War I. But that is not so. Du Pont was in the Paint business many years before, but few in the Du Pont Company, and no one else in the industry, recognized Du Pont as being part of the Paint industry. The fact is that Du Pont had been making and selling Lacquers for quite a few years, but Du Pont was not recognized as a paint manufacturer because it was not until the development of "Duco" that the manufacture and sale of lacquer was regarded as part of the Paint industry. Prior to the development of "Duco", Nitro-cellulose Lacquer (which should not be confused with the entirely different Chinese lacquer) was used primarily for soap dishes, toys and light metal work, such as silverware and brass hardware, chandeliers and beds; also as a "bronzing liquid" for radiators. Its broad use had not been commercialized because the high viscosity lacquers then available required an excessive amount of thinning for spray application. Hence, a large number of coats were necessary to obtain satisfactory film thickness. Uses were, therefore, confined largely to small articles that could be dipped - its use on brass bed-stands being a notable exception. Right here, it should be emphasized, and probably printed in bold letters, that, with the development of Du Pont "Duco", making Lacquer commercially economical for large surfaces, the Paint industry was transformed from an orthodox industry into the beginning of a chemical and highly technical industry. This sensational contribution was the first real technical advance in paint technology in decades. More will follow about the development of "Duco" under a separate section.

Having thus established the fact that Du Pont was in the Paint

business before they acquired Harrison Brothers, we will now proceed with the history of each company acquired or developed, starting with Parlin.

PARLIN

Thirteen years before World War I -- to be specific, in 1902, Du Pont established the Eastern Laboratory to expand research in explosive. In 1903, the Experimental Station and Development Department were established and a definite policy was inaugurated that henceforth the Company was to be not a producer of explosives alone, but a chemical manufacturer ready to venture into any logical chemical field.

The development and manufacture of explosives had been based on the ingredients necessary for black powder, dynamite and gelatin, and smokeless powder and gun cotton. The general use of black powder had been pretty much superseded by dynamite. These products involved the use of nitroglycerine, nitrocotton, wood pulp, or cellulose, sodium nitrate, ammonium nitrate, fulminate of mercury, diphenylamine and other chemicals. There was at that time perhaps no other branch of the chemical industry which involved so much fundamental chemistry, and which required so much chemical ingenuity in the application of these fundamentals to produce a safe and economical explosive, not only for military use, but for industrial peace-time use, on which the greatest emphasis was placed.

The production of these explosives required the obtaining and preparation of specified raw materials, and involved one of the most important reactions known to organic chemistry - that of nitration. Glycerine was nitrated to obtain nitroglycerine, and cellulose was nitrated to obtain nitrocellulose or gun cotton. These operations required nitric and sulphuric acids, two chemical commodities on which a very large part of our chemical industry is based. Both were manufactured by Du Pont. The manufacture of smokeless powder required organic solvents, such as alcohol and ether, all requiring a highly specialized knowledge of the

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chemistry involved.

With this as a foundation, Du Pont set out to explore the diverse fields related to explosives.

Solutions of nitrocellulose were being used in the manufacture of lacquers for coating metal hardware and light fixtures. This subject was investigated by the Development Department, (organized in 1903), and upon their recommendation, the International Smokeless Powder & Chemical Co. at Parlin was purchased by Du Pont in 1904. This company produced not only nitrocellulose for powder, but nitrocellulose solutions and solvents, and did a thriving little business with "brass lacquer". This acquisition brought to Du Pont some excellent chemists as well as other trained personnel.

Records disclose that the Parlin buildings were started in 1898 and that by 1899 there was a total of 59 buildings covering different operations. In 1900, the first Pot Nitrating House was built as was also the first Powder Line. In 1901 they had the first run of powder and began the manufacture of nitrocellulose solutions. Records show that the first sales were to the Petrifoid Company. Later, nitrocellulose was wetted with benzene and used for Artificial Leather Coatings. In 1904, they began the manufacture of solvents (amyl acetate and ethyl acetate). This was the year that the plant was acquired by the Du Pont Company. By 1905, they had a total of 133 buildings, and in this year the Pyroxylin Line was developed, including the Tank Mixing House, Tank Storage House, and Barrel Rolling Houses Nos. 1 and 2.

In 1905 they made their first lacquers for brass and silver coatings. During this year part of the present Administration building was built. In 1906, additional land was bought and more buildings erected which added up to a total of 155 by this time. In 1907, the American Lacquer Company and Miller Company were acquired. By 1908 there were

approximately 150 people employed, and in the revision and readjustment of the plant they had about 100 buildings, 16 of which were in the Pyroxylin Area. In 1910, the manufacture of ether for medicinal purposes and of barium nitrate was started. In 1915, the Arlington Company was acquired. This company was an aggressive manufacturer of pyroxylin plastics, lacquers and enamels (this is further proof that Du Pont was definitely in the Paint industry before they acquired Harrison Brothers & Company). At the time the Arlington business was acquired, they were manufacturing a line known as Pyralin Enamels, which consisted of incorporating pigment into a nitrocellulose plastic on 2-roll rubber mills, and compounding with solvents, resins and plasticizers. This part of Arlington's business was transferred to Parlin and the first pigmented enamels were turned out by Parlin at that time, the enamels being used for spraying and dipping small metallic and wooden articles.

The use of Pyralin Enamels found limited application in industry, because of their high cost and the fact that nitrocellulose imparted such high viscosity to the solutions that it was only possible to have a very small amount of solids in these enamels, the balance of the composition being volatile solvents lost during application. Parenthetically we might add here that this period was the real beginning of our Industrial Finish business.

Somewhere around this period the Company bought a Bronze Powder business to stimulate the sale of lacquers. In 1918, a number of small package items were manufactured and sold, including such items as a leather renovator, Parloidion, Aluminum Paint, and Pontoklene. During the same year there was active promotion of sales of Wood Lacquer, Spray and Dip Lacquer, Silver Lac, White Enamel Pyralin Enamels, Bronzing Liquid, Belt Cement, Leather Solution, Aeroplane Dope and Cotton Solutions. Also in 1920, the magic formula of "Duco" was developed, but more about this

later.

It is worth while recording here that several men got their real start in the Du Pont Company at Parlin and later rose to high executive positions. Notably were Mr. E. Fletcher Brown, who was General Superintendent of the Plant, Mr. J. W. Elms who was transferred from the Old Hickory Powder Plant to become Division Manager at Parlin, and later Assistant General Manager of the Fabrics & Finishes Division. Also, Mr. J. J. Moosmann who was the first lacquer salesman we had, later became Division Manager of the Parlin Plant and later moved to Wilmington as Assistant General Manager, succeeding Mr. Elms. Mr. E. M. Flaherty, the inventor of "Duco", started as a chemist at Parlin and later became Manager of the Finishes Division.

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PURCHASE OF HARRISON BROS. & CO., INC.
PAINT AND VARNISH MANUFACTURERS

On August 22, 1916, the Executive Committee passed the following resolution:

"RESOLVED, that the Development Department be informed that, provided a complete study demonstrates the fact that a satisfactory return on the investment can be secured, the Executive Committee would favor the development of the paint and varnish industry, preferably by the acquisition or purchase of one or more suitable going concerns."

As a result of the resolution, a thorough investigation of the industry was made and it was determined that Harrison Brothers was by far the most satisfactory concern to purchase. Dr. Fin Sparre and Mr. C. A. Meade who conducted the study said at the time "that while the estimated return on this investment is not large it will put us in a position to build up a very satisfactory paint and varnish business in connection with our other chemical business." They further added "there is one thing interesting in a combination chemical, paint and varnish business in that it is a well-known fact that when business is not good the paint and varnish business is thriving, caused by the railroads and factories in boom times being too busy to do their repair work." From the foregoing, it is evident that while Du Pont was looking to new postwar markets for expansion, the chemical end of the Harrison Brothers' business did have its advantages because they needed the chemical capacity of several important acids but that the paint business offered real potential.

In the same report, there was a second recommendation, viz: that the preferable plan for securing satisfactory entrance into the paint business would be "to acquire by purchase one or more suitable going concerns, if obtainable at figures indicating a proper return on the investment, and with a view to transfer of operations to Parlin at the first opportune time." The consolidation of numerous small paint manufacturers was seriously considered, but the introduction of the anti-trust laws

apparently discouraged further effort with the result that the 1914 census showed 855 establishments in the paint and varnish business, amounting to about \$149,000,000 per year, as against 863 establishments in 1909 doing a business of \$127,000,000. These figures are cited specifically right here because they will have special significance when the results of later years will show the progress made both by the industry as well as Du Pont.

In December, 1916, the Executive Committee authorized the purchase of Harrison Brothers, and the purchase was consummated on March 14, 1917 at a price of \$5,700,000, plus the Du Pont Company assuming all the outstanding obligations of Harrison Brothers & Company.

The sale was considered satisfactory to both parties and it marked the union of two of the oldest and best-known manufacturing firms in the country. Harrison Brothers & Company were founded in 1793, nine years before E. I. du Pont built the first powder mill on the Brandywine, and in many respects both firms had a great deal in common in that they were early American industrial pioneers.

John Harrison was the first manufacturer of sulphuric acid in the United States. It is also claimed that Harrison were one of the first manufacturers of White Lead, having started in 1806. Another first to Harrison's credit was the introduction in 1814 of platinum as a catalyst in sulphuric acid manufacture, a real step forward in the production of this commodity.

The Harrison business started in Kensington, a small suburb of Philadelphia, but early in 1800 moved to Gray's Ferry Road, Philadelphia, on the East bank of the Schuylkill River. There is no record of how much ground was originally bought but at the time of Du Pont's acquisition, there were over 80 buildings occupying 40 acres. The early years of Harrison were confined to making heavy chemicals, such as sulphuric, nitric and hydrochloric acids, chromates and alum, and building after

building was added but apparently with little scientific or engineering aid. Therefore, the plant was not very skillfully laid out for mass production. Fortunately, as the business developed they kept the chemical end on the West side of the plant, and established the lead, paint, color, varnish and lithopone business on the East side of the plant which did separate the chemical section from the paint section.

The Harrison business was primarily a family affair (like Du Pont) right on up to the time of Du Pont's acquisition. There is little to be found in the records about the older generation but when in 1877 the founder's grandsons, John, Thomas S. and George L. succeeded to the business, the Harrison family was wealthy and socially prominent, while the company was recognized as a highly reputable leader in the chemical and finishes field. The three brothers are remembered as markedly different types of individuals. John was austere and aristocratic. George could be found more often than not perched on a box observing a plant operation or in conversation with a member of the operating crew. Thomas S. was glamorous, and one-time consul to Turkey, and was the recipient of a pair of Arabian steeds from the Khedive upon his retirement from that office. He was regarded as a "real sport".

Toward the end of the century, difficulties loomed ahead and in 1898 the company was reorganized and refinanced at which time the name of the firm was changed from Harrison Brothers to Harrison Brothers & Company, Inc. At this time, John Harrison was President, and C. Leland Harrison became Secretary and Treasurer, but shortly afterwards more financial trouble arose and in 1902 Lee Higginson Corporation of Boston sponsored a bond issue and established Robert S. Perry as President. Robert S. Perry was a chemical engineer, possessed of an abundant amount of aggression and drive, but shortly afterwards, (in 1903), Russell S. Hubbard (brother-in-law of Mr. Perry) was installed as Secretary and

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Treasurer by Lee Higginson. Mr. Perry had the vision but not the balance. Mr. Hubbard, fortunately, had both. Mr. Perry made one contribution to the Paint industry for which he will forever be remembered. It was through his vision that the Scientific Section of the Paint Association was established, and a complete story of his contribution is recorded in George B. Heckles' History of the Paint Industry. It should be said here that this Division of the Paint industry had a great deal to do with making the industry technically conscious.

At the time Du Pont acquired Harrison Brothers & Company, their total sales of lead, paint, varnish, colors and other paint products totaled \$2,102,000, of which \$1,190,000 was Paint and Varnish. On sheet "A" (attached) is a detail of comparative sales from 1909 to 1916, inclusive.

The business was primarily all Trade Sales. While they were termed a national house, because of having some distribution scattered throughout the country, they were primarily a sectional house with the most of their business along the Eastern Coast. They had some of the finest paint retailers as customers and these served as a basis for the later development of Du Pont's Trade Sales business.

The Management of the Harrison Company at that time was:

R. S. Hubbard, President
Wm. Richter, Treasurer
J. E. Hatt, Manager of Paint Sales
A. R. Glancy, Plant Manager
E. C. Thompson, Asst. Plant Mgr.
P. S. Tilden, Mgr. of Heavy Chemicals & Pigments Sales.

Of the aforementioned group, Messrs. Richter, Hatt and Thompson all had important roles in the Du Pont Company.

While little reference has been made to the pigment end of the Harrison business, it is only right to say that this part of the business was the foundation for the later development and growth of Du Pont's Pigment and Color Division, but it was not felt that space should be taken up for

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discussion of this in this document. In addition to the Gray's Ferry Plant, Harrison brothers also owned a small plant in Chicago which was of very little value because of its smallness and antiquity. At that plant the manufacturing operations were carried out at 2001 Mendel Street, but all products made were trucked to an outside warehouse for labeling, packing and shipping. Raw materials had to be stored in another property which will illustrate the smallness of the Chicago Plant.

To summarize the purchase of Harrison Brothers, the following is quoted from the Committee's recommendation:

"I. Immediate entrance is secured to the paint business which will allow us to acquire thorough familiarity with the industry before we are ready for expansion at our own locations.

II. Harrison Bros. & Co. can give us the best general knowledge procurable by the purchase of a going concern.

III. The chemical features of the business harmonize with several of our plans for future development.

IV. If Harrison Bros. & Co. are not purchased now their planned extensions will, by another year, render the proposition of but little value to us, at least from the standpoint of chemical manufacture.

V. Purchase of Harrison Bros. & Co. will remove what undoubtedly will be in a short time a powerful factor in the paint trade, and a very possible competitor in chemical lines we may desire to take up.

VI. The size of the proposition does not appear out of proportion to developments possible in the next few years at our own plants.

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VII. The situation at Gray's Ferry is now being adjusted, and may be more carefully fitted for the most advantageous manufacture at that point while chemical manufacture expansion desired may be carried on at our own plants, probably Hopewell.

VIII. The sites at Gray's Ferry and Paulsboro are valuable, and undoubtedly salable if future development makes removal desirable."

PARLIN PLANT -- MAJOR IMPROVEMENTS SINCE 1924

- 1924 - The original facilities, providing 240,000 gallons annual "Duco" capacity, for an estimated 240,000 automobiles, were completed in April, 1924 at a cost of \$151,000. This comprised a 2-story grinding building known as #7 Mill House, and a 2-story finished product building known as #1 "Duco".
- 1924 - The "Duco" facilities were doubled by expansion completed in December, 1924 at a cost of \$199,000. This included added acetylation and refining equipment in the Solvent Area, additional ball mills and a new manufacturing building, #2 "Duco", a new thinner manufacturing building, a new barrel and drum cleaning building, and a PXC process building.
- 1925 - A new Control Laboratory was completed in January, 1925, costing \$47,000, to provide testing facilities for an estimated 100,000 gallons per month production of "Duco" Enamel and Thinner.
- 1925 - The original bay of the present Shipping House was completed in July, 1925 at a cost of \$50,000. This represents the first dismantling of the old World War I Hopewell Cotton Storages. It provided new packing and shipping facilities for the above items.
- 1925 - A new Change House was provided in Mixture Area, and added Solvent and PXC facilities were installed in September, 1925 at a cost of \$93,000 to increase "Duco", Enamel and Thinner capacity from 100,000 to 130,000 gallons monthly.
- 1926 - The first construction to house Clear "Duco" manufacture was completed in October, 1926 at a cost of \$132,000 and consisted of a new 3-story building, now known as #3 "Duco" and a new 3-story combined doping solution and shading facilities, known as the Dope Shed locally.
- 1927 - A new building was completed in February, 1927 at a cost of \$43,000, and equipped with portable mixing equipment to produce 12,000 gallons of Brush "Duco" monthly. Subsequently, Brush "Duco" was formulated on an alkyd basis and these facilities were not used for this purpose. The portable equipment was transferred into the "Duco" operations for small order business. The building now houses the 3,000 gallon Clear mixers.
- 1927 - Emergency grinding facilities, as a protection to our customers in case of damage to (#7 Mill House), pigment grinding building, were completed in July, 1927 at a cost of \$49,000.
- 1928 - The second 50' x 100' bay of the Mixture Area Raw Material Warehouse was completed in February, 1928 at a cost of \$22,000.

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PARLIN PLANT - MAJOR IMPROVEMENTS SINCE 1924, continued

- 1928 - A 51' x 57' Research and Development Laboratory was completed in April, 1928 at a cost of \$42,000.
- 1930 - The third bay of the Mixture Area Raw Material Warehouse was completed in October, 1930 at a cost of \$27,000.
- 1931 - A new Finished Product Warehouse, in the form of a drum rack storage, was completed in June, 1931 at a cost of \$174,000. The dimensions of this building were 55' x 183'.
- 1931 - The emergency grinding facilities listed in item 8 above, were converted to house continuous conveyor cleaning machines in May, 1931 at a cost of \$88,000.
- 1931 - Facilities for manufacturing PXP were completed in December, 1931 at a cost of \$187,000.
- 1935 - New high pressure boiler was completed in June, 1935 at a cost of \$352,000.
- 1936 - New facilities to manufacture 20,000 gallons of urea formaldehyde resin monthly were completed in September, 1936 at a cost of \$102,000.
- 1937 - New facilities for dispersion of pulp pigments by vacuum W. & P. mixers was placed in operation in April, 1937. These cost \$49,000.

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SHEET "A"

COMPARATIVE SALES - H. B. & CO., INC.

	<u>1909</u>	<u>1910</u>	<u>1911</u>	<u>1912</u>	<u>1913</u>	<u>1914</u>	
Lead Prods.	306358.36	334766.50	292344.75	408645.47	458297.48	69458.54	Chgo.
						340530.38	Phila
						409988.92	
Paint & Varnish	962968.04	895765.27	895446.11	977672.18	1086921.18	301660.60	
						683892.60	
						985553.20	
Color Making	62738.18	94872.80	102346.73	112416.86		17553.31	
						94803.51	
						112356.82	
Alumina Hyd.						2042.10	
						14719.78	
						16761.88	
Paint Total	1332064.58	1325404.57	1290137.59	1498734.51	1545218.66	1524660.82	

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PHILADELPHIA PLANT - MAJOR IMPROVEMENTS SINCE 1926

- 1926 - Brush "Duco"
Several manufacturing units for the preparation and packaging were installed.
- 1929 - Varnish Plant
A complete and modern open-kettle varnish manufacturing plant including all necessary processing and storage facilities was constructed.
- 1931 - Synthetic Resin Plant
Equipment of the most modern type was installed and production started in the bulk manufacture of synthetic resins used in "Dulux" Products.
- 1932 - "Dulux" Manufacturing Plant
A new three story structure with complete equipment for manufacture of pigmented "Dulux" Enamels was provided.
- 1936 - Addition to "Dulux" Building
A two-story annex was added to the "Dulux" plant to provide space for manufacture of small batch items and additional warehousing space.
- 1937 - Paint Plant
A modern 3-1/2 story building with facilities for the manufacture of Orthodox Finishes, Oil Colors, Stencil Paste and Putties was erected and put into operation.
- 1937 - Office Building
A modern L shaped two story office building was erected to replace the old structure. This building was a combined project of the Finishes and Grasselli Departments.
- 1940 - Warehousing & Shipping
A completely conveyORIZED method of handling Finishes Products from the Operating Buildings to the Warehousing and Shipping points was installed.
- 1940 - Solution Method of Resin Manufacture
Equipment, incorporating the latest developments in synthetic resin processing, was added to the existing Resin Plant.

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PURCHASE OF BRIDGEPORT WOOD FINISHING COMPANY

At the time of purchase of Harrison Brothers & Co., Inc., the Development Department made it clear that Harrison Brothers had a good foundation for the development of a substantial business in pigments, colors, paints and varnishes, but it was explained at that time that the Harrison management had permitted the mixed paint and varnish business, especially, to run down. It was also realized that the bulk of the Harrison Paint business was primarily mixed paint and that it would be necessary to supplement and develop the business with one or more Companies with other types of business, such as Specialties, Industrial Paints and Varnishes. So, in keeping with their study, the Bridgeport Wood Finishing Company business seemed to offer the type of business that would be advisable to buy, because while Bridgeport's ready-mixed Paint business supplemented the Harrison trade sales line, the Bridgeport Company had a line of specialties such as Fillers and Stains on which they had established some volume and reputation.

The Bridgeport Wood Finishing Company business began as the result of a friendship between Dr. David Breinig, who was a physician, and Mr. Nathaniel Wheeler of the Wheeler & Wilson Company, manufacturers of sewing machines and cabinets in Bridgeport, Conn. Because the Wheeler & Wilson Company were makers of cabinets for their sewing machines, they naturally had to have fillers and varnishes and before the special Paste Wood Filler (later known as Wheeler's Paste Wood Filler) was invented by Dr. Breinig, it was the practice of cabinet makers to apply many successive coats of shellac-varnish or gum varnish in order to obtain a smooth finished surface, free of pits. This was a laborious and expensive finishing system because much of the hard wood used for cabinets was open grain, such as oak and mahogany. It

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so happened that Dr. Breinig was interested in a quartz mine located at Fort Anne, N. Y. and when he learned of Mr. Wheeler's finishing problem, he conceived the idea of combining oil and finely ground quartz to produce a substance which could be packed into the pore of the wood, thus producing a smooth, hard, impervious surface which would provide a perfect foundation for one or more coats of varnish.

For a period of many months, Dr. Breinig carried on a number of experiments and finally produced a satisfactory product which he later named "Wheeler's Paste Wood Filler". He applied for and received a patent on this product which it is believed was granted in the year 1879.

The Wheeler & Wilson Company soon found that by the use of this paste wood filler, it was possible to produce a better finish on their cabinets at a much lower cost. Recognizing the commercial value of the product, the Bridgeport Wood Finishing Company was then organized for the purpose of producing and selling to other cabinet makers, Wheeler's Paste Wood Filler and other wood finishing materials.

At that time, in the early '80's, Dr. David Breinig who was still active in the practice of medicine, turned the responsibility of organizing the Bridgeport Company over to his son, Granville M. Breinig, and their first factory was located in New York City, on Pearl Street. There, in a small building, they produced limited quantities of Wheeler's Paste Wood Filler. The business prospered, and shortly after the company developed and manufactured oil and water stains which later became known as Breinig's Oil Stain and Breinig's Water Stain. The business soon outgrew its small quarters and it was decided to build a new manufacturing plant in Still River, Connecticut, where there was an available water power site and where the immediate surrounding country showed outcroppings of quartz deposits. This was

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about 1882. Its main operation at that time was the grinding of quartz into very fine grades of silica which later was given the trade name "Lithowhite Silex". This material was not only used in the manufacture of paste filler but was also used in another paint product developed at that time under the trade name "Breinig's Lithogen Silicate Paint". The pigment portion of this paint consisted of one-third lead, one-third zinc and one-third silex. About the same time scouring soaps were becoming more widely used, and Enoch Morgan & Sons, manufacturers of Sapolio, became interested in the use of silex in both the hand Sapolio cake and the scouring Sapolio cake. In the early '90's, Enoch Morgan & Sons acquired a financial interest in the Bridgeport Wood Finishing Company in order to insure a continuous supply of silex. During the years that followed, many other paint products were developed and produced, including Wheeler's Liquid Wood Filler, Primer, Japan, Drier and Varnish Stains. In the year 1893, at the World's Fair in Chicago, Wheeler's Paste Wood Filler and Breinig's Lithogen Silicate Paste Paint were given blue ribbons, representing the highest award. The business (while small) kept on growing and as the result of constant sales promotion, architects throughout the United States and Canada were specifying Wheeler's Paste Wood Filler and Breinig's Stains for practically all upright trim. Furniture manufacturers generally used the same products in their finishing departments, and eventually both products became well-known to painters and decorators with whom the firm became quite prominent.

Granville M. Breinig died in 1906, at which time his son, David E. Breinig, who started with the company as a chemist following his graduation from Yale, succeeded to the presidency of the company. Being young, progressive, and somewhat visionary he decided to expand the business and began marketing a complete line of trade sales products

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under the trade name "Bridgeport Standard".

As stated previously, the Du Pont Company found it necessary to broaden the line made by the old Harrison Company and Du Pont was attracted to Bridgeport chiefly because of their Filler, Stain and Varnish business. Du Pont was not interested in the Bridgeport plant because they had ample manufacturing facilities at the Harrison Plant, and the principal asset of the Bridgeport Company was their business for fillers, stains and varnishes, and more particularly for their reputation with the architects and lumber companies throughout the country.

An outstanding merchandising asset which Bridgeport had was their system of display racks showing the effects of their fillers, stains and varnishes on various types of woods. Mr. David Breinig was apparently the first to realize that there had not been any cooperation between the paint and varnish manufacturers with producers of lumber and the users of lumber. His idea was to make a special study of the wood finishing materials as applied to each particular kind of wood and bring this jointly to the attention of the lumber associations, architects, builders, and home owners. After considerable effort the plan was developed successfully and the lumber associations cooperated, they themselves spending a large amount of money in advertising lumber for various purposes, and the Bridgeport Company supplied the display panels showing the effects that could be produced. This one feature alone possessed a tangible good-will value because the Bridgeport Company promoted the idea and furnished the panels, and displays were established throughout the country at a minimum cost to the Bridgeport Company, but with considerable advertising value. The following is a quotation from Mr. John E. Hatt's report of April 23, 1917, which is self-explanatory:

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"I learned from him, too, his selling plan, which covers close work with the National Lumber Manufacturing Association and the various individual associations, such as the Pine Association, the Cypress Association and the Hemlock Association, that go to make up this National Association. Each of these lumber associations has been advertising to the public, the architects, builders, engineers, etc., the benefit of using their particular kind of wood, and as a result they are getting a great many inquiries regarding their particular product. Inasmuch as it is not advisable to show the lumber in its raw state to anyone who is interested in using it for a home or a building of any kind, the associations have made an arrangement with Mr. Breinig whereby he furnishes them small finished samples, color cards, booklets, and standard specifications for finishing each kind of wood to get certain desired results, and these leaflets and color cards the associations are distributing direct to the person who inquires, and then the association also turns over to the Bridgeport Company the inquiry itself. This inquiry, in turn, is followed by the Bridgeport Co. and advices regarding the inquiry and what they are interested in, is turned over to the local jobber or dealer in the vicinity in which the inquiry originates, and advice is given to the inquirer that he can see displays of various woods finished in the manner in which he is interested at some certain jobber's or dealer's store. In other words, in connection with the Bridgeport Company the Lumber Associations are offering a lumber service for finishing to people who are interested in their product. Naturally, this appeals to the architects and builders rather strongly and because of the inquiries which it originates it likewise appeals to the lumber dealers in the smaller communities, and this has made it fairly easy, with the large number of inquiries which the Bridgeport Company is getting from these Lumber Associations, to interest Lumber Dealers and Jobbers in various sections. It also has given them quite a little standing with the architects and has enabled them to interest the dealers from the point of furnishing a room properly fitted up in attractive form, in which to display the rather elaborate exhibits of the Bridgeport Company, to which they direct architects and prospective buyers of Stains, Fillers, Varnishes, etc., as a result of the inquiry to the lumber association. The Bridgeport idea has been to make these inquiries on Stains, Fillers, Varnishes and Finishes of the various kind, carry with them to the jobber and dealer the sale of their House Paint and Flat Finishes also, and I should think it would be quite a leverage to have such an arrangement with the building interests. To work this out in detail it has been necessary to establish elaborate display rooms in New York and Chicago in connection with the Lumber Association and most of that expense is past. The cost of course of finishing these rather elaborate samples amounts to rather considerable in a year.

"The Bridgeport people have a similar arrangement with the Morgan Door Co. of Chicago, who are one of the manufacturers of doors who advertise nationally and they likewise show and recommend the Bridgeport Finishing for the finishing of their doors so as to assure a satisfactory service

"There is unquestionably a certain established good will and value here, and in addition to this I feel there is considerable possibility in the way of future sales and increased sales and architectural specifications in connection with these lumber associations."

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Following a thorough review of all the foregoing facts, the Development Department Committee concluded that advantage should be taken of the national position of the Bridgeport Company, and recommended the purchase of the business, including inventory, movable machinery, good accounts and trade names, as well as the services of Mr. Breinig whose services were considered essential. The purchase price approximated \$300,000 and the deal was consummated on December 1, 1917.

The plant was not acquired because the location was undesirable and Du Pont already had ample production facilities which they wanted to utilize.

On the attached exhibit are the sales for five years - 1912 to 1916 - and also for the first four months of 1917. As will be seen, the volume was not large and more regrettably the type of business did not survive because changes in finishing styles occurred shortly afterwards and stained effects were replaced by solid colors in flat, gloss and semi-gloss; and this good-will asset disappeared quickly. David Breinig and his brother, Granville Breinig, left after a short period and later organized another firm which is still operating under the name of "Breinig Bros.", but neither brother is associated with the firm.

LHW 0010029

PAINT & VARNISH SALES -
BRIDGEPORT WOOD FINISHING COMPANY,
STILL RIVER, CONN.

	<u>1917</u>	<u>1916</u>
January	\$ 66,187.70	\$50,328.23
February	69,209.48	61,672.47
March	77,947.73	66,847.85
April	<u>70,876.83</u>	<u>59,524.03</u>
	\$283,921.74	\$238,372.58

	<u>Sales</u>	<u>Net Earnings</u>
1912	\$503,671.24	\$ 30,369.48
1913	441,064.58	38,681.31
1914	475,836.25	4,909.51
1915	504,429.88	9,264.68
1916	575,763.97	5,860.99

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FLINT VARNISH AND COLOR WORKS

The purchase of this business and plant is probably the most interesting of all the acquisitions, because it not only possessed good equipment but also a good substantial type of Industrial, Railroad and Automotive business as well. It was an important unit in helping Du Pont get established in the automobile industry and was very advantageously located and extraordinarily useful following the development of "Duco".

The business was purchased in May, 1918. At the time, Du Pont acquired approximately 70% of the common stock and 75% of the preferred stock of the Flint Varnish & Color Works and 80% of the Canadian Flint Varnish & Color Works, for which Du Pont paid \$1,394,528. As stated before, this purchase also included the Canadian plant and business of this Company which was later sold to C. I. L. in September, 1919, for \$348,625.

The principal stockholders at the time of purchase were: John N. Willys, President of the Willys-Overland Company, W. C. Durant, President of General Motors and Chevrolet Motor Co., C. W. Nash, President of the Nash Motor Car Company, J. D. Dort of the Dort Motor Company, and Mr. W. W. Mountain.

The development of this business is worth mentioning:

In 1886, W. C. Durant became the owner of a patent on a road cart, and he invited Mr. J. D. Dort to join him in the manufacturing venture, which eventuated in the largest manufacturing institution in the City of Flint, - The Durant-Dort Carriage Company. This establishment made Flint famous as the vehicle city, and as a more or less natural outgrowth of the Durant-Dort interests, the following establishments were started as departments of the Carriage Company: the Diamond Buggy Company, The Webster Vehicle Company, the Flint Axle Works, and the Imperial Wheel Company. Naturally, the development of the carriage

business demanded the use of colors and varnishes, and the present-day Flint Plant first came into existence as a separate entity in 1901. In order to keep the Varnish business separate from the Carriage Company, it was named the Flint Varnish Company, the purpose of this being to supply other vehicle manufacturers over and above their own requirements. Their first varnish maker was Albert Kratz who acquired his trade in Newark, N. J. where there were a number of older varnish houses established. Mr. Kratz supervised the construction of the new plant, which reflected his own ideas of a modern varnish plant. As mentioned in the section on the purchase of the New England Oil, Paint & Varnish Company, all varnish makers carried all their formulas "under their hat".

As the business grew, the company felt the need of a sales manager, and this helped in the expansion of the business, and from a small beginning of ten people the number of employees kept growing.

In 1909, Mr. W. W. Mountain was engaged to become General Manager and under Mr. Mountain's direction the business grew very rapidly. Mr. Mountain had been affiliated with the Sherwin-Williams Company and one of his first recommendations was the construction of a new building for additional varnish fires. This was begun and the building completed in 1910. Shortly after this the Varnish Works branched out into the Paint field. This was accomplished by purchasing from the Buick Motor Company its paint-making equipment, which consisted principally of buhrstone mills. The equipment was moved from the Buick plant to the first floor of the present paint building. Following this, the plant began to produce high quality automotive and railroad coach finishes in addition to the varnish line.

In November, 1909, the Durant-Dort Carriage Company decided to sell and convey to the Flint Varnish Works all of the equipment, buildings and furnishings, which completely separated the Flint Varnish

Works from the Durant-Dort Carriage Company. Because of the continued growth of the business, Mr. Mountain was made President in November, 1913, succeeding Mr. J. D. Dort who had been President since the Varnish Works started in 1901, and in August, 1915, an announcement was made that the plant would double its capacity by the addition of four new buildings and that the force of 150 persons would be increased to 300 when the buildings were completed. In March, 1916, Mr. Mountain announced the acquisition of a branch of the Flint Varnish Works in Canada, known as the Flint Varnish & Color Works Limited. This plant was purchased from W. C. Durant. Also in March, 1916, the Company completed large additions to the plant and it was said at that time that they were the biggest concern in the world engaged in the manufacture of high-grade automotive and railroad coach finishes. The business kept growing and it was on May 2, 1918 that announcement was made that E. I. du Pont de Nemours & Company had purchased a large interest in the Flint Varnish Works and the subsidiary plant in Toronto, Canada. The sales for the years 1913 to and including 1917, as well as the net profits for the same period, are listed below:

	<u>Net Sales</u>	<u>Net Profit</u>	<u>% of Sales</u>
1913 (17 mos.)	\$743,122.10	\$102,485.39	13.8%
1914 (12 mos.)	612,106.25	135,805.91	21.9
1915	998,467.74	256,986.26	25.7
1916	1,472,108.33	337,795.51	27.0
1917	1,927,480.03	413,207.69	21.4
1917		276,686.09	14.4 (after deducting reser for Federal taxes)

The following is a breakdown of these sales, by industry:

	VARNISHES		ENAMELS, COLORS, etc.		TOTAL	TOTAL
	1916	1917	1916	1917	1916	1917
Railroad	\$116,184	\$92,016	\$203,900	\$185,125	\$320,084	\$277,141
Trade	32,740	33,851	29,928	32,640	62,668	66,491
Manufacturing	258,042	376,739	838,523	1,219,965	1,106,565	1,596,704
	<u>\$416,966</u>	<u>\$502,606</u>	<u>\$1,072,351</u>	<u>\$1,437,730</u>	<u>\$1,489,317</u>	<u>\$1,940,336</u>

Detail of Manufacturing Portion

Willys	96,577	112,416	264,761	307,936	361,338	420,352
Buick	62,720	98,857	300,848	392,557	363,568	491,414
Chevrolet	33,230	38,926	84,588	217,367	117,818	256,293
General Motors	25,756	63,394	61,834	94,204	87,590	157,598
Dort Motor Co.	8,428	12,744	32,242	31,597	40,670	44,341
Swift & Co.	1,285	2,603	2,315	1,080	3,600	3,683
General Mfg.	35,655	42,963	80,358	155,101	116,013	198,064
City Mfg.	4,417	4,836	11,576	13,235	15,993	24,071

Mr. Mountain continued with the company for only a few months and was succeeded as President by Mr. Lamot du Pont on November 1, 1918.

For several years this business continued to operate as the Flint Varnish and Color Works (as a unit of Du Pont American Industries) and following Mr. du Pont, Mr. Hunter Grubb became President. He was assisted by Mr. W. J. Sohlinger, Mr. E. C. Thompson and Mr. W. F. Tiernan.

When the Chicago Varnish Co. was acquired that business was put under the Flint Management and this arrangement continued until 1924.

Of the personnel acquired, Walter J. Schlinger and J. T. Edgerly were two men who stayed on with the business and succeeded to responsible positions in the Finishes Division.

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FLINT PLANT - MAJOR IMPROVEMENTS SINCE 1926

<u>DATE</u>	<u>PROJECT DESCRIPTION</u>	<u>INVESTMENT</u>
June, 1926	Purchase and installation of 5 pebble mills for manufacture of Black "Duco" in Bldg. #19.	\$ 25,330
May, 1927	Construction of "Duco" Plant for increased production of "Duco".	408,000
July, 1927	Installation of centrifuges for Lacquer Base clarification.	5,755
July, 1927	Erection of new mechanical shop and Research Laboratory.	60,500
Dec., 1927	Construction of Semi-Works Paint Testing Laboratory	6,500
July, 1928 through March, 1931	Erection of 14 ball mills in Bldg. #10 for Old Line products because of trend from stone milling to ball milling.	43,365
Sept., 1929	Rearrangement of the "Duco" Plant for increased production: (a) Move ball mills to Bldg. #46 (b) Installation of 4 1,000-gallon mixers on second floor. (c) Installation of new type 150-gallon mixers. (d) Installation of 5 1,000-gallon mixers for single pigment enamels.	160,000
Oct., 1929	Improved drum cleaning facilities.	7,500
Apr., 1930	Purchase and installation of mixers and filling machine for No. 7 Line Chemical Specialties products - (#7 Top Finish, Polish, and Touchup Black)	7,268
Feb., 1932	Purchase and installation of equipment for "Dulux" manufacture.	27,972
May, 1938	Improvement of Varnish Thinning facilities	38,000
July, 1938	Improved Drum Cleaning facilities	5,255
Sept., 1940	Purchase of two 6' x 6' ball mills for Paint.	11,400

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NEW ENGLAND OIL, PAINT & VARNISH CO., EVERETT

Continuing their efforts to build a Paint Department, the Committee, which consisted of Mr. Lamont du Pont and Mr. William Coyne, on August 14, 1918, wrote the Executive Committee that they felt that the addition of the New England Oil, Paint and Varnish Company would fit right into the expansion program "and the purchase of this plant is recommended solely for the part it will play in the general plan of the Du Pont Company along Industrial Paint and Varnish Lines. The Trade Sales or Dealer business which would come by this acquisition can be handled through the Harrison and Bridgeport lines as we will take over no stock of canned goods and an opportunity is presented to make a clean-cut start of Industrial Paint manufacturing. The excess manufacturing capacity which the plant now has can be immediately utilized which, under present conditions, is of considerable value to us."

The New England Oil, Paint and Varnish Company was purchased by the Du Pont Company on September 18, 1918 for \$650,000, and the plant consisted of nine buildings, some of which were old but some quite modern. The plant was located in metropolitan Boston, in the City of Everett, situated on the double track line of the Saugus Branch of the Boston & Maine Railroad. A spur track of approximately 700' enabled several freight cars to be handled so that raw materials could be received in tank cars and pumped into adequate storage tanks. The main buildings were of brick and mill construction, all sprinkled. The varnish melting, boiling and thinning rooms were of fireproof construction. The walls of the office building, while one story in height, were strong enough to hold three additional stories. Electrical power was used throughout the buildings. The plant had a total capacity of one million gallons per year. Before the New England Oil, Paint and Varnish Company acquired the Everett Plant, it was formerly known as

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the Everett Foundry, in which were manufactured castings for the frames of pianos. It is believed that these buildings were built somewhere around 1865.

The sales of the New England Oil, Paint & Varnish Company from 1914 to 1917 and for six months of 1918, along with the percent of earnings of the company, based on percent of sales, are shown below:

	<u>Volume Sales</u>	
1914	413,888.16	7.8%
1915	436,046.15	7.3%
1916	585,097.00	10.5%
1917	658,332.00	11.6%
1918 (June 30)	384,026.10	12.3%

The principal attraction of the New England business was the fact that the volume of sales was supposed to be largely Industrial, but apparently the term Industrial then was quite different from Du Pont's interpretation of the term today, because shortly after the business was acquired, it was learned that most of the New England Industrial Sales were special products made for private companies or large volume cheap items and did not represent the substantial type of paint-on product business which they term as Industrial business today. A breakdown of the 1917 business shows the following:

Industrial	\$347,705.17	53%
Trade	174,435.17	26
Boston Store	62,408.88	9.5
Not Manufactured	<u>73,782.78</u>	<u>11.5</u>
Total	\$658,332.00	100.0%

Of the \$658,000 total, it is interesting that the largest item was Varnish, which amounted to \$328,000, or almost 50% of their total sales. Paint was only \$170,000, Putty \$63,000 and Raw Materials and Miscellaneous approximately \$100,000.

A picture of the companies which were consolidated into the New England Oil, Paint & Varnish Company is very interesting. It really was a combination of smaller companies, the principal firms

being: The Hoffman Paint & Varnish Company, Burbank & Ryder Company, Craftsman Chemical Company, and Richardson and Bracket.

The Hoffman Company dates back to 1842 and it was a combination of smaller companies not in line of descent but rather because of changing connections and personnel.

The Burbank & Ryder business was even more interesting, and it is believed that Silas Burbank was one of the earliest varnish makers in America. It is said that this business began in 1825. Silas Burbank was one of the pioneer itinerant varnish makers whose "formulas" were carried "under his hat", and "factories" carried from place to place, perhaps in a covered wagon. He made varnish in a small copper kettle and Du Pont has somewhere in the archives the original kettle which he used. Silas Burbank and his son carried the business along until about 1877 or 1878, when Nathaniel F. Ryder joined forces and the firm name was then changed to Burbank & Ryder. Their plant was located at Charlestown, near Malden Bridge, and because this was near Bunker Hill, they sold their varnishes under the trade name "Bunker Hill Varnishes".

In 1911, Lyford A. Merrow of the Underhay Oil Company purchased the J. W. Hoffman Paint Company, and a few months later acquired the Burbank & Ryder Company. These two companies were combined under the name of the New England Oil, Paint and Varnish Company, and they moved to the Everett Plant in 1912, which is the property Du Pont acquired. At the time, this plant was regarded as one of the most modern Paint and Varnish plants in the country.

Of the personnel taken over at the time, A. H. Avery continued with the business until February 1, 1927, at which time he retired.

Harry S. Chandler is now a Division Manager of Canadian Industries Limited.

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EVERETT PLANT - MAJOR IMPROVEMENTS SINCE 1919

1919 - Stain Making

Equipment installed for stain making and production started.

1919 - Warehouse

Three-story finishes products warehouse and locker room in basement.

1924 - Improved facilities of locker room.

1923 - Pebble Mill

First Pebble Mill installed.

1924 - Laboratory

Enlarged and improved.

1925 - Varnish Making

Improvements -- Stack fires changed from coke to oil burning -- Kettle sizes changed from 75, 125-gallon capacity each to 150, 300-gallon capacity.

1928 - Roller Mills

First Roller Mill installed)
Second " " " ").

1937 - Both scrapped and replaced with a high-speed Lehman Mill and two, 400-gallon mixer tanks.

1938 - Change Can Cleaning

Improvements at No. 3 Building by the installation of a booth and pumps.

1938 - Varnish Storage

Increased capacity and improved safety conditions by removing the tin plated and soldered tanks of 300 and 600 gallon capacities and replacing them by installing 29 steel tanks of approximately 1100 gallons capacity each.

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CHICAGO VARNISH COMPANY

In December, 1919, Mr. F. W. Pickard, Vice President, reported to the Executive Committee the need of additional capacity for the Flint Varnish & Color Works, the underlying reasons being:

- (1) a considerable volume of General Motors business was being diverted to competitors because of the limited capacity of the Flint Plant, and
- (2) the Chicago Varnish Company's plant had the type of equipment and somewhat the type of business of the Flint Company and its acquisition would provide what the Chicago Plant of the old Harrison Company could not provide.

The Chicago Varnish Company's business was unstable for several years by reason of the age and temperament of its executives. A number of the officers were quite elderly and the business was largely controlled by one family - the Morgans. It was learned that in September, 1913 the banks imposed a mortgage of \$400,000 on the plant so that all the factors for a favorable purchase seemed to be ripe.

About the time that these negotiations were under discussion, the Executive Committee again reviewed the lack of progress of their paint business and concluded that they had too much money invested in the trade sales end of the business, the volume of which was not progressing satisfactorily. The sales were far below the amount of capital invested and the losses each year were getting larger. This was in comparison with the automotive and industrial type of business which the Flint Varnish & Color Works had and which was showing a consistent profit, and because the Chicago Varnish Company's type of business was somewhat similar to Flint's, it was felt that the purchase of the Chicago plant would be beneficial. It was, therefore, concluded to buy the Chicago Varnish Works and turn it over to the

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management of the Flint Varnish & Color Works which at that time was running its business separately from the parent company's investment in the paint business. In April, 1920, the Flint Varnish & Color Works (subsidiary of Du Pont) purchased the Chicago Varnish Company for \$992,000. One of the provisions specified was that if the Chicago Varnish Company was bought, the company should then dispose of the old Harrison plant.

The Chicago Varnish Company's plant was located at 2100 Elston Avenue, Chicago, and occupied a tract of land 306,400 sq. ft. There were 25 buildings, mostly of brick and timber construction of the "slow burning type". The plant had its own siding, served by the Chicago and Northwestern Railway. At the time the business was largely owned by the Morgan family, and the officers were as follows:

C. H. Morgan, President
R. K. Buckman, Vice President
A. C. Morgan, General Manager
W. M. Turner, Treasurer.

A. C. Morgan was the son, and R. K. Buckman the son-in-law, of O. H. Morgan, the latter being at the time of purchase 85 years of age, and was the only member of the firm who knew the manufacturing side of the paint and varnish business.

The Chicago Varnish Company was founded in the year 1865 and carried on as such until the incorporation of the company in 1883.

Their first plant, a very small one, was erected at 204 Pine Street (now Lincoln Park Blvd.) and continued there until it was destroyed by the great fire of 1871, after which it was rebuilt on the same plot. In 1888, the company was transferred to the Elston Avenue location, and in that year they erected 19 of the present buildings. This change in location seemed to be beneficial to the growth of the company, and in January, 1909, they erected the present

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office building at the Elston Avenue location, which closely resembles old Independence Hall in Philadelphia. At the time, it was one of the showplaces of Chicago and has always been greatly admired because of its Colonial architecture.

The oldest buildings in the Chicago plant are the boiler house, electrical control room, and varnish laboratory, they being the first three that were built in 1888. The next were the circular varnish stack and three small buildings. This was followed in 1890 by Building No. 5 for varnish tank storage. In 1893, Buildings Nos. 3 and 4 were erected for varnish storage. In 1898, the present mill office and locker room were built. In 1901, the second varnish stack and thinning room and Building No. 6, which now houses the laboratory, were erected. This was followed in 1906 by Building No. 12, which is at present used for warehousing raw material, finished product and shipping, and the present paint building No. 33 was erected in 1910.

While the principal type of business of this company was largely with railroads, manufacturers of agricultural implements and some automobile business, they also had a small trade sales business-- which was sold largely to a group of seven retail paint stores, in which they owned a controlling interest. These stores were:

<u>Name</u>	<u>Location</u>	<u>Total Stock Issued</u>	<u>Owned by Chicago Varnish Co.</u>
O'Hara Paint & Varnish Co.	Syracuse, N. Y.	\$ 20,000	\$ 14,000
H. F. Smith Paint & Glass Co.	Detroit, Mich.	25,400	18,000
Fitschen Paint & Varnish Co.	Baltimore, Md.	19,100	13,100
Leis-Morgan " " " "	St. Louis, Mo.	26,000	21,000
Eason Paint & Glass Co.	Nashville, Tenn.	19,500	13,000
Schaal Paint & Glass Co.	Erie, Pa.	30,000	15,600
Letton Paint & Varnish Co.	Kansas City, Mo.	<u>19,400</u>	<u>15,100</u>
		\$159,400	\$109,800

This is merely mentioned as a matter of interest because of what will be reported about Du Pont's own retail store development. These stores

were not taken over by the company at the time of purchase, the Morgan family retaining their interest in the stores, but to our knowledge, as this report is being written in the year 1947, none of these stores are now in existence.

On Exhibit "A", attached, are shown the net sales and profits of the Chicago Varnish Company for the years 1916, 1917, 1918, and five months of 1919.

As time moved on and with the advent of "Duco", the Chicago Varnish plant was of some assistance to the automotive sales growth, but particularly was it of benefit to the development of Du Pont's railway and trade sales business. The assets derived from this purchase were the equipment, buildings and formula knowledge of Railway Finishes - particularly Primers - and their line of Varnishes sold under the familiar "yellow label".

While their Railway products were of good quality, Du Pont had to rebuild their sales because their method of obtaining business was quite different from the principles of the Du Pont Company.

Of the personnel taken over at the time of purchase, there was no one of importance who continued in the exploitation and development of our Finishes Division.

9-1-405

TOLEDO, OHIO PLANT - JULY, 1934

This plant was known as the Mountain Varnish & Color Works. As mentioned in the section describing the Flint Plant, Mr. Mountain retired very suddenly after Du Pont's acquisition. He promptly went to Toledo and rebuilt almost a duplicate of the Flint layout, but modernized and streamlined it based on his experience and knowledge gained at Flint. The Mountain Varnish & Color Works was incorporated in 1919 by John N. Willys, Edward Swift and W. W. Mountain. Mr. Willys was President of the Willys-Overland Motor Company, and this account was one of the large customers of the Flint Plant. The building of the plant was started in the Fall of 1919 and production began in April, 1920, consisting primarily of body and color varnishes and fender enamels, with the Willys-Overland Company being the principal customer. In the Fall of 1925, the production of lacquers was begun.

In February, 1933, the Willys-Overland Company, which was the biggest single customer and also the largest single accounts receivable account went into receivership, which immediately placed the Mountain Varnish & Color Works in a precarious financial position. This was during the depths of the depression and while several attempts were made to refinance the business to keep it going, the Mountain Company was not able to attract other business and because of their dependency upon the Willys-Overland account they had great difficulty in meeting their obligations. All efforts to get the business back into a sound financial position were unsuccessful, with the result that the Mountain Company was also put in receivership in May, 1934, and the business was purchased by Du Pont in July, 1934, at auction, for \$350,000, which included all plant buildings and accounts receivable. The purchase included 16 acres of ground, a large paint manufacturing building, power house, solvent storage facilities, laboratory machine shop, modern warehouse building

and a modern office building. In 1936 Du Pont purchased three acres on the West side of the plant and in 1938 they purchased 12 acres on the North and East sides of the plant.

There were two subsidiaries of the company, one known as Paint Engineers, Inc., which was organized to do a privately labeled Trade Sales business. The other was the M. V. C. Laboratories, which made nail polish for sale through the chain stores.

Paint Engineers was liquidated and the inventory disposed of to the concerns who had been buying from Paint Engineers.

The Nail Polish (M.V.C.) business was in chaotic disorder - obligations for enormous supplies of bottles and display cartons had to be satisfactorily compromised and after the whole sales policy was straightened out the Management concluded that Du Pont did not want to stay in the Nail Polish business and disposed of this end of the business to another large, successful nail polish manufacturer.

The buildings of this plant were all of good construction, but the equipment was so designed for manufacturing obsolete lines. Therefore, the buildings had to be completely re-equipped with modern machinery for manufacturing the newer types of finishes. The purchase of the Toledo Plant was necessary because of the rapid growth of the Finishes Division and this unit is now one of the most modern Du Pont has.

Du Pont were not able, nor were they desirous of retaining what few accounts Mountain sold because of their narrow margins and their method of "selling" the accounts.

LHW 0010045

TOLEDO PLANT - MAJOR IMPROVEMENTS SINCE 1934

1934 - 1934 and 1935 INSTALLATION OF "DULUX, RESIN AND ENAMEL EQUIPMENT"

The paint manufacturing building was completely remodeled from basement to roof and modern mill and mixer equipment was installed for the manufacture of "Dulux" enamels with a capacity of 240,000 gallons per month. Two cooking kettles, thinning tanks, an inert gas unit and Dowtherm vaporizer were installed for the manufacture of "Dulux" resin with the capacity of 100,000 gallons per month.

1936 - 1936-1938 PURCHASE OF ADDITIONAL ACRES

Three acres west of the plant were purchased in 1936 and twelve acres north and east of the plant were purchased in 1938.

1938 - 1938 SOLUTION RESIN MANUFACTURE

One additional cooking kettle was installed and one of the present kettles converted in order to manufacture resin by the solution method, increasing the resin capacity to 190,000 gallons per month.

1940 - 1940 SLUDGE RECLAMATION

The necessary equipment including paste mixers, a still and filtration tanks were installed so that approximately 10,000 gallons of refrigerator enamel and primer could be reclaimed per month.

1946 - 1946 and 1947 - INCREASED LACQUER CAPACITY

Additional 1,000 gallon churns and holding tanks were installed to permit the manufacture of clear lacquers, increasing the capacity from 60,000 gallons to 115,000 gallons per month.

LHW 0010046

DUP110133972

SOUTH SAN FRANCISCO PLANT - 1935

Having had enough evidence that acquiring existing paint plants was not of much benefit, and because of the large potential which exists on the West Coast, pressure was continually brought by the West Coast sales people to such an extent that Management was finally convinced that the way to expand on the West Coast was to have a plant of their own and to build it themselves.

In the early 30's, the West Coast office kept presenting facts, with specific prospects' names, to prove that the only way they could develop the business out there was to be able to show that Du Pont made the paints in California. This was because of the very strong sentimental (native-son) attitude of the Californians. Up to the time of establishing a plant, Du Pont's business on the West Coast was handled through warehouses and by direct shipments from Eastern plants. The warehousing system was reasonably satisfactory for such lines of business as trade and refinish, but the industrial business called for more prompt shipments than could be made from the Eastern plants. At the time, the trade and refinish business was handled through large distributors, which also relieved the warehousing burden in that the bulk of the stocks were handled through such outlets.

In 1933, the decision was reached to establish a West Coast plant. At the time, it was thought that a minimum size plant would be sufficient and the problem arose as to whether it should be located in Los Angeles or San Francisco. This involved a thorough study and on the basis of our existing business, and the potential in the West Coast district, it was concluded that because San Francisco was a more central point than Los Angeles the plant should be established in San Francisco. The first unit, located in South San Francisco, which is 12 miles south of the City of San Francisco cost about \$250,000. This

was in 1935. This unit was eminently successful in retaining the few industrial accounts then sold and helped to get new ones even though the capacity was only 28,000 gallons per month.

The justification for establishing the plant soon proved itself, and during the first two years of the plant's operation, it became evident that certain Trade Sales items, notably the fast-moving Whites, could not be properly serviced, even with warehouse stocks. Parenthetical it should be mentioned here that at this time Du Pont was selling Trade Sales accounts directly, having discontinued the large jobbing connections because of economic reasons.

About this time (1936-37) General Motors built a large unit for the making of Buick, Olds and Pontiac, in Long Beach, and to service this trade additional capacity was needed. Up to this time, goods for the Chevrolet and Fisher plants in Oakland were supplied from the East, and with the development of this automotive business and the continued growth of the entire business, it was necessary to add a second unit, costing around \$400,000, which was finished in 1937. This enabled Du Pont to render better service to the Automotive Division, particularly with "Dulux" and "Duco", although Undercoats were still being supplied from the East.

During the business slump of 1938, in order to keep the plant going, it was arranged to make the refinish line in the plant, and this decision not only relieved the Eastern plants, but also converted the West Coast plant into a full fledged manufacturing unit for all types of products. From the original 28,000 gallons per month in the first unit, the plant in 1938 had a capacity of 100,000 gallons per month.

On the attached exhibit is a complete history of Du Pont's sales on the West Coast, and it is apparent that the establishment of

a plant on the West Coast was a practical and sensible move, as the sales figures clearly show.

In 1941, a third addition to the plant was made, primarily to augment and streamline the plant shipping and warehousing facilities made necessary by the expanding business. The business has continued to grow, and as this report is being written in 1947 another unit is again necessary to take care of the growth.

While this is a history of the development of the paint business, it is worthy to mention here that in all probability to take care of the future West Coast business a manufacturing unit in Southern California may be necessary.

LHW 0010049

SAN FRANCISCO SALES

<u>Years</u>	<u>Industrial</u>	<u>Trade</u>	<u>Refinish</u>	<u>#7</u>
1933	\$ 268,597	\$ 116,141	\$ 200,934	\$ 56,334
1934	294,769	152,066	269,824	87,298
1935	389,545	120,010	325,391	88,864
1936	604,455	280,501	427,648	103,395
1937	724,909	332,708	532,666	98,095
1938	656,833	327,971	528,275	74,459
1939	793,287	410,331	599,901	76,292
1940	888,901	478,194	730,212	107,297
1941	1,116,732	632,301	1,036,069	126,103
1942	1,374,457	757,072	641,500	160,306
1943	1,451,255	1,316,498	732,262	342,600
1944	1,309,114	1,308,350	745,570	311,994
1945	1,194,660	1,055,727	894,936	394,653
1946	1,235,401	1,351,511	1,292,056	710,010

DUP110133976

LIHW 0010050

SO. SAN FRANCISCO PLANT - MAJOR IMPROVEMENTS SINCE 1935

- 1935 - Construction of new plant began in September. Completed and in operation early in 1936. Major buildings - #1 "Dulux" and #2 and #3 Varnish making.
- 1937 - Additional facilities built during the last half of the year - Building 21 - "Duco", Raw Material Storage, Finished Product Warehouse, #22 Drum Cleaning, #24 Change House and #25 Maintenance Shop.
- 1940-41 - Construction started late in 1940, consisting of addition to Finished Product Warehouse; Laboratory and Office. Addition of second floor to Change House late in 1941.
- 1946 - Construction of Bldg. 34 Thinner Manufacturing completed. Construction of addition to Change House started.

LHW 0010051

DUP110133977

FORT MADISON, IOWA PLANT - SEPTEMBER, 1937

With the continued growth of the Finishes business, particularly "Dulux", "Duco", and other Industrial products, production capacity was being pushed to the limit. With Philadelphia, Toledo, Flint and Chicago running day and night, it was found that much of the equipment, particularly the grinding mills, was being worn and replacements necessary. Additional facilities were not only badly needed but imminently demanded, because "Dulux" Enamel production went from a million gallons in 1933 to six million gallons in 1938, and orthodox finishes from four million gallons to eight million.

In seeking new plant facilities, the City of St. Louis was selected as a possible location from the point of view of future development, inasmuch as no Du Pont paint plants were then in existence between Chicago and San Francisco. This location was selected because it seemed to be logical to serve the Western and some of the Southwestern territories, thus relieving capacity in other plants for other territories. In searching for a location in the St. Louis district, an idle plant was found at Fort Madison, Iowa, and in early 1937, a committee, consisting of M. J. Callahan, S. L. McSorley, T. L. Riggin, S. W. Sawin and C. W. Clark, was appointed to investigate the entire situation. The plant turned out to be that of the Perfection Tire & Rubber Company, which company made tires, the largest part of their output went to the Nemours Trading Corporation. The reason the plant was available was due to the Perfection Company having gone into bankruptcy. The plant consisted of four large three-story buildings built in a rectangle, with several smaller buildings on the outside. The ground area consisted of 14 acres, enclosed with a six foot wire fence. The main buildings, consisting of two manufacturing units, each 250' x 60' connected across the front by an office section, with a 220' x 100' warehouse building

forming the rear, all steel frame and brick construction. In addition to the 14 acres within the fence, Du Pont also purchased an additional 85 acres surrounding the plant, so as to eliminate the possibility of any other industry which might be objectionable, building too closely to the plant.

The original cost of the buildings was approximately \$1,250,000. Great plans were in store for the Perfection Company, but adverse business conditions began to develop in 1922, and with limited capital the company went into the hands of the receiver. The plant was idle for 15 years and the citizens of Fort Madison were anxious to have a firm of substantial reputation locate there, because the only other industrial plant was that of the Schaeffer Pen Company. The property was offered to Du Pont for \$35,000. The construction of the buildings was good and because of the need of a plant in the Western section, Du Pont took the property over in 1937. While the cost of the buildings was seemingly cheap, the cost of rehabilitation turned out to be quite expensive, the first project on it asked for \$860,000, and was later increased \$90,000, bringing the total original expenditure up to almost one million dollars.

Fort Madison is on the West bank of the Mississippi River in the Southeastern corner of Iowa, approximately 200 miles each, West of Chicago, East of Kansas City, North of St. Louis and South of Des Moines. It is on the Santa Fe Railroad, running east and west between Chicago and Kansas City and on the Burlington Railroad running north and south between Minneapolis-St. Paul and St. Louis.

While Du Pont purchased this plant in late 1937 and made many changes, the plant really did not get into operation until 1940 due to the lull in business in 1938 and 1939, but once it got started continual additions have been made and it has developed into an important producing unit for all Divisions of the Finishes business.

11W 0010053

PORT MADISON PLANT -- MAJOR IMPROVEMENTS

1946 - Thinner Manufacturing Building and facilities - This project was primarily to remove a hazardous operation from the heart of our paint manufacturing facilities. Work was started on February, 1946 and completed in March, 1947.

1947 - Resin Manufacturing Unit - To adequately serve a growing demand for resin containing finishes logical to this plant a Resin Unit was required. It is expected that when the unit is in operation we will be able to help the Toledo Plant supply some of the needs of the So. San Francisco, Chicago and Atlanta plants (when Atlanta is built). Work was started on November 4, 1946, and start-up date is now set for April 1, 1947.

LHW 0010054

DUP110133980

THE BEGINNING OF DU PONT PAINT BUSINESS

There have been so many reasons given as to how and why Du Pont entered the Paint Industry. So, to avoid further controversy, the following is quoted from William Dutton's book -"Du Pont - 140 Years":

"New capital was authorized for the purpose of effecting expansion into new industrial lines, wherein might be possible the continued employment of many of our valuable men whose services might otherwise be lost with the termination of military demands.

"The Development Department was authorized to push its program of expansion beyond Explosives into the field of chemistry and the Department investigated not merely hundreds but literally thousands of businesses outside the explosives industry. This work, done under the direction of R. R. M. Carpenter, covered most of the industrial structure, parts of it in minute detail. Among the promising lines investigated were Paints, Varnishes, Pigments, Lacquers, Coated Textiles, Acid and Heavy Chemicals, Plastics and a variety of Fine Chemicals. These were only the nucleus of the company that was being built."

As covered by the foregoing facts, the first companies acquired were Harrison Brothers and Bridgeport Wood Finishing Company, Harrison being acquired late in 1917 and the Bridgeport Company in May, 1918. Negotiations were started for the purchase of Bridgeport in October, 1917, but consummation of the purchase was in May, 1918.

It being known that the Harrison business involved both Paint and Acids and Heavy Chemicals, and inasmuch as this history has to do only with the Paint business no further reference will be made to the acids and Heavy Chemicals Division of the business.

LHW 0010055

Excepting for having been in the Lacquer business in a minor way, as referred to in the section commenting on the Parlin plant, Du Pont's real entrance into the Paint business began in 1917 with the acquisition of Harrison Brothers and the Bridgeport Company.

At the time these companies were purchased, they were placed under the direction of the Miscellaneous Manufacturing Department which at that time was under the supervision of Mr. Lamot du Pont, but due to the fact that Mr. du Pont had many other interests to look after, the Paint business was put under the administration of Mr. Charles A. Meade as Manager, with Mr. Frank S. MacGregor as Control Manager. However, for the practical conduct of the business, the Management consisted of Mr. J. E. Matt as Manager, with Mr. E. R. Glancy in charge of production and Mr. R. T. Sample in charge of Sales. At this juncture, Leo. P. Nemzek was brought in (from John Lucas & Co.) as Technical Director. At the time of Du Pont's entry into the paint business, the Du Pont sales organization was composed essentially of men whose primary experience was in Explosives, and by 1917 an efficient selling organization had been established, but it was apparent that this highly specialized sales organization lacked the background necessary for aggressive penetration of the paint market where trade practices and merchandising methods were radically different from those covering the explosives field. Consequently, it was decided to utilize and to continue with the then existing sales organization which had been created by Harrison, and to place men, long experienced in the Du Pont methods, in key positions in the newly acquired Department.

The business continued in about the same way and with the same lack of progress as under the old Harrison regime. It was assumed that by the purchase of Harrison it would give Du Pont a good start in the Paint industry, but because of either non-aggression or lack of

vision, the business remained status quo. To promote quicker growth, this then led to the Development Department looking into the acquisition of the Bridgeport business, and as covered in the chapter on the Bridgeport Company little, if anything, was added to promote or facilitate the progress of the Department because of the sudden change in the trend of finishes. After several years, the Company realized that they had an investment in the Paint Department which was larger than their gross sales, - and profits were nil. Unfortunately, this experience established an impression that the Trade Sales or "tin can" type of business was not profitable, but up to this time little or no attention was given to the potential possibilities of this type of paint business. Naturally, this experience with the tin can type of business provoked a big question mark in the minds of the Executive Management Group and there was much speculation as to the advisability of continuing in the industry. Following further study, and after much deliberation, it was decided to investigate an industrial type of organization in the Paint industry, which resulted in the acquisition of the Flint Varnish and Color Works. This was a most fortunate purchase not only because it resulted in the acquisition of a fundamentally sound business but included a fine plant which later served to splendid advantage in the development of the automotive business. The purchase of the Flint Plant then led to their investigation of the New England Oil, Paint and Varnish Company whose business was reported as being largely industrial, but as events later developed it was of a totally different type of Industrial business which the Du Pont Company has today. So, to briefly summarize the acquisition of the four original paint companies, Du Pont acquired little in the purchase of Harrison Brothers, practically nothing in the purchase of the Bridgeport business and the New England Paint business, but the Flint purchase really solidified

the Paint Department.

Up to this time, there was little or nothing done in the way of establishing a policy for the promotion of the business other than to follow the practices that were previously in effect. The only exception was in tying in the sale of paint with the fatal "composite sales" plan which was put in existence in 1918 and which was finalized in 1919.

In January, 1921, Hunter S. Grubb, who had been in charge of the Du Pont Chemical Company, was put in charge of the newly created Paint and Chemical Department, with E. C. Thompson as Assistant, and the Department handled Paint, Dry Colors, Pigments, and Acids and Heavy Chemicals.

After Mr. Grubb spent justifiable time familiarizing himself with his new assignment, and realizing that the Paint Department was trying the Herculean task of selling several lines (Harrison, Bridgeport and New England) in conflict with each other, which is to say, they were trying to establish separate agencies in each town, all in direct competition with each other. This not only resulted in confusion within the Department itself but more particularly created confusion in the minds of the trade (and ridicule from the competitors) because shipments from the plant were being made to the different customers - which included a variety of labels, some of which were Harrison, some Bridgeport and some New England. This confusion came shortly after an episode which involved a conflict between the Sales and Production Departments of the old Harrison group, which resulted in many thousands of gallons of odd shades of House Paint being shipped throughout the country to warehouse stocks and which, due to their unsalability, had to be sold at a considerable sacrifice, causing a great deal of further unfavorable comment. These facts are cited not with any desire

to criticize, but more to emphasize the impression that was created throughout the trade as to the lack of understanding of trade practices by the Company and which resulted in general ridicule by competitors, which took many years to overcome and live down.

When Hunter Grubb realized the difficulties confronting the Trade Sales end of the business, he called for help and invited an independent outside organization to make a quick study of the trade's attitude, which resulted in a recommendation that the old lines of Harrison, Bridgeport and New England (and later, Chicago Varnish) all be discarded and Du Pont start anew with the biggest asset they had - the name "DU PONT" and the Du Pont trademark, the Oval. This was a momentous decision, but Hunter Grubb had the courage and vision to accept the recommendation, which resulted in the creation of the Du Pont Line of Paints and Varnishes and was featured in the first national advertisement which appeared in the Saturday Evening Post on February 24, 1923. (See Chart No. 1). Following this, there was a series of two page advertisements featuring full size packages of the leading items, and a tie-in with the dealer, which was the real beginning of the Trade Sales Department's growth. But, much more about this later.

While all these things were happening in the Trade Sales end of the business, "Duco" was born in 1922, and this fact is mentioned here because it will later be seen how "Duco" helped Paint and Paint helped "Duco" as the business evolved.

February 24-1923

"Quality and Uniformity measure your satisfaction in paints and varnishes"

—said the Chemical Engineer

Five years ago, the du Pont Company entered a new manufacturing field, a logical development for du Pont chemical knowledge—the paint and varnish industries. Four manufacturers, each famed for quality products, were united and brought under the control of du Pont Chemical Engineers.

After months of research in laboratories and in the field, the Chemical Engineer submitted his report.

"The one thing I can add to the present quality of our paint and varnish products," he reported, "is a system of control that will make their standard of quality absolute and unswerving. The first step is to check each ingredient that goes into a du Pont paint or varnish."



THERE is a certain varnish gum that comes from the East Indies. The gum produced by a tree one year, may be slightly different from the gum produced another year. This degree of variance must be accurately determined before a varnish of uniform quality can be produced. And variance in even one essential ingredient may be the reason why the floor varnish that gave you such excellent service three years ago failed to perform this year.

Du Pont Chemical Engineers have found the way to add absolute uni-

formity to paint and varnish formulas that have been proven by long years of service. They have taken these long-tested formulas and by accurately checking every ingredient, told the men at the grinding machines, boiling kettles and mixing tanks how to apply these formulas in order to produce products that will hold to the same standard of quality always.

The du Pont paint or varnish you buy today is certain to be of the same high quality as it was yesterday, or as it will be tomorrow.



THESE are the four former companies now united under the du Pont Chemical Engineers. From all their quality products, du Pont Chemical Engineers selected the one to be the standard and then turned the du Pont paint and varnish line.

Harrison Bros. & Co., one of the first manufacturers of high grade paints and varnishes in America—founded in 1793.

Bridgeport Wood Finishing Company, is one of the quality products since 1876.

Chicago Varnish Company, one of the leading varnish makers since 1861.

New England Oil, Paint and Varnish Company, a well-known manufacturer since 1871.

E. I. du Pont de Nemours & Co., Inc.
 Chicago Varnish Works 24th St. and Green Ferry Road
 Philadelphia, Pa. Newark, N.J. Boston, Mass.



Ask your dealer for du Pont Paints and Varnish Products. If he does not carry them, write us for names of nearest agents.

0010060

EVOLUTION OF CHEMICAL PRODUCTS DIVISION
AND THE INVENTION OF "DUCO"

Following the clean-up in the Company's postwar affairs, there were many excellent executives for whom posts had to be found, in keeping with the Company's general policy of taking care of such men.

Fortunately for the Paint Department, among the group was William P. Allen (who distinguished himself in the production of gun cotton at the Hopewell, Va. plant during the first World War). He was appointed on November 1, 1921 as Assistant General Manager of the then Chemical Products Division (Mr. R. R. M. Carpenter was General Manager). On April 1, 1923, Mr. Allen was made General Manager.

Another postwar executive was Mr. J. W. Elms, who was transferred from the Military Explosives Department to the Chemical Products Division, as Production Manager, and in 1923 was made Division Manager. Mr. J. J. Moosmann at that time was Director of Sales and was advanced to the position of Assistant Division Manager, Mr. Moosmann being succeeded by Mr. E. M. Flaherty as Director of Lacquer Sales, and Mr. H. E. Lackey as Assistant Director of Sales.

It was during the regime of these men at Parlin that "Ducc" was invented and exploited.

As referred to in the chapter describing the Parlin Plant, high viscosity lacquer, bronzing liquid and miscellaneous enamels and solvents were the principal products sold, the total sales approximating two million dollars. At that time, the field of prospects was limited, but the development of "Ducc" was like an atomic bomb hitting the entire industrial world in that it changed not only the paint industry but more so the production methods of general industry, such as the automotive, furniture and other large production units.

This new chemical product changed the whole concept of the paint business and, henceforth, from the use of orthodox products which was

practically all the industry knew about up to this time, chemistry became a most important factor.

Here it should be stated with emphasis that Du Pont - and only Du Pont - made the first big real contribution to the growth of the paint industry, and the figures shown elsewhere in this report covering the huge growth of the industry from 1925 on is attributable first to the development of "Duco" and later to the development of "Dulux", the two biggest contributions that have ever been made to the industry.

THE DEVELOPMENT OF "DUCO"

In 1920, the Parlin Plant was divided into several units. One made solvents, another made lacquers, and another made motion picture films.

Motion picture film, which consists of a flexible film of nitro-cellulose coated with a sensitive coat of photographic emulsion, was just getting into production at the film plant. During the cold months of early 1920, a great deal of spoiled film was produced because, in rolling up the film, enough static electricity was produced, the flashes of which produced light-struck streaks on the film. A research project was started in the laboratory in an attempt to prevent the formation of this static electricity during the manufacturing operations, and some laboratory studies indicated that if a small amount of sodium acetate were added to the solution of nitrocellulose from which the film base was cast, enough conductivity was added to the final film base so that any accumulated electricity would be drained off before enough built up to produce a spark. The laboratory results looked so encouraging that by the summer of 1920, it was decided to make a full plant scale run of film dope containing sodium acetate.

The unit of the Parlin Plant which manufactured lacquers, accordingly made up a batch of a very heavy nitrocellulose solution

containing the amount of sodium acetate which the laboratory results had shown would effectively prevent the formation of static sparks. The plant was to have this large batch of dope cast on the large plant testing wheel in the factory.

At this juncture, however, there was a severe breakdown in the power facilities at the film plant and the experiment could not be carried out at the time planned. Several days later when the repairs had been completed, the drum of nitrocellulose jelly, containing the sodium acetate, which meanwhile had been sitting in the hot sun, was carried to the film plant to be cast into moving picture film base. When it was opened, however, it was no longer a stiff, castable jelly, but had become a thin, syrupy, lacquer-like material.

This queer behaviour aroused the scientific curiosity of the men in the lacquer plant who had never come in contact with any commercial lacquer which contained more than from 4% to 6% of nitrocellulose. Here was a thin lacquer-like material which they knew contained a very high percentage of nitrocellulose because they had mixed the ingredients themselves. They began to wonder whether the sodium acetate offered a means of obtaining, and controlling a low-viscosity solution of nitrocellulose of high concentration. Accordingly, they outlined experiments for the lacquer laboratory to perform which comprised making up high concentrations of nitrocellulose jellies containing various amounts of sodium acetate and storing them for various periods in a hot room which would simulate the standing of the steel drum in the hot sunlight during the summer months. These solutions were examined from time to time, their body, or viscosity determined, and experiments made to see whether useful lacquers could be made from them.

The work progressed so well that by January, 1921, a finished

lacquer, of satisfactory viscosity containing 16% of nitrocellulose with the necessary softeners and resins was made up, and was sold to a brush manufacturer for use as a substitute for shellac in finishing brush handles. The product immediately proved a success and was, at that time, christened "Viscolac".

The new product, containing as high as 16% nitrocellulose immediately began to replace the conventional 4% to 6% lacquers at various locations throughout the country, particularly for the finishing of brush handles, pencils, builders' hardware, light fixtures, etc.

"For centuries, men had been paying toll to the slow-drying qualities of paint. The toll had not been so serious in the leisurely days of hand-labor, but the rapid pace of mechanized industry had made it an item of formidable size on all cost sheets.

"Motor cars and trucks rolled from the assembly lines of American automobile plants with the clanking monotony of a mechanical Mississippi, but at the toll-gate of paint, mass production groaned to a stop. It took at least a week to paint the humblest vehicle, a month or more to finish the motor aristocrats. No less than twenty-two separate coats of primers, surfacers, rough-stuff, glaze, color and varnish constituted the standard of painting perfection, such as it was, according to the methods of an art as old as the Pyramids and fundamentally as little changed. Acres of car bodies jammed warehouse floors in the process of finishing. Some producers had as many as 15,000 car bodies impounded at one time.

"Furniture manufacturers were in a similar predicament, although they had learned to recognize that paint and patience

were synonymous. Makers of pianos spent weeks in varnishing and polishing, coat upon coat. Locomotives and ships, bicycles and velocipedes, wheat-harvesting combines and tops, steel bridges and bric-a-brac, broomsticks and lead pencils, alike they waited upon paint and paid toll to its failings.

"That toll, annually, ran into large sums. A glass of water carelessly placed on the piano marred in an hour the mirror-like surface that workmen had toiled over for weeks. The varnished tops of dining tables soon became ringed and blotched. Motor car finishes cracked and discolored.

"So acute was the problem in the automobile industry that special committees were named to make studies of it in the hope of finding a solution. Shabby-coated used cars, accumulating in dealers' stockrooms, jeopardized the sales structure and the industry's future. A body finish was needed that could be put on, dried, and polished in hours, and, equally important, which would withstand the punishments of road service as long as the car itself.

"Such a finish, said paint experts, was as unattainable as the moon. It took time for paint to dry, and it always would, they asserted. The experimenters at Parlin, New Jersey, however, refused to be discouraged. They were not thinking in terms of paint. Lacquer occupied their thoughts."

As related in the foregoing, a solution seemed to be in the making. In the fall of 1921, the new experimental lacquers were used in refinishing several automobiles at the Parlin Plant, and the results looked so encouraging that the paint committee of General Motors Corp. was told about this new discovery in February, 1922. Samples of the new materials were submitted, and steel panels showing the results

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were offered. About three years were spent in testing and improving the product. Metal and wooden panels were set out on racks for weather testing against all of the elements. They were pounded, scratched and scrubbed, smeared with mud, sand, oil, grease, gasoline, alcohol and road tar. Used cars were lacquered and put into road service. Therefore, General Motors' experts were apprised of the facts about this new product, now given the trade name "DUCCO". At that time, the finishing of an automobile with the then known orthodox paint and varnish materials required weeks of time, tying up valuable floor space, hindering production, and from a durability standpoint the finishes were far from satisfactory. General Motors' executives knew that if they could reduce the time of finishing an automobile, production could be speeded.

" General Motors' engineers and chemists worked side by side with Parlin executives and chemists throughout the stuffy heat of that summer. Difficulties attendant to adapting the new finish to the exacting requirements of large scale automobile production began to find solutions.

" That autumn (1923), the Oakland Division of General Motors, which was then in charge of Mr. A. E. Glancy - at one time superintendent of the Harrison Brothers Plant - introduced "Ducc" lacquer on its open car models and, as rapidly as production problems allowed, extended the use to the entire 1924 line. Doing yeoman work in the proper application and use of "Ducc" on automobiles throughout this period was R. C. Williams (now Manager of our Automotive Division in Detroit) who had been sent out to Detroit to help get the program properly started. Here tribute should also be paid to the very fine team work of Messrs. Flaherty, Moosmann, Blms, Callahan, Shields, Hitt, Burke, and a host of others, all of whom labored day and night to help

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in this successful expedition.

"By April, 1924, Cadillac, Cleveland, Franklin, Lexington, Marmon and Moon were all prepared to finish their cars with "Duco" upon request, but due to the startling and sensational announcement of this new finish "Duco", as illustrated by the ad attached, which appeared in The Saturday Evening Post in March, 1924, public demand for the new finish began to roll in on the retail car dealers, and it wasn't long before the entire automotive industry was anxious, more so than being interested, to use the new product. In July, 1924, after exhaustive tests - one car having been sent around the world - Buick adopted "Duco" for its sports roadster, and shortly after that placed it on other models. The motor industry's paint dam burst, and a majority of the cars displayed in the 1925 Automobile Show specified the new finish as standard or optional."

What happened is now history - but Du Pont made it all possible through chemistry.

"Before another year, the old-style paints and varnishes were on the down-road to elimination from the field of automotive body finishes, and interest was becoming quite general for this product for use on washing machines, gasoline pumps, radio cabinets, golf clubs, caskets, vacuum cleaners, and particularly furniture."

The paint industry was in a turmoil. Orthodox finishes could not compete with this sensational newcomer, which made it possible to finish a motor car in two days - later, in one day - and later many cars in one day - and which wrote a new trade definition for durability as well as beauty.

As stated previously, prior to the development of "Viscolac" and later "Duco", Du Pont had only a small business in Parlin-made products, but with this remarkable development it necessitated rapid expansion and building new application technique for other industries which created a rapidly growing industrial organization to handle all the inquiries that kept pouring in from all avenues of the industrial world.

Having demonstrated what could be done in the automobile industry in both improvement in appearance as well as revolutionary production methods, sales and service to the furniture industry rapidly began to grow, - but other manufacturers, who previously supplied these industries, began to apply chemical technique in their own plants and competition soon became apparent with resultant price cuts to enable competitors to hold their old accounts.

"This discovery of "Duco" did more than revolutionize methods. It changed the trend of thought. Progressive manufacturers everywhere sought to improve all their products. The original "Duco" lacquers were steadily improved, and today the finishes-compounder studies his industry's problems through scientifically critical eyes, which see paint as a first line of defense against decay, rust and general deterioration, and as a factor in the preservation of the national wealth."

At the expense of repetition, we again say that Du Pont's contribution of a commercially usable lacquer like "Duco" changed not only the paint industry but the production methods of the general industrial world.

Out of this development, in addition to the growth of Du Pont's industrial finishes business was born an entirely new industry, which

is termed the Refinishing Industry, having to do with the refinishing of mostly automobiles and some furniture. But, the details of the growth of the Refinishing Division of the business will be covered in another chapter. In addition to the Refinishing business, evolved another division of the business, referred to as the Chemical Specialties Division, which started with the necessity for a polish to help keep "Duco" sparkling. After "Duco" was initially used on automobiles, the automotive manufacturers demanded that Du Pont furnish a polish to help keep the product clean. This resulted in the development of "Duco" Polish, and later a line of other automotive specialties, the details of which will be covered in another chapter under the subject of "Chemical Specialties".

Du Pont followed "Duco" with the "Dulux" series of synthetic resin enamels, introduced in 1927, and since then widely amplified, but the story of "Dulux" will be told in a separate chapter, except that it might be well to mention here that with "Duco" and "Dulux" it put Du Pont in the enviable position of being able to offer to industrial paint users modern products with modern application methods which helped to build for Du Pont the largest sales volume in the Industrial field and to establish Du Pont without a question as the number one supplier.

*Quoted paragraphs are taken from William Dutton's book - "Du Pont - 140 Years."

LHW 0010069

• DU PONT ANNOUNCES AN ENTIRELY NEW TYPE OF FINISH



GREATEST ADVANCE IN FINISHING ART IN QUARTER-CENTURY

Duco Finish Gives to Wood or Metal a Rich, Satin-like Surface Whose Soft Lustre Actually Improves With Age

When one has long sought for a finish which would give to wood or metal a rich, satin-like surface, whose soft lustre actually improves with age, one has been disappointed. After years of research, thousands of experiments, and exhaustive service tests, Du Pont Chemists have now announced the perfect solution to this problem. It is a finish which is adaptable to practically any material and gives an appearance of richness and quality which is unequalled. This new finish is known as Duco.

Duco is a finish developed by combining it to the finishes which give an antique Chinese lacquerware and usually Oriental pottery the soft, rich tones which have come down, unmarred through the ages. The finish which the ancient artists required months to produce in a few days is now being duplicated in a few days time on thousands of articles in competition with the finest of the old.

Amazingly Durable!

Applied to almost every material from wood to steel, Duco gives the usual deteriorating elements no rest. Lustre, durability, improvement with age. It retains its original color tone and values, and even bumps and scratches which would disgrace other finishes, do not seriously affect it.

Duco is, in brief, of such extraordinary denseness, hardness and heaviness that it forms a surface on the material it covers, which sets an entirely new standard of durability.

Rich Tones That Last!

Of the new type of finish, Duco is a finish which gives to wood or metal a rich, satin-like surface, whose soft lustre actually improves with age. It is a finish which is adaptable to practically any material and gives an appearance of richness and quality which is unequalled. This new finish is known as Duco.

Duco is a finish developed by combining it to the finishes which give an antique Chinese lacquerware and usually Oriental pottery the soft, rich tones which have come down, unmarred through the ages. The finish which the ancient artists required months to produce in a few days is now being duplicated in a few days time on thousands of articles in competition with the finest of the old.

Manufacturers of all products which require a rich, satin-like surface, whose soft lustre actually improves with age, are now being duplicated in a few days time on thousands of articles in competition with the finest of the old.

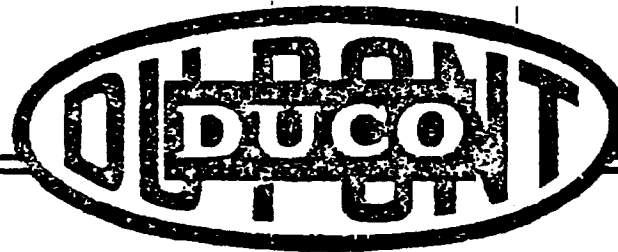
E. I. du Pont de Nemours & Co., Inc.
Chemical Process Division
Paris, N. J.

Duco is adaptable to almost any product requiring a lasting finish in color. It is already being successfully used in the following industries:

- | | |
|----------------------|----------------------------|
| Automobiles | Stoves |
| Trucks | Iron |
| Automobile Parts | Paints and Coatings |
| Automobile Radios | Radio Cases and Radios |
| Automobile Engines | Automobile and Radio Parts |
| Automobile Motors | Automobile and Radio Parts |
| Automobile Lamps | Automobile and Radio Parts |
| Automobile Tires | Automobile and Radio Parts |
| Automobile Wheels | Automobile and Radio Parts |
| Automobile Axles | Automobile and Radio Parts |
| Automobile Brakes | Automobile and Radio Parts |
| Automobile Clutches | Automobile and Radio Parts |
| Automobile Gears | Automobile and Radio Parts |
| Automobile Shafts | Automobile and Radio Parts |
| Automobile Bearings | Automobile and Radio Parts |
| Automobile Pistons | Automobile and Radio Parts |
| Automobile Valves | Automobile and Radio Parts |
| Automobile Cylinders | Automobile and Radio Parts |
| Automobile Cranks | Automobile and Radio Parts |
| Automobile Rods | Automobile and Radio Parts |
| Automobile Pins | Automobile and Radio Parts |
| Automobile Screws | Automobile and Radio Parts |
| Automobile Nuts | Automobile and Radio Parts |
| Automobile Washers | Automobile and Radio Parts |
| Automobile Bolts | Automobile and Radio Parts |
| Automobile Rivets | Automobile and Radio Parts |
| Automobile Studs | Automobile and Radio Parts |
| Automobile Pins | Automobile and Radio Parts |
| Automobile Screws | Automobile and Radio Parts |
| Automobile Nuts | Automobile and Radio Parts |
| Automobile Washers | Automobile and Radio Parts |
| Automobile Bolts | Automobile and Radio Parts |
| Automobile Rivets | Automobile and Radio Parts |
| Automobile Studs | Automobile and Radio Parts |

— VISCOLAC —

The transparent finish, without color, for use on furniture and other wooden articles where a natural finish of superior durability is desired.



LHW 0010070

LICENSING ARRANGEMENT OF DU PONT'S LOW-VISCOSITY LACQUER PATENT.

In 1924, when the entire automobile industry switched from orthodox finishing materials to the newly developed "Duco", consternation was thrown into the ranks of the paint manufacturers, and many of them who had never before been interested in lacquers organized lacquer departments and constructed lacquer factories. Eventually the Glidden Company supplied Studebaker with its low-viscosity lacquer finishes; The Ditzler Company supplied Chrysler; Rinshed-Mason furnished lacquers for some of the General Motors' units, particularly Oldsmobile; and many companies, such as Valentine, Ferbert-Schorndorfer, Jones-Dabney, Forbes, Sewall, and others operated on the fringes.

Clear "Duco" for wood finishing became popular with furniture manufacturers and with the public, and many manufacturers of wood finishes, seeing their regular business slipping away, started to make and sell the new low-viscosity furniture finishes. Lilly Varnish Company and the Glidden Company both became extremely active in this field.

Du Pont, of course, had made a patent application for its new development, and not long after the patent was issued steps were taken to enforce it. There was great reluctance on the part of many of the paint manufacturers of the country to pay royalty to Du Pont for this development, but some of them, being highly patent conscious, executed license agreements with Du Pont which provided for a nominal royalty payment and also contained a paragraph which would permit Du Pont to establish for itself and for its licensees minimum selling prices and terms of sale on the patented products, when and if the patent was sustained in the courts upon litigation.

There were about 50 establishments which were willing to sign the agreement and did so; but there were about 200 who refused to sign

and who continued to infringe the patent. It, therefore, became necessary for Du Pont to file patent infringement suits in order to protect itself and its 50 licensees. Suits were filed almost simultaneously against the Glidden Company and the Jones-Dabney Company.

The Glidden suit came to trial first in the New York area, and ended with a complete victory for Du Pont. The three-judge federal circuit court of appeals upheld the patent unanimously, saying that it was valid. The defendant Glidden Company, and about 50 other paint manufacturers who had joined Glidden in the suit with financial assistance brought pressure to bear to have the case reheard before the same court of appeals. The court granted the petition for rehearing, and the case was reargued. Again, Du Pont was completely victorious. The three-judge court for the second time, unanimously upheld the patent, saying that it was valid and infringed.

The opposition, including Jones-Dabney against whom the other suit had been filed, then capitulated and signed up the necessary agreements. Eventually, there were 250 different establishments under license.

With the clean-cut victory in the Circuit Court of Appeals, it was possible, under the law, for Du Pont to establish minimum selling prices and terms of sale for itself and for its licensees in the marketing of the patented lacquers. Each licensee was forwarded a schedule of minimum prices (January, 1934) under the seal of registered mail, with instructions that Du Pont would see to it that none of the patented lacquer was sold at a price below the established minimum.

At first, many of the licensees had the idea that enforcement of minimum prices on such a broad scale would be impossible, and they proceeded in their attempt to get business by employing their old, time

honored price-cutting tactics. It soon became evident that they were not to be successful, because every competitive salesman, when he heard of the price cutting, would report it to his management, who would immediately relay it to Du Pont. Du Pont then got in touch with the violating licensee, and in no uncertain terms told him that his license was in jeopardy, and that one of the paragraphs of his license permitted Du Pont to cancel the license on short notice which would cause him to be an infringer and liable for very large damages. During the first year of the licensing program, complaints of violation and warnings to violators sometimes ran as high as 60 per month; but towards the end of the license term, which ran approximately ten years, violations were few and far between. Du Pont had succeeded in convincing all of the licensees that price cutting would absolutely not be permitted and the entire industry began to sell with better quality and better service rather than with lower prices. The standards of the entire industry were improved and all licensees were in full accord with the principle on which the whole program was carried out. This contribution, along with Du Pont principles of selling their products, slowly but surely had much to do with the growing respect which the industry has for Du Pont.

The quality of automobile lacquers, refinish lacquers, furniture lacquers, and industrial lacquers, all increased markedly during the ten year licensing program, and all licensees, as well as Du Pont made a satisfactory profit on their sales of the licensed products.

When the patent expired May 24, 1944, and minimum price control was no longer possible, the 250 licensees were unanimous in expressing their sorrow that minimum prices could no longer be enforced. They would have been willing to continue to pay Du Pont the nominal six cents

a gallon royalty indefinitely if it had been possible for Du Pont to continue to hold the umbrella.

Copies of the final license and a full list of the licensees are to be found in the Hall of Records in Box 17.

EVOLUTION OF DU PONT REFINISH DIVISION

In the Spring of 1923, five years after the close of the first World War, twenty-seven years after the birth of the automobile, a small carriage painting shop stood in lower Manhattan, on the fringe of the financial district.

There was nothing unusual about the shop -- its duplicate could be found in most large cities throughout the country. What made it, and its companion shops, unique was the fact that the carriage had departed from the American scene years before. The automobile was "here to stay".

But, although the automobile had made great forward strides from the "horse-less carriage", with its fringed top and bicycle tires, the methods employed in painting the new machine were as painstakingly slow and laborious as those followed in carriage painting.

Thus it was that, although the carriage was gone, the carriage painter remained. Perhaps he called himself an automobile painter -- whatever the title it was but an up-to-date name for an ancient craft. As in the days of the victoria and the landau, painting the automobile was a task that took from 30 to 50 days, depending upon the price paid for the job. Coat after coat of pigmented varnish was carefully brushed onto the body. After each coat had dried a day or more, it was carefully hand rubbed with pumice and water.

Not all automobile owners could afford to have their cars painted by professionals, because of the expense. Many owners attempted the job themselves, with results that would have been laughable had they not been so unfortunate.

But while the little carriage painting shop survived in Manhattan and elsewhere in the nation, a material had already emerged from the test-tube that would sweep it away just as the carriage had gone before it.

This new material -- "Duco" -- had already been field tested on several automobiles and had been adjudged ready for new car production.

While "Duco" was being tested by General Motors, tests on refinishing automobiles were also being carried on in a number of paint shops, notably the famous Brewster Shops in Long Island City, and the Dunham Body Company in Newark, N. J.

When "Duco" made its appearance on the Oakland car, it was accepted immediately by the car-buying public. It was far better looking than the old carriage finishes, and its durability far exceeded anything the automobile manufacturers had been able to offer. Car buyers demanded "Duco" on new models -- car owners clamored to have "Duco" applied to their old cars -- dealers sought a means of repainting the thousands of used cars that clogged their lots, that found no buyers because of the miserable appearance of their faded, cracked finishes.

However, "Duco" was not applicable to the carriage painter's art. It had to be applied by spraying. Thus, Du Pont was faced with the opportunities of a waiting market for "Duco" in the automotive refinish business -- and no outlets through which to reach that market.

Normally, such a problem could be simply solved. Given a product for which there is a tremendous demand, and no service outlets, the manufacturer ordinarily would need only publicize the opportunity and select from the thousands of applicants those he believed most reliable and financially stable, and award franchises. However, "Duco" presented a problem that was not ordinary. "Duco" had to be applied properly, to a surface correctly prepared to receive it.

And so, Du Pont solved the problem not by altering the product to fit existing methods of merchandising, but rather by creating an

entirely new industry -- the automobile spray refinishing business.

And thusly, the Refinish Division was created. This was in the Spring of 1923. In getting started, there were three basic problems:

1. Distribution.
2. Teaching the use of "Duco".
3. How to be sure the car owner obtained a representative "Duco" finish.

Distribution of "Duco" nationally was secured by the granting of 31 exclusive distributorships throughout the country. In all cases these distributors were either qualified body builders and painters, or having an outstanding reputation in the automotive field and who were conversant with the problems of automobile repainting that existed at that time.

In order to assure the proper application technique of the new material, the distributor's painters were thoroughly trained in the proper method of applying the "Duco" finish. Of course, this was after Du Pont had selected and trained a group of men who were qualified to go in the field to teach the art of refinishing.

In turn, distributors were expected to train all those who applied for the right to set themselves up as "Duco" refinishers. Two schools for training painters were established, - one in Brooklyn, New York, and another in Chicago, and were known as National "Duco" Instruction Shops.

Once a painter showed an aptitude for "Duco" application, he was eligible to apply for an Authorized "Duco" Shop designation. A group of Du Pont inspectors made periodic checks on all shops to make certain that car owners received quality workmanship on "Duco" jobs.

Toward the end of 1924, Du Pont deemed it advisable to review

the progress of their training program, and held their first convention of distributors at Parlin on December 2, 3, 4, 1924. This proved most practical and profitable as it cleared away many misunderstandings. At the meeting it was stated that "Duco" was attracting so much attention it was necessary to police all shops to insure owners getting a genuine "Duco" finish. Accordingly, it resulted in training a new force of inspectors to go to all refinish shops to check on methods, products and results. This was a very important decision because it established a pattern and principle for authorized shops, and protected Du Pont against unscrupulous shops from capitalizing on the trade name which was becoming so famous.

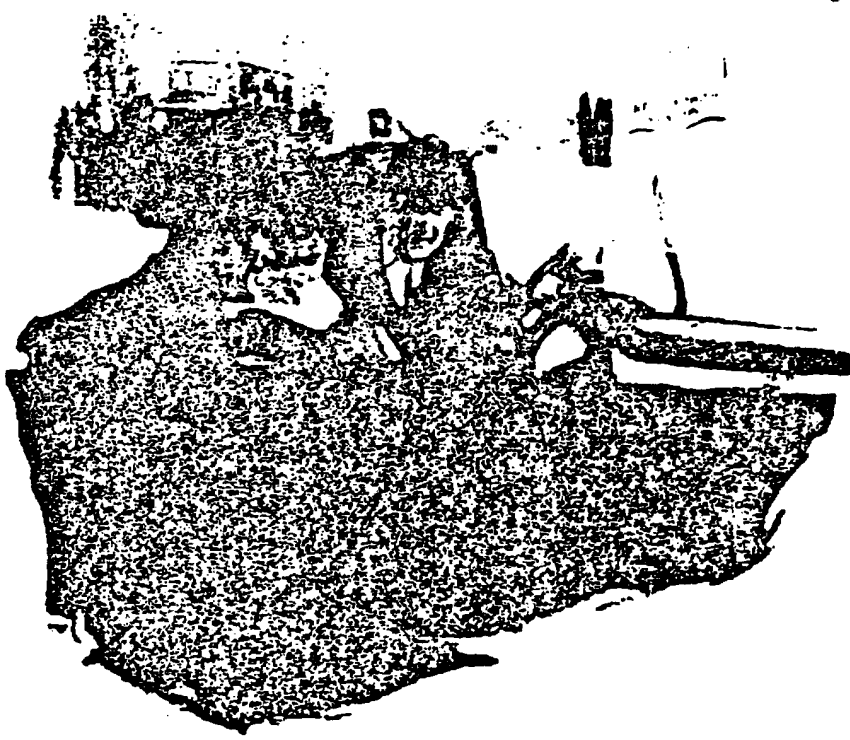
The successful establishment of the "Duco" Authorized Shop spelled the doom of the carriage painter. Most of the old carriage shops faded from the American scene -- a few adapted themselves to the new order of the day, accepted the spray method of automobile painting, and became "Duco" shops.

As of May, 1925, there were 943 authorized refinishers established throughout the country, but as of December, 1925, there were 4081 authorized refinishers and 32,172 unauthorized refinishers. And these all evolved from the development of "Duco" - a really new and large industry.

During the first two years following the introduction of "Duco", Du Pont advertised the new material widely through the pages of such national publications as The Saturday Evening Post. These ads covered every phase of "Duco" application -- furniture, toys, etc. Automobile refinishing was mentioned as one phase of the "Duco" potential.

On February 7, 1925, the first ad devoted exclusively to the refinish story appeared in the Saturday Evening Post. (Copy attached). The distinctive sign awarded all Authorized "Duco" Shops was featured

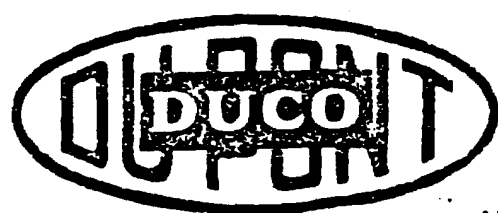
DUP110134005



"It looks like a new car"

"—and thank you for your promptness.
 "DUCO makes the old bus look wonderful.
 "To tell you the truth, I used to be a little bit self-conscious in the traffic line—like a man in a crowd who hasn't shaved.
 "No, we didn't miss the car over the week-end . . . stayed home and did some chores 'round the house that I've been putting off for months, and the few extra week-days my wife shopped over the 'phone.
 "It has certainly been worth while; and when I do turn the car in, its re-sale value will be much higher.
 "Well, good-bye . . . you say just water and the occasional use of DUCO Polish will keep it looking like this?
 "Easy enough"

E I DU PONT DE NEMOURS & CO INC
Chemical Products Division
PARLIN N J **FLINT MICH**
Lead on Fluoropolymer Film & Sheet & Coated Wire Cloth



LHW 0010079

in this ad, and all distributors were listed. This use of the Authorized "Duco" Shop sign was a device to educate the car-owning public to look for the sign as an assurance of a "Duco" job properly applied.

Three years later, a national advertising campaign was instituted in three leading weekly magazines, emphasizing the Authorized "Duco" Shop. This campaign continued until the early 1930's.

Meanwhile, the authorized shop program was being given the impetus of a concerted merchandising campaign. The metal "Authorized Shop" sign was made available to all refinishers agreeing to use Du Pont materials exclusively, in accordance with our application specifications.

During the first years of "Duco" promotion, many attempts were made to infringe upon the name. However, prompt legal action in all cases established and preserved the legality of our trade-mark.

Initially, the "Duco" line was offered in only 21 colors. It soon became apparent that a complete line of colors used on all cars would be necessary, in order to offer car-owners an accurate and complete color matching service on touch-up work. In October, 1924, the first color bulletin was issued, showing the colors used on various makes and models in new car production.

The original Refinish line consisted solely of "Duco", in colors and black, and "Duco" Thinner. In November, 1924, undercoaters were added to the line, and one month later, "Duco" Rubbing Compound was introduced, along with "Duco" Cleaner and No. 7 Polish. Thus, Du Pont was able to offer the refinisher a complete line of "Duco" products, from the undercoat through the final polish of the finished job.

On January 1, 1925, the first Refinish price list was issued, listing "Duco" at \$6.40 per gallon in one-gallon cans, and thinner

at \$2.50 per gallon, in drums. In keeping with the Du Pont Company policy of reducing prices wherever possible commensurate with sound business practice, "Duco" prices were reduced to a low of \$5.00 per gallon on colors and \$4.25 per gallon on black in 1937. Subsequently, prices were increased slightly due to raw material increases and inflated manufacturing costs.

Until July, 1925, the specifications for "Duco" application in refinishing work called for complete removal of the old finish, by burning and scraping or the use of a paint remover. At that time, the specification was altered to allow the application of "Duco" over the old finish, provided it was in sufficiently good condition to produce a firmly anchored finish coat.

During the first two years of its history, the headquarters of the Refinish Sales Section was located in Parlin.

In October, 1925, the Refinish Sales headquarters was moved from Parlin to Detroit, and placed under the Automotive Sales management. Sales offices were established at Parlin and Chicago, with San Francisco operating independently.

In April, 1926, a far reaching move was made by the Chevrolet Division of General Motors, which greatly benefitted Refinish. Used cars had become a big problem to Chevrolet dealers. They couldn't sell them and the dealers' capital was rapidly being frozen. After an extensive investigation, the Chevrolet officials decided that the solution to the problem was to get the dealers to recondition their supply of used cars, which included refinishing.

Chevrolet trained crews of painters and sent them into the principal cities on the Atlantic Coast, demonstrating the increased used car sales potential that developed through the simple expedient of improving the appearance of such vehicles by repainting and re-

conditioning. The initial demonstrations were so successful the plan was extended on a national basis, and as a direct result, thousands of car dealers who had never before considered refinish shops became vitally interested in this phase of their operation.

Refinish Sales took a step in January, 1926, that was designed to extend the scope of its business. In an effort to increase the volume and profits of refinish shops, specifications were issued covering the refinishing of furniture in "Duco" Clear and colors. It was believed at this time that authorized and unauthorized "Duco" shops could operate a furniture refinishing department and thus develop a greater potential.

The plan was a failure, owing primarily to the fact that most furniture refinishing involved some woodworking -- which auto paint shops were not in a position to carry out.

One year later, however, Du Pont was able to in some measure achieve the purposes of the furniture refinishing program by recommending that auto paint shops enter the refrigerator repainting business. Here, working with metal surfaces, the refinisher was at home. Too, the finish on most refrigerators was "Duco". Many shops throughout the nation developed a profitable business in this phase of their operation, and have continued to do this sort of work to the present day.

January, 1928, brought the introduction of 259-Line Flexible "Duco" for commercial vehicles. Progress in this field was limited, owing to the preparatory work involved, and until the development and release of "Dulux" finishes, this market remained dormant.

The owner of the company distributing "Duco" in Boston, Washington and Atlanta died in June, 1928, and rather than appoint new distributors in these areas, the Company set up "Duco", Incorporated to handle its distribution. This marked the first change in the system of "Duco" distribution, a change that was to develop in later years into a policy

of replacing all distributorships and relying upon jobbers to more adequately service refinish shop customers.

The first jobber was signed in 1930 -- The Cameron & Barkley Co., Charleston, S. C. -- operating under "Duco", Inc. of Washington. The success of the new plan in Charleston led to the subsequent extension of the jobber plan throughout all Distributors' territories.

SERVICE WAREHOUSES

As the demand for Du Pont Refinishing products kept growing, it became evident that the Distributors alone could not render adequate nor prompt service.. Management therefore concluded that jobbers were necessary in every trading area. In 1932, a program, national in scope was initiated in widening the number of outlets, and by the end of 1933 - 117 Jobbers were appointed. This expansion program continued and by the end of 1941, there were 771 Jobbing outlets. Coincident with this expansion, Du Pont opened four warehouses, and as Distributor connections were being absolved by the establishment of Du Pont Service Warehouses, the whole distributing structure kept getting stronger - by the end of 1946, there were only three Distributors remaining and Du Pont now has 38 Service Warehouses and 1500 Jobbers - with more to come - thereby providing all Refinishing Shops with almost immediate service.

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Incidentally, it was in May, 1930 that Motor Car registrations were adopted as a measuring stick to estimate sales potential and to compare performances in the respective territories. Thus, it should be apparent as to the justification of widening the number of jobbing outlets.

"Dulux" for Refinish was first announced in January, 1930, and it soon became apparent that Du Pont, for the second time in seven

years, had stolen a march on the rest of the paint industry.

Refinishers hailed "Dulux". Here was a finish that required no compounding, hence reduced labor costs and meant the shop operator could take the lower-cost work he had formerly had to turn down.

Automobile dealers found in "Dulux" a perfect finish for medium and lower-priced used cars -- they could turn out the repaints faster, at less shop cost, and could get better prices for cars they previously had felt did not warrant a "Duco" repaint.

Initially, "Dulux" did not solve the problems of the commercial vehicle business. However, when Preparakotes were released, in 1935, the "Dulux" system for trucks, buses and other commercial cars became the No. 1 painting specification throughout the industry. Recent surveys by fleet publications show that "Dulux" is the favored finish by a margin of 4 to 1 over the second choice material.

In November, 1932, in line with the general reorganization of the F. & F. Department, Refinish Sales headquarters was moved to Wilmington, with Mr. J. T. Edgerly, as Manager, and regional offices were established at Philadelphia, Boston, Atlanta, Chicago and San Francisco. Dallas was added to the Regional set-up in 1940, and Cleveland in 1946.

February, 1934, saw the introduction of the Calibrated Mixing Set, a series of small measures designed to allow refinishers to mix colors to match factory standards within their own shops. By including the color formula for all "Duco" colors in our Motor Car Service Bulletins, it was hoped that refinish shops might be able to produce a good match for any car that came into the shop, particularly in emergencies where extreme speed was demanded and time did not allow a pick-up of an out-of-stock color.

LHW 0010084

Although the Mixing Set was as accurate as any ever offered the refinish trade, its success was limited and despite aggressive merchandising the set fell by the wayside.

In October, 1935, "Duco" Metallic Colors were released, providing new color effects and more beautiful finishes for America's automobiles.

"Pyralux" was introduced in April, 1937, and gave a third finish to round out the Du Pont line. Developed primarily for lower-cost touch-up and over-all jobs, "Pyralux" filled a definite want in the refinish business. It was discontinued during the war, and due to distinct improvements in the "Duco" 246-Line, will not be reinstated.

In 1941, just prior to the introduction of raw materials allocations, "Dulux" products, based on alkyd resins, constituted 46% of the total production or 368,036 gallons, as against 1,136,354 gallons of PX materials.

The war years were trying years for the Refinish Sales section. "Dulux" had to be virtually abandoned due to a lack of phthalic anhydride -- "Duco" production was reduced considerably. Nevertheless, Du Pont was able to hold its distribution system together and actually to emerge into the reconstruction period with a large backlog of new jobbers, sold during the war on a "when available" basis.

The end of the war did not mean the end of shortages. "Dulux" production was resumed, only to be shut off a few months later. First materials were in short supply. When that situation righted itself, containers became almost impossible to secure. Actually, two years after the war ended, "Dulux" products were still so far short of demand that all efforts to advertise and merchandise, "Dulux" again had to be dropped. They just couldn't take care of a fraction of "Dulux" back orders, let alone seek new outlets.

However, despite shortages and recurring problems of production,

Refinish Sales in 1946 rose to a new high - six times the sales volume predicted in 1925 as the absolute ultimate in the Refinish business!

In fact, the writer can recall, during the recent war period, when Management thought the Refinish Division was almost ready to fold up. Unfortunately, that attitude manifested itself on several occasions - and it should be emphasized here that the Paint Industry is stable and sound, and that Du Pont's growth in it is only going to be in proportion to the effort they put against the market. See the chart showing the growth of the industry from 1922 to 1946, and Du Pont's growth in comparison.

One of the most pressing competitive problems Refinish Sales has had to face concerns the extent to which "Duco" factory-matched colors should be produced. The tremendous pressure exerted by manufacturers including color mixing machines in their merchandising and sales programs naturally influenced Du Pont's own color production.

The solution was the establishment of a postwar policy of producing all new-car production colors for current models and the three preceding years, plus any colors used on older models for which the demand exceeds 75 gallons per year. It is believed that this policy will provide the majority of refinishers with available matching colors for practically any touch-up job that comes into their shop.

The carriage shop is gone, and with it the master artisan who produced the beautiful decorative motifs that adorned the regal victoria. In its place is a new industry, giving employment to thousands more than were involved with carriage painting, producing better, faster automobile paint jobs, better geared to the faster tempo of modern living.

In the short space of twenty-four years, Du Pont chemistry has created an industry -- created it, and dominated it with outstanding

products. And the history of Refinish Sales is young. Steadily expanding, it outstripped the most expert early estimates of its scope. The promise is for greater progress in the future, for like all phases of the Du Pont operation, it is dynamic, rather than static.

Still to be released to the trade at this moment are the new "Duco" Metall-Chrome finishes, newer "Duco" formulations in the 246-Line that surpass any materials heretofore marketed under that name, plus several new products that will enlarge the Refinish Line.

To whom credit is due - First to the creators of "Duco" and "Dulux". Then to the Management at Parlin who envisioned the opportunity of the refinishing business potential - and, finally, to the aggression and soundness of the Refinish Sales leaders -- Messrs. Edgerly, Lounsbury, Masterson, Goldich and Baldwin, all of whom have since risen to bigger responsibilities within the Finishes Division. These men kept abreast of the times and kept bringing the Management all the important factors that helped build not only a sound policy, but more particularly unquestioned leadership for Du Pont in the Refinish field.

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TIME TABLE OF REFINISH PRODUCTS, AS ADDED

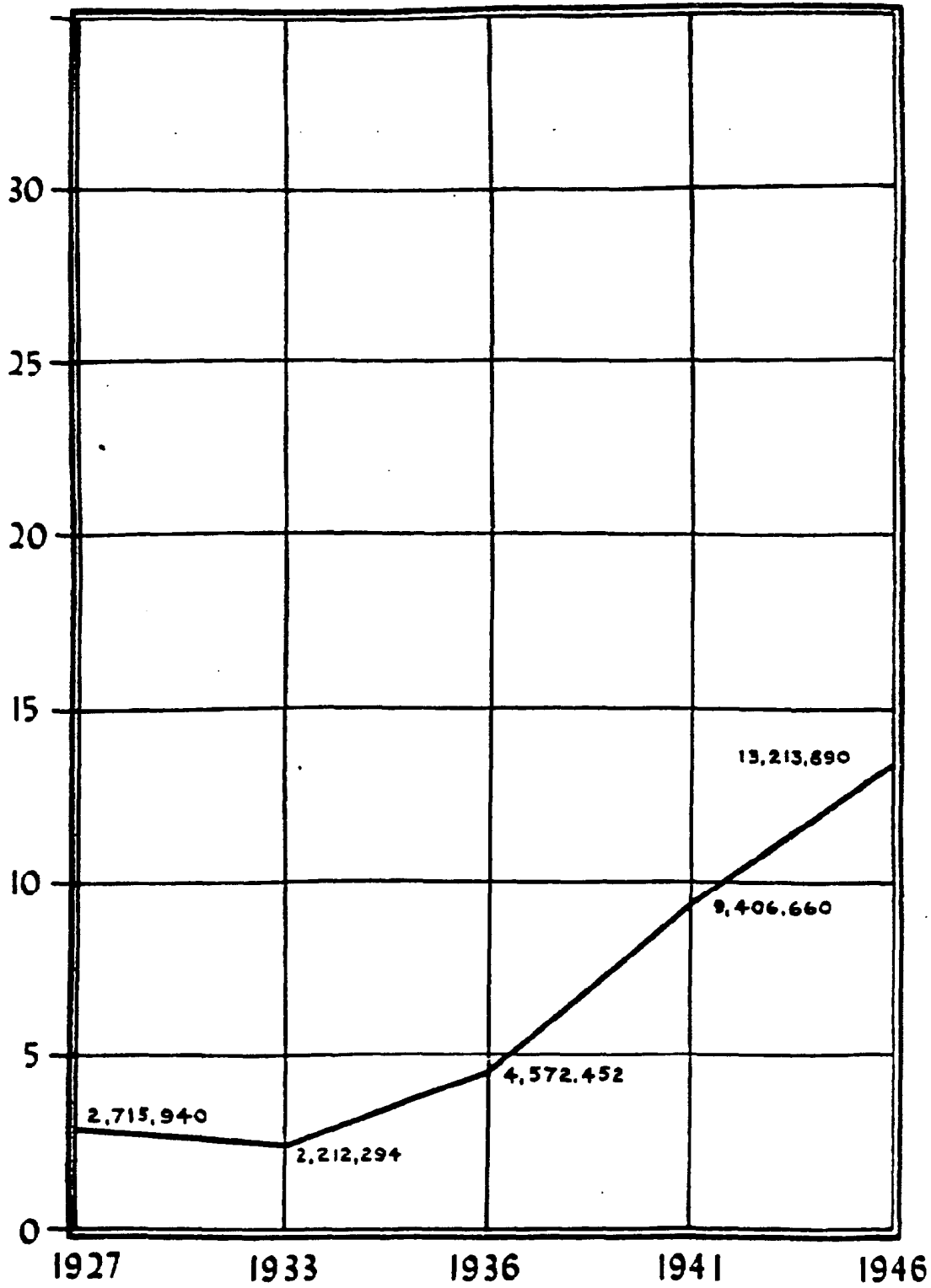
11/3/24 - Withdrew from sales "Duco" Maroons due to poor durability.
11/5/24 - Blue Diamond Undercoats, Primer, Surfacer and Putty.
12/1/24 - "Duco" Rubbing Compound No. 2.
12/1/24 - "Duco" Cleaner & Polish No. 7.
5/4/25 - Retarder.
11/4/25 - Chassis Black No. 2.
2/25/26 - PX Surfacer.
5/12/26 - PX Primer.
5/28/26 - PX Putty.
8/3/26 - Shielding Compound.
5/20/27 - "Duco" Striping Colors.
11/20/27- "Duco" Tinting Colors.
1/6/30 - Hi-Speed PX Primer-Surfacer.
1/11/30 - "Dulux".
3/5/30 - Clear Gloss Lacquer.
6/21/30 - "Dulux" Exterior Clear.
11/28/30- "Duco" changed from 244-Line to 246-Line.
12/9/31 - 246-2048 Black.
6/7/32 - "Dulux" Striping Colors.
5/20/35 - PREPARAKOTE.
5/27/35 - PREP-SOL.
10/25/35- "Duco" Metallic Colors.
2/17/36 - "Dulux" Putty.
4/30/37 - PYRALUX.
8/12/38 - PYRA-PREP.
12/8/39 - VARI-TEMP Thinner.
1/27/40 - "Dulux" MAKE-READY Undercoat.
7/14/42 - Automotive BLEEDERSEAL.
5/28/46 - METALLI-CHROME.

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REFINISH

MILLIONS



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EVOLUTION OF THE NO. 7 LINE
CHEMICAL SPECIALTIES DIVISION.

When "Duco" was first developed at Parlin, the chemists thought it would keep automobiles bright and lustrous for years. However, they found that the new finish "chalked" after a year's exposure to the elements, and needed to be polished from time to time to restore its original color and lustre. Oily polishes were tried at first -- the kind then used on the old varnished automobiles -- but they were not satisfactory. Then they tried Bon Ami and Hand Sapolio. These cleaned away the chalked pigment and dirt film, but left tiny scratches which marred the car finish. So Du Pont chemists decided to make a liquid polish especially suited to "Duco" -- containing a fine abrasive to scour away the chalked pigment, and an oil to lubricate the dirt particles so they could be wiped away easily.

In brief time the new polish was formulated, (and improved several times since) but the original formula was sufficiently satisfactory, and put on the market under the name "Duco Polish No. 7". It was planned originally to call it just "Duco Polish" but realizing that other manufacturers would bring out polishes and that dealers would refer to all substitutes as "Duco" Polish, - to avoid confusion and to keep the advantage of selling their own polish for their own "Duco", the figure "7" was added to the name of the product, - thus becoming "Duco Polish No. 7". Later, consumers wondered what the No. 7 "stood for". The common assumption was that the formula was the seventh one developed by the laboratory, and the first one which proved entirely satisfactory. However, that was not the case. The "7" was simply used as an identifying mark to insure, if possible, the motorist getting Du Pont "Duco Polish" instead of some other brand.

In later years, as Du Pont brought out other automotive products,

they reversed the procedure and put the No. 7 at the front of the name, and thus called the Auto Polish "No. 7 Duco Polish." The same prefix was used in naming other items, such as No. 7 Top Finish, etc. and the group became known as "The No. 7 Line."

When it was first introduced, No. 7 Polish was put up in tall rectangular pint and quart cans, and packed in wooden cases. That was in May, 1925. The polish was manufactured by the "Chemical Products Division" and, because that division had no specialty salesmen, arrangements were made to have the Paint and Varnish Division, then headquartering at Philadelphia, Pa., handle the sales.

The original policy was to sell direct to dealers as well as to jobbers, all at the same prices. The retail prices were \$1.00 per pint, and \$1.50 per quart.

The Paint & Varnish salesmen, assisted in a small way by the "Fabrikoid" salesmen, sold the polish to a good many hardware stores and paint dealers but had little success with the wholesalers, for the following reasons:

1. No. 7 Polish was a new product for which there was little demand.
2. The trade discount schedule was all wrong.
3. Du Pont gave the jobbers no protection. They offered dealers the same prices as they offered jobbers.
4. The Du Pont paint salesmen were not contacting the proper outlets. Their calls were nearly all made on hardware and paint dealers when, to sell an auto polish, they should have been calling on service stations, car dealers and other automotive outlets.

In less than six months, it became evident that the polish was not being sold properly, and that sales would almost stop when the Paint and "Fabrikoid" outlets were all stocked. The Paint and Varnish

Division thereupon engaged G. W. Sherin to handle polish sales. Mr. Sherin had been in advertising and sales work for many years, the last six of which were spent as advertising and sales promotion manager for the American Bosch Magneto Corporation, of Springfield, Mass. He was an expert in Specialty selling.

Mr. Sherin was hired by J. W. Elms, Manager of the Paint and Varnish Division, and started in October, 1925, at the main office of the old Harrison Paint Plant at Philadelphia, Pa. A few months later, Mr. Elms suggested to the Chemical Products Division, headquartering at Parlin, N. J., that the manufacture of "Duco Polish No. 7" be transferred to the Philadelphia plant, permitting the Paint & Varnish Division to handle the production as well as the sales, but the Chemical Products Division, then headed by Messrs. J. J. Moosmann and E. M. Flaherty, refused this proposal. They decided to keep No. 7 Polish in their own division, and in May, 1926, they transferred Mr. Sherin to their Detroit office (then handling the division's automotive sales). The Polish was being manufactured at their plant at Flint, Mich.

Mr. Sherin started with four salesmen, one in Boston to cover New England; a second in Philadelphia to cover the middle Atlantic states; a third in Chicago to cover the midwest, and a fourth at Charleston, S. C. to cover the southeast. Progress was slow at the start, first because the market was limited to "Duco"-finished cars, and there were not too many of them at the time, - and secondly, because a lot of paint dealers had been sold at the jobbing price who had to be put back on a dealer basis before Du Pont could get legitimate jobbers to cooperate; and thirdly, because the automobile polish business was comparatively small, neither the jobbers nor dealers would give it much attention. The unit sale was small.

But Mr. Sherin, based on his experience, knew what was necessary

to expand the market and attract new jobbers. He recommended and Du Pont adopted a policy right from the start of advertising the polish nationally. The advertising started with a full-page, two-color ad in the October 24, 1925 issue of the Saturday Evening Post and told the story of "traffic film". (Copy attached.) It explained that tiny particles of burnt oil and grime were discharged from the exhaust pipes of automobiles, and these settled on automobiles and formed a thin dirt film which dulled the lustre of the finish. This was called traffic film, and it was explained that the film could not be removed by washing, or the use of oil polishes. The announcement said that Du Pont, the inventors of "Duco", had developed a special polish which removed traffic film and restored the original color and lustre of the finish -- quickly and safely.

While this "traffic film" story was interesting, Du Pont learned later that it was not entirely true. Careful studies made subsequently by Du Pont chemists showed that the dulling of the lustre was caused largely by chalking of the finish, although a scum did accumulate, and helped to spoil the appearance. The chemists again got busy and formulated a polish which contained a mild abrasive to scour away the chalked pigment, and an oil to lubricate the dirt particles and permit their easy removal.

The original full-page advertisement was followed in 1926 by a series of single column ads in the Saturday Evening Post. Thus, with the aid of national advertising, a sound sales policy and an aggressive selling program, they were able to develop a substantial sales volume on No. 7 Polish (over a million dollars in 1929).

The success of this one item led to competition (as is natural with any successful Specialty) putting other "Duco Polishes" on the market in increasing numbers. This competition was met by adding to

the sales force, increasing the advertising expenditures, and getting some of the leading car manufacturers to recommend "Duco" polish. The manufacturers who adopted "Duco" as their car finish were anxious to have their customers like it and were willing and anxious to do everything possible to maintain the appearance of the car. In due time, Chevrolet, Buick, Olds, Pontiac, Chrysler and other car manufacturers agreed to put three ounce sample cans of No. 7 Polish in the tool kits of their automobiles, and to recommend "Duco" Polish on their windshield stickers and in their instruction books. Du Pont supplied the windshield stickers and the three ounce samples, without charge to the car manufacturers, and for several years furnished approximately 2,000,000 No. 7 Polish samples annually. This gave Du Pont tremendous prestige with the motorists and car dealers, and helped expand sales during the next few years. Eventually the car manufacturers brought out polishes of their own, and stopped sampling and recommending Du Pont's. This was in line with most of the automobile manufacturers marketing a line of automotive specialties for sale through their own dealer organizations.

In February, 1927, Du Pont brought out a black top dressing for use in renewing the finish on rubber coated fabrics, then used on automobile tops. This was a long oil varnish, and was developed in the Flint laboratory. It was called "No. 7 Auto Top Finish" and sold as a companion product for No. 7 Polish. In the same year a third product was added -- a paste nickel polish. That was long before the advent of chromium fittings, and there was a real need for a good polish to brighten the nickel plated radiators on automobiles. Du Pont acquired the nickel polish by purchasing a formula from a Mr. Lee in New York. The price was \$500 and proved to be a very good investment, because the nickel polish sales amounted to several hundred

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thousand dollars during the next few years.

Du Pont brought out a fourth product in October, 1928. It was a black enamel for use in touching up scratches and worn spots on automobiles. This was called "No. 7 Touch-up Black" and, since practically all cars at that time were finished in black, it had a wide appeal. Sales reached nearly \$150,000 during the first 12 months, and increased steadily thereafter. Thus, they had four products and a flourishing business within three years after the start, and were well established as manufacturers of the Du Pont No. 7 Line. By the fall of 1929, Mr. Sherin had 39 salesmen working exclusively on No. 7 products, and H. R. La Towsky was transferred from Trade Sales to help him handle the administrative work. Mr. La Towsky joined the Paint and Varnish Division in June, 1927 and was sales promotion man at the Chicago branch from that time until his transfer to Chemical Specialties.

One by one, other products were added - and to date (May, 1947), there are 26 items in the line - including "Duco" Cement and Cellulose Sponges - the sale of which the Chemical Specialties Division is handling for the Cellophane Division. As Mr. J. J. Moosmann pointed out in a study made in 1944, the Chemical Specialties group of salesmen is capable of giving any of the Company's Departments quick and wide distribution on any consumer type of products.

It is probably safe to say that the No. 7 Line of products has the widest national distribution of all Du Pont products.

The foregoing describes the beginning and the development of the Chemical Specialties Department, and as the sales figures will prove, the growth has been remarkable, and like "Topsy" keeps on growing, - all springing from the development of "Duco." Messrs. Sherin and La Towsky have carried the heavy responsibility and are

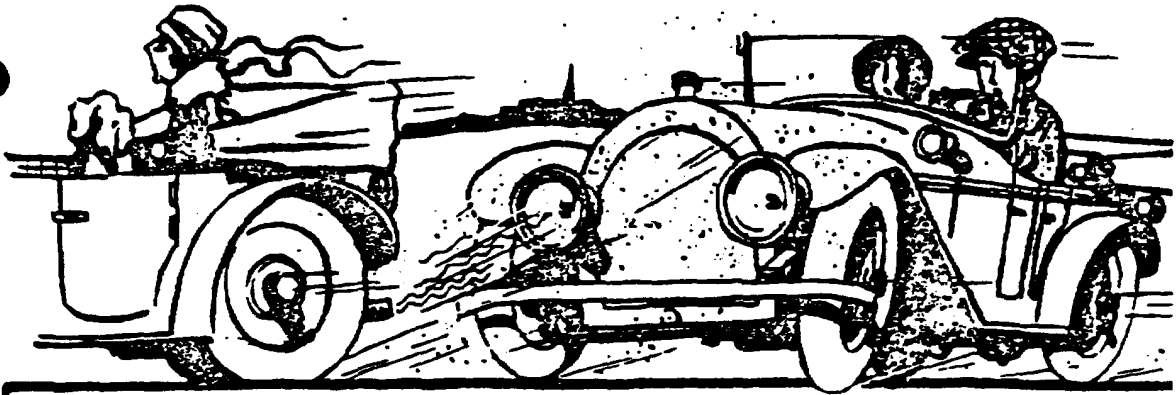
entitled to the major share of credit for the growth of the Division.

This line, being made up entirely of Specialties (and the unit sale not being large) MUST have advertising support to stimulate demand and be supplemented by missionary sales work in the interest of the jobbers.

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WHENEVER you drive—that disgusting nuisance, "Traffic Film," forms on your car.

You cannot evade it, for the exhaust of almost every car is loaded with tiny particles of oil, which have passed through its cylinders . . . these cummy oil particles are blown around the body of your car . . . wherever they touch, they stick . . . after a while there are enough so they adhere to each other—and then your car is coated with Traffic Film.

Its surface promptly catches and holds, the flying dust, which is everywhere—and, as the film becomes more dense, the beauty of your car, the richness of its color, and the brilliancy of its finish can be but dimly seen through the grimy dullness of the film.

Traffic Film cannot injure Duco Finish, as it injures old-type finishes, —but it does hide its lustrous beauty.

Because Traffic Film is not easy to remove, and because owners of Duco-finished cars wish Duco beauty to be always seen, the same Chemical Engineers who created Duco have also produced a new Du Pont product—Duco Polish No. 2, which removes Traffic Film.

With a little of Duco Polish No. 2, on a soft cloth, you can easily wipe off the Traffic Film, and reveal the undisturbed, serene lustre of your Duco-finished car.

Ask your dealer for Duco Polish No. 2. If he does not supply it, fill out the coupon, and mail it to us.

Polish Duco with Duco Polish

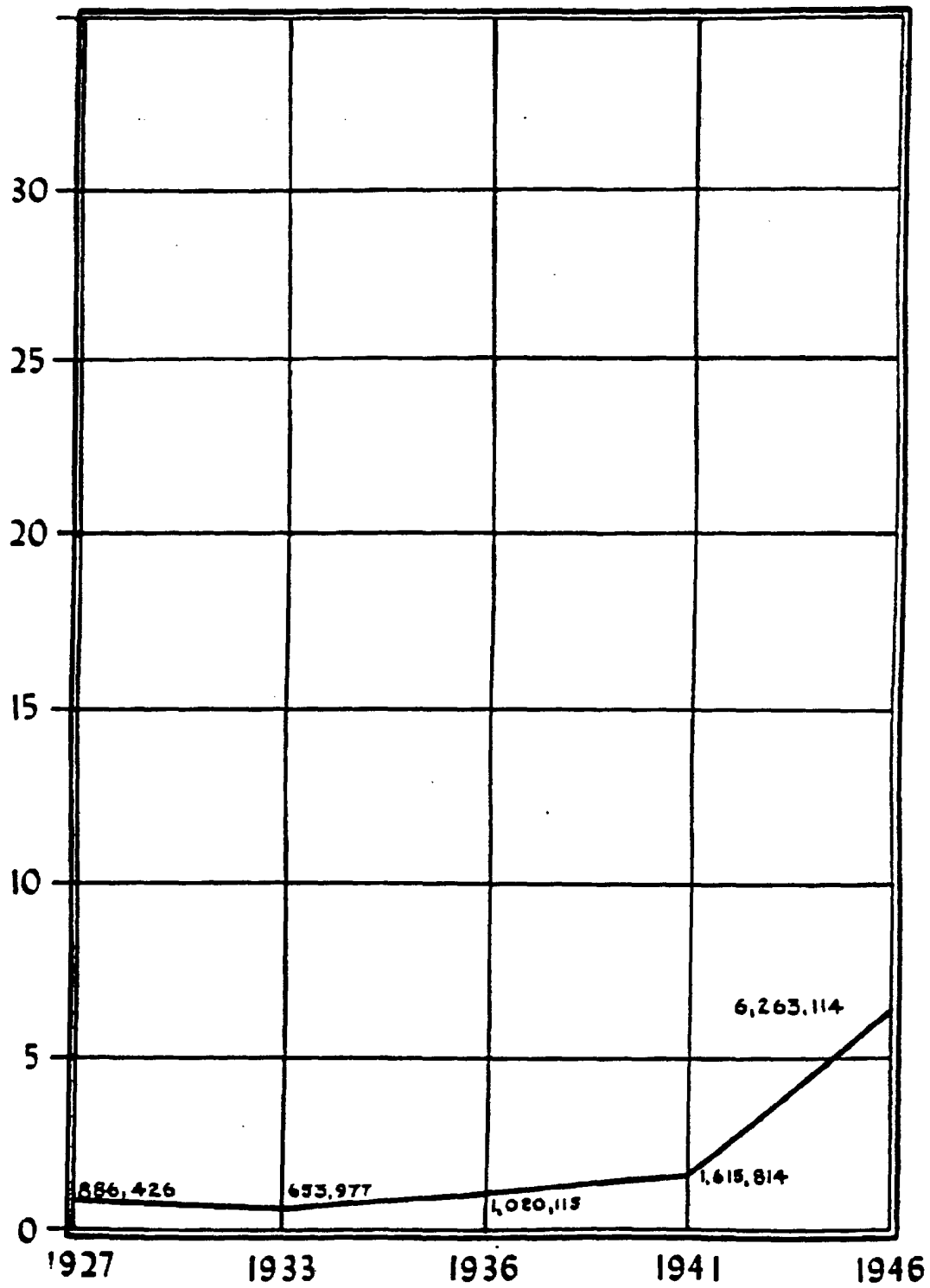


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 ADDRESS _____
 CITY _____
 STATE _____
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LHW 0010097

CHEMICAL SPECIALTIES

MILLIONS



LIW 0010098

"DULUX" - THE MIRACLE FINISH

Maybe not as sensational; maybe not as spectacular, but even more far-reaching in its effect on the paint industry as a whole, as well as Du Pont's position in the paint industry, was the introduction of "Dulux".

"Dulux" was Du Pont's second great chemical contribution to the industry.

Like "Duco", this was fundamentally the development of a new type of film-former. Like "Duco" again, it was the introduction into the finish film of a type of film-former that, in comparison with the older oleoresinous films, added a durability against the weather and other extreme conditions that lifted the product out of competition.

Because of their very quick dry, which interfered with application properties, and because of the necessity of rubbing in order to achieve a high lustre, lacquers had failed to penetrate a number of finishes fields. "Dulux", with application properties more nearly like those of the oleoresinous materials, gave the opportunity for penetrating many of these fields.

"Dulux" has as its essential ingredients, chemical compounds, the constituents of which are phthalic anhydride, glycerine and the acid from a vegetable oil like linseed oil. These chemical compounds are known as alkyd resins.

The first real program of research on alkyd resins in the Du Pont Company started in 1924 or 1925, in the Chemical Department (Experimental Station) during a search for a satisfactory resin to be introduced in "Duco" and other nitrocellulose lacquers as a substitute for the natural resin, damar. Mr. M. J. Callahan suggested this program, through having done some research work on alkyds while he was in the

employ of the General Electric Co. prior to his connection with Du Pont.

In the course of its work, the Chemical Department in making up different combinations of phthalic anhydride, glycerine and various modifying ingredients did not unearth any compound which appeared to be of interest as a substitute for damar; but they did observe that when the glyceryl phthalate was modified with an acid from drying oils such as linseed oil, a chemical compound having film forming properties of itself was formed without the addition of any other ingredient. This looked so encouraging that the search for a substitute for damar was abandoned and their program from then on was largely concentrated on the manufacture of various alkyd resins modified with drying oils. These are the resins upon which "Dulux" is based.

The first use of these "Dulux" resins in commercial finishes was undertaken in 1925 by Dr. Cole Coolidge, at the Flint Laboratory, in an attempt to produce more satisfactory automotive undercoats for use under "Duco", - the idea being to achieve through this route a replacement for the inadequate line of oleoresinous undercoaters then being made by the Flint Plant for the automotive industry. This was the first attempt of the Du Pont Company to commercialize the alkyd resin development.

By the end of 1926, this program culminated in the offering for sale of the DUX Primers and Surfacers. Although these DUX Undercoats were superior to the orthodox ones which had been in use up to that time, they were not entirely satisfactory, probably due to a weakness in water resistance. However, the work established a broad background of undercoat pigmentation which has served as the foundation for the currently used undercoats which are so successful today.

At the beginning of 1927 when Mr. John Marshall was organizing

the Central Technical Laboratory at Philadelphia, one of the principle objectives was to conduct research on drying-oil type finishes. The Chemical Department sent some samples of a 62% linseed oil modified glycerol phthalate to the Philadelphia Laboratory for evaluation, which was used by blending with orthodox varnishes to make an Olive Green Dipping Enamel with exceptional properties of flow and toughness. The work on this material led to the setting up of a special alkyd research group in Philadelphia. Chemists were transferred from the Experimental Station and new chemists were immediately employed to man this work.

Dr. C. F. Rassweiler was transferred to Philadelphia from the Chemical Department about June, 1927 with the assignment of trying to relate the composition and properties of finishes with the requirements of various sales fields, this being with a view to obtaining some intelligible starting points for development work on alkyd finishes.

In October, 1927, Dr. H. H. Hopkins was transferred to the Philadelphia Laboratory with the assignment of selecting from the wide range of Chemical Department resin developments a group of three or four resins which might become the basis of a formulating practice covering a wide range of brushability, spraying properties, drying speed and hardness. Interestingly enough, this program resulted in the selection of RC-103, RC-105 and RC-141 for the purpose and these three resins though modified from time to time over the years, are still basically part of our "Dulux" business.

It was also at this time that Messrs. J. B. Bullitt, K. C. Lampert, J. W. Iliff and Paul Robinson were added to the staff of the Central Technical Laboratory and they all played an important part in the development of "Dulux".

With this group and others, Du Pont began correlating the background information on pigmented alkyds against the needs of specific fields of use. By the late winter of 1927-1928, this knowledge was sufficiently in hand so that at a meeting held in Wilmington of representatives from Parlin (Lacquer), Philadelphia (Paint), and the Chemical Department, the laboratorians were able to express an enthusiastic interest in the alkyd field and to support this interest with specific durability and performance information. In this meeting, Parlin took the position of no immediate interest, largely because of the fact that they were fully occupied in the attempt to introduce "Duco" into the industrial field. (During this period, the Paint and Varnish Division, Trade Sales, was absorbing the cost of this "Dulux" development.)

These studies on durability and performance were thoroughly carried out, and in the summer of 1929 "Dulux" was officially offered to the industrial trade at a sales meeting in Parlin. These first examples of "Dulux", although outstanding in film properties, durability, toughness, etc. were not highly successful because, due to the pigmentation, they were lacking in hiding power and mileage. This defect was soon remedied, however, by the experienced and alert Mr. C. R. E. Merkle who suggested a pigmentation change from lithopone to the more opaque titanium dioxide, and during 1930 sales of "Dulux" expanded vigorously.

"Dulux" formulations designed for specific industrial uses were made for signs, refrigerators, automobile wheels, railway passenger and freight cars, street railway equipment, and gasoline service stations and gas pumps. "Dulux" Outside House Paint and Trim Colors were also formulated, but it later became necessary to

withdraw the house paints from the market. The trim colors, however, were held on the market, and have since become the market standard.

In the household enamel field, the lacquer type brush "Duco", which was not successful, was replaced by a "Dulux" Brush "Duco", which again became a real success about 1934.

"Dulux" Super White, which has become the standard of the market as an architectural enamel was a by-product of the successful development of refrigerator enamels and was an adaptation of these in the air-drying field. These "Super-Whites" are outstanding for their color permanence, flow and washability, all qualities inherent in the "Dulux" Refrigerator Enamels.

Although the first real finishes were made by Du Pont, the General Electric Company had made some oil-acid modified glycerol phthalate resins earlier than had the Chemical Department, and as a result the basic patents on such resins were assigned to the General Electric Company. Other early patents were issued to Carleton Ellis and assigned to American Cyanamid Company. There were many Du Pont patents but up to the present time no one has had an enforceable patent position in the alkyd resin field.

As would be expected "Dulux" has many imitators, but in spite of the many imitators "Dulux" stands preeminent. Astute buyers realize that "Dulux" will give them lower unit costs in spite of its higher gallon price. Research is improving it constantly, and the imitators are trying to catch up and may, because due to War Emergency, Du Pont, like all other patriotic companies, gladly gave up proprietary formulas to enable our Government to get the greatest possible durability for the many pieces of war equipment needing a finish.

In this way, competition learned a great deal about the

composition of alkyd resin finishes, but as stated previously, "Dulux" vehicles are made by chemical reactions and require extremely close chemical control. And here Du Pont still possesses an advantage because they make all their own resins in their own specially designed equipment.

"Dulux" has been the standard finish since the early nineteen thirties for refrigerators, washing machines, sink cabinets, for automobiles not lacquered, and for many other industrial purposes. It has so nearly completely replaced other finishes in some of these fields that at one time 92% of all mechanical refrigerators not fabricated from vitreous enameled steel were finished with "Dulux". For these reasons, "Dulux" was the first real threat to "Duco" and it has completely replaced it as a refrigerator finish.

Possibly the time is not far off when most of the automotive "Duco" will be replaced by "Dulux".

DU PONT



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ANNOUNCES

The whitest white enamel ever made

DULUX

REG. U. S. PAT. OFF.

SUPER WHITE

A remarkable new finish for home interiors

JUDGED by any standard, DULUX Super White is the finest white interior enamel on the market today.

To begin with, it's whiter. The whitest white enamel you've ever seen. And it stays that way. A clear, colorless new vehicle retains the full original whiteness — prevents yellowing.

Drying qualities? DULUX is out of dust in two or three hours — is ready for re-coating overnight! Yet it sets slowly enough to take up runs or sags and to permit lapping on long stretches.

Remarkable flow is another characteristic. Combined with intense hiding

power this means unusual spreading ability. Brushing is easier. There is no drag or pull.

With DULUX Super White you get more coverage, better coverage, faster coverage and the best looking interior jobs you ever turned out.

Make a test of DULUX Super White. See for yourself the possibilities it offers for going after quality jobs at a cost home owners can afford.

Get in touch with the du Pont dealer today. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

SELL THESE FACTS TO YOUR PROSPECTS

DULUX Super White is a whiter finish. It stays white—dries quicker—stays cleaner—cleans easier—withstands severest service—costs less in the long run than inferior finishes.



DULUX SUPER WHITE

REG. U. S. PAT. OFF.

A MASTER PRODUCT FOR MASTER PAINTERS



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TRADE SALES AND WHERE MERCHANDISING AND CHEMISTRY STEP IN

While in the midst of all the excitement created by the revolutionary growth of lacquer ("Duco") sales, Management, in November, 1924, decided to merge the Chemical Products and Paint & Chemical Divisions. On February 1, 1925, Mr. W.P. Allen was appointed General Manager of the newly created Paint, Lacquer and Chemical Department, with Mr. William Richter as Assistant General Manager, the latter appointment being made official on February 15, 1925.

This was not only a logical move but, more particularly, was a psychological one, because the Paint Division needed inspiration and drive. Mr. Allen possessed rare vision, courage and inspiration. He quickly saw that the Paint group needed help.

On Lincoln's birthday, February 12, 1925, Mr. Allen transferred Mr. J. W. Elms from his successful job at Parlin to the Paint Division at Philadelphia and gave Mr. Elms the "go ahead" signal. (Mr. J. J. Moosmann succeeded Mr. Elms as Manager of the Chemical Products Division).

Just as Mr. Elms had to learn about lacquer, (when he first went to Parlin from the Military Explosives Department) he promptly started to study the problems of the Paint Department and quickly recognized that the sights had to be changed if Du Pont was going to progress in the paint business. After Mr. Elms had surveyed the situation, he readily saw the need for an efficient and an enlarged chemical staff and also for the need of someone with a broad picture of sales, markets and merchandising knowledge. For the latter work, they engaged the services of Mr. W. W. Zintl, who had previously been with Harrison Brothers, John Lucas & Company and the Curtis Publishing Company. Mr. Zintl was familiar with the Du Pont problem through his connection with the Curtis Publishing Company, having worked closely with Mr. Grubb. Mr. Zintl joined the Du Pont Company in November, 1925 as Director of

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reasonably short period all sales groups realized that chemistry was beginning to play an important part in the development of the Du Pont paint business. Du Pont products were becoming better and better. Confidence grew, - and from then on, the entire organization was convinced that the products being offered were at least the equal of competition, and many much better. As technical service is a definite part of the Industrial Department's sales strategy, many of the service men have been drawn from the laboratory. Therefore, in addition to doing fundamental research work, formulating and developing products, the Technical Departments have been most helpful in furnishing many of Du Pont's best Industrial salesmen and field service technicians.

By the end of 1927, confidence being definitely established throughout the Department, Mr. Allen, having felt he had made his contribution to the Paint Department, decided to retire. This was in October, 1927. On November 1, 1927, he was succeeded by Mr. William Richter as General Manager, and Mr. Elms was transferred from Philadelphia to Wilmington as Assistant General Manager. Mr. W. M. Zintl succeeded Mr. Elms as Manager of the Paint Division, and Mr. W. F. Donohoe, who was Director of Sales of Heavy Chemicals in the Chemical Division, was transferred and advanced to the position of Assistant Manager of the Paint Division. Mr. G. A. Biesecker was appointed Director of Sales, - succeeding Mr. Zintl. This alignment continued until 1928, at which time Mr. Elms, who went to Europe on a special mission, died in Paris in October, 1928. On November 1, 1928, Mr. J. J. Moosmann was transferred from Parlin as Manager of the Chemical Products Division to Wilmington as Assistant General Manager of the Paint, Lacquer and Chemical Department. Mr. E. M. Flaherty succeeded Mr. Moosmann as Manager of the Chemical Products

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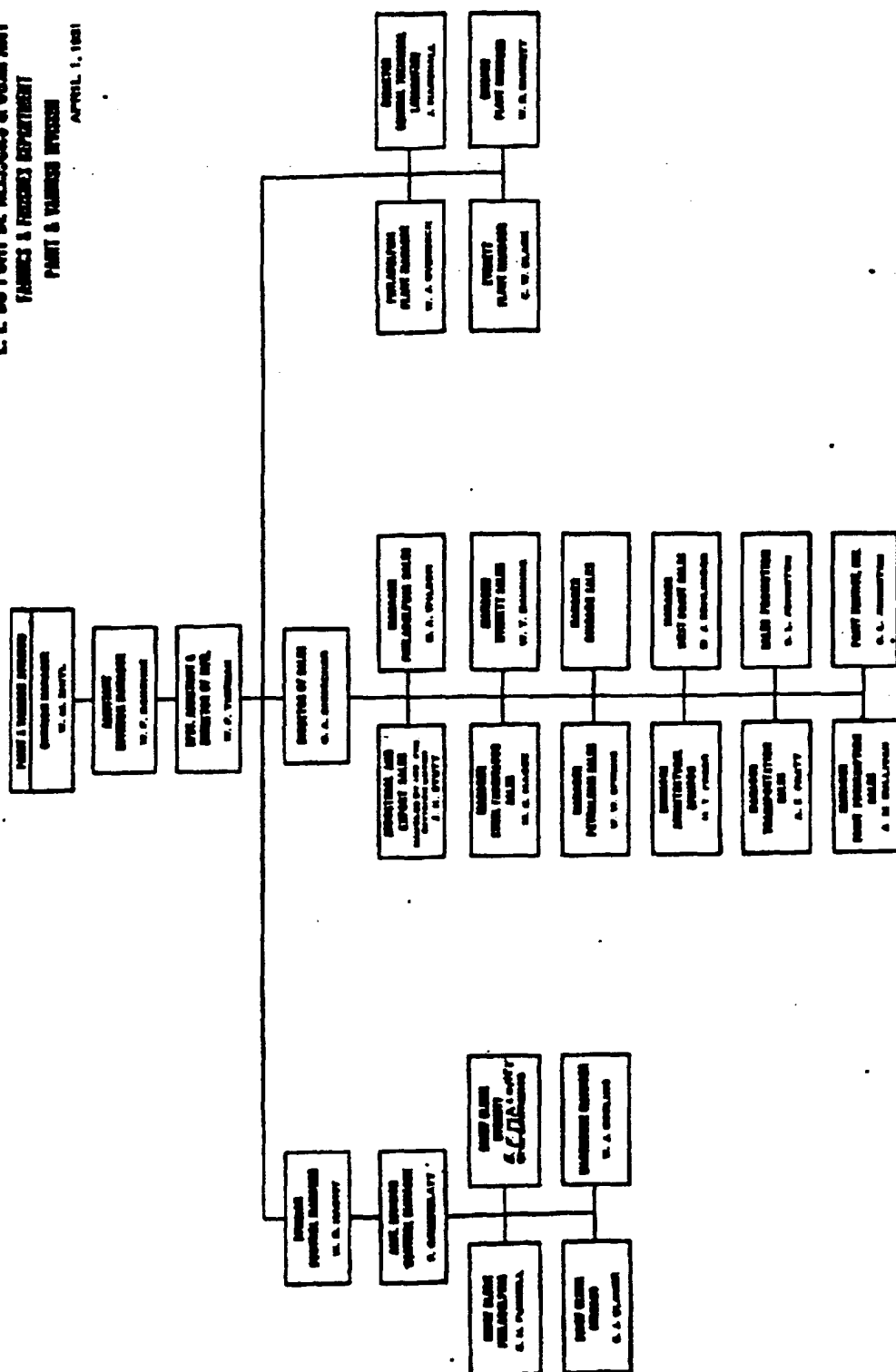
Sales of the Paint Division.

The basic sales problem was the development of consumer sales through dealers, and the building of industrial volume on orthodox paint products, the sale of which had been transferred to the Parlin office because of their activity in selling lacquer to industrial users. This latter plan was not too successful because the Parlin group was "lacquer conscious" and not "paint minded", but with the later development of "Dulux" by the Paint group, this problem was corrected by the consolidation of the Paint and Lacquer Divisions, at which time it was decided to sell both Paint and Lacquer as Finishes and in that way obviate the conflict between the Divisions.

In the Technical Section, where the staff was neither adequate nor too efficient, Mr. Elms carefully appraised the problem and his conclusions resulted in the transfer of Mr. John Marshall (who, at the time, was Assistant Director of the Eastern Laboratory of the Explosives Department) to the position as Technical Director of the Central Technical Laboratory of the Paint Division at the Gray's Ferry Plant. Mr. Marshall had to start from scratch, because what few records existed, were of little value. Mr. Marshall, therefore, had to build a system that would record what they were then doing and plan from there on for the future.

Reference has been made several times to the orthodox practices of the industry and it should be emphasized that at the time Mr. Marshall joined the Department, January 1, 1927, he found Du Pont Products were not comparable to many of the competitive products. But Mr. Marshall was patient and painstaking. He studied the situation, analyzed what the industry was doing, and gradually but steadily, built a system of records and an organization of fine technicians, who specialized in products for specialized industries, and within a

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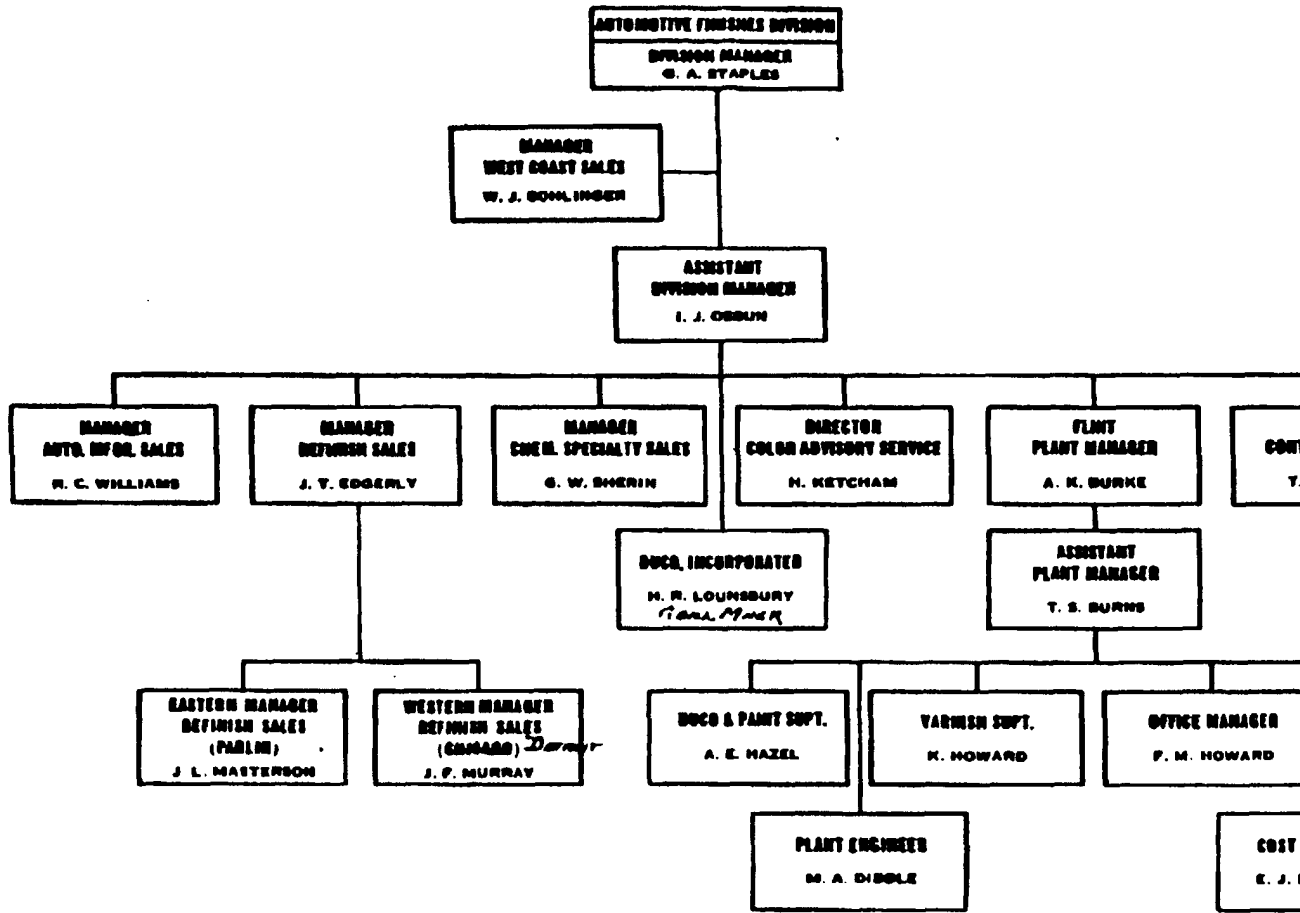
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Division, and Mr. L. P. Nemzek was promoted from the position of Director of Sales of that Division to Mr. Flaherty's former position as Assistant Manager.

On April 1, 1929, the Department name was changed from the Paint, Lacquer and Chemical Department to Fabrics & Finishes Department, and three Divisions were established: (1) Paint and Varnish Division, with Mr. W. M. Zintl as Manager; (2) Industrial Finishes Division, with Mr. E. M. Flaherty as Manager, and (3) Automotive Division, with Mr. G. A. Staples as Manager.

But, back to Trade Sales. Someone once made a facetious remark that the Trade Sales Department had the resiliency of a rubber band in that it was always being expanded and contracted. Every time it started to expand, something would happen and "bang" it would contract, and a new start had to be made.

With the change in Management previously referred to, there was an entirely new concept in the Division. A sales policy was definitely formulated, products were improved, confidence was restored throughout the organization, and from then on things began to happen.

In the Fall of 1925, competition having seen what Du Pont did with "Duco" for the industrial world, sensed the chance to capture the consumer market on a household lacquer before Du Pont. In September, 1925, The Glidden Company announced their product "LACQ" for use with a brush that would dry in thirty minutes, and it ignited a spark of interest that quickly became a blaze of activity. Messrs. Allen, Elms and Richter had the same idea as Glidden but were not ready to announce their product because it had not been perfected sufficiently for release. However, because Du Pont were the inventors of "Duco" and because Glidden was quickly gaining distribution,

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Du Pont were forced to announce their new consumer product Brush "Duco" for household use on March 6, 1926. See advertisement attached. The appeal of "quick dry" captured the public quickly. The advertising was startling and sensational, just like the original "Duco" ad which first appeared back in 1924. Broad­sides announcing the new product were sent to every paint dealer in America and almost instantly the demand for the new product was so great we could not handle the inquiries rapidly enough. Letters and telegrams were pouring in by the thousands. Additional salesmen were promptly employed, but they had to be trained in Du Pont's method of selling, - and knowing the one great weakness of the product - poor brushing (due to the rapid evaporation of the solvents) - women demonstrators were employed and placed in department stores in all the principal cities to try to teach consumers how to "apply" the new product. While steady progress was being made in the improvement of the product, after three years of sensational sales as illustrated by the following figures:

Brush "Duco" Sales

<u>Year</u>		<u>Cumulative Total</u>
1925		
1926	\$2,690,000	
1927	3,020,000	
1928	2,444,000	\$ 8,154,000
1929	1,512,000	9,666,000
1930	973,000	

it was realized that while Du Pont had the best brushing lacquer on the market there was one thing that could not be accomplished, and that was to change the habits of the women who believed that they were painters. Neither Du Pont nor their competitors selling Brushing Lacquers could break consumers of the habit of brushing out lacquer like they were accustomed to doing with an oil paint, which they could brush and brush and brush. Naturally, this condition slowed up sales and this

THE SATURDAY EVENING POST

March 6, 1926

THE SATURDAY EVENING POST

Now



...for handy home

The DUCO you have wanted so
—ready to BRUSH ON at home

DUPONT DUCO is now ready for you to brush on at home. You, yourself, can now put on the same finish that you have admired on so many automobiles; the same finish that lends enduring beauty to fine furniture.

DUCO gives that beautiful lustre so much desired for articles in the home, in dainty colors that will not fade. It dries quickly and "laughs at time."

The smooth, flat like finish is not

easily marred, nor is it stream, moisture or even and cold. It will not crack off and does not become der body heat.

Anyone can apply it—it is on. You will enjoy

DUCO is not a paint. Unlike anything else—the beautiful, enduring adapted for your use: new or old, furniture, floors, walls,

For sale by good dealers everywhere

There is only ONE Duco
DU PONT Du



OR ALL WOODWORK...NEW or OLD. FURNITURE, AUTOS, FLOORS, WALLS, ME

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auspicious start of getting Du Pont products into nearly every worth while paint store in America turned out to be somewhat of a boomerang.

However, the Paint Department was still confident, because through the temporary success of Brush "Duco", Du Pont had contacted most of the paint dealers throughout America, had sold other Du Pont Paint products and the fact that the Du Pont Company was going to be a real factor in the Paint Industry. Du Pont were now in there and intended to stay.

Du Pont did not dare admit that Brush "Duco" was a failure because it was felt that to condemn Brush "Duco" might interfere with the success of industrial "Duco", but what to do about it was the problem. It was about this time that "Dulux", the new alkyd resin product, began to develop and the Paint group saw the advantage of changing the product within the can. That the product had to be changed was obvious, - but until "Dulux" was perfected for brushing Du Pont reverted to using the conventional type of "quick-dry" product which competitors in the Industry were then using as their offering to meet our competition. Slowly, but steadily, over a period of a year or two, and by skillful merchandising practices, and by changing the product with each day's improvement, - Du Pont retained the good will of the dealers, and today (May, 1947) the present Brush "Duco" is the acknowledged leading specialty. Had the present product been in the can at the time Brush "Duco" was introduced, it is safe to say Du Pont would have not only had a huge volume of sales on Brush "Duco" but it would have more quickly established their distribution of full line dealers and thereby would have saved several years of further struggling to build their sales and distributing outlets.

The reason why it was possible to change the product in the package was because Brush "Duco" was never described or advertised

as a lacquer. It was sold as a finish, whereas Glidden and Sherwin-Williams, the principal competition at the time, sold their product as a lacquer, and as a result they have not been able to reinstate their products under their original name.

The success of Brush "Duco" served as an inspiration to the entire organization, and even though there was the difficulty just referred to, it did not retard or impair the confidence that the organization was developing.

Confidence within the organization became contagious and it was reflecting itself within the trade. As the old saying goes "Confidence begets Confidence".

While Brush "Duco" occupied most of Du Pont's attention during the years 1926, 1927, and 1928, considerable progress was being made in establishing distribution on other Du Pont Paint products.

TREND OF TRADE SALES DISTRIBUTION

About the time the new regime took over, radical changes were taking place in paint distribution methods. Prior to 1920, practically all paint reached the consumer through independent paint or hardware dealers served by wholesalers. Improved roads resulted in greater concentration of purchases in the larger marketing centers and mail order houses began in 1925 to establish their own stores in which the sale of paint was an important adjunct. Department stores and even the syndicate chains started to sell paint and small chains of paint stores, some of whom manufactured their own products locally, were springing up throughout the country. Some large manufacturers, in order to hold their existing business, were forced in the face of this new competition to establish their own stores. This development was automatically reducing the sales potential which heretofore was

available through independent retail outlets, and the Management recognized that Du Pont sales approach had to be changed if they hoped to grow.

Up to this time most of Du Pont's sales were being made to retailers through wholesalers to whom they had to first sell and then to help sell for them. This method of selling was expensive and did not aid in getting the #1 or #2 accounts because the leading type of account was usually tied up by one of the older manufacturers of long association. To break down resistance and to bring about a better appreciation of Du Pont, their products, and their methods, Du Pont maintained a forceful campaign of advertising to the consumer urging that he go to the Du Pont dealer for advice on paint and painting. As time went on, Du Pont made progress in improving its type of representation, and slowly but steadily began to eliminate the wholesaler as an unnecessary and uneconomic factor in their chain of distribution. Such a move as this necessarily took time, because it was a radical departure for only one Department. Other Departments in the Company can and will continue to utilize jobbers - which makes it mandatory that a move of this sort must be made skillfully and tactfully.

To compensate for the service previously rendered by the wholesaler, Du Pont opened a limited number of warehouses, and in 1929 recommended the establishment of their own retail stores in five centers to broaden their distribution, but more particularly to develop their own means of direct selling to both the consumer as well as the dealers in the adjacent territory.

To confirm their own conclusions with respect to opening more stores, the Paint Department employed outside experts, Barrington Associates, to make a study. Barrington recommended that it was essential that the Du Pont Company employ this method of distribution

if they were to hold their place or make any progress in the Trade Sales paint industry. Following is a brief summary of Barrington's comments:

"The trend in the industry is clearly toward more direct selling.

The wholesaler is becoming weaker in his ability to hold the dealer trade.

Wholesalers as well as dealers cannot be relied upon to aggressively promote painter and maintenance business, which are the best outlets for Trade Sales.

Manufacturer-owned paint stores have greater volume and profit possibilities than other forms of distribution.

Du Pont Trade Sales business needs to be safeguarded against being too dependent upon wholesalers."

Du Pont Retail-Wholesale Stores - In 1929, authorization was obtained from the Executive Committee to open five wholesale-retail stores:

Youngstown, Ohio.....	September 27, 1929
Columbus, Ohio.....	October 15, 1929
Birmingham, Ala.....	February 20, 1930
Syracuse, N. Y.....	March 13, 1930
Memphis, Tenn.....	April 7, 1930.

Du Pont's experience with opening of the stores at the beginning was limited and errors were made, but Management saw real evidence of the practicality of the plan, and progress was well under way when the depression of 1930-1931 gave Trade Sales another severe jolt. Sales were curtailed and expenses kept down, and despite the urge that the stores be closed, the Sales Department maintained that the

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stores would justify themselves. Fortunately, they maintained that position, because the stores demonstrated what could be done and served as a foundation for the present large store program.

The following figures clearly demonstrate the soundness and stability of the Du Pont Store program:

In 1930, with 5 stores, gross sales were \$169,884 - an average of \$33,977 per store -

In 1946, with 52 stores, gross sales were \$7,625,927 - an average of \$146,652 per store.

The sales through the stores in 1946 were 42% of Trade Sales biggest year, (1944) \$15,705,433. This is business that Du Pont built for themselves and is business that competition cannot take away.

During the next few years a number of novel and modern merchandising ideas were introduced to stimulate sales, such as the famous "Paint Parade" featuring Paint Specials with attractive consumer broadsides for local distribution. Millions of these broadsides were sold to the dealers on a 50-50 basis, and not only stimulated consumer interest but really created new alert dealer sales effort. Competition, however, copied this idea very quickly.

THE FAILURE OF "DULUX" HOUSE PAINT

In 1928, with the development of glyptal resins, the Trade Sales Division thought they saw another "Duco". The laboratory had been quietly working on a glyptal base house paint. They had had a number of test panels in Florida, Texas, Colorado and other places, and according to the results shown by the test panels and a very limited number of houses, it appeared that the new type product had 50% better durability than our orthodox products.

With great caution the story was given to the sales group -

with the definite stipulation that the facts should be clearly explained that only the tests indicated the greater durability.

Hoping for another "Duco" - and anxious to again startle the entire industry, the sales organization (early in 1931) started to promote sales, and even though every precaution was taken to control the statements made by the salesmen they neglected to emphasize the qualifying facts and the demand for "Dulux" House Paint became tremendous.

Because of the alkyd resin used, the product was more like an enamel and, therefore, because of the hardness of the film, it was not porous enough to permit moisture to pass through - thereby causing the film to crack badly or to come off in sheets on those houses which were characterized by structural defects, which permitted moisture to get back of the film.

The results were costly and definitely gave the Division a set back with the trade. The one compensating fact was that Du Pont paid the bill for repainting, approximating two hundred and fifty thousand dollars.

But, there is a moral to be drawn from this experience: - Be sure that enough practical experiments are made before releasing a product for sale. The trouble with "Dulux" House Paint was that the facts were based on test panel and a few house exposures - and not enough full house tests.

Reference was previously made to the resiliency of the Trade Sales business - and from the foregoing it should be apparent that the struggle to promote Trade Sales (the most competitive unit of the Industry) was somewhat difficult. But with consistent improvement in products, - the creation of modern merchandising ideas - the opening of Company owned stores, - confidence kept on growing - all of which

resulted in real progress being accomplished.

CONSOLIDATION OF THE PAINT, INDUSTRIAL AND AUTOMOTIVE DIVISIONS
AND THE CREATION OF THE REGIONAL OFFICE SYSTEM.

In 1930 - along came the depression - which resulted in a general deflation of sales, and necessitated reducing sales, advertising and merchandising expense. As all business was affected, Management grasped the opportunity of making further economies (with definite advantages to the Department) by consolidating and coordinating the Paint, Industrial and Automotive Divisions. As established at the time, there were three Division Managers and Assistants, three Technical, Production and Control Managers, - three Directors of Sales, and two Advertising Managers, etc. It was decided to combine the three Divisions and to transfer the Executive group (excepting the Automotive Sales group, which remained in Detroit, because that city is Automotive headquarters), to Wilmington under the general term of Finishes. That happened on November 1, 1932.

The change resulted in moving the following staff to Wilmington:

Messrs. E. M. Flaherty and W. M. Zintl who were appointed

Director of Manufacture and Sales, respectively.

Messrs. M. J. Callahan and W. F. Donohoe who were appointed

Chemical Director and General Sales Manager, respectively.

Mr. M. V. Hitt was appointed Director of Production.

Mr. H. E. Lackey " " " Industrial Sales.

*Mr. M. Denning " " " Trade Sales.

Mr. J. T. Edgerly " " " Refinish Sales.

Mr. G. W. Sherin " " " Chemical Specialty Sales.

Mr. Ralph Plowman " " " Export Sales.

Mr. S. L. Johnston " " Advertising Manager.

*Mr. Denning was drafted from his position as Assistant LHW 0010122

Advertising Director of the Du Pont Company.

ORGANIZATION CHART

FABRICS & FINISHES DEPARTMENT - E. I. DU PONT DE NEMOURS & COMPANY

GENERAL MANAGER - Wm. Richter

ASST. GENERAL MANAGER - J. J. MOORMANN

CONTROL MANAGER - H. S. RISLER

FABRICS DIVISION

G. E. BEAVER - DIVISION MANAGER

E. S. NICKERSON - ASST. DIVISION MANAGER

E. S. NICKERSON - DIRECTOR OF SALES

Wm. FULTON - CONTROL MANAGER

H. C. GRAESNER - NEWBURN PLANT MANAGER

E. R. CATHCART - FAIRFIELD BRANCH MANAGER

M. N. NICKOWITZ - FAIRFIELD PLANT MANAGER

FINISHES DIVISION

G. A. STAPLES - MANAGER AUTOMOTIVE DIVISION

H. M. ZINTL - DIRECTOR OF SALES

MATT DOWING - DIRECTOR TRADE SALES

H. E. LACKY - DIRECTOR INDUSTRIAL SALES

J. T. EDDY - DIRECTOR REFINISH SALES

G. W. SHERIN - DIRECTOR CHEMICAL SPECIALTIES SALES

- DIR. ADVERTISING, PROMOTION & MARKET ANALYSIS

W. F. DONOHUE - GENERAL SALES MANAGER

J. M. STUTT - EASTERN SALES MANAGER

P. A. WILSON - EASTERN TRADE SALES MANAGER

J. W. CLEVELAND - EASTERN INDUSTRIAL SALES MANAGER

A. E. PRATT - EASTERN TRANSPORTATION SALES MANAGER

M. R. LOUGHBURY - EASTERN REFINISH SALES MANAGER

W. W. SPRENG - EASTERN PETROLEUM SALES MANAGER

M. G. MAGEE - EASTERN STEEL SALES MANAGER

S. B. WOODBRIDGE - NEW ENGLAND SALES MANAGER

G. M. STOUT - NEW ENGLAND INDUSTRIAL SALES MANAGER

D. E. GOLDICH - NEW ENGLAND REFINISH SALES MANAGER

I. J. OBRUN - SOUTHERN SALES MANAGER

W. T. BANNING - SOUTHERN TRADE SALES MANAGER

J. M. GIBBS - SOUTHERN INDUSTRIAL SALES MANAGER

G. F. BALDWIN - SOUTHERN REFINISH SALES MANAGER

L. P. MONTEZ - WESTERN SALES MANAGER

G. A. BIEBECKER - WESTERN TRADE SALES MANAGER

L. C. STREETER - WESTERN INDUSTRIAL SALES MANAGER

F. M. CHAMFORD - WESTERN TRANSPORTATION SALES MANAGER

J. L. MASTERSON - WESTERN REFINISH SALES MANAGER

W. J. SCHLINGER - WEST COAST SALES MANAGER

R. E. FLOEMAN - EXPORT SALES MANAGER

E. M. FLAHERTY - DIRECTOR OF MANUFACTURE

W. J. CALLAHAN - CHEMICAL DIRECTOR

PATENTS - F. KRIEGER

JOHN MARSHALL - ASST. CHEMICAL DIRECTOR

JOHN MARSHALL - DIRECTOR PHILADELPHIA LABORATORY

H. E. EASTLACH - DIRECTOR PAULIN LABORATORY

G. E. CONDE - DIRECTOR FLINT LABORATORY

M. V. MITT - DIRECTOR OF PRODUCTION

BRINE SUPPLY - W. F. MALLOON

W. D. BRILL - PAULIN PLANT MANAGER

W. F. TIERNAN - PHILADELPHIA PLANT MANAGER

A. K. BRYNE - FLINT PLANT MANAGER

W. R. BARNETT - CHICAGO PLANT MANAGER

G. H. CLARK - EVERETT PLANT MANAGER

H. S. RISLER - CONTROL MANAGER

S. L. MCGOWLEY - ASST. CONTROL MANAGER

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Regional Offices were established in:

Philadelphia, Pa.	with Mr. John H. Stutt as Regional Manager
Chicago, Ill.	" Mr. L. P. Nemzek " " "
Boston, Mass.	" Mr. S. B. Woodbridge " " "
Atlanta, Ga.	" Mr. I. J. Osburn " " "
San Francisco, Cal.	" Mr. W. J. Sohlinger " " "
Detroit, Mich.	" Mr. G. A. Staples as Manager of Automotive Department.

Industry Managers were appointed for each Branch Office and Managers for each Plant. For names and locations see attached organization charts. The small charts - representing the alignments before the change and the larger chart dated November 1, 1932 representing the final line-up.

The wisdom of this change was quickly apparent -

First of all it unified the entire organization and centralized control in Wilmington.

It definitely eliminated all internal competition between Lacquer and Paint.

It enabled the Managers in charge of the respective Divisions to organize policies, prices, products and plans.

It broadened the viewpoint of every one in the Department who began to comprehend the breadth and scope of the industry and Du Pont's part therein.

It permitted specialization and concentration in selected industries.

It permitted the Regional Managers to apply their time and attention to each industry as conditions warranted.

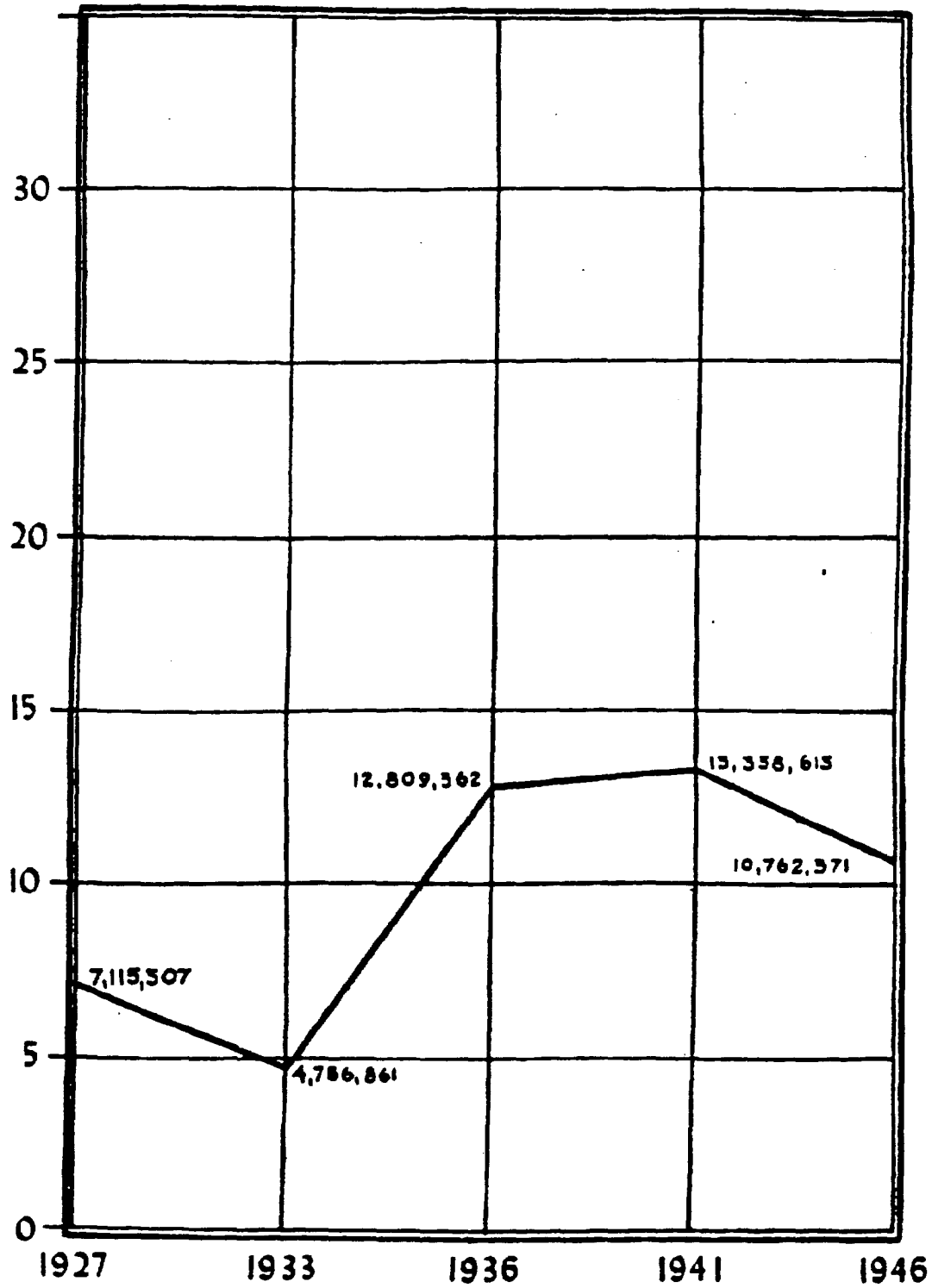
It definitely fixed regional responsibility for the intensive



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AUTO MANUFACTURERS

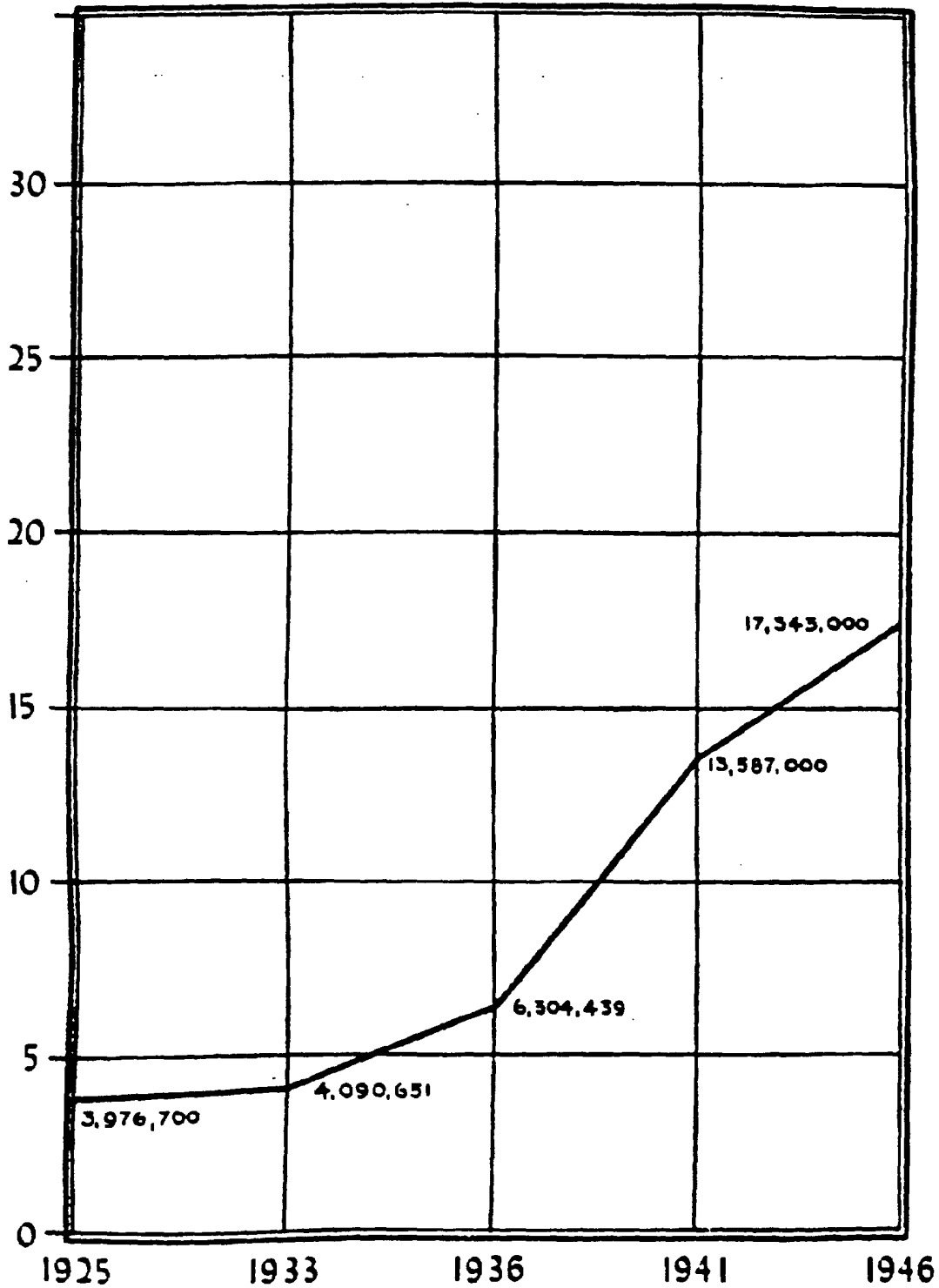
MILLIONS



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TRADE SALES

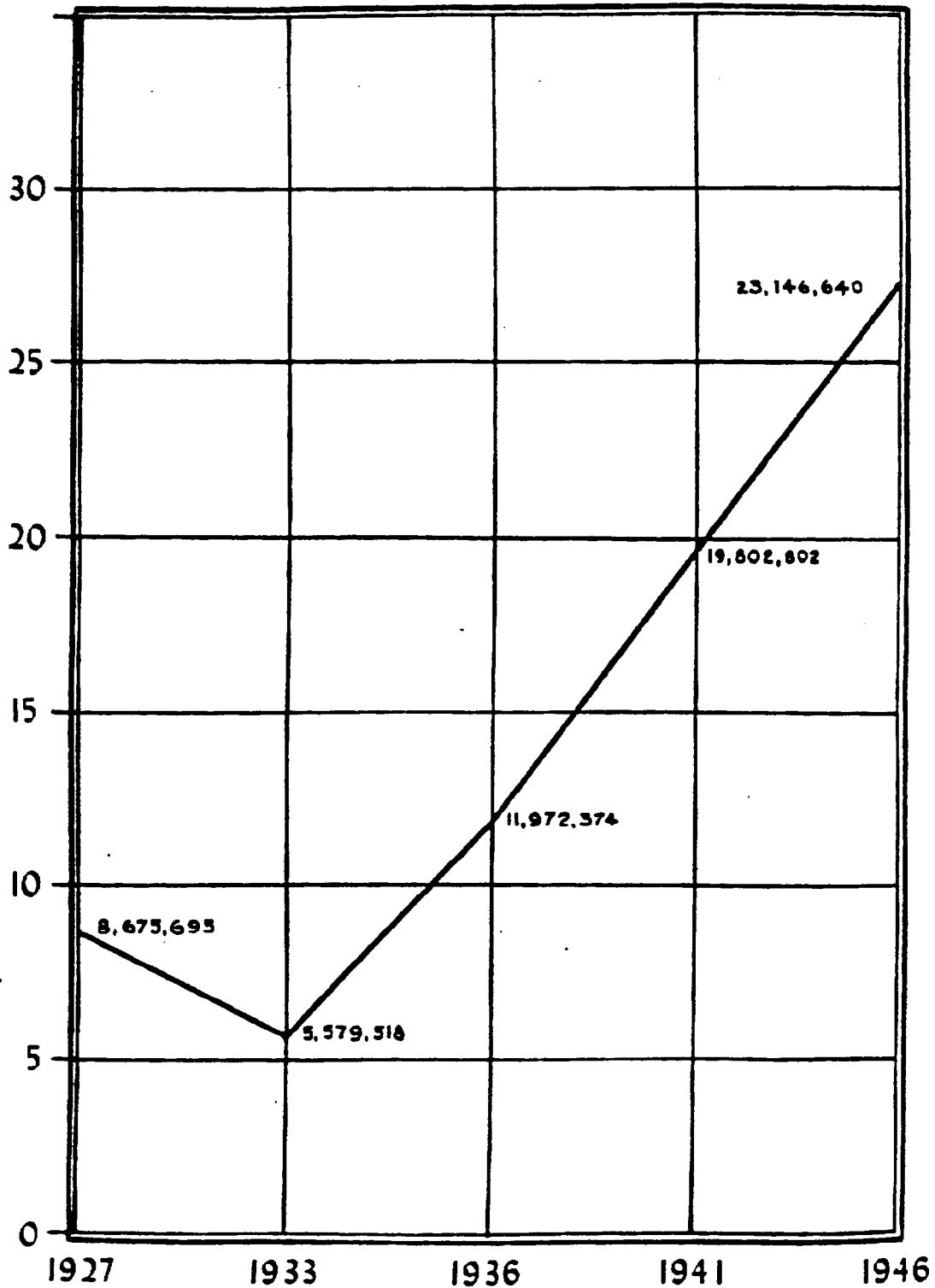
● MILLIONS



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INDUSTRIAL SALES

● MILLIONS



I.H.W. 0010128

A big job still remains to be done in such industries as furniture, wall tile, Venetian blind, wire coating, and others where the potential is large.

But Du Pont is headed in the right direction for three good reasons - First, they know their markets. Second, they have the technical skill to develop the products. Third, they have the system for developing the right kind of salesman to approach these markets.

Messrs. John H. Stutt and H. E. Lackey deserve most of the credit for developing and building the largest Industrial volume in the industry.

In the recent consolidation it should be recorded that Mr. M. Denning succeeded Mr. G. A. Biesecker as Director of Trade Sales. This was because the Western Region (Chicago office) which offered the greatest potential growth and was not progressing as it should, made necessary a change in Management. Chicago, being the biggest problem in the department, called for the most experienced man available. After reviewing all the probable candidates, it was unanimously agreed that Mr. Biesecker was the best qualified to give it the drive needed. Mr. Biesecker went to Chicago in 1931 and was there at the time of the consolidation (November, 1932). Because his efforts were getting results it was decided to keep Mr. Biesecker in Chicago. This left the Director of Trade Sales post open, to which Mr. Denning was appointed. Mr. Denning had previously been Advertising Manager at Parlin (during the height of the "Duco" development) and served several years as Assistant Advertising Director of the Company.

Just coming out of the depression (during which period the Trade Sales Division was in red figures) imagination and creative ability were vital necessities. Mr. Denning, possessing these

qualities, added the inspiration and spark that was needed to keep Trade Sales moving forward and at the same time earn some profit. For five years (from 1932-1937 and often referred to as the "Profit Making" period) every effort was being made to hold what business they had and build on top of that with the least possible expense. That was a critical period in the history of Trade Sales - when it was proven that a profit could be made.

In 1937, after several years of field testing, the Technical Department announced the release of an improved Outside White for Exterior Painting, the base of the new product being Titanium Dioxide. In 1938, the first advertisement was run featuring "the Paint that Cleans itself". But, like all other good things, unless one is covered by patent, competition quickly learns the art of imitating both the product and your sales theme. However, the sales on this new product were growing steadily when the war of 1941 came along and restricted the use of Titanium. Once again the "rubber band" was contracted. But this improved and modern product can be the keystone around which future Trade Sales promotional plans can be built.

(Parenthetically, it might be stated here that this new product just about kills the long-established prejudices of the painter in his insistence for White Lead and his refusal to accept ready-mixed paint which the Trade Sales industry had to fight for many, many years.)

Coincident with the development and promotion of Outside White, Du Pont were steadily promoting the sale of other outstanding specialties such as "Duco", - "Dulux" Super White, - the finest of all interior enamels, - Trim & Trellis Colors for shutter painting - outstanding for their color retention and mildew-proofness, - and an improvement

in all their general line which was going on steadily since the creation and development of the Central Technical Laboratory back in 1927. QUALITY is the outstanding characteristic of the present Du Pont line of Paints and Varnishes, and it can be said without reservation that no other manufacturer excels the present line and but few compare. Both the trade and public are recognizing this superiority and when raw materials are again available the struggle of the past 20 years in building Trade Sales will more than justify the effort. As the old saying goes - there is no substitute for QUALITY.

NEW REGIONAL OFFICES

Because the Southern Region was so extensive and because it was growing so steadily under the new regional office system, on July 1, 1939, a sub-office was opened at Dallas, Texas, with Mr. G. F. Baldwin in charge. The branch continued to grow and on Mr. Osburn's death in 1940, Management appointed Mr. W. T. Banning as Regional Manager at Atlanta and created Dallas as a new Regional Office with Mr. J. L. Masterson as Manager. Atlanta was then termed the Southeastern Branch and Dallas the Southwestern Branch.

Similarly, the Western Region at Chicago was getting too large, and on January 1, 1946, Chicago was split and a new regional office was created at Cleveland, with Mr. J. L. Masterson in charge.

While products and their quality are important, new ideas and new methods must necessarily be employed to keep the salesmen and dealers stimulated and more particularly to keep ahead of competition. Mention was made previously of the Paint Parade, but of the more recent sales innovations there was the transformation of furniture with the use of "Duco" by the famous Peter Hunt of Provincetown, Mass. This was an original idea of this artist who took old furniture, transformed it into

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modernistic pieces, finished them with brush "Duco" and built a nation-wide reputation for himself. So unique was Mr. Hunt's idea that he was featured in LIFE Magazine, since which time Du Pont has capitalized on the advantage of "Transformagic". Millions of copies of the book "Transformagic" have been distributed through dealers.

Another and much broader idea is Color Conditioning for Industry which is a complete Painting Program scientifically developed to promote efficiency, to increase production, to improve quality, to reduce personal injuries and to foster better Employee-Management relationship. Color Conditioning for Industry represents the combined experience of the Du Pont Company and Faber Birren, nationally known industrial color authority. It had its beginning some 16 years ago in the hospital field where scientific studies of color were made to aid the visual acuity of the surgeon. Similar investigations were later performed in the school field and in factories. In 1937-8, experiments were carried out in one of the first nation-wide applications of color to industry--scientific standards being established and applied to automotive plants throughout America.

In 1940, Du Pont, with the cooperation of Arthur A. Brainerd of the Philadelphia Electric Company, perfected its "Three-Dimensional Seeing" program and announced it before the 35th Annual Convention of the Illuminating Engineering Society. Since then, thousands of American firms have made use of "Three-Dimensional Seeing" in adding to the efficiency of their machine operations.

In 1941, Du Pont completed its study of "Salvaging Waste Light", which was announced at the Wartime Lighting Conference of the Illuminating Engineering Society and which reviewed the functional value of color as applied to the entire facilities of industry.

Meanwhile the whole science of color in industry has received

increased recognition -- with Du Pont acknowledged as the pioneer and leader in its advancement.

This fact is well verified by the editorial recognition accorded to the work of the Du Pont Company and Faber Birren by important national magazines.

This brings us right up to 1941 and the war.

From 1941 to 1945, the normal routine of developing business had to be put to one side and the program arranged to meet war conditions.

Except for war work, allocations and restrictions were the order of the time.

The only fact of real import was the change in organization which occurred in October, 1944.

Mr. William Richter, General Manager of the Fabrics & Finishes Department retired as of that date, and was succeeded by Mr. J. Warren Kinsman.

Mr. Kinsman quickly appraised the whole Department and immediately inspired and strengthened the entire organization by supplementing each Manager in a key post, with an Assistant. This relieved the burden that most of the key men were carrying, while protecting each post with someone to carry on in case of loss.

Mr. Kinsman also created new posts for Messrs. Flaherty and Zintl, as Manager and Assistant Manager, respectively, of the Finishes Division. These moves in turn created opportunities for many men in line who were waiting for years to move forward.

In November, 1944, Mr. W. P. Donohoe who had just been appointed Director of Sales, died suddenly while on a trip to Chicago. This unfortunate and untimely death of Mr. Donohoe necessitated a number of adjustments, - and the action of Mr. Kinsman in appointing Assistants

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more than justified itself at the very start of his regime.

Mr. J. J. Moosmann, who had been Assistant General Manager since 1928, retired on December 31, 1945, after 46 years of service. Mr. Moosmann was succeeded by Mr. E. S. Nickerson who was, at the time, Assistant Manager of the Fabrics Division.

In June, 1945, Mr. E. M. Flaherty became ill and after a year's absence retired in July, 1946, after 33 years of service.

In April, 1947, Mr. G. A. Biesecker, former Chicago Regional Manager, retired from service after 41 years of service. Mr. David E. Goldich succeeded Mr. Biesecker.

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May 1, 1947

GENERAL MANAGER - J. WARREN KIRKMAN
STAFF ADVISOR - W. R. ZINTL
ASSISTANT GENERAL MANAGER - E. S. NICKERSON

CHEMICAL DIVISION - DIRECTOR - JOHN MARSHALL
ASSISTANT DIRECTOR - J. NORMAN MCHURNEY
EXECUTIVE ASSISTANT - M. E. KATLACK
FAIRFIELD LABORATORY - DIRECTOR - A. F. SCHILDMAUER
PLANT LABORATORY - DIRECTOR - N. B. DAVIS
NEWBURN LABORATORY - DIRECTOR - N. B. DAVIS
PARLIN LABORATORY - DIRECTOR - N. B. DAVIS
PHILADELPHIA LABORATORY - DIRECTOR - J. B. BULLITT, JR.
PATENT SECTION - MANAGER - P. B. COCHRAN
FIELD RESEARCH SECTION - MANAGER - M. J. MAON

FABRICS DIVISION - MANAGER - M. J. CALLAHAN
ASSISTANT MANAGER - J. H. BUCKLEY
FAIRFIELD PLANT - MANAGER - E. R. CATHCART
RUGSELL PLANT - SUPERINTENDENT - M. J. VITTENOL
NEWBURN PLANT - MANAGER - H. S. GLENN
SALES SECTION - DIRECTOR - M. N. NICKOWITZ
FABRIKID SALES - MANAGER - M. L. HOPKINS
FABRIKID PRODUCTS SALES - MANAGER - J. A. DYKMA
RETAIL SALES - MANAGER - S. C. JENNINGS
AUTOMOTIVE SALES - MANAGER - A. L. BROWN
ADVERTISING - MANAGER - F. R. PRICE
EXPORT SALES - MANAGER - R. J. VILSON
CONTROL SECTION - MANAGER - H. EDWARDS

FINISHERS DIVISION - MANAGER - H. H. HOPKINS
ASSISTANT MANAGER - HATT DENNING
PRODUCTION SECTION - DIRECTOR - A. E. BURKE
ASSISTANT DIRECTOR - R. A. DIBBLE
CHICAGO PLANT - MANAGER - L. V. CLARK
PORT HADISON PLANT - SUPERINTENDENT - M. F. BOBIN
EVERETT PLANT - MANAGER - C. D. REEF
PLANT PLANT - MANAGER - M. C. WONE
PARLIN PLANT - MANAGER - L. R. FRIDAY
PHILADELPHIA PLANT - MANAGER - D. S. KENNEL
SAN FRANCISCO PLANT - MANAGER - P. J. GRIFFIN
COLORADO PLANT - MANAGER - E. L. LURRY
SALES SECTION - DIRECTOR - M. R. LOUNSBURY
ASSISTANT DIRECTOR - J. V. RECTOR
DEVELOPMENT - MANAGER - S. L. JOHNSTON
ASSISTANT MANAGER - D. V. BAUDER
EXPORT SALES - MANAGER - R. F. FLOWMAN
INDUSTRIAL SALES - MANAGER - R. S. LACKY
ASSISTANT MANAGER - J. B. DIXIE
REFINING SALES - MANAGER - C. R. ALLEN
ASSISTANT MANAGER - M. H. HOOK
SPECIALTIES SALES - MANAGER - F. V. SHERIN
ASSISTANT MANAGER - M. H. LATOVSKY
TRADE SALES - MANAGER - S. L. MCKOBBLY
ASSISTANT MANAGER - L. P. GULP
AUTOMOTIVE SALES (DETROIT) - MANAGER - R. C. WILLIAMS
ASSISTANT MANAGER - E. L. THEVIER
BOSTON REGION - MANAGER - S. B. WOODBRIDGE
INDUSTRIAL SALES - MANAGER - S. E. STOUT
REFINING SALES - MANAGER - K. V. WRIGHT
TRADE SALES - MANAGER - L. N. HOBBSMAN
PHILADELPHIA REGION - MANAGER - J. M. STUTT
INDUSTRIAL SALES - MANAGER - M. H. DEAN, JR.
REFINING SALES - MANAGER - A. C. NEARNS
TRADE SALES - MANAGER - J. P. HOLLOWAY
TRANSPORTATION SALES - MANAGER - A. L. PRATT
ATLANTA REGION - MANAGER - V. T. BANNING
REFINING SALES - MANAGER - V. B. JONES
TRADE SALES - MANAGER - M. J. HANSEN
CLEVELAND REGION - MANAGER - J. L. MASTERTON
INDUSTRIAL SALES - MANAGER - W. I. KREUER
REFINING SALES - MANAGER - W. B. LINGER, JR.
TRADE SALES - MANAGER - J. K. SCAP
CHICAGO REGION - MANAGER - D. E. GOLDICH
INDUSTRIAL SALES - MANAGER - V. P. FINKER
REFINING SALES - MANAGER - A. P. LIRA
TRADE SALES - MANAGER - H. N. HARM
TRANSPORTATION SALES - MANAGER - Y. J. RITCHIELL
DALLAS REGION - MANAGER - G. F. BALDWIN
INDUSTRIAL SALES - MANAGER - J. L. BOYLER
TRADE SALES - MANAGER - H. R. VALLER
SAN FRANCISCO REGION - MANAGER - J. I. COOKLEY
INDUSTRIAL SALES - MANAGER - S. A. MACDONALD
REFINING & SPECIALTIES SALES - MANAGER - C. B. BULLINER
TRADE SALES - MANAGER - M. C. HILLMAN

CONTROL DIVISION - MANAGER - T. L. BIGGIE
ASSISTANT MANAGER - R. Y. BATES
PERSONNEL SECTION - SUPERVISOR - C. W. DICKEY

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CONCLUSION

In concluding this history of the Du Pont paint business, there are some facts that stand out - some principles established that are landmarks for future progress. It is our purpose to record these briefly here.

The growth of the paint industry during the period of Du Pont's association with it has been remarkable, as the following figures attest:

1914 -	855	manufacturers	doing	a	volume	of	\$	149,000,000
1922 -	1,200	"	"	"	"	"	\$	300,000,000
1946 -	1,500	"	"	"	"	"	\$	900,000,000

From this record of growth, it is readily apparent that a billion dollar industry is both possible and probable in the not too distant future.

As regards this growth, it can be truthfully said that Du Pont's contribution in lacquer and synthetic products has had a very large influence. Further, it can be said that these developments changed the very nature of the industry - from an orthodox business to a now definitely chemical industry.

As to Du Pont's own growth in the paint business, the attached chart for the period from 1922 to 1946 shows this progress graphically in comparison with the growth of the industry. The industry growth has recorded a 201% increase, compared with an increase of 75% for Du Pont.

It is the writer's opinion that this Du Pont achievement spells real progress - progress that would not have been possible without the finest and closest kind of cooperation between all of the departments involved - technical, production, and sales. In these groups there were no temperamental stars - no stellar

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performers demanding top billing - but a unified cast performing together in complete unity, notwithstanding the many vicissitudes with which the department had to contend.

This history leaves no question about the stability and earning power of the Industrial and Refinish Divisions, because in those fields Du Pont has achieved unquestioned leadership and sets the pace for the industry. As for the Trade Sales section of our business, which is the most highly competitive portion of the industry, we are over the crest of the hill and future progress will depend entirely on the amount of effort Du Pont puts behind it.

And now, a final word about this paint business of ours which operates as the Finishes Division. True, it is made up of apparently separate component parts - Trade, Industrial, and Refinish - yet history bears out the fact that each is dependent upon the other. The technical and production problems are one and the same, and the only true distinction is in the selling effort, which was purposely planned for greatest results through specialized selling. Let not any one of us belittle this principle.

This, then, is the history to date - the end of what has passed, but only the beginning of still greater history yet to be written.

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DUPONT FINISHES VS. THE PAINT INDUSTRY 1922-1946

