Chapter 11: Finding a Lawyer

The Lead Industry of the United States Under Siege

First thing we do is kill all the lawyers
Shakespeare

Technology is not only the child of science and of consumer desire, but also of other societal influences. What some of these influences are can be discerned by examination of the history of the lead industry in the United States. We will see woven together and then unraveled two main threads: white lead (paint) and lead acid batteries.

I. National Lead's Antecedents

I.A. 1630-1812: Importing Our Lead

The first approximate 250 years of lead consumption in the United States is dominated by white lead paints. Use of white lead paint got off to a slow start as it was frowned upon as vainglorious and frivolous by the early New England Puritan settlers. In 1639 Rev. Thomas Allen of Charlestown New England escaped censure for frivolity of having a painted room by pointing out it was painted before he bought it. Puritans discouraged use of painted woods (Haynes, 1954).

Despite the Puritans, demand for painted wood grew. Pigment was listed as one of the major import items in Boston. In the first half of 1770 2,224 bars, sheets, and casks of lead were sent to Boston from England for the use of local "whitesmiths" (1). A prominent importer of the finished pigment was the trading company Neave and Co. of England, represented by Samuel Neave who arrived in Philadelphia in 1732, specializing in pigments.

By 1767 England was raising taxes on a variety of products and placed an additional tariff on the port duties of white and red lead and other pigments and glasses, in addition to tea). The dependence upon England for a lead source was a significant issue during the American Revolution where church roofs, statues were melted down for bullets. Lead was also smuggled across the English Blockade from St. Eustatius by an enterprising Philadelphian, Blair McClenachan.

The end of the Revolutionary war left the United States no better off with respect to lead supply. The newly discovered deposits in the Mississippi valley lay in the realm of the French. Lead had been produced there as early as 1690 by Native Americans performing crude smelting of lead for trade with the French (Clark, 1949). Further major deposits were found by La Motte (the Golden Vein between 1715 and 1719) and Philippe Francois Renault (Potosi, Mo. In 1720). Although the Louisiana purchase of 1804 brought these mines into the orbit of the United States, lead was still a major import product (2,500,000 pounds per year between 1801 and 1810) (Haynes, 1954).

With the onset of the War of 1812 these deposits became of heightened interest to the government. Tench Coxe reported in 1812,

*Soon after the acquisition of the southern lead mines (*The Louisiana Purchase included Missouri) *establishments to make pigments of that material were erected in one season sufficient, with the shot factories, to employ that portion of the addition which was likely to reach Atlantic ports. Red and white lead, and patent yellow, are now made in considerable quantities.*

I.B. Domestic Production of White Lead and Consolidation as the Lead Trust

Independent Manufacturers 1812-1865

The first of these pigment manufacturers appears to have been John Harrison. As a young man he had been sent from Philadelphia to England study chemistry with Dr. Priestley. While in England he

Figure 11.1. Lead from mines in Galena could be transported down the Mississippi River (initiated with red upper left red line) down to the Ohio River junction and north and east to Pittsburg.

learned the manufacturing of sulfuric acid using lead-chambers as invented by Dr. John Roebuck in 1746. On return to the U.S. he set up a sulfuric acid manufacturing plant with Samuel Betton in 1792. By 1810 Harrison was not only using lead as a container for the sulfuric acid distillation but had branched into manufacturing of white lead, red lead, litharge, and pigments in oil. His move to pigment production was amply awarded by the rise in prices of pigments as the source of imported pigments dried up during the war. Prices rose from 9.5 to 17 ¢/lb to 21.33 to 33.33 ¢/lb. Harrison expanded pigment production to become Harrison Bros. and Co. until purchased by du Pont 1917.

A second firm opened in Philadelphia in 1811 when Smith began production of white lead. Smith sold the firm to Joseph Richardson in 1813 and the firm was eventually acquired (1819, with a yearly output of 100 tons) by the firm of M. & S. N. Lewis, a commercial descendent of the original firm of Neave which had been renamed in 1771 on the introduction of Mordecai Lewis to the firm of Neave, Harman and Lewis (Haynes, 1954). By 1829 the firm's yearly output was 600 tons, due in part, to replacement of vinegar with acetic acid.

The availability of the Mississippi lead ores inspired one Philadelphia merchant to set about importing pig lead to that city. In 1811 Joseph Herzog sent his nephew to St. Louis to initiate the trade. Within the same year additional men proficient in the preparation of red lead were sent down the Ohio River. The goal was to supply red lead directly to Pittsburgh glass makers (Figure 11.1) One route to Pittsburgh from St. Louis was down the Mississippi and then up the Ohio. Within the year 3,300 pounds of red lead was produced and within the next year white lead was being produced for shipment to Pittsburgh.

The St. Louis produced red and white lead were in competition with other producers lying to the west of the eastern mountains. Western manufacturers of white lead (lead supplied from the Missis sippi valley and transported up the Ohio River) were in a good position to compete with white lead from the east of the Allegheny mountains. In 1910 Pittsburgh already had production of 30,000 pounds of white lead produced by Bielin and Stevenson.

The War of 1812 increased domestic manufacturing by cutting off supply of imported lead and stimulating the growth of the lead industry based on Mississippi Valley ores. In 1815 white lead production moved further west along the Ohio river to Cincinnati, with the opening of the Cincinnati Manufacturing Co. This fledgling industry was further strengthened by the imposition of the first U.S. protective tariffs in April 27, 1816 (Haynes, 1954). These tariffs were imposed in response to demand by farmers. Consumers of farm products were primarily the eastern cities and it was intended that tariffs would strengthen internal production and external marketing of manufactured goods, which, in turn, would increase domestic demand for farm products. Tariffs on chemical products were 7.5%, saltpeter, 15% Prussian Blue, 1$ per cwt for alum, and 3¢ for red and white lead. Tariffs were raised on red and white lead to 4¢/lb in response to the financial panic of 1819 on May 22, 1824. (See Table I.1 for pigment imports and Table I.2 for early production of white lead).

The tariffs stimulated a wave of new domestic production of white lead with many firms situated on the eastern manufacturing seaboard. Some producers failed (Salem Lead Manufacturing Co. initiated in 1824 and closed in 1825). Others survived into modern times. The Boston Lead Co., begun in 1819, as a manufacturer of lead pipe and sheets expanded in 1831 to include production of red and white lead and litharge, eventually taking over the competing Roxbury manufacturer Norfolk Lead Co. in 1852. In 1825, the

Brooklyn White Lead works were founded by John and Augustus Graham and co-investors Joseph Noyes and George S. Howland. Augustus Graham, in an early episode of industrial spying, took a job as a common laborer in an English white lead factory. From this he found that tan-bark, as opposed to stable litter used in the processing plant, increased white lead production. This led to 66% increase in production by 1840 (Thompson, 1895). This company was the first of those which later merged to be National Lead. Also formed in Brooklyn was the Union White Lead Company in 1830 which began production under Whitehead, Peter, and Isaac Cornell. The company was reorganized in 1841 as the Union White Lead Manufacturing Co. with Whitehead Cornell as president.

Advances in lead manufacturing came from the Great Falls Manufacturing Co. (President Col. Edward Clark) in Saugerties N.Y. (founded 1832) leading to a patent in 1939 for a quick process. This patent is related by geography to an earlier patent by Charles Ripley (also of Saugerties) for white lead production in which the corroded lead sheets were placed on a moving wire cloth which was agitated to remove the lead carbonate dust.

By 1832 there were at least 9 companies manufacturing white lead east of the Allegheny mountains and 4 west. White lead production increased in both the Mississippi Valley and eastern sea board due to increased production of Galena lead ores. In 1837 Collier White Lead and Oil Company began operating in St. Louis. Lead shot production was the first manufacturing firm in the Carondelet neighborhood of St. Louis. By 1840 lead was being shipped down to New Orleans and back up the Atlantic seaboard for use by eastern producers perhaps spurring the foundation of the Atlantic White Lead Co. of New York, an offshoot of Pollena and Colgate, a glass manufacturer.

By 1845 western lead production reached 54,495,000 pounds at 3¢/lb. Declining prices led to the establishment of a variety of new firms. The U.S. Census in 1850 listed 51 white lead manufacturers.

1865-1884: Horizontal Consolidation of the White Lead Industry

During the Civil War the main source of domestic lead was the Galena district of NW Illinois and SW Wisconsin. These mines supplied 15,000 tons of lead in competition with imports from England and Spain of 40,000 by 1867. Increased production in this region was spurred by a technological improvement which allowed lead carbonate “dry bone” to be recovered as opposed to tossed as a valueless by-product. Domestic production of lead is shown in Table I.3(Thompson, 1895). Increases in lead production also included advances in smelting, including precipitation of lead bearing dust from the smelter gas. Producers, having an abundance of material, proliferated so that output exceeded demand. In addition, other products began to make inroads on the white lead market, beginning with titanium dioxide, rutile mineral. Overton, an English paint maker, applied TiO_2 as a protective coating for ship bottoms in the 1870s. Another competitor was zinc oxide, ZnO. With competition from other white pigments and overproduction of lead pigment prices dropped by the late 1870s.

Overproduction of white lead led to attempts to stabilize prices through price structuring horizontally throughout the industry into by the White Lead Association (Eastern producers) and the Consolidated Lead Company (Midwestern producers) in 1879. Failure of these two pools led to attempts in 1884 to bring both Eastern and Midwestern producers into a price control structure through the White Lead Trust. By October 1887 this effort had been superseded by the formation of the National Lead Trust established to control 70-95% of market (DuBoff, 1989). One of 8 nationwide trusts (Standard Oil, American Cotton Oil, National Linseed, Distillers Corporations, American Sugar Refining, American Cattle Trust, National Cordage Association) the Lead Trust began as a horizontally integrated organization, but moved vertically to control supplies and marketing. The trust was headed up by William P. Thompson, formerly of Standard Oil Domestic Products division. Within the year he set up an internal research and development division, consolidated purchasing, and enlarged smelting at Socorro, N. M. At the end of the year National Lead was producing 70% of red lead, 60% of lead acetate, 15% of linseed oil, and was the leading paint producer. It produced <10% sheet lead and other lead fabrication products (Chandler, 1980; Thompson, 1895). The National Lead Trust further consolidated in 1890 as the National Lead Company (in response to the Sherman Anti-Trust Law) and in this reorganization added six other operations (Bradley White Lead, Brooklyn White Lead, and Lenox Smelting Co. of Brklyn; Jewett White Lead, Ulster White and Union White Lead Co. N.Y., City).

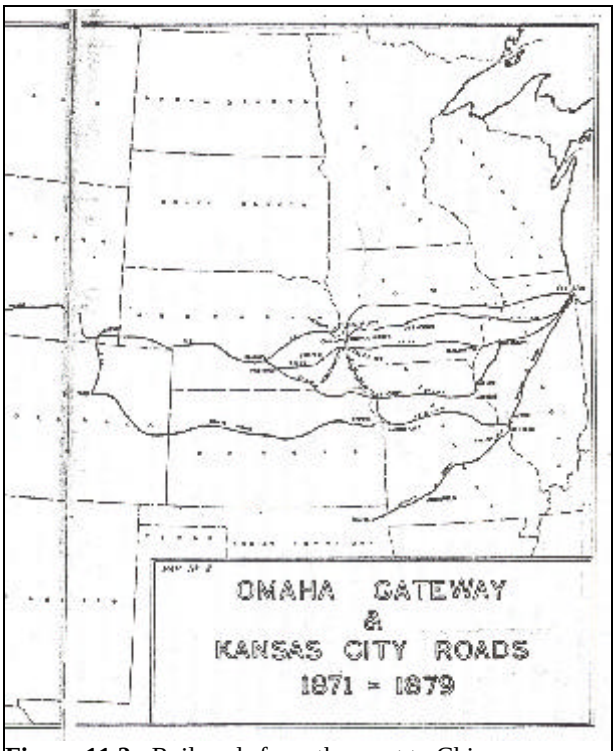

Figure 11.2. Railroads from the west to Chicago.

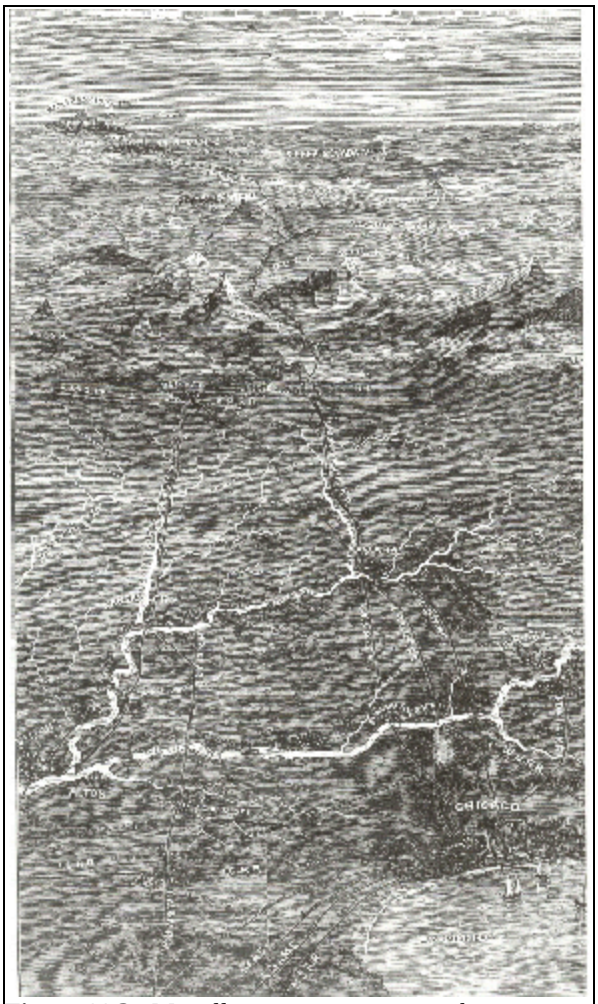

Figure 11.3. Map illustrating competition between trians and lake for freight at Chicago.

Chicago and Small White Lead Producers

Because Chicago was on a main transportation corridor it was uniquely suited for White Lead manufacture (Figure 11.2). Eastern bound trains from the west off-loaded at Chicago where Great Lakes Shipping and eastern train companies competed for freight (Figure 11.3). It became apparent there was a cost benefit to bringing the raw lead to Chicago because it was to be off-loaded anyway. Once in Chicago cheap labor could be used, as compared to labor further west, to produce a final product. Furthermore access to capital was easier.

During the 1880s several small firms established white lead production in Chicago. One such company was Southern White Lead located at 900 W. 18th street. This property was originally subdivided by Thomas L. Barrett in 1880 and sold to William H. Gregg in 1887 who in term made a quit claim on the property to South White Lead Co. in 1891 (Fitch/Cook County Clerk's Office). The company did not exist long as an independent operation because it was quickly passed on to National Lead. National Lead Trust had reorganized as the National Lead Co. the year prior and was consolidating its dominance of the U.S. white lead production. The real estate intermediary was Charles G. Bowen in November and December of 1891. The factory continued to operate. National Lead was noted as owner in 1907.

Bowen also arranged the sale of D. B. Shipman White Lead on S. State street to National Lead (Fitch/Cook County Clerks Office). The property was first subdivided in 1873 and passed through the Potter Palmer family. In 1888 Alfred Trude sold the property to D. B. Shipman White Lead. In Dec. of 1891, D.B. Shipman White Lead was sold to Charles Bowen who passed the property on to National Lead. This property passed from the hands of National Lead in 1918. In the boom 1990s it was converted into luxury condominiums.

Eagle-Picher had a site in Chicago by the rail-

Figure 11.7: Randolph St. in Chicago, 1899, looking East. On the right side are the premises of C. T. Raynolds & Co. The site of the lead paint business in 2002 is the Chicago Theatre (Figure 11.8).

lines as did Devoe and Raynolds. Devoe and Raynolds began in1754 with William Post selling ground pigments form his house on Water St. New York City. Much of his red vermillion was used for painting of cabooses for the westward expansion.

In 1876 C.T. Raynolds and Co. were advertising their business at in Chicago as grinders and

Figure 11.8. The C. T. Raynolds site in 2002. The re-use of old, potentially, contamnated sites, depends very much upon their perceived location value. In this case a highly desirable location resulted in continuous site occupation.

Figure 11.9. C. T. Raynolds second site on Fulton, took much longer to redevelop. In the 1990s the City Center redevelopment surged to the west making this building the outpost of condominium renewal. See figure 11.10.

Figure 11.10. Devoe and Raynolds plant on Superior in Chicago was renovated into condominiums in the 1990s.

importers of White lead and Zinc (Figures 11.7 and 11.8). One site of their business was near the Cook County Courthouse. Raynolds eventually morphed into Devoe and Raynolds, the preferred paint of the artist Pollack. The Devoe and Raynolds plant in Chicago, located conveniently close to rail and water access was renovated into condominiums (Figures 11.9 and 11.10).

Escapees (for a while at least) from the National Lead Company

By 1890 National Lead Company included all of the leading producers except four major producers: Carter of Omaha and Chicago, Wetherill and Brother of Philadelphia, Eagle White Lead Company of Cincinnati and W. P. Fuller and Co. of San Francisco. Also not incorporated was the paint company of Sherwin-Williams, founded in 1866 by Henry Sherwin and Edward Williams.

The ***Wetherill Co. (Philadelphia)*** traces it's roots to 1775 when Samuel Wetherill, apprenticed to a carpenter at 15, marrying the master's daughter set up a factory for weaving jeans, which led him to dyes and chemicals (9 South Alley (Commerce street), Philadelphia). By 1785 this company was known as Samuel Wetherill & Son, "druggists, oil, and colormen". In 1804 the company built it's first white lead plant at Broad and Chestnut Streets, Philadelphia.

During its construction the local agents of British manufacturers repeatedly warned them against this venture, saying frankly that they had orders to cut prices and drive them out of business. Shortly after the plant was completed it was destroyed by fire, and the next day an Englishman, who had openly foretold the ruin of the Wetherills' white lead enterprise, sailed for England followed by strong suspicions of incendiarism. It was four years before the plant was rebuilt and then at a new location at 12th and Cherry streets. Once it was in production, the importers made

good their threats by cutting prices and waging a

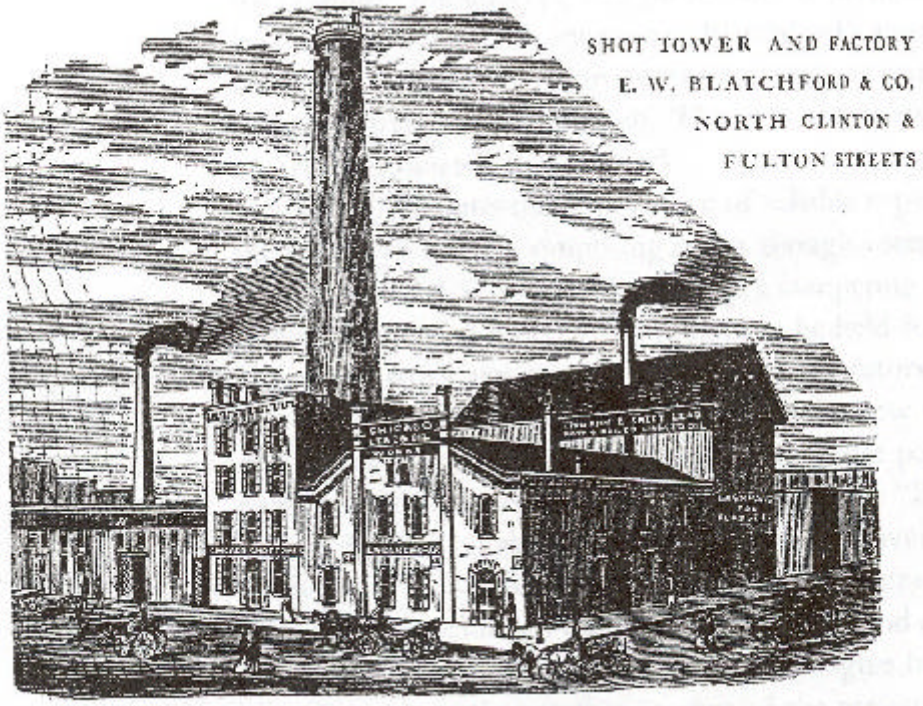

Figure 11.11. The Chicago Shot Tower of E. W. Blatchford.. The Chicago Shot tower went out of production in the early 1900s. Despite attempts to redevelop the land it lay unused until the 1990s. See Figure 11.12. As part of the development process a lien was placed on the property by various environmental consultants.

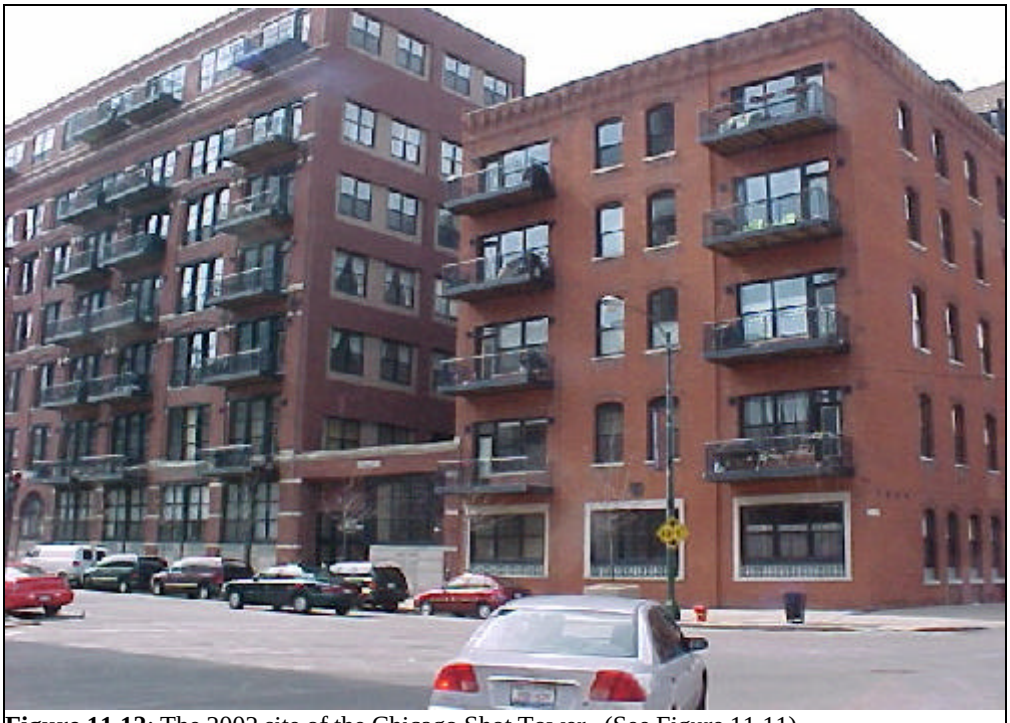

Figure 11.12: The 2002 site of the Chicago Shot Tower. (See Figure 11.11)

campaign of misrepresentation against the

Figure 11.13: Eliphalet Wickes Blatchford, made his fortune in lead from 1850-1870. He then devoted much of his life to philanthropy in Chicago.

American product. These attacks stopped abruptly with the outbreak of the war (of 1812) which cut off all imports from Britain but also brought in domestic competition.

By 1812 Samuel Wetherills, Sr. and Jr also embarked on the production of sulfuric acid. Apparently working conditions were less than salubrious for the Wetherill & Bro. Plant at West Philadelphia was described as "a cross between the Eastern Penitentiary and the monastery of St. Bernard on the slope of the Alps." An accidental discovery of a new process for ZnO by a workman, Mr. Burrows of Passaic Chemical Co. in 1865 was identified by Col. Wetherill and incorporated into production by the Gilbert, Wetherill, Baxter, and Co. at South Bethlehem, Penn.

Philanthropy and Lead: A Chicago Story

Eliphalet Wickes Blatchford was born in Stillwater, N.W., May 31, 1826. His father moved the family west in search of a healthy residence for his mother. Blatchford graduated from Illinois College in 1845. A brief stint as a law clerk in the east left him ill. After recovering from his illness he traveled to Chicago, St. Louis, and Galena, Illinois to look into opportunities in the lumber, lead, retail, and wholesale merchandising businesses.

His father and grandfather each advanced him $10,000 as capital to buy into the lead pipe business with Mr. Kenneth McKenzie in St Louis. He went east to purchase the instrument and learn its use. On arriving in St. Louis he found his potential partnership had failed so he began on his own. He obtained publicity through supplying pipe to run the telegraph wires connecting the east and St. Louis across the Mississippi River. He also stamped the bars of lead for hunters with their own name.

In 1853, Blatchford bought out J. W. Roberts Company and formed a partnership Blatchford and Collins. This company dominated many of the lead enterprises west of the Allegheny mountains. After the railroad arrived in Chicago, Blatchford moved to establish a branch there, eventually dissolving the St. Louis partnership. The Chicago company was known as E. W. Blatchford and Co. and was located at N. Clinton St. A four story building was erected in 1856 and the company did well enough that they survived the financial panic of 1857. A fire in 1859 destroyed the original building which was re-erected.

The company was also known as Chicago Lead and Oil Works. The products produced were lead pipe, sheet lead, bar lead, pig lead, shot, bullets, linseed oil, oil cake, and white lead.

Linseed oil was supplied as part of the entire white lead process. Oil cake was the byproduct of linseed oil manufacture and it was sold throughout the United States and England as stock food. It was also sold as Blatchford's Dog-Ration (Figure 11.11 and 12).

The business prospered in part because of transportation routes from principle ore of Galena. Blatchford purchased over 12,000,000 pounds of pig lead between 1860 and 1872 as part of his contract to supply the Navy with wire lead for automatic bullet

machines. During this same period Blatchford erected the Chicago Shot Tower, which was the largest structure in the city (Figure 11.12.).

The Big Shot-Tower. High above all the surrounding factories and dwellings, even above the tallest chimneys, standing like a sentinel over the fork of Chicago's river, may be seen what is popularly known as "Blatchford's Shot-Tower'. This structure was erected in 1867, being of the usual rigid simplicity of its kind .... over 200 feet high.

After the war Blatchford diversified both his products and his interests. The introduction of the Colt automatic during the war reduced some of the demand for shot tower products and iron pipe began to replace lead for a number of applications. Blatchford expanded his business in the area of white lead, linseed oil, oil cake, and type metals for the nascent printing industry.

Blatchford worked directly with the Mergenthaler company to supply lead alloys of specific composition for each type of composing machines. Linotype used a 85:4:11 lead:tin:antimony while other type used variable proportions of antimony. Blatchford's grandson writes (Blatchford, 1962):

A story illustrates the importance of the reliable type metal. The foreman of the Brooklyn Eagle's composing room, though a steady customer of Blatchford type metal, was persuaded to buy a competing product to save money. The manager had ordered the presses to be held for an expected "scoop". When the story arrived and the linotype operators sat down at their keyboards, the machines became jammed by the new substandard metal. The result was a costly delay in all editions of the paper and the immediate replacement of the faulty metal with the reliable "Blatchford."

In the 1880s Blatchford (Figure 11.13) became more interested in civic responsibilities. He was a member of the Chicago Sanitary Commission which approved reversing the flow of the Chicago River to send the city sewage down to the Mississippi instead of into Lake Michigan. In 1887, he helped found the Newberry Library. He was also a member of the board of trustees of the Field Museum.

Three years later he sold the Chicago Shot Tower to the American Shot and Lead Company. This later company was set up in competition to National Lead and was attempting to consolidate all non-white lead lead business.

In 1897 Blatchford helped found and open the John Crerar Library. In 1900 he joined with other firms in the United Lead Company, another attempt to compete with National Lead for non-white paint lead business.. The Shot Tower reverted to Blatchford in 1903 and then sold to United Lead Company. In 1906 the National Lead Company acquired the United Lead Company.

The property of the Shot Tower remained with heirs of Blatchford and went into receivership in the Depression. During the boom of the 1980s and 1990s the property was converted into luxury lofts (Fitch/Cook County Clerk's Office).

The ***Eagle-Picher (Cincinnati***) company traces it's roots to 1843 when Eagle White Lead was founded to produce paint pigments (Eagle-Picher, 2000) (Figure 11.14). The Eagle White Lead Co. remained intact from the consolidations of the white lead industry by National Lead and was alive and kicking and fighting freight costs from it's western suppliers in 1911 (United States, Commerce Court, Decision no. 6, May session, 1911: The Eagle White Lead Co., et al, petitioners v. the Interstate Commerce Commission, the Cincinnati, New Orleans & Texas Pacific Railway Co., and The United States, respondents, July 20, 1911).

By 1915, this company was vertically and horizontally consolidating with producers of a competitive material, lead sulfate, known as sublimed white lead. Sublimed white lead appeared, by accident, in 1876 at a Zn smelter in Bethlehem Penn.. It was in production in Joplin Mo. by the end of year, as part of a cluster of lead related industries, including that of the Picher family of Joplin, which formed the Picher Lead Mining Co. The sublimed white lead of Joplin is reorganized as Picher Lead Company of Joplin in 1888 with this company joining forces with Eagle White lead in 1916 to become the Eagle-Picher Lead Company. The new company was capitalized for $10,000,000 and operated the Picher plant at Joplin and a new plant at Galena, Kansas. In 1928 Eagle-Picher extended its mining operations with the subsidiary Consolidated Lead and Zinc Co. purchased for $400,000 the holding of Domado Mining Co., (Haynes, 1954). Production of white lead at Cincinnati as well as lead oxide at Newark continued.

Diversification of the company began in 1945 when Eagle-Picher started Eagle-Picher Minerals, Inc. EPMI began production of diatomaceous earth products in Nevada marked under the Celatom

Figure 11.14. Eagle Picher

trademark. In 1966 Eagle-Picher Lead Company became Eagle-Picher Industries, Inc. to reflect its ongoing expansion into a wide and diversified group of industries: 57 plants in US, Germany, Great Britain, Spain and Mexico with 6,500 employees. Products included rechargeable, valve regulated, lead-acid batteries for use in either cyclic or stand-by power conditions. Also manufactured were lithium thionyl chloride batteries which serve as a primary power source in a variety of microprocessor applications. Some of the product names in 2000 were Carefree CF batteries, Carefree Magnum extra Capacity batteries, High efficiency batteries, Keeper II lithium batteries.

The Cincinnati Industrial Machinery subsidiary, located in Sharonville, in 2000 specialized in high-volume cleaning and finishing systems and claimed to be recognized as the world leader in the design and manufacture of two-piece can washing, coating, and drying machinery. Eagle Picher Technologies, LLC and Diehl Stiftung and Co, further diversified as a joint venture as Diehl & Eagle Picher GmbH for military batteries: nickel hydrogen space; silver zinc, nickel cadmium, sealed lead acid, lithium thionyl chloride. A further subsidiary is Eagle-Picher Environmental Science and Technology (Miami, OK.) which provides sample containers for environmental sampling of industrial, pharmaceutical, municipal, waste water, drinking water and hazardous waste samples.

Carter Lead company held out against National Lead in the 1890s (Budka, 1992). Carter Lead had it's antecedents in the Adams White Lead of Baltimore and in the Omaha White Lead Co (Figure 11.15). The Omaha White Lead Co. was formed Dec. 28, 1877 by Charles W. Mead and Charles B. Rustin, directors of the Omaha Smelting and Refining Company, and Levi Carter, a former overland freight shipper and Union Pacific contractor (Figure 11.2 ((Grodinskey, 1962)). The company had a capital stock of $60,000 with a funded debt of $40,000. The Adams White Lead of Baltimore was holder of the 1874 Adams patent which increased lead carbonate production by the spraying of lead pellets into the corroding chamber. The small pellet size created a large surface area for aerial attach by acetic acid and carbon dioxide, increasing the rate of production drastically. The Adams company also introduced application of additional heat (not supplied by the composting manure or bark). Addition of heat dropped production from 8 to 3 days (Haynes, 1954). With the fall in lead pigment prices the Adams White Lead Co. of Baltimore failed and the patent was purchased by Carter in 1885. Carter bought Omaha White lead and renamed it Carter White Lead (Figure 11.16). At the time of the rise of National Lead, Carter White lead was the leader of independent producers of white lead.

A fire at the Carter Omaha plant in 1890 lead National Lead to offer Carter $500,000 to quit the business. Carter instead rebuilt a new plant with a capacity of 10,000 tons/year. In 1893 67% of his product was shipped east of the Mississippi River. Shipping east of the Mississippi river involved transfer of merchandise from trains terminating from the west in Chicago to trains eastern train lines terminating at their most western point in Chicago (2) (Figures 11.2 (Mayer and Wade, 1969) and 11.3 (Stover, 1978)). No single railroad operated simultaneously on either side of Chicago. Trains operating to the east of Chicago had to deal with competition from Great Lake shipping during the spring and summer months. This changed their strategy in pricing and offered shippers both from the east passing through Chicago to the west (and vice versa) the ability to unload in Chicago and take advantage of seasonally lower prices. This produced a self fulfilling drive to increase traffic into Chicago (thus increasing railroads) thus increasing competition

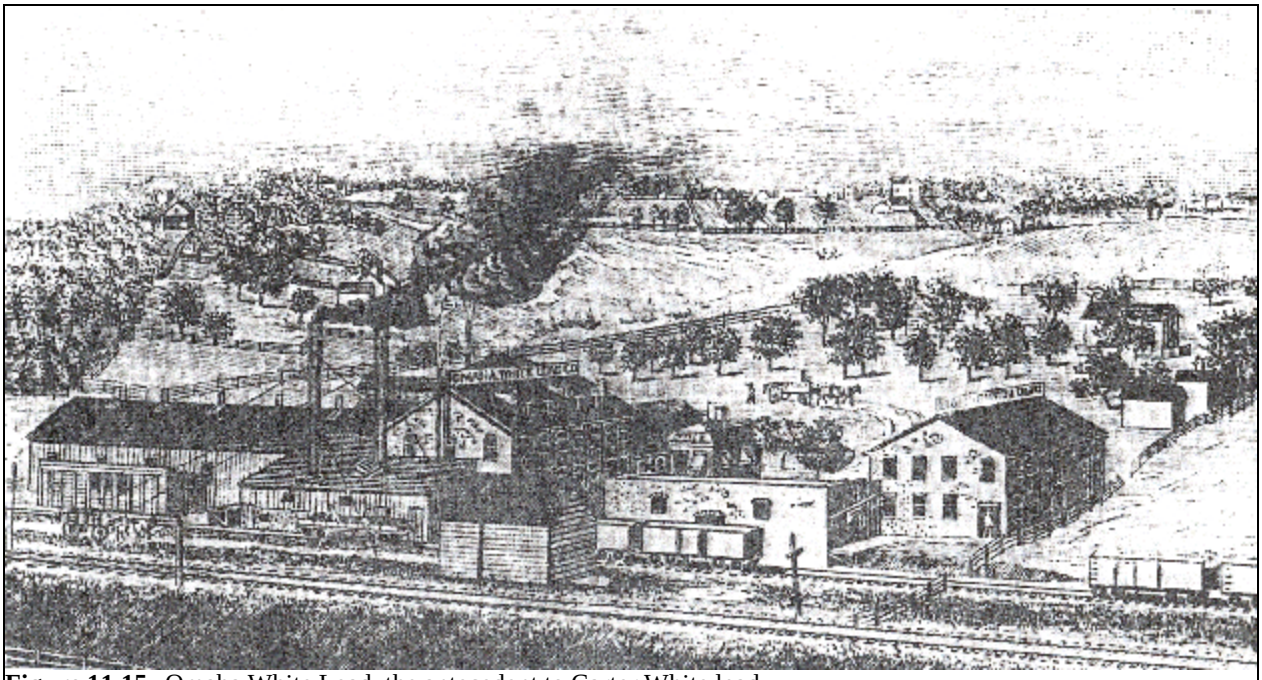

Figure 11.15. Omaha White Lead, the antecedent to Carter White lead.

(Porter, 1915; Ripley, 1912; Stover, 1961).

The price structure of western Chicago bound raw materials also favored carrying the raw material long distances. Because of the fixed costs associated with building the railroads price structures were made to, at times, reflect the least loss of money. Since the labor associated with loading and unloading remained the same, but the income was generated by the mile there was an incentive to set price structures for the longest available shipping route.

Freight structures favored shipping of raw western material to Chicago in order to fill train cars that had been filled with manufactured goods for the western market on their return trip. Also driving final manufacturing east from the source of raw material was a cheaper labor pool and fuel costs in Chicago. By 1893 Denver Pueblo and Salt Lake City smelters were shipping bullion to Missouri and Illinois for smelting .

In 1893, therefore, Carter built a new plant in West Pullman (now part of Chicago, Ill) located on the Blue Island Branch of the Illinois Central Railroad. The plant was completed in 1896. In 1899 Illinois central completed a straight through line from Omaha to West Pullman and Carter closed out Omaha production as wages in Chicago were approximately $47.30/week.

In 1903 Carter died and long time associate E. J. Cornish was elected to the presidency of Carter Lead. Cornish expanded Carter White Lead and reopened the East Omaha plant. By 1906 Carter White Lead could

Figure 11.16. Carter's White lead advertised the Old Dutch process.

meet nearly ½ North American demand for white lead. During the two year period E. J. Cornish presided over Carter White Lead he invested heavily in the National Lead Co. with money from Carter White Lead and from Carter's widow. He purchased no less than $41,050 in National Lead stock.

ttempts to Fully Integrate ALL ASPECTS of the Lead Industries

Other Lead Consuming Industries (1886-1903)

By the 1990s there were three major outlets for processed lead aside from shot works and lead pipes. These included the white lead pigments (outlined above), printing, and battery manufacturing. The bulk of the lead industry was being referred to as the Lead Trust and it was alleged that the Lead Trust was price setting value of lead artificially above the world market

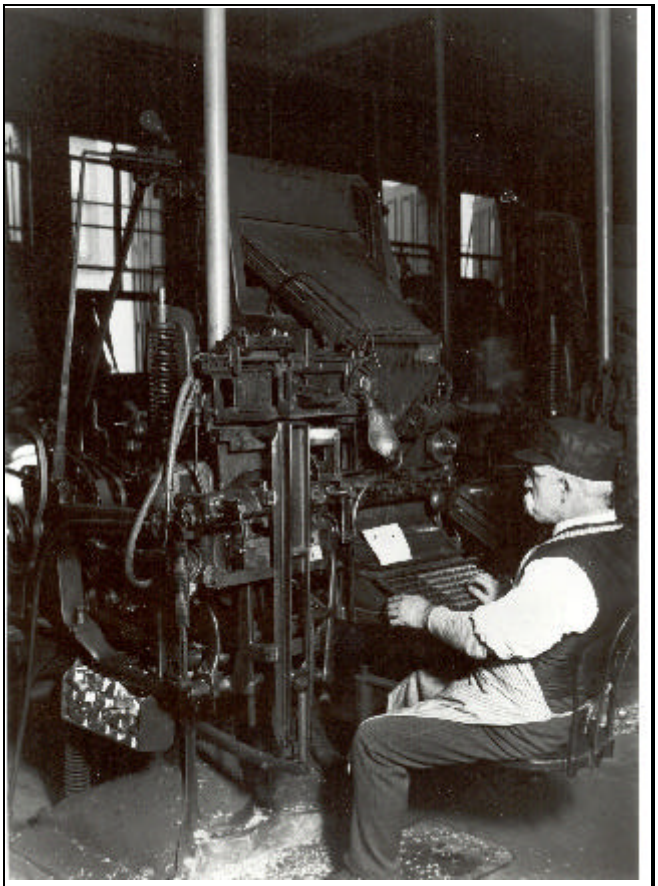

Figure 11.17. Typesetter at work. Note the lead debris at his feet.

(MacBeth, 1900).

Printing Companies

Among the printing companies was the National Typography Company organized in 1884 using Ottmar Mergenthaler's linotype patents. Linotype was an advance on monotype in that a whole line of letters could be cast in lead, tin, antimony alloy. In 1886 the Mergenthaler Printing Co. was created with a capital of $1,000,000 to market linotype machines which were capable of producing more than 8,000 ems of solid matter per hour. Whitelaw Reid was appointed President and General Manager. Reid stepped down in 1889 to assume the position of U.S. Minister to Paris. In 1891 plans were made to reorganize the company once again as the Mergenthaler Linotype Co. of N.J. with capital of $5,000,000 of which $1,000,000 common stock would remain in the treasury for future use. Mergenthaler "claimed that one million of the new stock was soon sold to a syndicate, including D. O. Mills and Ogden Mills (respectively father-in-law and brother-in-law of Whitelaw Reid) for about one-third of its face value". In 1892 the National Typographic and Mergenthaler Printing companies were integrated into the Mergenthaler Linotype Co. in order to deal with issues of insufficient capital (Kahn, 2000).

Lead Acid Batteries: Beginning

The second growing market for lead was the lead acid battery. In 1859, Planté discovered the lead storage battery. By 1881, antimony was being added to the lead acid battery to stabilize the porous lead oxide films improving battery performance. The battery was being experimentally added to boats and carriages with an eye to auto-motive transport. One such entrepreneur was engineer Hiram P. Maxim (factory superintendent of American Projectile Company) who was interested in a motorized bicycle. In 1895 he approached the Pope Bicycle company (established 1878 by Col. Albert A. Pope in Hartford). Pope agreed

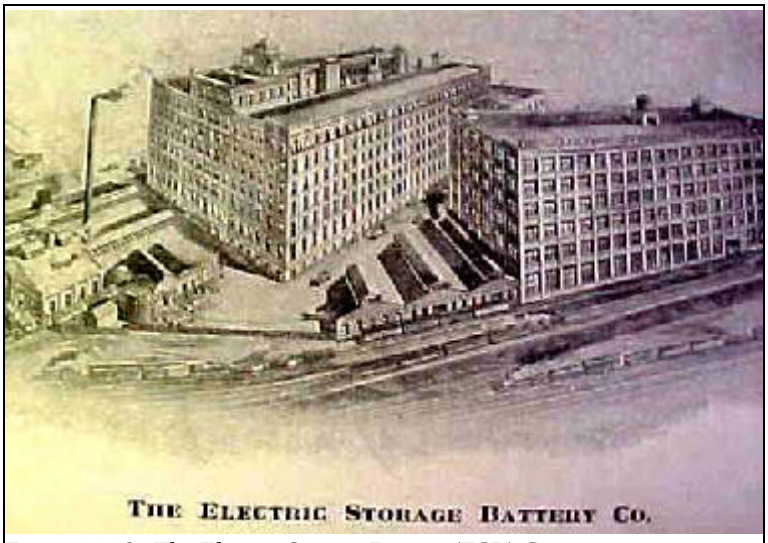

Figure 11.18. The Electric Storage Battery (ESB) Co.

to the proposition but favored use of the electric powered version of the motorless vehicle. Pope felt that the noise and dirt associated with the gasoline powered vehicle would make it a non-starter in automotive industry.

By 1896, Pope Manufacturing had to contend with rival electric car companies (Henry G. Morris and Pedro G. Salom founded the Electric Carriage and Wagon Co) and with advances in the gasoline powered car. A patent that Selden had applied for on a two stroke piston model in 1879 was finally granted in 1895. Despite these obstacles Pope mounted it's first public run of the electric carriage in Hartford in 1897.

Competition increased in the same year when Isaac L. Rice (founder of the Electric Storage Battery (Figure 11.18). in 1895 (Greenleaf, 1961) bought the Electric Carriage and Wagon Company to create a partially vertically integrated field (producer of batteries, producer of electric vehicles, and operator of electric vehicles). By January he placed 12 electric taxi cabs running at 6-10 miles hour on the streets of New York City. In that year Rice reorganized the company into the Electric Vehicle Company (incorporated in New Jersey), paid-in capital of $3,000 with authorized stock of $10,000,000. By 1897, electric carriages were cruising up to 40 miles on a new battery and 18 miles on a recharged battery. They were quiet and clean and were the choice of the first consumers in the market (upper class horse and carriage set). 7,500 exide lead plates were being used in batteries with the number increasing to 46,000 in 1898. Batteries could be recharged (requiring skilled workers) or changed in 30 s (requiring several men). Each storage unit weighted 1,200 pounds (½ of total electric cab weight of 2,600 lbs.) Rice had 100 electric cabs in service at end of 1898 supported by network of charging stations. Cost was $0.30/mile compared to horse drawn carriage of $0.50/mile. The electric cabs received an enormous boost when in 1899 a snowstorm stalled not only city streetcars but the "normal" horse-drawn cabs. Electric cabs moved along easily on sidewalks causing stock prices in Rice's company to increase.

Transportation Franchises. As Rice's example indicates the market for lead acid batteries was limited to an elite horse and carriage group and taxi cabs. Mass transit afforded significant opportunities for monopolization in part due to it's enormous market within the urbanizing cities as transport for the workers, and, in part, due to the corruption that went along with the granting of rights to run transportation lines on city property. Nowhere was this corruption more pervasive than in New York City.

The source of patronage for New York City was Tammany Hall. The antecedent of Tammany Hall was the Society of St. Tammany founded in 1789 by William Mooney, an ex-Revolutionary soldier as a counterbalance to the British leaning Sons of Saint George. The society was named for Tamanend, a Delaware Indian Chief famed for wisdom, benevolence, and love of liberty. The society was particularly against the granting of voting rights to property owners only and against the special recognition of first born sons. In this they were identified as Jeffersonian Democrats as opposed to Alexander Hamilton Federalists.

(John Jay's slogan: "Those who own the country ought to govern it."; Alexander Hamilton: *All communities divide themselves into the few and the many. The first are the rich and well born, the other the mass of the people. The voice of the people has been said to be the voice of God; and however generally this maxim has been quoted and believed, it is not true in fact. The people are turbulent and changing; they seldom judge or determine right. Give therefore to the first class a distinct, permanent share in the government. They will check the unsteadiness of the second, and as they cannot receive any advantage by a change, they therefore will ever*

Figure 11.19. Whitney, Political power behind Grover Cleveland, Secretary of the Navy, and architect of the lead industry integration.

maintain good government.).

The first leader of Tammany Hall was Aaron Burr. Burr helped swing the 1800 electron to Jefferson who awarded Burr and Tammany Hall with patronage slots. By 1805 the Tammany Benevolent Society was incorporated. In 1852 William Tweed of Tammany Hall was elected New York City Alderman and corruption sailed to new heights. Tweed and his Tammany Hall group raised the city and county debt from $29,000,000 in Jan, 1869 to $101,000,000 in Aug. 1871. A common tactic was to require all vendors to take a 100% surcharge to the cost of work, with the surcharge to be kicked back to Tweed and his ring.

The fight against corruption was lead by the legal department under the direction of William Collins Whitney. What follows is a short biography of Whitney derived from the work of Mark D. Hissel's *William C. Whitney; Modern Warwick* of 1969, Figure 11.19.

Whitney, born in 1841 to a northern cotton mill processing family, went to Yale at the age of 18 where he was classmates with Oliver Payne, his future brother-in-law (future leading director of the Standard Oil Trust), and Henry Farmham Dimrock. While his disgust of the Democratic corruption of Tammany hall might have lead him into the Republican party the capture of the Republican party, by free-soilers and abolitionists kept him within the Democratic orbit due, in all likelihood to his father's commercial interests. In 1863 Whitney gave a graduation address at Yale against the Civil War, immigration, and universal suffrage after which he moved on to Harvard Law School. Dimrock, his childhood friend, at that same time went to Nova Scotia where he worked a lead mine financed by Whitney. The mine eventually petered out leaving Whitney "stuck with the devilish stuff".

In 1865 Whitney joined the bar of New York, specializing in receiverships and trusts. He primarily represented investors in corporate litigation. In 1869 he married Flora Payne, sister of Oliver Payne. During this time period he worked to advance his political career by joining the N.Y. City school board as a Democrat dedicated to reform from within (against the "boss" rule of Tammany Hall, then lead by Tweed).The "fight from within" served to split the Democratic vote and allowed Republicans capture the mayoralty. In response, the reformist and Tweed branches of the party temporarily reunited, ultimately leading Whitney to the position of New York City corporation counsel in 1875 (Hirsch, 1969). In this position he attempted to recoup millions from Tweed. He also worked to prevent claims against the city for fraudulent work OK'd by

Tweed. His other work involved in approving franchise agreements of the city, particularly those of the city with railroads from 1877-1880.

During this time Whitney further immersed himself in national politics, working in 1876 to support New York's favorite son, Tilden, in his presidential bid. Tilden won the election both by popular and electoral votes, however, Republicans bribed Florida and Louisiana Democrats to their side by promising the end of federal troops stationed in the south for Reconstruction after the Civil War. Hayes resumed species payment (gold upon demand) for Lincoln's "greenbacks" which had value only by the promise of the government. The gold standard was preferred by big business as a means of facilitating international trade. Populists wanted government to issue unlimited money based on faith in government. The fight for a monetary standard based on gold, silver, or paper had important implications for the finances of the silver mining and associated lead mining industries.

Further attempts to gain control of the Democratic party in New York City were made as the County Democracy was founded in 1881 by Abram S. Hewitt, Hubert O. Thompson and William W. Whitney. The reformist County Democracy was able to swing votes behind Cleveland's nomination for Governor of New York as a Democrat. Most pertinently for the lead story, Whitney resigned as N.Y. City Corporate counsel on Nov. 6, 1882. At this point in his life he had intimate contacts with standard oil (his brother-in-law, Oliver Payne), with lead mining (Henry Dimock), and expertise in transportation and city franchises.

His interest in city franchises was sharpened when in 1883 T. F. Ryan and 6 others incorporated the N.Y. Cable Railway Co., Inc., under the State Rapid Transit Act of 1875 and brought Whitney in for his expertise. Competition was mounted by Jacob Sharpe the following year. Sharpe was pressuring the New York State Legislature to change the format of the general railway bill. The Ryan group with Whitney came into direct conflict with Sharpe's group when Sharpe obtained the franchise for 5th Ave. by bribing 15 of 17 "Boodle" aldermen. His franchise request succeeded by paying out full cash while Whitney's group was to pay ½ in cash and ½ in bonds which were too easily traced. The franchise, worth $1,000,00/year, was to pay the city $40,000 year. In response, Ryan and Whitney initiated a state investigation of the contract. By 1886 Sharpe sold 10,000 shares of his company to Ryan and Whitney at $2,925,000. This did not stop the investigation but did leave Ryan and Whitney in control. In 1888 the state attempted to regain the Sharpe franchise by suing (The People vs. O'Brien). Elihu Root won a victory for the franchise by stating that all franchises, once granted, are like private property, they are perpetual and irrevocable (Hirsch, 1969).

Sharpe, under increasing legal pressure (he ultimately died insane in jail) allowed the auction of his franchise, which was bought by Ryan and Whitney for $25,000. Ryan and Whitney reorganized and recapitalized with the name Metropolitan Traction Co., the first holding company invented. By 1889 Metropolitan Traction decided to replace horsepower with cable power, which was up and running by 1892. Cable was found to be loud, noisy, hard to brake, slow turning on corners and resulting in numerous accidents. In 1893, the Metropolitan Street Railway Co. was formed as the operating subdivision of Metropolitan Traction Co. By 1894 Metropolitan Street Railway Co. began experimenting with electricity and compressed air and decided upon electricity as a power source. The electricity could be powered either by complete new infrastructure changes or by battery. Although the Metropolitan Street Railway began to lean towards the use of the newly invented storage battery, aggressive pursuit was hampered by Whitney's appointment as the Secretary of Navy under Cleveland, a position he held from 1884 to 1888.

1899-1903:Vertical Integration of the Lead Acid Battery Industry: The Electric Vehicle Co.

By 1899 National Lead Co. was the primary producer of lead pigments with Carter running a close second. During that same time frame innovations occurred in the printing industry (linotype production, 1886-1992) and lead acid batteries (electric storage battery company of Rice, 1895). Consolidations urban transportation (electric commuter trains) followed. Whitney was the apparent architect of vertical integration associated with the lead acid battery industry (Figure 11.20). The blueprint for this process was Rockefeller.

In 1865 (Flynn, 1932) John D. Rockefeller began refining petroleum in "small way" at Cleveland, Ohio. Within five years he had consolidated several refineries into Standard Oil Co. Of Ohio, with capital stock of $1,000,000. Further consolidation of the industry was attempted in 1871 by controlling transport of oil from Pennsylvania to the east coast with discriminatory pricing against non-Rockefeller aligned

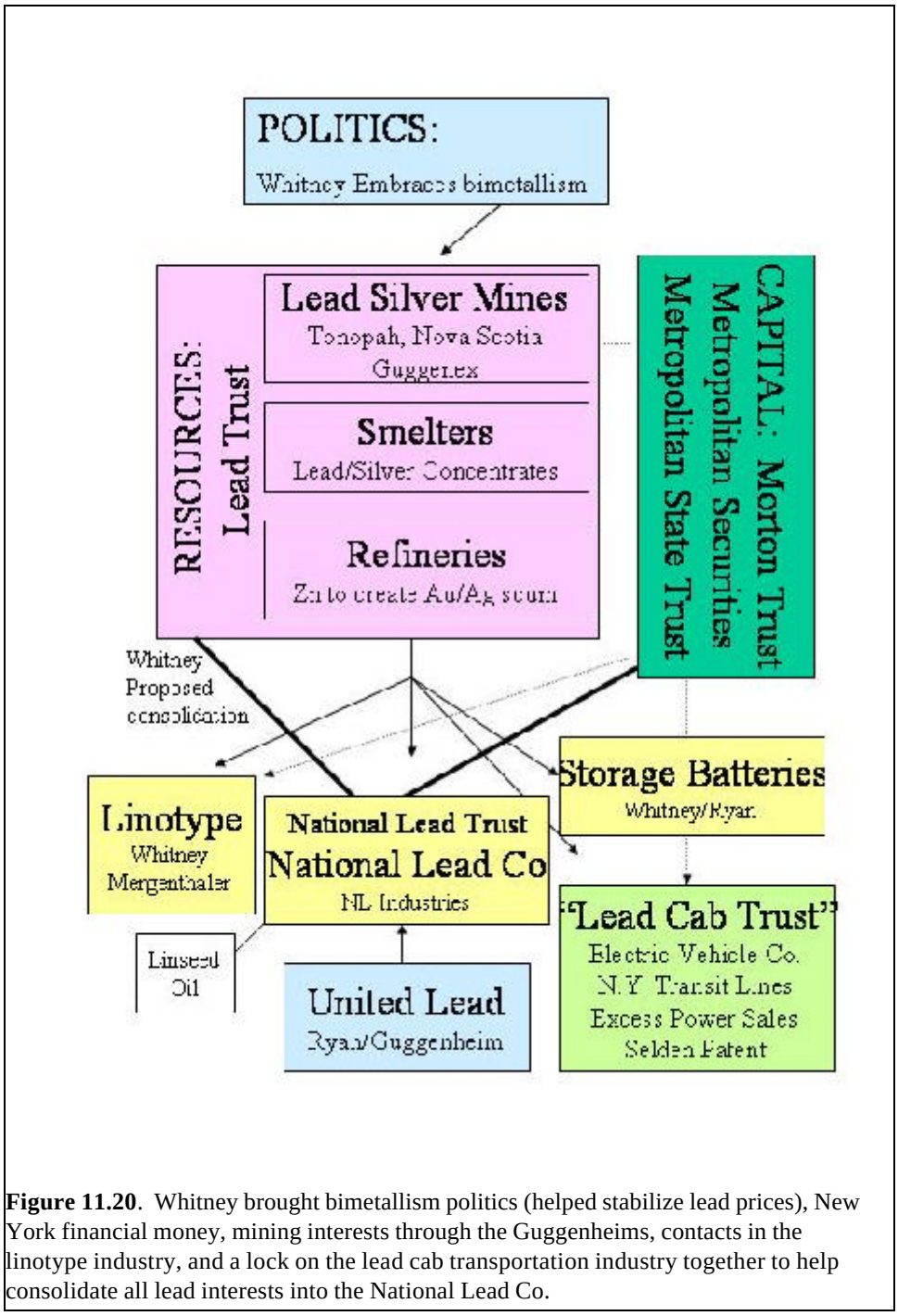

Figure 11.20. Whitney brought bimetallism politics (helped stabilize lead prices), New York financial money, mining interests through the Guggenheims, contacts in the linotype industry, and a lock on the lead cab transportation industry together to help consolidate all lead interests into the National Lead Co.

producers. This was achieved by setting up the South Improvement Company incorporated in 1871 to "construct and operate any work or works, public or private, designed to include, increase, facilitate or develop trade, travel or the transportation of freight, live stock, passengers or any traffic by land or water, from or to any part of the United States." 49% of the shares were owned by J. D. Rockefeller, O. H. Payne, and 3 others. Oliver Payne was brought in by Rockefeller because of his initial opposition to Rockefeller's attempts to purchase all the refineries.

Rockefeller continued his route of

consolidation surviving the 1879 investigations into railroad kickbacks and scams. By 1882 the outlines of the Standard Oil monopoly were in place involving the Standard Oil Co., refineries, pipelines, and terminal facilities for oil at each end of the railroads. All stocks of the various companies were placed in the hands of a Trustee who delivered "trust certificates" of equal value to the trustees, the Rockefellers and Payne. William C. Whitney came into this cluster via marriage to Oliver Payne's sister and due to his own legal expertise in city transportation franchises. In 1883, after resigning as New York City Corporate counsel, he made his first formal connection to Rockefeller interests as the lobbyist to the state legislature on behalf a railroad for Standard Oil Trust.

Whitney had already dabbled in the lead mining industry. Shortly after the civil War he funded his Yale roommate, Dimock, in a Canadian lead mine venture.

In 1892, Whitney rescued of the Mergenthaler Linotype Co. at which point he became Director of that organization. In that same year he was well on his way to experimentation of alternative forms of power for his New York City transit franchise. In this same time frame National Lead Company was consolidated, due to price drops in the pigment market, under the control of a Standard Oil graduate, William P. Thomas. Pigment price drops were driven by changes in the price of the crude material, in particular resulting from the importation of Mexican ores (see Table I. 3).

Whitney dabbled in the politics of lead mining during the early 1890s. In 1890 William McKinley authored the McKinley-Taft tariff supported by western lead/silver mine owners which stopped the importation of Mexican lead/silver ores into the U.S. for smelting (3). In that same year, homesteaders on the dry reaches of the western plains began to give up untenable farming and head back east. 28% of the farms were mortgaged, a fact which helped bring about the rise of the Populist party. As part of that financial time frame, the Sherman Silver Purchase Act of 1890 required the Treasury to buy 4,500,000 oz. of silver every month and issue paper money to pay for it resulting in an increase in the price of silver to $1.25/oz. While increased prices for silver and made silver mining profitable, it helped decrease the prices of lead. Whitney's political ally, Grover Cleveland of New York, opposed the Sherman Silver Act. (Feb. 1891 letter).

The English stock market crash caused financiers to call in debt. Because England was a gold standard country gold became scare in the U.S., which, in turn, made silver relatively overly abundant. The led to the repeal of the Sherman Silver Act in 1893 and a drop in the silver prices to 47¢/oz. While Whitney might have been expected to concur with Cleveland's political stance (against the Sherman Silver Act), he moved in the opposite direction pushing for international bimetallism after reading *The Silver Question and the Gold Question*, by the English economist Barclay. Barclay advocated international set ratios for the values of gold and silver. In 1894, Whitney asked Henry McNiel, General Secretary of the Bimetallic League of Manchester to write a manual for distribution. It was his hope that fixing the ratio of gold and silver would stave off change in the monetary system in the U.S. (Hirsch, 1969).

Throughout this time period Whitney continued as the chief political strategist for Cleveland. He, however, declined to run Cleveland's re-election bid, and was himself considered a candidate for the U.S. presidency for the Democratic Party. He felt that his bimetallism position made a sound bridge between William Jennings Bryan's populists and mainstream financiers.

Bryan, however, captured the Democratic nomination with following stirring speech

Mr. Chairman and Gentlemen of the Convention. I would be presumptuous, indeed, to present myself against the distinguished gentlemen to whom you have listened if this were a mere measuring of abilities: but this is not a contest between persons. The humblest citizen in all the land, when clad in the armor of a righteous cause, is stronger than all the hosts of error. I come to speak to you in defense of a cause as holy as the cause of liberty - the cause of humanity."...(rails against Eastern Goldbugs and Cleveland)...Ah, my friends, we say not one word against those who live upon the Atlantic coast, but the hardy pioneers who have braved all the dangers of the wilderness, who have made the desert to blossom as the rose - the pioneers away out there, who rear their children near to Nature's heart, where they can mingle their voices with the voices of the birds...these people, we say, are as deserving of the consideration of our party as any people in this country. It is for these that we speak. We do not come as aggressors. Our war is not a war of conquest; we are fighting in the defense of our homes, our families, and posterity. We have petitioned, and our petitions have been scorned.... we have begged, and they have mocked when our calamity came. We beg no longer; we

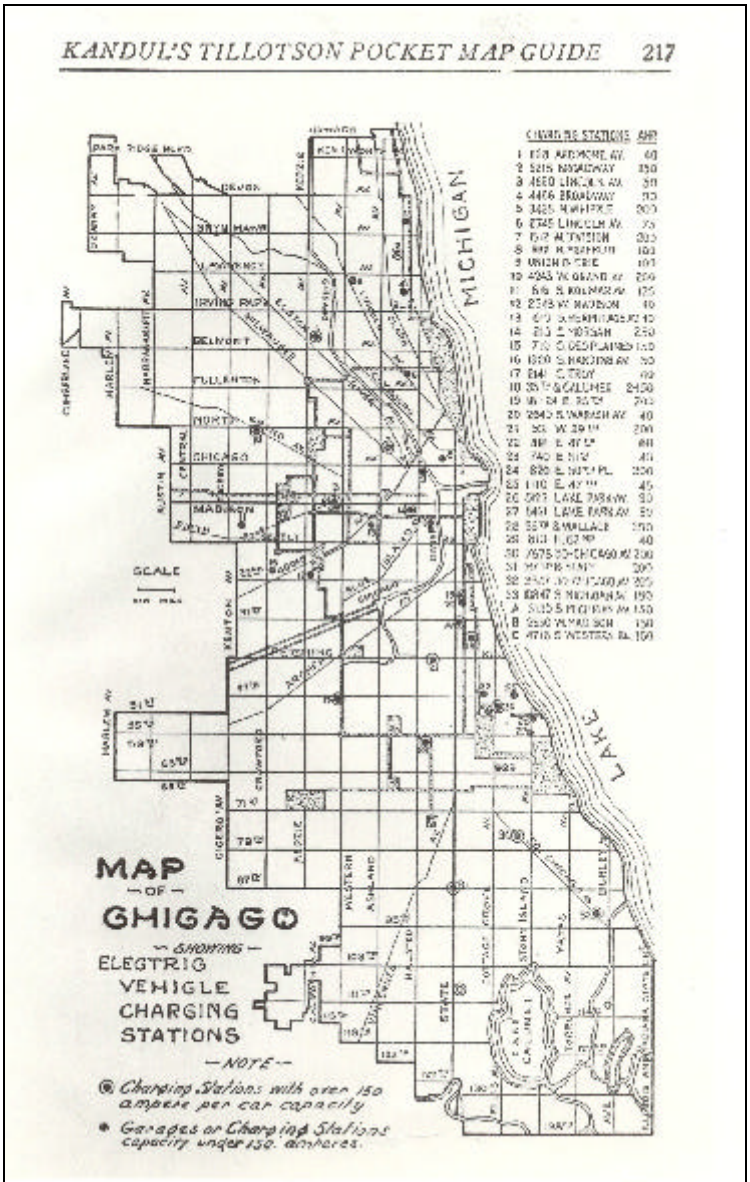

Figure 11.21. Map of proposed charging stations for electric vehicles.

entreat no more; we petition no more. We defy them...

"You come to us and tell us that the great cities are in favor of the gold standard; we reply that the great cities rest upon our broad and fertile prairies. Burn down your cities and leave our farms, and your cities will spring up again as if by magic; but destroy our farms and the grass will grow in the streets of every city in the country...

"If they dare to come out in the open field and defend the gold standard as a good thing, we will fight them to the uttermost. Having behind us the producing masses of this nation and the world, supported by the commercial interests, the laboring interests, and the toilers everywhere, we will answer their demand for a gold standard by saying to them: You shall not press down upon the brow of labor this crown of thorns, you shall not crucify mankind upon a cross of gold.

Whitney withdrew support for Bryan. Many other Democrats defected to the side of the Republicans, now the party of the industrialists who arose after the American civil war. Whitney's move toward bimetallism was not only a political expedient which would bring together the divergent factions of the Democratic Party, it was also consistent with Whitney's increasing interest in the lead industry and its markets.

In addition to financing the linotype industry, Whitney had begun making inroads on various portions of the transportation industry with the purchase of the Electric Storage Battery Company in 1896 (Rae, 1955-1956). It was in this same year that Whitney's transportation franchise considered a move to electrical power(Hirsch, 1969). Electric power would have been cheapest at that time with cable running 16.42¢/mile, horse 17.87¢/mile, and electricity at 10.23¢/mile. The move to electrification was fought by competitor Hart of the 3d Ave. Line which pressured the government to deny permits for road removal for installation of the electric cable. By 1898 Metropolitan's dreams of producing electrical energy suffered a further set back when they were prohibited from selling that excess power directly. (Instead, N.Y. Gas and Electric Light, Heat and Power Co. was incorporated with a capital of $25,000,000. The large amount of capitalization was an attempt to force Edison Electric Illumination Co. into a merger.. Rockefeller capitulated and brought Ryan and Whitney on as board of directors.)

Whitney's response to the difficulties in electrification lead his attention elsewhere and in 1899 he flirted with compressed air as an alternative to cable. Compressed Air Power Co. was incorporated with $1,000,000 stock and Whitney and Ryan and Elkins as directors. Another response was an attempt to

consolidate the infant electric vehicle industry. On April 14,1899 Whitney went to Hartford proposing union of financial resources of the Electric Vehicle Company and the patent and motor carriage department of the Pope organization to form the Columbia Automobile Company, capitalized at $3,000,000. The company formed on April 19, 1899. On May 3, 1899, Columbia & Electric Vehicle Company incorporated, capitalized at $5,000,000 with assets of the Electric Vehicle Company, the Electric Storage Battery Company, and the Pope automotive plant. Within the same year Whitney incorporated the New York Electric Vehicle Transportation Company with nominal capital of $25,000,000, and the New England Electric Vehicle Transportation Company, as well as the Illinois Electric Vehicle Transportation Company (Figure 11.16) and The Pennsylvania Electric Vehicle Transportation Co. All of these were subsidiaries of Whitney interests.

This ambitious program was beset from the beginning with certain flaws. While dividends of 8% were paid on the Electric Vehicle Co. in the summer and fall of 1899, late fall dividends were suspended. Undeterred Whitney bought into the major lead mines found with the 1900 Tonopah silver strike in Nevada.

In 1899 Pope was bought out and the Electric Vehicle Co. capitalization was increased to $18,000,000 (Rae, 1955-1956). Later that year Electric Vehicle Co. placed an order for 4,200 cabs. It operated a fleet of cabs in Paris, and acquired the Riker Motor Vehicle Company in NJ for $2,000,000. *Horseless Age* magazine called the sets of interests the "Lead Cab Trust". By this time Whitney had interests in mines, in linotype, in political questions governing lead and silver production, in electric vehicle manufacturing and operations among city franchises, and appeared poised to fully create a second lead monopoly apart from National Lead.

However, at the same time the gasoline driven car was beginning to make serious inroads on what had been a bright future for electric vehicles. In 1900, there were improvements in the cylinder castings and ignition of the gasoline car. Dividends were not being payed to the Electric Vehicle Co. and scandals surrounding the financing of the company were becoming public. In 1900 the State Trust State Trust Co. (Bank) made a loan to $2,000,000 to Daniel H. Shea, office boy employed by Thomas F. Ryan. The loan was secured by Electric Vehicle Co. stock. Counsel to the State Trust, Elihu Root (member of McKinley's cabinet) said the loan was O.K. Governor Theodore Roosevelt of New York did not push for prosecution. In the same year, the Chicago factory of Electric Vehicle subsidiary was sold to General Electric Company, and the Illinois Electric Vehicle Transportation Company was dissolved (Figure 11.21). The Riker plant in N. J. closed. Stock previously selling at $30/share was now at $0.75/share and Whitney directed a New York law firm to prepare court actions against the gasoline powered auto makers for infringement of the Selden patents controlled by the Electric Vehicle Company. The first suit was against Buffalo Gasoline Motor Company in July 13, 1900.

On Sept. 21, 1901, the Electric Vehicle Co. issued $2,250,000 in bonds secured by mortgage on its real estate and Hartford factory, with the mortgage issued by the Morton Trust Company (a Whitney firm). In that same year, minority stockholders brought action against the Electric Vehicle Co. The municipal campaign of New York City was affected by scandals charging that William C. Whitney, Thomas F. Ryan, W. L. Elkins, P.A.B. Widener, Thomas Dolan and associates had looted the stockholders of the Metropolitan Street Railway Co. of tens of millions of dollars (Rae, 1955-1956).

The electric vehicle company may have been down but it was not out, nor were Whitney's interest in consolidation of the entire lead industry. As seen in the next section, Whitney was also instrumental in the consolidation of the lead mining and smelting industry during the same time period. As the last remaining unconsolidated portion of the lead industry, several covetous eyes were being cast upon it. National Lead Company under the leadership of William P. Thompson (from Standard Oil) had been opening smelters in the south west. Another Standard Oil acolyte, Rogers, was pursuing an independent integration of the mining industry under the aegis of the American Smelting and Refining Company and Affiliated Properties (ASARCO, also known as the "Smelter's Trust"). He was, however, initially outmaneuvered by major mining group, the Guggenheims, with the help of Whitney's financing.

Consolidation of Lead Mining and Smelting: How the Guggenheims Initially Won (ASARCO and Bunker Hill)

Meyer Guggenheim arrived as an immigrant with his father's large family and step family in Philadelphia and began working first as a peddler, then lace manufacturer. He dabbled in various products (polish based on lead black) (Hoyt, 1967). In 1860 he met grocer Charles H. Graham. Graham was destined to be the introduction of the Guggenheims to the world of mining. In 1879 Graham and other backers George Work and Samuel Harsh bought out A.Y. Corman, the original prospector of California Gulch, Colorado, (1869). Graham, requiring cash, sold his shares to Harsh for cash and turned to Guggenheim for a financial bail out. Guggenheim bought into the A.Y. mine for $5,000 at ½ interest. Although the mine had not yet achieved the bonanza recognized in the area by Stevens and Wood in 1874, labor prices were low enough to keep mine expansion prosperous. (Wages dropped from $5/day to $2.75/day in 1879.) In 1880 Guggenheim bought out Harsh for $50,000 and financed the pumping of the A.Y. mine. This proved to be beneficial because a bonanza was struck in 1881, although production was derailed by striking miners. The strike was ended by police action.

In 1882, Benjamin Guggenheim was sent out to work the A.Y. and Minnie mines. By 1887 the Guggenheim mines had produced 9,000,000 oz silver and 86,000 tons of lead. At that time Meyer Guggenheim decided that the profit was not in mining but in smelting. He bought $80,000 stock in the Holden smelter in Globeville near Denver. Smelters roast and form lead oxides with concentrates of silver and gold which are then sent to a refinery. In 1888, the Guggenheim family moved further into the production business when The Denver Smelting and Refining Co. was formed with Benjamin Guggenheim as secretary-treasurer. Capitalization was $500,000.

The Guggenheims selected Pueblo as opposed to Leadville because transportation and labor costs in Leadville were too high. The selected Pueblo over Denver because Denver was too far from coal, coke, lime, and water. Guggenheim interests proposed that city give them land and $25,000 cash and suspend all taxes for 10 years to move to Pueblo. The smelter was called Philadelphia in honor of the Guggenheim home town.

In 1889, the Guggenheim Pueblo smelter operators in the summer requested an 8 hour summer work day, as being too brutally hot in the summer for a 12 hour day. Guggenheim brothers agreed, but with concomitant cut in wages. A strike to keep the 8 hour day year round resulted. The strike lasted 2 months, stockpiling metal and dropping lead prices.

A second son, Simon Guggenheim, had been sent to scout out Mexican silver/lead ores to be smelted at the Guggenheim sites. These were cheap and high in lead as opposed to other metals (like zinc), therefore less in energy consumption (less refractory) and easier to smelt. In 1890 importation of such ores was stopped by the McKinley-Taft tariff supported by silver/lead mine owners. The Guggenheims decided to smelt in Mexico because of low wages and because a railroad was already being built. They built one smelter in Augascalientes (south) and one in Monterrey (north) with the go ahead of Mexican President General Porfirio Diaz (dictator since 1877). The Guggenheims would import machinery and erect as many as 3 smelters with machinery to come in free of duty, and no tax on the output of smelters. (Mexican producers were subject to a 5% tax.) The Compania de la Gran Fundicion Nacional Mexicana (Great National Mexican Smelter Company) was formed, although the export agreement was altered under protest of Mexican producers.

The situation had again drastically altered as by 1893 the Sherman Silver Act had been rescinded in response to a stock market crash. While most American producers of silver were in desperate straights (price of silver dropped to 47¢/oz) the Guggenheims were protected by both a larger silver metal base and by their more profitable Mexican smelter (cheap labor). At this point they were smelting to create crude metal and shipping the crude metal to America or Wales for refining of the lead/silver concentration. In 1894 the Guggenheims decided to refine their own ore at a plant in Perth Amboy, New Jersey. Refining was accomplished by softening lead/silver smelted concentrate, adding zinc which gathers gold and silver from lead. The lead is skimmed off, the zinc burnt, leaving silver and gold. The remaining silver and gold separated by sulphuric acid in cast-iron pots as gold is not soluble in sulphuric acid. Plans to proceed in the smelting and refining industry ran into competition from H. H. Rogers (of Standard Oil) (Figure 11.22). Rogers had been brought into Standard Oil as a way of circumventing his opposition to Rockefeller's

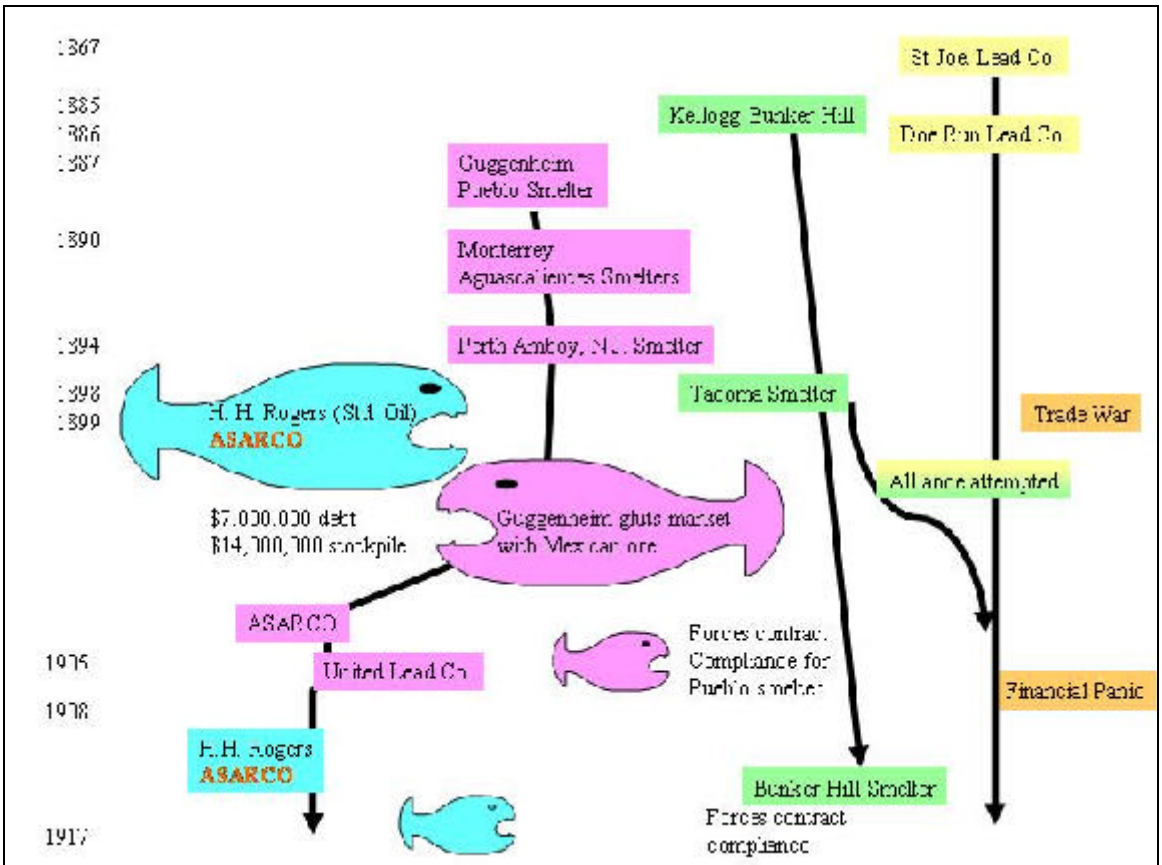

Figure 11.22: Attempts to horizontally consolidate the White Lead industry were paralleled by attempts to consolidate the lead smelting and refining industry. American Smelting and Refining Co. (ASARCO) started as the brain child of H.H. Rogers from Standard Oil and attempted to swallow the Guggenheim interests.

consolidation of Pennsylvania refineries. (Rogers was a classic entrepreneur of the time. His first industrial scoop was at the age of 14 when his position as newspaper boy gave him early breaking news on the loss of 500 barrels of sperm oil off Boston. He went to a local dealer of sperm oil and offered him the newspapers and $200 to buy all the local sperm oil. The sperm oil was later sold at a profit of 300%.) Ida Tarbel, a muckraker, described Rogers as a pirate but not a hypocrite. "He flew his black flag." She reported that he said:

am not a favorite here. I am always for fighting. Mr. Rockefeller is always against fighting. I am a gambler. Mr. Rockefeller does not like gambling. He hates the market. I love it. Every now and then John W. Gates will come here and say: "Henry, don't you think it's time we had a little fun in the market" " I was always for it and we made lots of killings and had plenty of fun. I must have action. And on Saturday afternoons when the market is closed I've got to have a poker game.

Rogers gambled on consolidating the mining interests. In 1893 (Flynn, 1932) he arranged to buy the Anaconda Copper Company and other mines for $39,000,000. He gave the sellers the money, to be kept in the same bank, National City. He sold Anaconda Copper to a dummy corporation, Amalgamated Copper Co., for $75,000,000 of stock in Amalgamated Copper. He used this stock to borrow $39,000,000 from National City Bank to pay the original sellers. He got National City Bank to sell the stock to the public for the full $75,000,000. Of this stock he paid back the bank for the $39,000,000 leaving a profit of $36,000,000. Rogers further moved into the mining field in 1899 when the

Smelting and Refining Company and Affiliated Properties, known as The Smelters' Trust or ASARCO, incorporated as to aggregate all smelting operations aside from the Guggenheim interests.

ASARCO proposed a buyout of Guggenheims. The Guggenheims hunkered down and tried to gather up the remaining lead suppliers (23) (including Coeur d'Alene district of Idaho). To acquire capital Daniel Guggenheim approached Whitney. The outcome was the incorporation of the Guggenheim Exploration Company or Guggenex for $6,000,000 in New Jersey. The purpose of the company was to explore and deal in lands, mines, and mineral resources anywhere and everywhere in the world. Whitney now counted as his lead interests linotypes, mines, smelting, lead acid batteries, and electric vehicles, and the politics of the bimetallism debate.

On June 1, 1899, the Colorado General Assembly passed a law prohibiting employers from working their men more than eight hours a day without paying overtime. The manager of a Durango smelter posted a new wage scale calculated on an hourly basis which would require a 12 hour day to keep previous wages intact. The plan was adopted by other members of Smelters Trust and a strike of Smelters Trust by the Western Federation of Miners followed. Guggenheim's Philadelphia Smelter of Pueblo remained operational and much ore was diverted to that plant.

The Guggenheims moved to capitalize on their advantage by setting up in Missouri soft lead district. They did not confine their interests to America and in 1899 they bought into the Huanchaca mine, Bolivia. This particular mine is more difficult to smelt because of Zn, Sb, As, Sn were present as well as Ag. Smelting required 15% lead in the ore which was not present.

Smelters Trust, under Rogers was not ready to give up and 1900 a trade war between the Guggenheim (Whitney) and Smelters' Trust (Rogers) began. The Guggenheim Mexican smelter glutted the market with silver and lead. Their ability to glut the market with the Mexican ore (and maintain profitability with cheap Mexican labor) brought Smelters' Trust and Rogers to their knees. Smelters' Trust ran up $7,000,000 in debts and had $14,000,000 in inventories. They desperately needed Guggenheim properties and therefore offered 110,000 shares in Smelters' Trust for the Guggenheim plants and mining possessions. Final acquisition terms in 1901 left the Guggenheims with nearly half the total Smelters' Trust stock, and with their Colorado, Mexican, and Missouri mines, Guggenex, Steamship line they had built to haul ore from Tampico to Perth Amboy.

Thus we find that in 1902 that many lead mines had been consolidated, not under the control of Rogers, but under the control of the Guggenheims with financial backing from Whitney. The Guggenheims were now in a position to set up a company to rival National Lead and in 1903 the United Lead Company (N.J.) was established taking over 19 companies, including 7 Shot works, and at least one white lead company. The directors of the company were Daniel Guggenheim, Morris Guggenheim, Simon Guggenheim, Thos. F. Ryan, Barton Sewell, Edward W. Nash (President Smelters' Trust), and three others. Capital stock was originally $15,000,000 (MacBeth, 1900). United Lead became the marketing agency for lead for "Smelters Trust", however it was second in the market to National Lead Co. (Hoyt, 1967).

In addition to setting up vertical distribution markets, the Guggenheims moved to corral the last of the independent smelters, particularly those in a position to tap into the Coeur d'Alene mines which found it unprofitable to ship to the Pueblo Co. Smelter. To raise capital, the Guggenheims formed American Smelters Securities, a new corporation capitalized at $77,000,000. In 1905, Daniel Guggenheim hired financier Bernard Baruch to buy independent smelters at Tacoma, and Selby, Wa. (Baruch was the son of Guggenheim family doctor). Assets of the Tacoma mine were $500,000. Baruch bought it for $5,500,000. He organized the same deal at Selby, but the cost was worth it as he solidified the Guggenheim monopoly on smelters. In 1906, Bernard Baruch, operating for the Guggenheims, using a broker named Harry Content, bought up 116,000 shares (80%) of National Lead Stock without attracting attention, so that the price did not rise more than $8 above %56. The move was considered a wonder of Wall Street.

One of the initial targets of the Guggenheims' ASARCO was the Bunker Hill mine. Bunker Hill successfully held it's own for the first several years of targeted take over. Bunker Hill was founded in 1885 by Kellogg (Aiken, 1993). It was purchased in 1887 by Simeon Reed. In 1891 Reed asked John Hays Hammond to help secure more financing for Bunker Hill. Hammond brought in McCormick of Chicago and Crocker of San Francisco. Hammond didn't stay long as he left Bunker Hill in 1893 for S. Africa where he was involved in plots to overthrow the Boer government for the benefit of English mining interests. He was caught, but released from a death sentence due to successful attempts of U.S. mine operators and financiers, including Whitney, to move the U.S. government to

action. Whitney later hired Hammond to manage is his Tonapah mine.

In 1898, Bunker Hill Mines acquired a Tacoma smelter for $45,000 and began diverting shipments of ore that previously had gone to Guggenheim smelters in Colorado. In 1905 Bunker Hill was committed to shipping 30-37% lead ore to Tacoma. A few months later Bunker Hill contracted to sell to Carnegie Co. (Rockefeller ownership) concentrates of 75% lead reducing lead to the Colorado smelter to less than 30% lead to a smelter in Colorado. By 1907 Bunker Hill achieved ores that were both above 75% lead concentrate (for Carnegie) and less than 30% (for Tacoma mine) further reducing shipments of ore to the Guggenheim smelters. Daniel Guggenheim threatened legal action. The Guggenheims also attempted to get Bunker Hill to reduce production to stabilize lead prices. Bunker Hill insisted that the contract required Guggenheim to buy Bunker Hill product without any curtailing of output. In1908 Bunker Hill send concentrates greater than 75% lead to Carnegie and get a $0.50 reduction in freight and processing fees. ASARCO attempted to meet the price but would have suffered $2.5 million in loses for remaining 25 years of contract.

Although unsuccessful at bringing the Bunker Hill mine under Guggenheim (and United Lead) control the Guggenheims expanded their holdings through contacts with Whitney's old New York City transit partner Ryan. In 1906 the King of Belgium met with Thomas F. Ryan about exploiting resources of the Congo. Ryan brought in the Guggenheims to form the American Congo Co. to exploit minerals and the Intercontinental Rubber Co. to exploit other commodities. Ryan took charge of latter. The Guggenheims also moved into Canada. The Guggenheims consolidated industrial power with political power when in 1907 Simon Guggenheim elected Colorado Senator.

In a financial panic, the ASARCO stock price dropped and Rogers, the original founder of ASARCO, began buying back stock. The panic of Oct 15 was set off by speculator F. Augustus Heinze (Hoyt, 1967). On Oct. 12 Heinze started trying to corner the copper market, dumping large shares to cause price to fall, intending to buy stocks back at lower prices to obtain a majority. Instead certificates were sold and Heinze was left without money to purchase the actual stocks. In order to cover the money Heinze used money from the Knickerbocker Trust Company causing a run on the Trust stock. The copper market dropped as did ASARCO shares from $174 to $100 allowing Rogers to buy up ASARCO stock.

In 1908-1909, the Guggenheims sold majority shares in ASARCO in order to finance Yukon Gold activities, including financing a railroad with Pierpont Morgan. In 1908, the White House, under President Theodore Roosevelt, held a Conservation Conference which called to draw attention to Guggenheim-Morgan invasion of Alaska.

ASARCO, although no longer Guggenheim controlled, continued it's pressure on the Bunker Hill mines. Bunker Hill's Tacoma smelter closed in 1912 and in 1915 Bunker Hill was renegotiating it's concentrates contracts. The price of lead was increasing from $4 and $5/hundred pounds to $10 due to WWI. With those prices Bunker Hill was able to hold out against ASARCO longer. Bunker Hill began construction of it's own smelter in Kellogg. They worked to secure agreements to smelt ore from other area mines. In 1917, the Bunker Hill smelter went into production. ASARCO sued and settled for half of the lead output to be shipped to ASARCO smelters until 1930.

Bunker Hill continued as an independent company and sought other partners against ASARCO. One of these affiliations was with the St. Joe Lead Co. In 1867 a rich lead ore body was found 100 ft below ground in Missouri and the St. Joseph Lead Company was formed to exploit it. In 1886, the trustees of St. Joe permitted local management to form the Doe Run Lead Company. In 1912, St. Joseph Lead Co. consolidated with the Doe Run Lead Co. making it the largest lead producer in the country and stimulating a complete reorganization of its technical and producing departments, resulting in increased efficiency. Some of the technical advances included flotation methods in 1921 which allowed zinc to be recovered from ores previously discarded. Electrolytic method of zinc refining also became firmly established, as developed by the St. Joseph Lead Company . In 1923, St. Joseph Lead and American Smelting and Refining aimed at greater efficiency. They bought adjoining mines of the Federal Lead Company for $10,000,000 and a 30 year smelting contract for two thirds of all ore from all its mines in this district, including the Doe Run Lead Co. owned by St. Joseph. With its contacts with both Hecla and Bunker Hill and Sullivan as sales agent, St. Joseph was now selling half of the lead mined in the U.S.

American Smelting and Refining continued to be the largest refiner in this country. (Haynes, 1954).

1892-1907: Close But No Cigar: Whitney's Grand Plan Fails

In 1891 The National Lead Company incorporated in N.J., as successor to the National Lead Trust. The property of the company consisted of white lead works, smelters and refineries (26 plants). It manufactured white lead, oxides, and kindred products, also castor oil, American and Calcutta linseed oil, linseed oil cake and meal (used in the manufacturing of paints), and refined and smelted lead. Capital stock was authorized $15,000,000. In 1892 National Lead Trust reorganized and combined with American Linseed Oil (Clark, 1949).

In 1896, National Lead was so predominate that it made Charles Dow's market average. Dow published his first initial market average "Customer's Afternoon Letter" on July 7, 1884 consisting of 9 railroad stocks and 2 industrial stocks. Reflecting changes in the overall economy in 1896 the average was changed to exclusively of industrial stocks: American Cotton Oil, American Sugar, American Tobacco, Chicago Gas, Distilling and Cattle Feeding, General Electric, Laclede Lead, Norther American, Tennessee Coal and Iron, U. S. Leather, U. S. rubber. Two years later this is changed on Oct. 7 of 1896 to American Cotton Oil, American Spirits Manufacturing, American Sugar, American Tobacco, Chicago Gas, General Electric, Laclede Gas, **National Lead**, Tennessee Coal and Iron, U.S. Cordage preferred, U. S. Leather preferred, and U. S. Rubber (Equity Analytics, 2000).

Earnings of National Lead in 1900 were $1,192,334, in 1901 they were $1,043,280, in 1902 they were $1,202,514. By this time the president, William P. Thompson, was changed to L.A. Cole with F. W. Rockwell, first Vice president. The company owned a substantial amount of stock in American Smelting and Refining Co., still under Guggenheim control.

To further consolidate the industry National Lead attempted to buy out the largest independent white lead manufacturer, Carter White Lead, in 1902 with an offer of $1,000,000(Haynes, 1954). In that same year there were announcements (MacBeth, 1900) of the full integration of Smelters Trust and it's affiliated United Lead Co. with National Lead Co. The fine hand of Whitney (already holding interest in the linotype industry and electric battery company) can be detected. Smelters' Trust announces:

Negotiations have been completed, by which the National Lead Co. will acquire by purchase, a large number of kindred concerns. The American Smelting & Refining Company and other important financial interests will be associated in the enlarged corporation. Details are now being formulated and will be announced when perfect.

It was reported that this new company would be capitalized at $60,000,000, and would take in the great majority of manufacturers of white lead, lead pipe, sheet lead and shot. Thomas F. Ryan, Wm. C. Whitney, Daniel Guggenheim, H. H. Rogers, and Morton Trust Co. (a Whitney financial firm associated with the Electric Vehicle company) were prominently identified in the negotiations. The merger did not materialize. The aborted consolidation did not remain without fruit as in that same year 1902 Smelters Trust (ASARCO) contracted with National Lead Company to supply that company's lead needs. The deal gave ASARCO a market for large portion of product and National Lead assured supply (Marcosson, 1949).

The electric car part of the vertically integrated lead industry was doomed by advances in gasoline powered cars and, perhaps, by Whitney's own flagging interest. Whitney retired in 1902 at which point he was a board member or affiliated with Metropolitan Steamship Company, Morton Trust Company, Mutual Life Insurance Company of New York, Nation Bank of Commerce, Guggenex, and Mergenthaler Linotype Company, among others.

In the same year (1902), the Metropolitan Securities Company was established as a holding company for the New York City Street Railway (formerly Interurban Street Railway) which leased the Metropolitan Street Railway Company, which controlled Manhattan Island street railway companies. Metropolitan Securities Company owned all the stock of the People's Traction Co. Ryan and 8 others were directors. This company was formed to provide a flow of money in the rather shady acquisition of Interurban. A gentleman named Flynn had one car barn and two cars on a suburban route worth $16,000. On Nov. 25, 1901 a company called Interurban was formed with stock capitalization of $500,000 which increased to

$20,000,000 three months later. This company leased Flynn's line for $1,000,000 and then sold the lease to Metropolitan Securities Co. for $1,000,000. Metropolitan St. Railway Co exchanged $24,000,000 in Metropolitan Street Railway Co. stocks and bonds for $12,500,000 cash plus capital stock and debenture notes from it's capitalization, in effect loaning cash to Metropolitan St. Railway Co to be used in electrifying 80 miles of rail. In return Interurban obtained the right to rent the Metropolitan Street Railway Co.'s assets for operation. The money was secured by the firm Kuhn, Loeb, and Co. in exchange for preferred prices on the Metropolitan Street Railway Co.

This finagle was the immediate cause of lawsuits in 1903 (Armory and Worser) against Metropolitan Securities and Metropolitan Railways accompanied by much publicity becauseWhitney had been Secretary of the Navy.

Almost lost in the barrage of lawsuits was the lawsuit (1903) against another component of the monopoly. This lawsuit involved Henry Ford who claimed that his four stroke piston engine was not covered by the Selden patent and that he did not have to pay royalties on his profits to the Electric Vehicle Company. In 1904, the Electric Vehicle Company (holder of the two stroke combustion engine patent) had $10,000,000 in capitalization and 4 manufacturing plants. Electric Storage Battery Company had $16,250,000 in capitalization and controlled 11 manufacturing plants, while the Pope Manufacturing Co. had $22,500,000 in capitalization and controlled 60 plants.

In 1904 Whitney died. His taxable N.Y. estate was $21,234,101. He was described in the following passage by Henry Adams.

…after having gratified every ambition and swung the country almost at his will…had thrown away the usual objects of political ambition like the ashes of smoked cigarettes; had turned to other amusements, satiated every taste, gorged every appetite, won every object that New York afforded, and not yet satisfied, had carried his field of activity abroad, until New York no longer knew what most to envy, his horses or his houses.

With Henry Ford at the door, a scandal involving stock manipulations, and the death of Whitney, things headed down hill very fast. Metropolitan Street Railway Co. changed it's name on Feb. 10 1904 to New York City Railway Co. in order to evade some of the noteriety it had obtained. In 1905, the Metropolitan Street Railway Co. 1902 books (covering the period of the stock swaps) were sold to a junk dealer for $117 with the stipulation that they be immediately turned to pulp. In 1907, a grand jury investigated Ryan, Widener, and Whitney (posthumously) and the Metropolitan Security Corporation. The grand jury found that in 1902 they had bought from Anthony Brady for $250,000 an unused franchise of the Wall and Cortland Street Ferries Railroad Co. which they sold to Metropolitan for $965,607, at a loss to Metropolitan. The Public Service Commission learned that $16,000,000 in cash disappeared from the Third Avenue Railway company treasury (controlled by the Metropolitan Securities Company) and that books had been destroyed. The Jury did not indict, however, perhaps because the foreman was a director in Ryan's Equitable Life Assurance Society.

A 1910 official inquiry showed that 10 members of the New York State Legislature were on the confidential payroll of Metropolitan Securities. In 1911 the Selden Patent lawsuit over royalties from Ford's four stroke piston engine was settled in favor of Ford.

Electric Storage Battery Company Survives

While Whitney's bid to create a vertically and horizontally integrated lead empire failed, the Electric Storage Battery Company has survived into modern times. Founded in 1888, it launched the Exide label in 1901 (Figure 11.23). The company celebrated its fiftieth birthday with the publication of "Exide Batteries: Fifty years of acheivement (1888-1938)". It again congratulated itself with another book in 1951("Exide: the development of an engineering idea; a brief history of the Electric Storage Battery Co") (Rolph, 1951). The Exide Marketing Division of the Electric Storage Battery Company began publishing a magazine, Exide Topics and Storage Battery Power, in 1960-1967. In 1966 the Electric Storage Battery Co. annual reports ceased and those of ESB, Inc. began. By 1972 ESB, Inc. had acquired another battery company, that of Ray-O-Vac) (based in Madison, Wi., founded in 1901 as the French Battery Co, with a name change to Ray-O-Vac in 1920. In 1973, Ray-O-Vac Division of ESB, Inc., published an employees magazine, the Beacon, to replace the Ray-O-Vac Co. employee magazine, Sparks. The Exide battery was marketed by ESB-Ray-O-Vac in 1980. The affiliation ended with Rayovac (ROV) ultimately being

Figure 11.23. Exide batteries initially found a major consumer in the train industry.

acquired by Thomas H. Lee, Co. in 1996 and offered as a publicly traded stock in 1997. In the same time frame ESB, Inc disappeared and Exide is now being marketed by Exide Corporation.

From 1910 time on the battery, lead smelting, and white lead portions of the lead industry remained more or less separate. With increased mobility of the American society, battery consumption grew. In 1924 the Battery Council International (Chicago, Il.) was established with 25 members. Collaboration among the various sectors continued through the Lead Industries Association (LIA), a trade organization, which funded research into applications involving lead.

The National Lead Story

III.A. 1920-1965: Diversification of National Lead

Consolidation in the white lead paint industry proceeded even as the full vertical integration of the lead industry began to crumble. In Feb. of 1906 Cornish, president of Carter White Lead Cornish reached agreement with the National Lead board of directors to bring Carter White Lead as a subsidiary into National Lead with Cornish becoming a member of the National Lead board (Haynes, 1954). Following this action National Lead amalgamated all the white lead products under one name: Dutch Boy (Figures 11.24-26). The Carter plant of East Omaha was shut down.

Product ion of white lead paints based on lead encountered vigorous competition in 1908 when the Norwegian Government seeking uses for its big deposits of ilmentite (titanium) initiated research that could purify titanium dioxide. The great covering power of titanium dioxide was discovered.

One response by National Lead was a vigorous promotion of its own white lead products. National Lead Company began an aggressive marketing of white lead paint products, including a 1910 book on Dutch Boy Liquid Lead. Other publications were: *Nuggets of Wisdom from an Old House Painter* (1899); *Uncle Sam's experience with paints* (1900); *George Washington as a Mason: To the Lodge with the compliments of the National Lead Co.* (1903); *What paint & why, facts that should be known to every owner of property on which paint is used* (1910); Dutch Boy Liquid Lead: pure white-lead and linseed oil ready for use (1910); *A Talk on Paint* (1911); *White-lead and Oil Plastic Finishes* (1930). Further outreach was accomplished by the promotion of the *Dutch Boy Painter* magazine.

National Lead continued to be a one of 9 common stocks used for the DOW average, but was dropped from the average in Oct. of 1915 when the DOW common stocks were expanded to 20.

An annual report of the National Lead Company for 1917 listed corporations in which the National Lead Company either owned all or part of the capital stock. These corporations were Baker Castor Oil Company (New York); Bass-Hueter Paint Company (S.F.,Ca.); Carter White Lead Company (Chicago and Omaha); Cinc Expansion Bolt and

Figure 11.24: National lead consolidated all of its products under the trade mark "Dutch Boy". (Author).

Engineering co. (N.Y.); Heath and Milligan Manufacturing Co. (Paints and Colors) (Chicago); Magnus company (Brass Founders) (N.Y.); Matheson Lead Company (Long Island city); River Smelting and Refining co. (Edward J. Cornish, President) (St. Louis); United Lead Company (N.Y.); United States Cartridge Company, manufacturers of all metallic and sporting ammunition (Lowell, Ma.); Williams Harvey and Co., smelters and refiners of tin (Liverpool, Eng.), Williams Harvey Corp. Ed. J. Cornish, Pres, Smelters and Refiners of Tin, (N.Y.).

Titanium Dioxide

In order to keep a lock on it's vertical integration (white lead pigment, white lead paint) National Lead began buying up portions of the titanium competition. In 1916, when Titanium Pigment Company of Niagra Falls went into TiO_2 anatase production

Figure 11.25: Dutch Boy products included components necessary for production of paint on the premises.

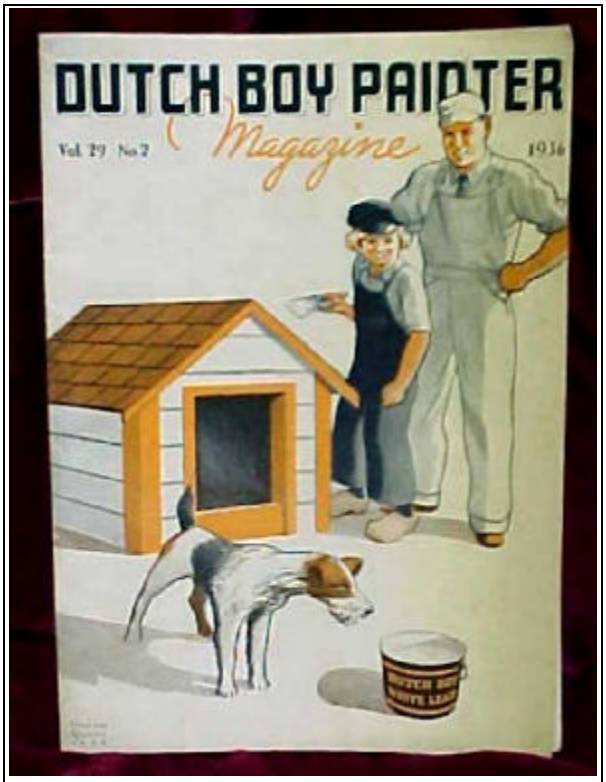

Figure 11.26 Dutch Boy became the main brand name for National Lead.

using the sulfate process, it was bought by National Lead Company (Kronos, 1999). In the same year, Titan Co. of Norway began production of TiO_2 and was bought by National Lead Company. National Lead marketed TiO_2 from 1916 to 1989 as Titanox or Kronos (Figures 11.20 and 11.27). This aggressive move may have been due in part to the assumption of the presidency of National Lead by Cornish (originally of Carter White lead) in 1916 (Haynes, 1954). Cornish maintained the presidency of National Lead for 22 years until 1938 and under his presidency National Lead furthered its expansion into the titanium dioxide market (Haynes, 1954).

This was a very good move because in 1917 WWI resulted in governmental controls on the domestic lead supply. Governmental planner (and private financier) Baruch appointed a Cooperative Lead Committee to advise his Raw Materials Division on the Council of National Defense. During the war pigments and salts fell off, but there was a huge demand for shrapnel shells, cartridges, solders, Babbitt metal, casting metals. Sporting shot, pipe and sheet also fell off. The committee consisted of Clinton H. Crane, Arthur K. Mitchell, Brush, Day, Robertson, and A. W. Dodd of American Zinc, Lead and Smelting Co., Julius Loeb of American Metal Co., L. Vogelstein of L. Vogelstin and Co. and T. Wolfson of United Metals Selling Co. The original committee estimated that 1/6 of domestic lead production would be required by the government. The board suggested that all companies contribute this proportion of their output to be sold to the government at 8 ¢/lb (current price 11.5). The board worked to control domestic demand to conserve supply. Shot manufacturers agreed to accept two-thirds as much lead as they had been previously using, the White Lead Institute curtailed orders among it members, and the Paint and Pigment section of the War Industries Board agreed to the substitution of other pigments for white lead in paint.

In addition to these pressures on the white lead market, there were increasing concerns about lead as an occupational hazard.

Until the early 1900s lead poisoning was considered inevitable and for the most part a problem of personal cleanliness on the part of the painter (or miner) (Eldridge, 1998). Dr. Louis A. Dreyfus (1906) writing for the trade journal *Painter and Decorator* "more often the lead is taken into the system by absorption, meticulous cleanliness is the answer" (Dreyfus, 1907). J. A. McMartin, a painter who had suffered from lead poisoning also wrote in 1906 that painters needed to keep themselves clean, that the breathing of lead fumes was dangerous but no more than contact of particles with the skin (McMartin, 1906). A 15 point list of

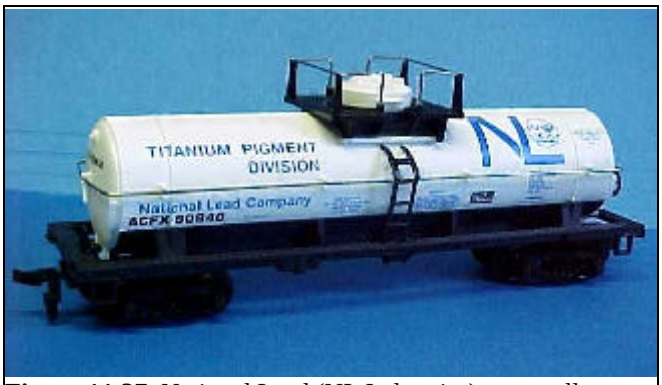

Figure 11.27: National Lead (NL Industries) eventually moved into Titanium Dioxide production. (Author).

actions that could be taken to prevent lead poisoning in 1905 listed 14 as related to the responsibility of the painter for personal hygiene. By 1920 the many members of the magazine were encouraging each other to switch to ZnO. But others argued that this paint had less covering power and durability. In particular contractors argued against a switch to ZnO, as requiring more coats (more labor, more paint, and more cost).

This increased attention had results.

In 1909 National Lead was advertising that the skilled workmen prefer white-lead. Following articles in 1913 in the *Painter and Decorator* about bills to prohibit use of white lead in building, repairing, restoration, or interior work in Wisconsin, and articles in 1913 asking workers to push for cessation of white lead advertising changed. A 1922 ad in *Painter and Decorator* read:

There is no satisfactory substitute for white-lead, it is linseed oil's most natural companion, it covers well and spreads far, it lasts long and it brushes out easily and smoothly. White-Lead is the painter's paint. It is the material of the professional workman. The property owner has confidence in the painter who mixes his paint from white-lead and linseed oil. The painter has confidence in his ability to do satisfactory work when he knows his white-lead is right. Dutch Boy White-lead is right.

Further pressure was marked by the International Labour Office (ILO) of the League of Nations labor conference in Geneva, fall 1921. The conference proposed restriction on the use of white lead. Similar results came from the ILO conference of 1927. By 1914 some of the state laws guaranteeing compensation to workers and families of workers injured on the job moved to include disability from white lead paint. Workers maintained that they needed 2 full days per week to rest from the lead dust and fumes that accompanied their work.

While health care concerns were being raised, there was still resistance to switching to ZnO because of its low covering power. TiO_2 did not have this problem. In 1920 National Lead Company purchased control of Titanium Pigment Co. and acquired a substantial interest in the Titan Co. A/S. Of Norway with American rights to its basic patents controlling titanium paint pigments (Figures 11.27 and 11.28). The process originally consisted of dissolving titanium ore in sulfuric acid, crystallizing out the ferrous sulfate, and then hydrolytically precipitating titanium oxide on an inert carrier, washing to remove iron salts and acid, and finally calcining in rotary kilns (Haynes, 1954). In 1923, the Titanium Pigment Co. negotiated for the purchase of the plant of the Mineral Refining & Chemical Co. of St. Louis. This move not only resulted in a supply of titantiummaterial (shipped by barges on the Mississippi) but also of barytes and lime. This began the expansion of Titanium Pigment. Capital of Titanium Pigment increased from $4,300,000 to $5,000,000 with additional stock being sold to national lead.

In 1927 National Lead purchased Norwegian Titan Company with whom it had been exchanging technical information, developing markets, and pooling patents. It bought Societe Industrielle du Titane, its patent rights, and its plant at Clich France. Evans McCarthy, vice-resident of the United Lead Company and member of the executive committee of National Lead had successfully executed these purchases. He then went to Germany to negotiate with the I.G. for the manufacture and marketing of titanium pigments in Central Europe. A jointly owned company was formed with a plant at Cologne operating on Norwegian titanium ores (Haynes, 1954).

As a parallel to all this activity in titanium acquisition, the white lead industry again underwent consolidation in the 1920s. 90% white lead made in this country was produced by National Lead Company, the Eagle-Picher Lead Co., the Sherwin-Williams Paint Company and E. I. Du Pont De Nemours and Company. Three-fourths of the output was consumed in the plants of the makers and marketed in the form of mixed paint (Lundberg, 1937).

As the major supplier of white pigments, in 1934 National Lead Co. subsidiary Titanium Pigment

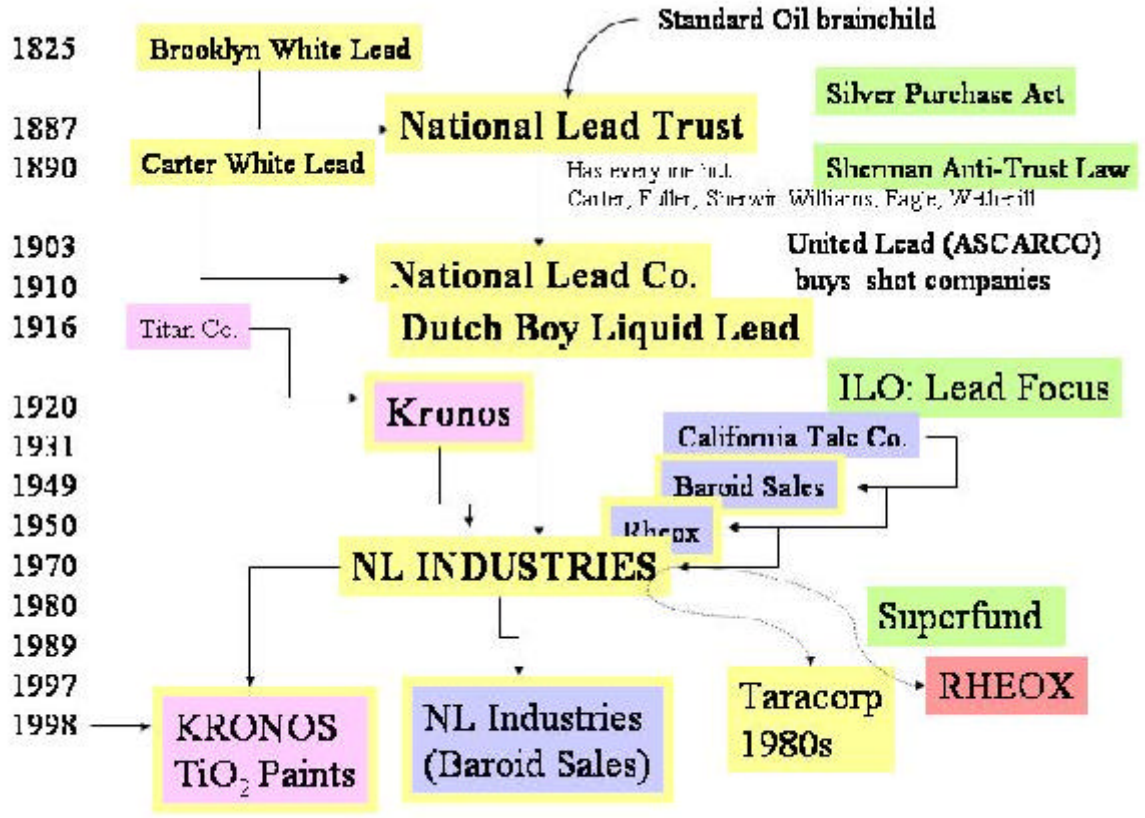

Figure 11.28: Diagram tracing the white lead industry (yellow) as it was consolidated into the National Lead Trust, later known as the National Lead Co. The National Lead Co., as part of its move to control the industry acquired interest in titanium pigments (purple). As part of its mining of lead it found outlets for other associated minerals (lead carbonate is often found with barytes). These minerals (blue) were used in the oil well drilling industry. With the political climate (green) changing National Lead renamed itself as NL Industries and spun off subsidiaries, holding directly onto non-lead portions of the industry and selling outright lead related industries (Taracorp).

Co. enlarged its St. Louis unit in 1934 and started building at Sayreville, N. J. the largest plant in the world. In 1936 the company was replaced by the new Titanium Pigment Corporation, selling agency for the Titanium division of the parent National Lead company. National Lead's active interest continued in the foreign field, where in 1934 it organized a new consolidation, British Titan Products with Imperial Chem. Indust. At that time, the veteran E. J. Cornish, National Lead's president for 17 years, became chairman of the board and was succeeded by Fred M. Carter, nephew of Levi Carter, founder of Carter White Lead Co., who in turn was followed in 1938 by Fletcher W. Rockwell (Haynes, 1954).

The company was so well established in the titanium production that it and du Pont were subjected in 1947 to an anti-trust case (*67 Sup. Ct. 1634, 1947)*. While National Lead and du Pont were convicted of violating the Sherman Act the court refused to order divestiture of plants. The Court documented the "vigorous and effective competition between National Lead and du Pont" with the fact that "The general manager of the pigments department of du Pont characterized the competition with zirconium and Virginia Chemical as 'tough' and that with National Lead as 'plenty tough.'" (Stigler, 1964).

Reflecting the major shift from lead to titanium National Lead was renamed in 1970 as NL Industries

with a TiO_2 MacIntyre Division.

Secondary smelting

In addition to aggressive moves into the titanium business, National Lead continued to diversify from white lead pigments. Secondary smelters were introduced to recycle lead batteries, including a 25 acre site established in 1928 in Granite City, Ill. In 1930 National Lead Company started the Minnesota secondary lead smelter, at St. Louis Park, Minn., also used for battery recycling. Part of the Minnesota site was sold to Golden Auto Parts in the 1960s and the slag heap was buried. By the 1960s National Lead was processing lead near the Philadelphia downtown. In 1972 National Lead, now called NL industries, began operation of a secondary smelter in N.J. (EPA, 1999a; EPA, 1999b; EPA, 1999c).

In 1977 NL Industries, Inc. was issued a patent for a lead battery recycling process in which the smashed batteries were placed into a magnetic slurry and the light weight material removed by a magnetic field (Graham, 1978).

Oil Well Drilling Fluids

National Lead had already, as part of the titanium business, gotten involved, through its acquisition of Minerals Refining and Chemical Co. of St. Louis, in production of $BaSO_4$. This salt is added to drilling muds to increase unit weight, thus increasing hydrostatic head on the formations being drilled in deep wells to prevent the walls from caving in. Thus, in the 1920s and early 1930s, National Lead can be found to be moving into the oil well fluid business based on both the addition of swelling clays and $BaSO_4$ to control pressure within the wells. In the late 1920s, the California Talc Co. supplied bentonite (montmorillonite) clays as an additive to oil field drilling fluids and in 1931 Baroid Sales Co. of California, a subsidiary of National Lead, was formed from California Talc Co. to distribute clays which had been additional modified with organic compounds for fluid drilling (Baroid, 1999). In 1931, National Lead Co., Baroid Sales division was publishing pamphlets on drilling muds. A second book was published in 1953.

As lead carbonate production was diminishing in the late 1940s, and early 1950s, National Lead was left with a number of large plants with large vats for the acetic acid conversion of lead to lead carbonate. By 1949 National Lead converted some of those baths into oil fluid mixing sites and produced it's 1st commercial bath of bentonite-based additives in St. Louis, Mo. (Moll, 1999). National Lead continued to expand in this area with the purchase in 1949 of Baker Castor Oil Company in Newark, N.J., major producer of organic thickeners and gellants. From this the Rheox group was formed (Rheox, 1999). In 1952 Rheox acquired a facility in Newberry Springs, Ca. near clay mines of Hector, Ca.. In the 1950s Rheox formed a joint venture with Abbey Chemicals, Ltd, for the production of organoclays for oil well drilling in the United Kingdom. In 1970 Rheox formed part of the Bentone Chemie GmbH of Germany. In 1978 Rheox acquired a majority share of Abbey Chemicals and relocated to Livingston, Scotland.

National Lead also apparently experimented with entrance into the battery field since several patents related to battery production to NL appear during the 1976 period. These included the manufacturing of a light weight lead acid battery prepared by lamination and in using an immobilized paste for the battery structure (Graham, 1978).

III.B **1978-Present: Divestment & Risk Management**

The modern history of the National Lead enterprise has been marked by divestment and attempts at management of legal risks associated with its history of lead production (Figure 11.28). These risk management practices began with President Nixon's signing the National Environmental Policy Act which established the Environmental Protection Agency in 1970. Various other acts closely followed during the 1970s: the Clean Air Act (1970); the Clean Water Act (1972); Resource Conservation and Recovery Act (RCRA, 1976), Toxic Substances Control Act (1976). This controlled use of lead in paint and soil while the Clean Air Act controlled lead emissions, primarily from gasoline (Weintraub, 1997).

More stringently, however was the passage of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also known as Superfund) in 1982 which directed EPA to create a National Priority List (NPL) of sites that needed remedation. The Superfund Act Reauthorization Amendment (SARA) was passed in 1986.

NL Industries and Taracorp

In 1979, National Lead's St. Louis smelter in Minnesota was sold to Taracorp of Georgia, a lead acid battery recycler, and producer of lead solders (EPA, 1999a; EPA, 1999c; Taracorp, 1999; Taracorp, 2000). In addition, the Granite City smelter, Illinois, was sold to Taracorp (EPA, 1999d). Soils near the scrap pile of the Granite City smelter showed 140,000 to 300,000 ppm lead.

From 1979 to 1982 Taracorp operated the St. Louis Park plant in the same manner as NL had been operating, assumed NL's role in a Battery Processing Agreement with Union Scrap Iron and Metal "Union Scrap" by which Taracorp purchased spent batteries to send to Union Scrap's three locations near St. Louis Park. Union Scrap broke apart the batteries and sent the lead plates to Taracorp for smelting. The battery processing agreement stated that the batteries and battery plates remained at all times the sole and exclusive property of Taracorp (originally NL.) The relationship continued until Taracorp shut down the St. Louis Park Plant.

Shortly after the sale, 1981, the EPA listed the St. Louis smelter as national priority for Superfund list and in 1982 Taracorp filed for bankruptcy. Legal proceedings associated with the bankruptcy carried on until 1985 when, as part of Taracorp's Plan of Reorganization, Taracorp entered into an Agreement on Mar 4, 1985 with NL and IEPA (Illinois EPA) regarding responsibility for the environmental hazards at the Granite City, Ill and St. Louis Park, Minn. sites. A new corporation was formed to cover $500,000 of costs at Granite City, with indemnification from NL. Also included in the agreement was the return ownership of St. Louis site to NL with NL to bear the responsibility for all investigative and remedial clean-up costs associated with the facility with NL indemnifying Taracorp for all obligations, responsibilities and liabilities, costs and expenses asserted against it related to environmental hazards. The following year, 1986, Granite City smelter site signed consent order with EPA, and became NPL listing.

This "settlement" proved to be short-lived. In 1990, the EPA notified Taracorp that they were considered to be a potentially responsible party "PRP" under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) for damage caused by Union Scrap's battery-breaking activities at its Washington Avenue, north location by claiming the Taracorp had "arranger" liability under sec. 107(a) (3) of CERCLA. In 1993, the EPA further notified Taracorp that it was also considered a PRP for the cost of remediation at Union Scraps 15th avenue North site. Taracorp sought dismissal from Union Scrap I case claiming the CERCLA claim was barred by its 1985 discharge in bankruptcy. The bankruptcy court disagreed. Taracorp sued NL for indemnification in the costs it occurred for the Union Scrap suite. The court found that NL did not have to pay because environmental damage was not on, at or near the St. Louis Park site.

Taracorp responded on Sept. 25, 1995 with a lawsuit of NL industries, Inc. in the District Court of Norther Illinois, Eastern Division. The suit was decided in favor of Taracorp on Jan. 11, 1996.

Some 14 years after action was initiated, in 1999, the EPA began capping the NL-Taracorp slag Pile April 13. Taracorp continued to function as a manufacturer of solders (EPA, 1999e). In 1998 Taracorp declared its marketing position as manufacturer of "Dutch Boy lead free solders".

GNB Batteries

The story of lawsuits surrounding assumption of Superfund liability is mirrored in the case of GNB, manufacturer of Champion batteries.

GNB traces it's roots to the Gould Storage Battery Co., which was founded in 1898. This company, like National Lead, underwent several name permutations. In 1954, the company was listed in battery books as Gould-National Batteries, while in 1976 patents were issued to Gould, Inc. for a variety of lead-acid battery patents (cover assemblies, vent holes, alloys for forming handle straps). In 1979 Gould Electronics was the purchaser of a secondary lead smelting facility near Portland, Ore, originally established by Morris P. Kirk and Sons in 1949. At this facility Gould performed battery recycling, lead smelting and refining, zinc alloying and casting, cable sweating and lead oxide production.

With the snowballing of EPA regulations the site was closed in 1981 and buildings removed by 1982. In 1983 the Gould electronics site (alias GNB battery) was listed as an EPA National Priority Site. In that same year Gould created a wholly-owned subsidiary, GNB Batteries, Inc., to which it transferred the business and assess of its battery business (Jan. 1, 1983). Gould continued as a major corporation with interests in Li batteries and in fiber optics supplier to the computer industry. It formed (Mar. 2000) a partnership with U.S.A. Brookhaven National Lab for developments in lithium batteries.

Stock in the GNB subsidiary was offered for sale in April. The parent company senior vice-president, Stanley Gaines, along with Frank Beaudette, controller of Gould's automotive battery division, and Daniel Heffernan, partner in New York investment banking firm of Allen and Co. formed GNB Acquisition Corp. to purchases stock. Gaines was appointed president of GNB Batteries, Inc and as president accepted GNB Acquisition Corp's bid for the purchase of GNB Batteries. Part of the negociated purchase left

GNB Batteries with all of the obligations and liabilities incurred by the business while owned by Gould. After purchase, GNB Batteries and GNB Acquisition Corp. were folded together to become first GNB Incorporated and then GNB Battery Technologies, Inc. GNB formed it's own wholly-owned subsidiary, Industrial Battery Co. (GNB, 2000b). By the late 1990s the operations of GNB were being targeted by the Superfund law as part of the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Liability Act (CERCLA). GNB agreed to handle environmental liability at sites that were sold to GNB, but not for environmental liabilities at Gould plants or common dump sites closed prior to the 1984 sale. Gould stated that GNB assumed all liability on the purchase of the business in 1983. The first ruling in Nov. 1990 went against GNB. The lawsuit continued into 1992, and was again ruled against GNB. The appeals court heard the case in Nov. 30, 1994 and decided on Sept. 6, 1995 again against GNB.

GNB continues to be a major lead acid battery manufacturer. In the last 15 years it has branched into large valve-regulated lead-acid (VRLA) batteries for stand-by in telecommunications, as well as un-interruptible power supply (UPS) . Champion batteries by GNB are used in lawnmowers, forklifts, cars, and trucks. GNB owns and operates three lead-acid battery sites located in Columbus, Ga., Frisco, Texas and Vernon, California. At these sites the batteries are broken apart into lead, plastic, and acid. The lead is melted back into ingots and returned to the original factor. The plastic is chipped, washed and returned to a plastic plant for melting into new casing. Sulfuric acid is either neutralized, purified, and released, or converted to sodium sulfate for use in fertilizers and dyes (GNB, 2000a). Each battery contains 17.5 pounds of lead. Nation-wide 70% of used batteries are recycled (rivecoeh.org, 2000).

State of Illinois and National Lead's Dutch Boy Site

While fighting off liability costs with Taracorp NL Industries was also involved in litigation with the State of Illinois (IEPA, 1998).

As part of its divestment strategy NL industries deeded its Dutch Boy (Carter) white lead paint factory property to Goodwill Industries in 1980. The architects of this transfer were Goodwill executives Harry Woodward, Jr. (Figure 11.29) and Herman Kaye and NL industries representatives John Harvey and Peter R. Harvey. Woodward and Kaye were running a

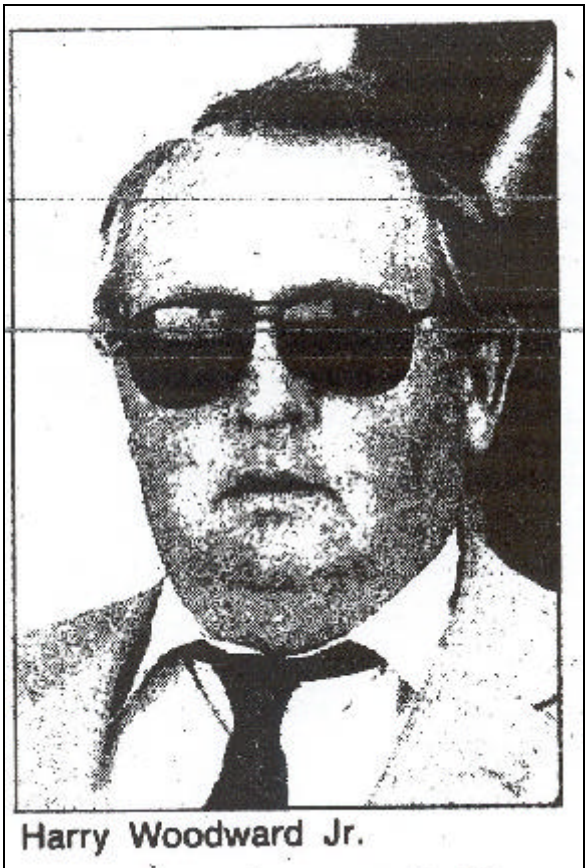

Figure 11..29 Harry Woodward, Jr., Goodwill executive who laundered money from contaminated industrial property donated to Goodwill.

series of convoluted transactions in which the property was then sold in 1982 and 1983 to a dummy corporation which was to develop the property. The sale proceeds were split with a portion returned to Goodwill and the remainder to hidden corporations controlled by Woodward. These fraudulent transfers could have gone un-noticed except for two events.

One was a "suspicious" fire that broke out in June of 1985 destroying most of the remaining factory structure. This fire followed similar fires that seemed to occur with donated sites to Goodwill which might have had to be decontaminated. Secondly, on June 5, 1986, two workers who were recovering bricks from the factory site in a salvage operation had allowed their children to play at the site. These children went through a blood lead testing program sponsored by the Chicago public schools and found to be excessively elevated in blood lead. The father realized that he, too, had similar symptoms. The cause of the poisoning

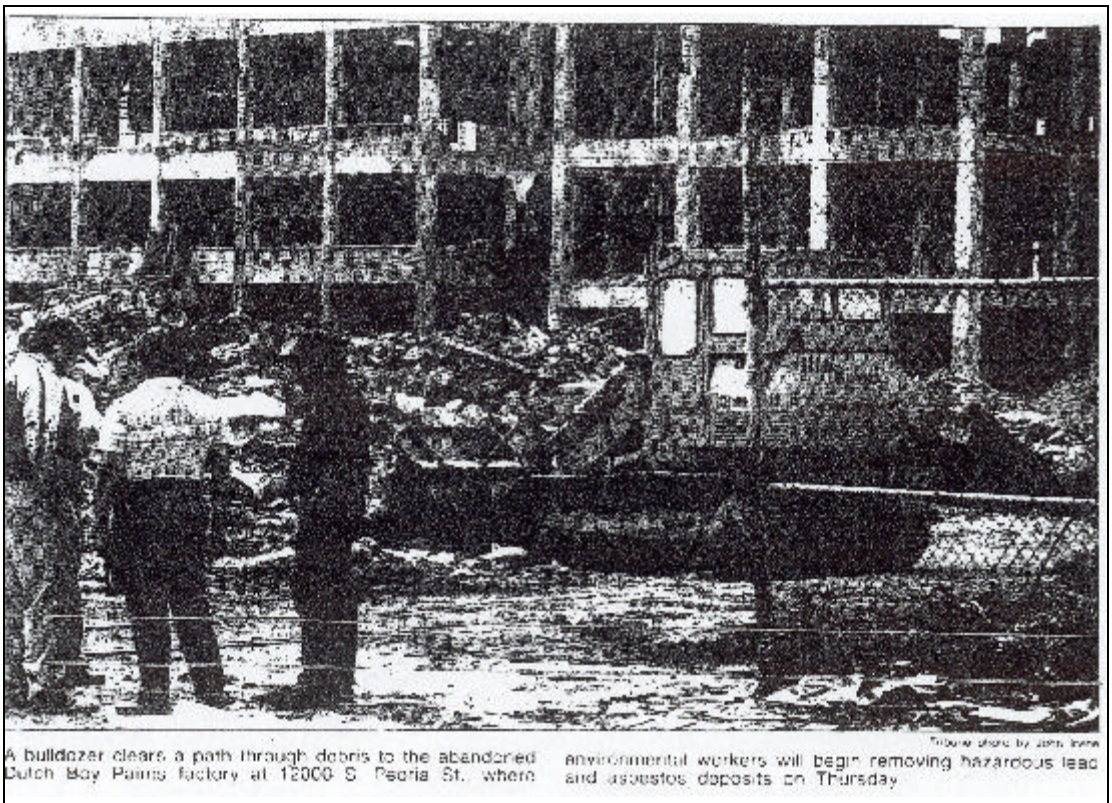

Figure 11.30 Dutch Boy plant emergency clean up.

were piles of powdered lead dust that was used in the production of the paint which had been left intact when NL donated the property to Goodwill.

Illinois state EPA spokeswoman Cinda Schein said: *It's obvious they knew what was in the building, and apparently they made no effort to clean it up.*

On June 11, 1986 demolition of the site was halted for an emergency cleanup which cost $182,000. (Figure 11.30). On June 12, 1986, the State Attorney General filed charges against Harry Woodward, Jr. and Herman Kaye. June 18, 1986 Woodward's assets associated with the fraudulent transfers were frozen. On Sept. 18, Woodward was indicted for bilking Goodwill of $1.6 million dollars. Exactly one year later Woodward was sentenced to 6 months for a spending spree designed to hide any further assets. He transferred his multimillion dollar home to his wife and sold his farm to his nine year old son. On Sept. 20, he was sentenced to an additional 8 years in prison for the Goodwill thefts.

His partner in crime, Herman Kaye, fled early that summer and was seized in Las Vegas in December. In November of 1988 he was convicted of stealing $400,000 from Goodwill and jumping bail. He was convicted in the following march to 9 years in jail.

. In 1988 the Illinois EPA and People of State of Illinois filed 5 count complaint against NL Industries to recover clean up costs of $2,270,000 associated with pollution of abandoned paint manufacturing facility on the south side of Chicago. This included clean up fee, punitive damages, fees and costs and imposition of civil fines. NL got a stay of discovery. The second plaintiff ARTRA sought dismissal on grounds that full administrative power of the Pollution Control Board had not been exhausted. In April of 1989, the ARTRA dismissal was granted.

In 1991 the state appealed the dismissal of ARTRA and NL case in Illinois. The appeal was dismissed. This was followed in 1992 by a successful State of Illinois appeal to State Supreme Court which sent action back to original court. The victory was short lived because on Sept. 9, 1993, Judge Richard L. Curry denied a motion to reinstate the case, because State did not attempt to justify delay. The State of Illinois in 1996 appealed dismissal of ARTRA and NL suit but the Circuit Court of Cook County sustained denial of reinstatement. On Nov. 13 the court issued a

modified opinion allowing that state to articulate reasons for delay in moving for reinstatement. However on August 11, 1997, Judge Lester Foreman dismissed the state's action with prejudice.

NL Industries initiated a 1st quarter payout of $30,000,000 noncash charge related to the adoption of the AICPAs state of position No96-1 "Environmental Remediation Liability". Posts a 29.9 million loss for the year (NL, 1999).

The Invention of the Brownfield

One outcome of the Chicago trials was a major effort to revamp laws associated with donation of industrially contaminated sites to non-profit organizations as well as laws to facilitate their clean up. The Goodwill case showed a "trend" by which it was attempted to transfer legal liability from the industry to, in this case, a witting accomplice, and in other cases, unwitting charities.

Figures 11.7-11.12 show that property associated with the Chicago White Lead and Shot Tower Company eventually was redeveloped into upscale highrises. Similar outcomes were achieved in the case of some of the smaller white lead factories bought by National Lead and mothballed during its first wave of consolidation of the industry, and of the factory site for Devoe and Raynolds. However, it should be noted for most of these sites, the land languished for several decades before the redevelopment of the city of Chicago began in the 1990s.

Other tracts of land, with their legal liability in limbo, were soon identified as an accelerant to urban decay, (Figure 11.30). These tracts of land came to be known, as a comparison to suburban developments, as "brownfields". The city of Chicago began a pilot cleanup program which consolidated the efforts of several departments (finance, trash, environment, development) to focus as teams on the barriers to bringing the sites back into use and on the tax roles. The John D. and Catherine T. MacArthur Foundation funded a forum of business leaders, industrialists, environmentalists, bankers, regulators, and city officials to discuss means by which structural barriers could be alleviated to foster redevelopment. One outcome of these efforts was a consent decree signed between the City of Chicago and the EPA in which the city forgoes future use of groundwater as potable (drinking) water, in return for relaxed groundwater remediation. Strategies (including tax incentives) to foster brownfield use have been enshrined in local and national law.

Philadelphia and National Lead

In 1987 a class action suit against NL Industries for the Philadelphia Site was filed. The Class Action suit was Wagner v. Anzon Inc., June Term 1987, Ct. Common Pleas, Philadelphia Co. 7,500 present and former residents who grew up in the area sued NL Industries, Inc., as previous owner, and Anzon, as current owner for emissions from a lead processing plant. Residents complained of diminished IQs as a result of lead absorption, and depression, learning disabilities and reading disabilities, as well as property damage. In this lawsuit NL Industries was represented by one of nation's top 100 most influential law groups (Bartlit). In 1994 the judge recommends that Anzon and NL settle Philadelphia class action out of court. Anzon settled for $6,000,000. NL suggested to settle at $16 million and did not. On Dec. 1, 1994 jury found in favor of NL (Journal, 1995).

Snowballing Litigation

In addition to fighting litigation against smelting and battery recycling sites, the battle moved into litigation over paint manufacturing, both in terms of manufacturing site remediation and in terms of general culpability in childhood lead poisoning. Increased focus on all of the policy dimensions of leaded paints resulted in the Residential Lead-Based Paint Hazard Reduction Act 1992 (administered through HUD, regulations promulgated by EPA) which required disclosure of lead hazards on real estate transactions and accreditation requirements for lead remediators By 1995 a Mealey National Lead Litigation conference was held in Philadelphia, followed by conferences in 1996, 1998, and 1999. The conferences were how-to briefings on lawsuits against the paint industry.

The ability to bring the lawsuit hinged upon a market share collective liability theory. On Feb 2, 1999 a Buffalo judge ruled that lead paint manufacturers can be subject to liability under a market share collective liability theory. Supreme Court Justice Nelson H. Cosgrove said that the "interest of justice and fairness" mandated using the theory in a suit brought by families whose children had suffered damage to their nervous systems from ingesting lead-based paint. Under the market share approach, the judge noted in his opinion in Brenner v. American Cyanamid Co., a manufacturer's responsibility for damages caused by a harmful product it makes is based on its share in the market for the

product. The theory which is used as a last resort when tortfeasors cannot be identified, had been rejected in lead paint cases by the other federal and state courts that ruled on the issue. But, relying on a 1989 New York Court of Appeals decision that applied the market share approach in certain claims brought against the makers of the anti-miscarriage drug, DES, Justice Cosgrow said that the same rationale applied in the lead paint case (Alden, 1999).

These decrees bore fruit in Oct of 1999 when the State of Rhode Island filed class action suit for recovery of costs associated with childhood lead poisoning against Sherwin Williams, NL Industries, Lead Industries Association, American Cyanamid, Atlantic Richfield, Dupont, the O'BRIEN Corp., the Glidden Co. and John Doe Corporations. (O'Brien is the successor to Fuller) The suit alleged that the companies knew their product was toxic but marketed it as sanitary through LIA promotions through the 1920s and 1930s (Island, 1999).

Strategies for the defense have been suggested to proceed along the following lines (Murphy and Ward, 2000): 1: statute of limitations, claim plaintiff knew long ago of the harm suffered, but waited for the law to shift in their favor before they brought a claim; 2. Constitutional argument, that market share liability violates defendant's due process, persuasive when the time period of the alleged tort is uncertain, and the lead pigment market had considerable fluctuation in market control; 3. attack the elements of the market share theory of liability. All lead pigments are not fungible. They vary widely in lead amounts and general composition. They were individually marketed and sold, and at the time of purchase, were readily distinguishable from one another.; 4. Some states require specific person to sue; 5. Demand so many documents on maintenance records that the plaintiff can't keep up. Each of these defense strategies was subsequently employed in the Rhode Island trial (see below).

NL Industries Today

Throughout this time period NL Industries underwent further reorganization (Figure 11.22). In 1989 Kronos Paints became a separate company due to the "globalization of Kronos products". Attempts by NL to consolidate aspects of the titanium portion of the industry were rebuffed as a 1990 takeover bid of Georgia Gulf ended and in 1993 NL sold ½ interest in a TiO_2 plant in Louisiana to ICI. In 1998 the oil well drilling fluids, Rheox speciality chemical operations, were sold. In 1999 NL Industries was prohibited from a $1,000,000,000 purchase of ICI (TiO2) by antitrust provisions.

In 1999 both NL Industries and Kronos Inc. showed profits for preceding year of $89.9 million. Kronos operating income was $40.0 million. However, in Jan. 26, 2000, NL Industries reported an income of $16 million a decrease attributed to declining income of Kronos' titanium dioxide (NL, 2000).

Other Types of Litigation

In addition to litigation related to environmental remediation companies face unusual sets of lawsuits with respect to their workforce. A case in point is that of Johnson Controls. This company has it's origins in 1883 when Warren S. Johnson, of the State Normal School in Whitewater, obtained a patent for electric room thermostat. In 1885 the Johnson Electric Service Company formed to manufacture automatic temperature regulation systems. The company was renamed Johnson Controls in 1974. The company became a major manufacturer of lead acid batteries when in 1978 it acquired Globe-Union a Milwaukee based company established in 1936 to manufacture batteries and leader in the field. In 2000 Johnson Controls was the largest automotive battery manufacturer in North America with $16.1 billion sales including batteries DieHard (for Sears), Duralast (for Autozone), Energizer and Equalizer (for Blain's Farm&Fleet, Carport Auto Parts, Wal-mart Canada), Equalizer, Eveready, EverStart (Wal-mart), Interstate, Kirkland Signature and Motorcraft (Lincoln and Mercury Dealers)

In the 1980s Johnson Controls restricted women of child bearing age from the higher paying production lines arguing that even an informed consent on the part of the woman would not protect the company from future lawsuits initiated by adults who were conceived while their mother worked on the production line (District Court Summary 1988, #84-C-472)..

The law was challenged by the workers and the district court (1988) ruled in favor of the manufacturer. In 1991 the Supreme Court reversed that ruling. The Court ruled that the rights of women to make informed consent were greater than the right of the company to protect itself from unborn children. The judges ruled that the occupational hazard was as great to men (sperm death and infertility) as to women and that the decision to limit women was therefore discriminatory. The issue of harm to the unborn

children can not be considered as Congress, through Title VII, mandated that decisions about the welfare of future children be left to the parents who conceive, bear, support, and raise them. Concerns about the next generation were not part of the essence of the employer's business. Justice Scalia agreed with this ruling, indicating that Johnson Controls had failed to demonstrate a substantial risk of tort liability resulting from allowing fertile women to perform the job.

The Rhode Island Lead Paint Nuisance Lawsuit of 2002

We ended Chapter 10 with dire predictions as to the legal liability of the lead industry with respect to childhood lead poisoning. The push for lawsuits against the lead industry stalled for a while over the issue of collective vs individual responsibility of various industries. In the early 1990s it appeared that the only way to sue a paint company would be to prove that a particular company manufactured the paint used in a particular home. This gave rise to some interest in the use of mass spectrometry methods of analysis that could "fingerprint" lead. The difficulty of such fingerprinting, as compared to fingerprinting archaeological materials, lies in the widespread mixing of commercial ores in the manufacture of white lead paints and gasolines between 1920 and 1980.

The legal landscape shifted dramatically in the 1990s, primarily due to two events. The first was a landmark ruling which allowed a market share basis for assigning responsibility. The second was the successful billion dollar class action lawsuit against the tobacco industries. The difference between the legal strategies taken to sue the tobacco and the lead industries revolves around guilt. Unlike the tobacco company internal documents, there are few "smoking guns" which prove a conspiracy to hide the dangers of the product. Therefore the issues of guilt and punitive damages are more difficult to resolve.

Despite the latter difficulties a major lawsuit against the paint companies was pursued. The strategy was a novel one. It would be difficult to chronicle the 2002 Lead Paint lawsuit any better than it unfolded in the articles of Peter B. Lord of the Providence Journal, of Providence Rhode Island. What follows is primarily the work of Lord with a smattering of other primary sources. For the most part the articles are excerpted and not quoted in their entirety. Occasionally, in order to meet the constraints of excerpting, brackets have been added to indicate changes in the original text.

July 11, 2000 Milwaukee Journal Sentinel, Greg J. Borowski. *Report fuels city's push to sue makers of lead paint*

A group of law firms hoping to file a case on Milwaukee's behalf said the paint industry concealed the dangers of lead for decades, fought regulation, and will battle legal challenge. Industry officials say companies voluntarily removed lead from paint in the 1950s, decades before the 1978 ban. Milwaukee thinks it will need $67 million to get windows replaced in 42,174 housing units the city's lead target area. If the city sues it would join St. Louis and R. I. who filed in the last nine months. Because an outside lawyer prepared the report some city council members were skeptical about bias.

June 21, 2000, Houston Chronicle, Bill Murphy "*Spring Branch schools join lead paint suit*" A fraud suit filed again Lead Industries Association, DuPont, Sherwin-Williams, Glidden, Atlantic Richfield, and other companies was filed.

Aug. 11, 2000, *Lingering Suit lures throngs of lobbyists*, Greg J. Borowski. Milwaukee Journal Sentinel

With lobbying on the planned city lawsuit against the paint industry now in overtime, and the stakes ever higher, an alderman wants a new rule that would force lobbyists at City Hall to register whom they're working for. The paint industry hired the best connected lobbyists and lawyers to block a vote in common council in favor of the lawsuit. Supporters say it's the only way to generate the tens of millions of dollars needed to deal with the lead problem. Critics

say it's a legal longshot that could bite city taxpayers down the road with hidden costs or by exposing the city as responsible for a share of the problem. 11 voted for the lawsuit and 6 opposed. 9 votes necessary in coming month.

Aug. 17, 2000. *Maryland Homeowners Defeat Lead Industry's Motion to Dismiss*. In Cofield et al v. Lead Industries Asss'n et al. the paint companies wanted dismissal on the gounds that it is impossible to determine the exact manufacturer liable. The suit was upheld.

Dec. 8, 2000 California Superior Court judge ruled Santa Clara, Santa Cruz, Solano, and Alameda counties could proceed with their claim that the lead industry fraudulently concealed the hazards of lead-based paint. The judge rejected the lead industry's argument that the fraud claim was time-barred and also ruled that the government services doctrine (which the defense argued prohibits governmental entities from recovering the costs of public services) did not apply in this case.

Mar 30, 2001 The Providence Journal, Providence, R.I., Peter B. Lord, *U. S. Chamber counterattacks lead-paint suit*.

An arm of the U. S. Chamber of Commerce has swamped the Providence city government and a half-dozen state agencies with a massive public records request aimed at showing that the state and local governments are liable for the thousands of Rhode Island children poisoned each year by ingesting lead-paint particles. The 64 item request seeks virtually every record of lead poisoning, every policy decision, every lead test result, all medical records of poisoned children, all cleanup notices, and all records about records dating back 50 years.

Chamber officials said they filed the requests in response to a lawsuit Atty. Gen. Sheldon Whitehouse filed 17 months ago.

James Wootton president of the Chamber's Institute for Legal Reforms said the lawsuit is frivolous and RI officials should be aware that in pressing the case, they may reveal many mistakes and liabilities created by public officials in dealing with the lead problem.

Chamber officials said this is only the second time they've used the records request tactic. They filed a similar records request last summer against the City of Milwaukee when it was considering filing its own suit against the paint companies. A chamber spokeswoman, Linda Roxett, said the tactic cause the city to back down.

But Linda Burke, a solicitor for Milwaukee, said the official was wrong. The records request, she said, was as an effort to intimidate the city so it wouldn't sue, and it failed. The city plans to sue anyway, she said.

March 2, 2001. Media Advisory, RI Attorney Generals office: *Rhode Island Judge Gives Go-Ahead to Lawsuit Against Lead Industry*

Associate Justice Michael Silverstein of the RI State Superior Court ruled favorably for the state that their lawsuit should proceed and denied a motion to dismiss filed by dependants. He affirmed the state's right to seek abatement costs for public and private property throughout the state.

March 4, 2001 *ICI sees success in lead paint lawsuits*, Jodie Ginsberg. (Reuters)

Imperial Chemical Industries said it expected to deal successfully with any litigation related to lead-based paint, as worries of a US court action undermined its shares. ICI shares traded 25 pence or 6.2 % lower making it the second biggest loser in a falling FTSE 100 index. ICI's Glidden Co. is one of eight companies cited over the use of lead-based paint. **March 5, 2001** *Sherwin-Williams Comments on Rhode Island Trial Court Decision*. (Business Wire).Cleveland.

Sherwin-Williams says the R.I. action not a defeat because the judge threw out major claims against dependants: all common law tort claims for strict liability, negligence, negligent misrepresentation and fraud based on alleged injuries to individual were dismissed as were all claims seeking to recover special education costs and a claim asking for equitable relief on behalf of children. The court also ruled that no-pre-1970 alleged conduct could be used to prove any claim under Rhode Island's unfair trade practices act.

March 9, 2001 *Two Paint Companies Targeted in New Strategy*, Greg. J. Borowski., Journal Sentinel Staff, Milwaukee.

The city will join a growing legal battle against the paint industry today, forcing cleanup of more than 40,000 central city homes. Milwaukee's lawsuit will list only two: Houston-based NL Industries, and Madison based Mautz Paint. Potential clean up costs are estimated at $100 million. "I guess they hope to hit the jackpot somewhere along the way," said Richard Thornburgh, a former U.S. attorney general who now

represents NL industries and several other paint companies. By pursuing only two companies and by seeking to have lead paint declared a "public nuisance" the city lawsuit sides steps a critical question and major hurdle other lawsuits have faced: which paint is in which home? The lawsuit also alleges the two companies were part of a conspiracy with other companies and industry groups to conceal the dangers of lead and argues the paint itself was an "unreasonably dangerous product due to inadequate warnings".

Thornburgh said those arguments have failed elsewhere. "The arguments these lawsuits make are pretty predictable," he said. "The nuisance has been created, not by the manufacturers of the paint, but the failure to maintain the paint, which creates responsibility on the part of the property owners."

May 5, 2001 *Turning Lead into Gold*, Forbes Magazine, May 14, 2001

Asbestos lawyer after the lead: Motley's got a 156 -foot yacht, Themis (for the Greek titanesss of law), a house on Kiawah Island, S.C. worth $5.8 million, and a plush new five story office building overlooking the Cooper River and downtown Charleston, S.C. At his 1999 wedding (his third) he hired Earth, Wind, and Fire to perform. ....Motley, 56, got his start on the good life in 1975 with tort law. At the time this field was mostly the province of ambulance chasers and slip-and-fall lawyers working over seedy storefronts. But it was about to be transformed by the explosion in mass tort litigation, which would make some plaintiff lawyers extremely rich... ...Motley went after asbestos makers... But Motley and his partners did not coast on the asbestos payoff. They reinvested it in tobacco litigation, ...The jackpot was bigger than any tort lawyer's wildest dreams. On his office wall is proudly displayed a framed 1997 deposit slip for $170 million - courtesy of the big four tobacco companies. .....It's still not time to coast. Motley's firm is reinvesting some of its tobacco trophy in the next- big game hunt. This time the quarry is the paint and pigment industry.....To make the stuff of a mass tort, the lead paint plaintiffs had to find other victims. They have found some plausible ones, in the form of children with learning disabilities....Next, Motley and company needed defendants with pockets billions of dollars deep. They have several, including NL Industries, which, under the name National Lead, used to make Dutch Boy paint; DuPont, which sold several brands of paint until 1983; Atlantic Richfield (now BP Amoco), alleged successor to International Smelting and Refining; and ConAgra Grocery, which bought Beatrice Foods in 1990 a company that sold off its interest in W. P. Fuller Paint Co. 26 years earlier. Glidden Paint, owned by Imperial Chemical, and Sherwin-Williams, the largest U. S. manufacturer of paint today, are also defendants.

The lead defendants had to be demonized, as the tobacco companies were demonized. In an obvious attempt to transform the Dutch Boy into a fresh-faced incarnation of Joe Camel, the suits claim the companies misrepresented the paint as safe for use around children. Evidence? In 1920 National Lead told retailers to be nice to children because they might someday be customers. More: In 1930 the company distributed coloring books with poems and a cartoon drawing of its Dutch Boy character.

Hard to imagine children having much influence on paint purchases. But Motley booms out his argument like that actor in *The Insider*. "These lead companies are scumbags," he argues. "They're as bad or worse than the tobacco companies. They've preyed on little children."

[*The editorial then points out the LIA funded Baltimore studies, see previous chapter, and then voluntarily cut lead content for paint for interior use in 1955; also that TiO_2 didn't arrive on market until 1930s and that leaded gasoline put out as much or more lead*].

Wall Street is viewing these cases quite seriously. In January Morgan Stanley downgraded Sherwin Williams (sales, $5.2 billion). It was a prescient call. In April, in a major victory for Motley, Rhode Island Superior Court judge rejected the defendants' motion to dismiss and Sherwin-Williams' stock dropped 21%. Imperial Chemical Industries, the $9.5 billion (sales) British owner of Glidden Paint, dropped 5%.

[How did Motley get connected?] In 1999 Att. General Sheldon Whitehouse, Democrat with an eye on the governor's office, met with John McConnell Jr., Providence based Motley partner and treasurer for the State Democratic party. Whitehouse signed a contract with Motley and another local lawyer to represent the state in a suit against the lead industry. They would get half the normal 33% contingency fee. Ness Motley is Rhode Island's largest political contributor. Motley filed suit in Oct. 1999. A Beaumont, Tex. firm working with Motley sent a letter to the executive director of a group of north Texas school districts with the pitch lawyers would front the cost of the lead paint litigation in exchange for 40% of the winnings.

May 8, 2001 The National Law Journal, Bob Van Voris *Paint Suit's a Lead Balloon (So Far)*

In Oct. 1999 Ron Motley told a Dallas Morning News reporter that if he failed to bring the lead paint industry to its knees in three years, he would hand over his yacht - a120 foot craft.

Critics have characterized the alliance between government officials and outside trial lawyers, in lawsuits involving tobacco, handguns and lead, as a costly end-run around the legislative process. They say that the real intent is to extort settlements with the threat of litigation that could depress company stock prices for years.

May 16, 2001 House Bill no 2561, Massachusetts,

The attorney general is authorized to bring action on behalf of the commonwealth against lead companies.

July, 9, 2001 Deborah Kong, the Associated Press, *NAACP Plans to Sue Lead Paint Industry*
NAACP president Kweisi Mfume says the civil rights organization is preparing to sue the lead industry.

Dec. 20, 2001 Russell Ben-Ali, Star-Ledger Passaic, N. J. City

The city of Passaic sued the lead paint industry yesterday alleging that the industry's major manufacturers knew, but conspired to conceal, the dangers lead paint posed to children.

Jan. 17, 2002 *Lead-paint Lawsuits Waste Time and Money*, Home News Tribune, 1/03/02 editorial

[70 similar lawsuits of which 45 dismissed or without merit. Why should Passaic sue? It is a drain on tax dollars better used elsewhere.]

Jan 13, 2002 *Paint firms cover Earth with lead lobbyists*, Stephen Koff, Cleveland Plain Dealer,

Sherwin-Williams' lobbying team included former U. S. Attorney General Dick Thornburgh, former U.S. Reps Alan Wheat of Missouri and Martin Russo of Illinois, Maine's Ketterer and a California consultant who used to run his states' Democratic party. Gale Norton, U.S. Interior Secretary used to lobby for Houston based NL.

Feb. 5, 2002 Providence Journal, by Peter B. Lord

Judge Silverstein approved Att. Gen. Sheldon Whitehouse's plan to divide his precedent-setting lawsuit against the nation's lead paint companies into a number of separate trials and to move ahead with an initial trial to establish whether lead paint has created a public nuisance in communities throughout the state. Whitehouse is quoted as thrilled. The paint companies also say the ruling benefits them because it will enable them to show that it is the landlords fault and not their product.

Mar. 1, 2002 Peter B. Lord Providence Journal *Lead paint lawsuit heading for trial*

Silverstein said Whitehouse's plan was overly ambitious in wanting to go to trial June 17, but that company lawyers objections had been decided a year ago. [Objections were: bringing in all the people actually affected as opposed to damages to the states' property and waterways; state should notify 330,000 estimated houses in Rhode Island that a nuisance case was being filed on their behalf]

Mar. 1, 2002 Rhode Island Law Tribune, Vincent Michael Valvo *Report Spin: PR Firm bares Lead Strategy*

PR will spin that the above ruling was merely procedural. The eye is on the investors and stock prices.

June 20, 2002 Providence Journal *Forum sparks Debate over lead-paint lawsuits*.

A conservative New York city think tank came to Providence to a forum on lawsuits. Judyth W. Pendell, director of the Center for Legal Policy at the Manhattan Institute: My understanding is the paint Industry stepped forward and voluntarily stopped marketing lead paint when it learned there were problems in the 1950s. ...

A policy aide for Providence mayor Vincent A. Cianci Jr. pointed out that more than a few respected researchers have documented that the paint industry knew it was a marketing a dangerous material for years... "Why wouldn't you want to hold accountable companies that sold products and said they were safe and durable, at a time when they knew what they would do, ?" asked Stephanie Pollack of the Conservation Law Foundation.

Bianca Gray of the mayor's office added: "We all know that in the U.S. and the world the knowledge of the problem was well known before the 1950s. Now the Industry is the only piece of the puzzle that hasn't been addressed. What is its culpability? I don't hear from you honestly saying what part of the puzzle Industry is going to play?"

Pendell said her organization is opposed to suits against the big corporations, theorizing that like the tobacco suits, much of the proceeds would go to lawyers and little would go to solving the problem. The people running the paint companies weren't there when lead paint was made and marketed, she said. And if lawsuits are successful, innocent workers, and shareholders would bear the burnt of the costs.

Randall Lutter, a resident scholar for the AEI/Brookings Joint Center for Regulatory Studies, said the lead-poisoning epidemic is largely past. "This is one of the most dramatic [successful] public-health stories in the Unties States," Lutter said.

July 11, 2002 Peter B. Lord, Providence Journal, *Judge rejects efforts to delay lead-paint trial.*

The nation's paint companies yesterday unleashed a flurry of legal arguments and suggested that state workers were illegally shredding documents, as they tied to sidetrack the state's unprecedented lawsuit over damages caused by lead paint.

But by day's end, Superior Court Judge Michael A. Silverstein had swept aside most of the corporate objects and announced the trial would go on as schedule, starting Sept. 4. The decision was a big loss for the paint companies. They wanted to delay the trial's start by at least three or four months. Company lawyers argued that after assembling 2 million documents from state records and deposing 130 witnessed, they needed more time to study all the evidence they had gathered. State lawyers said only confidential patient information had been shredded. Atty. Gen. Sheldon Whitehouse late called the shredding allegation " a bit of a stunt".

Silverstein agreed to let the paint companies depose Whitehouse who objected as being a plaintiff in the case, but paint companies argue that he is giving interviews to the media on the lead issue. Normally the attorney general would be protected, he said. But Silverstein said Whitehouse's actions have taken him beyond the "role of a constitutional officer with respect to this case', so he will allow a limited deposition of the attorney general.

August 8, 2002 *City urged to sue in lead paint poisoning* Jim Ritter, Health report, Chicago Sun-times

"It's been 'any day now' for a long time," said Karen Schuessler of the Alliance to End Childhood Lead Poisoning. "A law suit is very much needed". The alliance said lawsuits have been filed by 24 cities, including Milwaukee, San Francisco, and St. Louis.

Aug. 8, 2002 *Real-estate trade groups seek end to paint lawsuit* Peter B. Lord, Providence Journal

Trade associations representing Rhode Island banks and Realtors are seeking to derail the state's massive lawsuit against the nation's paint companies because the groups say the case could "prove disastrous for owners of property, lenders and mortgage bankers". They have asked Silverstein to change the structure of the state's lawsuit. Realtors and bankers argued in a brief filed that the "bifurcated manner in which the Court proposed to try this case and the consequences which may flow from that approach, present issues of grave concern to RIBA's and RIAR's constituencies." The groups asserted that if the court finds that homes painted with lead paint constitute a nuisance and liability is not attributed to any specific party, "investments in and sales of such properties would undoubtedly slow to a trickle until the open-ended question of liability was sorted out."

August 29, 2002 *Jury set for lead paint lawsuit*, Peter B. Lord

The panel includes a warehouse supervisor form North Smithfield, a customer service representative from Cranston, a retired warehouse worker from Pawtucket, an accountant from North Providence, a dietary aide from Johnston and a retired Air force major from Bristol There are four women and two men.

Hundreds of potential jurors were disqualified because of answers to a questionnaire seeking their opinions about hazardous materials, frivolous lawsuits, personal responsibility, and lead poisoning

Sept. 1, 002 Peter Lord, Providence Journal *Lead Paint trial will command national attention*.

The two sides have assembled enough lawyers to fill a city bus. Many are nationally recognized litigators. [60 witnesses: dozens of doctors and scientists and most of the nation's top research of of lead poisoning. 2 millions pages of documents and 130 potential witnesses deposed.] Each side has selected three lawyers to argue its case. The state's primary lawyer is Leonard DeCof, 78, the dean of the state's personal injury lawyers, recognized nationally for his litigation skills, a graduate of Yale with a law degree form Harvard, DeCof was retained a decade ago by Whitehouse's mentor, Gov. Bruce Sundlun to recover millions of dollars and damages from accounting firms, insurance companies and credit union officials after the collapse of the state's credit unions. Linn F. Freedman, 41, deputy chief of the attorney

general's civil division, has argued most of the pretrial motions for the state. Originally from New Orleans, she earned her law degree from Loyola. New to the table is Jack McConnell, 44, a partner in Ness Motley's Rhode Island office and state Democratic Party treasurer. A graduate of Brown University and Case Western Reserve University school of Law, McConnell was one of the lawyers for Ness Motley who negotiated the $240-billion tobacco settlement.

John Tarantino, 48, a graduate of Dartmouth College and Boston University Law School, is president of the Providence law firm of Adler Pollock and Sheehan, Donald E. Scott, is a graduate of Harvard College and Yale Law School, and a partner at Bartlit Beckin Denver, Colo. He successfully defended Dutch Boy paint company two years ago from a suit by high-profile litigator Peter Angelos on behalf of a 49 year old man who said he was poisoned as a toddler. Laura E. Ellsworth, a graduate of Princeton and the University of Pittsburgh law school, is a partner in Jones Day, one of the world's largest law firms, which touts itself as representing half the Fortune 500 companies.

During an interview in his firm's conference room "My grandparents came here with nothing. Zero," Tarantino said. "They ran competing fruit stands. My parents weren't supposed to event talk to each other." Tarantino said his family moved three times on the same street -- each move brought them to a lower floor of a tenement. His parents never got to go to college. But he and his four siblings all completed graduate schools. His point is that lead paint covers thousands of houses in Rhode Island and doesn't cause any problems if it's properly maintained

Sept. 4, 2002 *R.I.'s lead paint suit goes to trial*. Associated Press.

Opening statements: DeCof, "This case is about the right of the public to be free from harm." Tarantino: "We say the problem is isolated. And it's principally in poorly maintained properties."

Sept. 5, 2002 Peter B. Lord, *State opens case in lead-paint trial*.

[The State said that since 1993 35,000 children lead poisoned.]

Dr. Phillip J. Landrigan, the state's first witness and a nationally recognized expert on lead poisoning, testified that 900,000 children a year are poisoned across the country and he has determined they suffer brain damage that causes annual losses in productivity of $43.3 billion nationally and $135 million in Rhode Island. "Basically what we have in the U.S. is an epidemic of lead-poisoned children," Landrigan said.

[Paint company: problem is a minority of landlords and homeowners. State officials estimate 331,000 houses had some lead paint and 28,396 of those houses result in children lead poisoning. (11 Out of 12 houses not harming children).] Scott said, "this is where the two sides part company. The attorney general says the presence of lead is a public nuisance wherever it is found. But they are condemning 11 homes along with each one" that has actually poisoned a child.

[Lawyers objected to each other's opening arguments saying they hadn't seen slides.] The judge said sternly, "In the years I have been on the bench, I have never had the disruption to opening statements that has occurred in the course of this morning."

Landrigan, that state's first witness agreed the number of poisoning is declining, but he disagreed with the concept of "intact lead paint." Pointing to the courtroomwalls, he said, "This paint is beautiful today, but who knows what it will be like in a week." The ultimate way to protect a child is to get rid of lead paint. "There is no other way."

Sept. 6, 2002 Peter B. Lord, *Doctor: Even low lead levels a danger*.

A Boston pediatrician who has treated an estimated 5,000 children for lead poisoning testified yesterday that he knows of no levels of lead that would be safe for children to absorb.

[Landrigan said under cross examination that he did not know of cases of lead poisoning where the paint was intact.]

Sept. 6, 2002 Chicago Tribune *City Sues for lead paint costs* by Sabrina L. Miller.

Chicago taxpayers have borne the costs of treating lead poisoning in children for too long, said Corporation Counsel Maria Georges at a news conference at the Uptown Health center. The Industry should be forced to contribute its fair share.

More than 12,000 children tested positive for lead poisoning in Chicago last year. Black and Hispanic children are disproportionately affected in Chicago.

"We cannot hope to keep housing in Chicago affordable to low-income residents if landlords, property owners and tenants are required to bear the entire cost of abatement," Georges said.

Sept. 8, 2002, Peter B. Lord *Following suit, Chicago fighting lead-paint firms*. Providence Journal

Chicago announced it is suing 12 chemical companies for hundreds of millions of dollars in damages. The city is using a legal argument identical to the one cited by Att. Gen. Whitehouse.

[Alleges the companies created a public nuisance by making and selling the lead paints.]

One financial analysis, Timothy Gerdeman of Lehman Brothers, immediately distributed a warning that the suit and others like it could affect the defendants' stock values. "As we have suggested myriad times since first publishing a detailed report on lead-paint litigation trends in Jan. 2001, lead-paint litigation is gaining significant momentum with numerous additional cases likely to be filed in the coming months," wrote Gerdeman. "We worry that this momentum will inevitably adversely impact the valuations of select defendants' stocks."

The city negotiated with the companies for the last year and a half over a settlement that would have avoided the need for litigation, according to Jennifer Hoyle, spokeswoman for the city's Department of Law.

It finally become clear the companies were not offering anything that would specifically help Chicago." Hoyle said. "we learned Rhode Island was going to trial, so we picked that time to file our suit."

Bonnie Campbell, a former attorney general for the state of Iowa who now advises paint companies said, "I'm a good liberal. I wouldn't have taken on these clients without checking that they did act in an impressive way. These companies have always acted appropriately with respect to this issue. When they made lead paint, it was not only legal, it was preferred. It was the companies that did the research and spread the word that it could create problems. They did it right, and now rather than encouraging good behavior, they are bing sued and punished for it.

Sept. 11, 2002 *Expert Testifies all lead paint poses a hazard*. Peter B. Lord Providence Journal

Dr. Bruce P. Lanphear, an epidemiologist at Children's Hospital Medical center in Cincinnati, cited a national housing survey that found that 33 percent of the houses where paint appeared to be in good condition nevertheless had one or more lead hazards.

Defense lawyer Donald E. Scott presented government studies showing that average childhood lead levels in blood have declined dramatically since the government banned the use of lead in gasoline. In 1980, the average lead level in 5 year Olds was 15 ug/dL. In 1999 the average declined to 2 ug/dL.

Scott used copies of federal reports an regulations to argue that intact lead paint can be safe, but Lanphear repeatedly disagreed. The doctor said dust levels set by the U. S. centers for Disease Control are higher than what he believed was sufficient to protect children. When Scott read an EPA document that said "The agency does not believe that intact paint can generate significant amounts of lead containing dust," Lanphear's response was brief, "I don't agree". And when Scott argued that you should be able to see lead paint dust on floors and around window, Lanphear disagreed again. "No," he said, "There are many times you could pick up high levels of lead and not see it."

Sept. 12, 2002 *Expert says paints concentrated with high levels of lead* Peter B. Lord

"Lead paint is such a concentrated source of lead that it takes very little to poison " Dr. James D. Sargent, pediatrician at Dartmouth Medical School.

In this 5th day, as in every other day of the trial, there were long breaks to hear objections raised by the paint company lawyers. [Individual stories are objected to.]

When Deputy Atty Gen. Linn Freedman asked how lead poisoning affects families of Sargent's patients, defense lawyer John Tarantino objected. Letting Sargent describe family reactions was just another way of entering summaries of evidence (family stories) that wouldn't be allowed individually. Freedman argued that one of the key issues of the state's case is showing the harm lead causes to families in Rhode Island. "The defendants are trying to preclude the truth from getting to the jury," she said. "To divorce these families form this case is prejudicial to the state. The doctor sees sadness, fear, guilt and a multitude of families whose children need special education." Silverstein asked if there were any studies of the effects on families. Freedman said she wasn't aware of any. Silverstein ruled that Sargent could not testify about family reactions. Tarantino used similar objections to bar Elizabeth Colon from testifying. Colon said she worked with hundreds of families of lead-poisoned children and had seen a lot of crying, many families separated to get their children away from lead, and some families left homeless. But the jury didn't hear her testimony.

When Tarantino asked how poisoning rates could be declining when Rhode Islanders are living in the same housing that caused more poisonings year ago, Sargent said maybe its because people removed

the lead paints.

Sept. 20, 2002 Peter B. Lord

When defense attorney Donald E. Scott asked lead poisoning expert Kim Dietrich (Univ. Cincinnati College of Medicine) if he was familiar with the U. S. Environmental Protection agency's safety standards for household lead paint, he probably as expecting a yes or no answer. Instead he got upbraided about alleged deficiencies at the agency charged with protecting the nation's environment. "I study health hazards," Dietrich said. " I don't concentrate on EPA's rapidly evolving and often contradictory regulations on lead" "You don't agree with the EPA" Scott asked. "I frequently disagree with the EPA when it comes to environmental health issues, particularly for children," Dietrich said.

Scott tried to test Dietrich on attention problems, clumsiness, etc. but Dietrich didn't back down. At times he accused Scott of using his earlier remarks in a deposition out of context. "Would you agree its very rare to find a home that has lead-based paint as the outside layer?" Scott asked at one point. "I would not agree with that," Dietrich replied. Scott pulled out the deposition, and showed the court that Dietrich told lawyers just last summer that he "probably would agree" with the assertion. Dietrich thought a bit and pointed out he was deposed for many hours. Then he suggested in the deposition he might have been referring to the total housing stock of the United states. "But you go into any Northeastern or Midwestern city and you'll find no lack of lead paint on the exteriors, " he said. Scott asked Dietrich if he accepted the concept of latex paint sealing lead paint and preventing hazards. "If you consider latex a permanent, impermeable layer, I could agree," Dietrich said. "But I don't know of that ever being the case." When Scott pulled another quote from the deposition in which Dietrich advises people they can stay in houses where lead paint is well maintained, Dietrich said that the statement was taken out of context. "I am a pragmatic man. Most of the families I deal with are of limited means," Dietrich said. He said that they can't afford to replace windows, doors and woodwork treated with lead paint so he advises them to do the cleaning and maintenance that lessens the dangers the paints will poison children. Most of his colleagues, on the other hand, are doctors and scientists with good incomes. He tells them to get the lead out of their houses. Dietrich testified his only compensation for testifying was having his travel expenses paid.

Sept. 25, 2002 *Health Chief stunned by lead issue.* Peter B. Lord.

State Health Director Patricia A. Nolan testified yesterday that she was stunned when she came to work in Rhode Island in 1995 and learned that 20% of the state's children had elevated levels of lead in their blood. She previously held public health posts in Colorado and Arizona and she said lead-poisoning rates in those states were only bout 3 percent or 4 percent.

She acknowledge under cross examination that the law does not require removal and that the law says lead poisoning is completely preventable if a home is made lead safe through cleaning, painting and other housekeeping efforts.

Sept. 26, 2002 *Critical ruling expected today in lead trial.* Peter B. Lord

The trial of the nation's's paint companies erupted yesterday afternoon when the state sought to introduce two surprise witnesses would rebut what it said was a misleading opening statement form the defense.

Paint company lawyers displayed a big color photo of the green-and-white Providence Victorian in their opening arguments. They said it was an example of many older houses in Rhode Island that were treated with lead paint but remain safe because of good maintenance.

State lawyers said they hired inspectors who went to the house and found levels of lead-paint dust far exceeding state safety standards. A child who lived at the house also had elevated lead levels, they said.

"The most critical moment of this case is right now,"state lawyer Leonard DeCof said as he launched into a two hour argument with defense lawyer John Tarantino over whether the inspectors should be allowed to testify.

However Superior court Judge Michael A. Silverstein ruled would be critical to the trial's outcome, both sides insisted, and would probably also serve as a basis for a legal appeal by the losing side.

Silverstein, noting the dispute is "very significant and serious," said he would rule this morning.

DeCof said the picture of the te house was the keystone of a "well-designed and clever defense" that repeatedly raised the maintenance issue so jurors would think that lead poisonings are solely the fault of property owners. "Their entire case is based on this," he said. "They have one argument if a property is well-

maintained, it's not nuisance. But that's a great oversimplification. And this [the photo] is an absolute distortion of the record." He said defense lawyer Donald Scott displayed the photo of the Providence house and said it represented many houses in Rhode island.

"They're not peeling. They're not flaking. They are not creating any lead dust. And they are safe," Scott said, according to a transcript of his opening statement read by DeCof. DeCof also said his inspectors checked out a house that the defense used as an example of poor maintenance They found it was empty, posing ta threat to no one.

"This situation was created by the defendants,' DeCof said. "A false impression has been given to the jury. We want the right to set the record straight and give the jury true facts. The defendants are asking us to compound a misrepresentation, to cover up a wrong." Tarantino said the defense had no idea the house had lead problems. Its location wasn't specified in the trial and its photograph was simply used for illustrative purposes and was not entered as evidence. He said the judge ordered both sides to avoid specific cases and victims when presenting their cases about whether lead is a public nuisance.

Tarantino said the judge had warned the jury that opening statements were not evidence. He said DeCof was trying to enter rebuttal evidence to "non-evidence."

But DeCof, citing his own textbook, Opening Statements, said lawyers don't have the right to say something that's untrue in their opening statements. And when they do, the other side can offer rebuttal.

"If an attorney can make a statement that is central to the case, pivotal to the case, encapsulates his entire defense - and it's demonstrably false, where do you draw the line?" DeCof asked.

Sept. 27, 2002 *Lead Paint Ruling Goes to Companies* Peter B. Lord.

Silverstein said that before the trial began he ruled that no evidence about specific houses or children would be admitted. He said he feared if he let the state introduced two witnesses to describe the lead hazards in a house the paint companies depicted as being safe, it would open a Pandora's box of problems.

Silverstein said he made it clear to the jury at the trial's onset - and he'll say again at its conclusion - that the opening statements are not evidence and the jury should only weigh evidence when it discusses a verdict.

Yesterday afternoon, the state called to the stand Dr. Herbert Needleman, a pioneer in research of the health effects of lead. He said he got interested in lead poisoning in the 1950s when he was treating a little girl was extremely ill with lead poisoning. He said he realized that no matter what he did for her, she would just return to the home that poisoned her, or another home with the same problems. No one tested children for lead back then, he said, so no one knew how many kids were lead-poisoned. In 1960 Needleman said he completed his first study that showed that as lead levels went up, children's IQs went down. In Philadelphia, he said, most of the victims were African-Americans. He said he also discovered one neighborhood where most of the victims were Irish and Italian. He found that they were across the street from a plant run by NL Industries.

Oct. 1, 2002 *Judge bars lead-paint studies from trial* Peter B. Lord.

The state won a victory in its lead-paint trial yesterday when Superior Court Judge Michael A. Silverstein ruled that the paint companies could not introduced as evidence three studies by Brown University students that highlight the role of bad landlords and poor maintenance in causing the lead poisoning of Rhode Island children. Silverstein said the state Department of Health hadn't done much with the studies so he precluded them from the trial. Three student theses under Prof. Harold Ward, head of Brown's environmental studies program did computer assisted research to find that just 204 landlords own housing units where 2,644 Providence children were poisoned in the last nine years. Linn Freedman, one of the state's attorneys, "These are students working under Harold Ward. They can't rise to the scientific knowledge we have seen from other experts." John Tarantino, attorney for the paint companies, argue that a Health Department grant application referred to two of the studies, a sign of their legitimacy. But Silverstein pointed out the studies weren't completed until sometime after the application was written.

Oct. 3, 2002 *Standard of proof in lead case to stay*. Peter B. Lord

Silverstein rejected paint companies bid to raise the bar of proof from preponderance of evidence to clear and convincing. A preponderance of evidence is a legal term used in civil cases that directs a jury to rule for which ever side has the stronger evidence.

Clear and convincing is greater than civil cases but less than reasonable doubt, criminal trials.

After reviewing arguments from both sides, Silverstein said it is clear that the state of New York goes to the higher standard, and New Hampshire does just the opposite. But the Rhode Island cases cited by the defendants as precedents didn't really fit it this case, Silverstein said. All applied to someone trying to stop someone else from doing something in the future, such as building an oil refinery in Jamestown or establish a coal mine next to a food processing plant. "Here, there is no present conduct or contemplated conduct. Whatever it is they are alleged to have done took place years ago. Essentially, all the court will be asked for is to require them to undo something the plaintiff will have proven they did. The court finds nothing in Rhode Island law that directly responds to the issue before it." Silverstein said his ruling would be novel, but he believe the better rule and the one the state Supreme court would endorse would be to require a preponderance of the evidence.

Oct. 4, 2002, *Companies: Lead Paint can be safe* Peter B. Lord

Lead companies showed the same Victorian as in opening statements. Tarantino brought up the house again. Tarantino said many of the state's witnesses looked at a photograph of the Victorian house and said they couldn't tell if it was a hazard. They would have to run tests. That shows lead-painted houses are not the ticking time bombs that the state alleges, Tarantino said. But DeCof pointed out that the house was in fact, filled with lead hazards.

Tarantino [said] state law and regulations don't mention getting rid of lead paint. They focus on how to make a lead painted house safe through maintenance and cleaning. "The law allows the presence of lead paint, and the plaintiffs say, I don't care. That's a head to head, point to point, smack dab conflict with the statue.

Tarantino called for any evidence related to health effects below 2 ug/dL to be thrown out because evidence at those low levels is not clear. DeCof responded that the trial is about whether lead paint creates a public nuisance. How that nuisance is to be remedied would be dealt with in a later trial. So it's wrong to focus on witnesses who said that they want to get rid of lead, he said. As for any confusion about low blood levels, DeCof said that both the U.S. centers for disease control and that state health department said 10 dL and above is poisoned.

Oct. 8, 2002 Pete B. Lord *Witness testifies lead hazards rarely found*.

An expert on lead paint inspections testified yesterday that in surveying thousands of houses across the country that had been treated with lead paint only bout 5% actually posed hazards, Patrick Connor, president of Connor Environmental Services said "It's typically under four layers of non-lead based paint."

Oct. 10, 2002 Peter B. Lord *Expert: Lead Paint durable*.

A Brown University chemistry professor testified here today that if lead point is covered with just one coat of non-lead paint, the lead could remain intact on a house for centuries. Prof. Joseph Stain, who has been teaching and doing research at Brown since 1966, told the jury lead paint doesn't dry in the sense that some component of the paint evaporates. When lead paint sets, a chemical reaction actually takes place than can continue for decades and make the paint surface increasingly stable. Stein said he spent years doing research in oils and fats but now concentrates on teaching chemistry to freshmen and and sophomores. Yesterday, it seemed he had turned Courtroom 11 into a freshman chemistry class. Using a large tablet and a felt-tipped pen, Stein lectured on what lead paint is, what makes it durable and what caused it to deteriorate. Lawyers crowded alongside the jury box and watched him sketch interlocking molecules that looked like strings of spaghetti. Stein spoke of concepts such as how van der Waals' forces cause lead to adhere to walls, polymerization accounts for its stability and hydrolysis is one of lead paint's downfalls. Stein said lead-based paints were usually made with linseed oil that contained particles of white lead and other pigments. Linseed oil comes from flax seeds, he said, and is similar to other vegetable oils. A big difference he said, is that when it is exposed to air it polymerizes: a chemical reaction takes place among the oil molecules and they harden into an almost natural plastic. The molecules look like spaghetti strands and like spaghetti when it's just cooked, they are usually flexible and slide past each other, Stein said. But when the chemical reaction takes place, the strands interlock and become solid, with the lead particles fixed among them. "It's like a concrete sidewalk. The pebbles would be the pigment particles." Stein said. He said the initial chemical reaction can take days or a week. But the oil keeps forming cross links for a much as two decades. Defense lawyer Donald Scott asked how the paint adhered to smooth surfaces Most surfaces aren't as

smooth as they look, Stein said. The paint interlocks mechanically to the surface like pieces of a puzzle. There also are electrical attractions called van der Waals' forces, he said. They explain how paint adheres to glass. Ultraviolet light, the component of sunlight that causes sunburns, can cause lead to break down and become chalky by triggering what Stein called "a free radical reaction." But he said just one coat of non lead paint would prevent that oxidation process from occurring. Water leaks also could trigger a breakdown known as hydrolysis, Stein said. But if the lead paint were covered with one coat of non-lead paint and protected from water, the causes of damage would be minimized and the paint would have enormous stability. "Left to its own devices, we're talking centuries," Stein said.

Oct. 11, 2002 *Paint Companies to present last witness*. Peter B. Lord.

[In a surprise move the defense will close with just three witnesses. The defense] had originally presented tentative list of 38 and planned for 8 to 10 weeks of testimony.

The third witness, Gordon Rausser, professor and former dean of the College of Natural Resources at the University of California Berkeley will testify that Rhode Island legislation focuses on making housing lead-safe rather than lead free. He is also expected to testify about how a finding of public nuisance statewide could affect property values.

The paint companies yesterday tried to introduce a series of letters written by three lawyers fromthe firm of Ness Motley that supported legislation proposed by state Sen. Thomas Izzo to update and toughen state law regulating houses treated with lead paint. The letters were written by Bob and Jack McConnell and Vincent Greene on behalf of the families of lead-poisoned. children. They supported parts of the legislation that got tougher with landlords who let their properties deteriorate. Gerald J. Petros, a lawyer for the paint companies, said that the letters directly contradict the state's case and were never denied or retracted by Whitehouse. Petros said lawyers should not take on new clients whose interests are in conflict with those of clients they already represent. "This is a fundamental policy issue made by the legislature. It reaffirmed its earlier position to adopt lead-safe as policy -- not lead free." said Petros. "It is inappropriate for the state to try to change that standard through a verdict by six jurors."

Oct. 16, 2002 *Paint companies seek dismissal of lead suit,* Peter B. Lord.

"In all honesty, I have zero confidence there are 35,000 lead-poisoned children," attorney John Tarantino said to Judge Michael A. Silverstein. Tarantino's gambit was another surprising turn in the trial that has seen both sides go to unusual lengths to question the other side's evidence. Tarantino said the paint companies learned only recently that some of the children cited as lead-poisoned by state witnesses were tested with a finger stick method, rather than with blood drawn from their veins. State law only recognizes the venous testing State lawyer Fidelma Fitzpatrick said Tarantino's arguments were just another attempt to"defuse this case" by citing laws and regulations that don't address the state's contention that all lead paint constitutes a public nuisance in Rhode Island. But Judge Michael A. Silverstein said Tarantino's arguments over the methods used for testing children were "far more significant" than arguments he raised during a previous effort to have the case dismissed.

The state continues to question Prof. Gordon Rausser's qualifications and relevance.

Oct. 17, 2002 *Wrap up of lead trial pushed back a day*. Peter B. Lord.

Paint companies had hoped to have Rausser on the stand, but state lawyers asked for an opportunity to depose him one more time. The judge also approved a request by the paint companies to depose Patrick MacRoy, an employee of the state Health Department who manages data on lead-poisoning cases in Rhode Island. Paint company lawyers announced Tuesday that they have reason to question state reports that more than 35,000 children have been lead-poisoned in Rhode Island in the last nine years because they learned that some of the reported poisonings were based on an unreliable testing method. The paint companies want to find out how many of the children were tested with the so-called finger stick method, which produces unreliable results.

Oct. 18, 2002 *State: Paint Witness not an expert* Peter B. Lord

The companies lost a big ruling by Judge Michael A. Silverstein. Silverstein denied that motion to make the state do a computer data analysis to determine how many children were tested improperly, sharply weakening the companies effort to discredit the poisoning data.

Rausser, an economist from the University of

California said that the state was wrong to argue that all lead -based paints pose a risk to public health and he said the position contradicts state law and policies at several state and federal public health agencies. "If you define the problem too broadly, you create mischief. If you define it too broadly, you defy state law."

State lawyer Linn F. Freedman put Rausser through a blistering cross examination. She disclosed that he had never conducted any research in lead paints or lead poisoning. At the same time the state witnesses he was contradicting had all been presidential advisers with long lists of published scientific research. Pointing to Rausser's resume, Freedman said, Your CV is 55 pages long and the word 'lead' doesn't appear here. You're lead-free" Silverstein said that it now looks as if final arguments to the six-person jury will be made on Tuesday.

Oct. 22, 2002 *Lead trial closing arguments tomorrow.* Peter B. Lord

[Trial ends after exactly seven weeks.]

The judge also brought up an important question that has simmered for months -- if the state wins its nuisance case, must the same jury be impaneled when the case precedes to later phases establishing liability and remedies? Silverstein ordered both sides to be prepared to argue that issue immediately after the jury leaves for its deliberations.

The defendants have argued that it's their constitutional right to have the same jury during each phase of the case, Silverstein said. Silverstein pointed out that the current trial started with six jurors and six alternates and during the last seven weeks three people have asked to be excused for reason or another.

What's more, he said, neither side has done much discovery to prepare for the next phase, a trial to determine liability. Silverstein has said in the past that such discovery could take a year or more.

It's important to decide whether the jury will be used for later phases, because if it is, Silverstein said he would instruct the jurors not to talk to lawyers for either side after the current case ends.

During the cross-examination, state lawyer Linn Freedman got Rausser to agree that the state has been cleaning up lead-hazard houses at a rate of about 250 a year. At that rate, he agreed that it would take 120 years to clean up the 30,000 housing units considered "high risk" and in urgent need of abatement.

"Doesn't urgent mean less than a century, professor?" Freedman asked.

Rausser argued that new legislation enacted earlier this year should speed the rate of cleanups and abatements.

Rausser also agreed under questioning from Freedman that he has given more than 100 depositions for other lawsuits and has testified on behalf of several of the corporations that are defendants in the Rhode Island case and several of the law firms now representing those corporations.

Rausser also acknowledged that he charges $550 a hour for his services and his consulting firm charged the paint companies nearly $600,000 since late May.

Under questioning from Tarantino, Rausser said the fees covered work that wasn't presented at trial. Rausser testified for less than a day and a half.

Oct. 26, 2002 *Jury in lead-paint lawsuit asks judge for clarifications* Peter B. Lord.

The jury asked if it could have a copy of a book co-written by Dr. Philip Landrigan, a pediatrician who testified for the state that all lead paint poses health risks--even when it has been covered by non-lead paint.

The defense sought to impeach Landrigan's testimony by presenting excerpts from a book he had co-written that attempts to show parents how they can protect their children from lead paint by following good maintenance and cleaning practices.

But the jury won't see the book again. Judge Michael A. Silverstein said the book was never entered as evidence, so the jury can't have it now.

The jury's second question triggered some debate. The jury is charged with determining whether the presence of lead paint poses a public nuisance.

The jury asked: "Does the presence of lead pain mean: totally intact, totally flaking, peeling, chipping, etc. -- and/or a combination of both."

Silverstein said he planned to respond by saying: "All lead paint, regardless of condition, whether totally intact or totally peeling and chipping."

But the state objected. Attorney Fidelma Fitzpatrick said, "The question here isn't that all lead is a public nuisance. It's not a case you can defend by saying that some walls aren't a nuisance, so there is no nuisance. You have to look at the totality of the circumstance."

John Tarantino, a lawyer defending the paint companies, said Silverstein's proposed answer was appropriate. "They said this isn't just about deteriorated paint. It's all lead paint. Their experts made no distinction between intact or deteriorated

paint. They chose this theory."

Silverstein studied some case law presented by the state, and then amended his response. He said the jury should consider a combination of both intact and deteriorate paint in reaching its verdict.

Oct. 30, 2002 *Trail blazing lead paint trial ends in deadlock* Peter B. Lord

[Deadlocked since Thursday.]

Four jurors sided with the paint companies and two voted for the state. A verdict must be unanimous.

Silverstein asked the jury foreman whether he thought it would be useful to return to the courthouse today for one more attempt at deliberations. The foreman replied: "I don't think so your honor."

About one minute after the mistrial became public, the stock prices of several defendants began shooting up as investors pumped hundreds of millions of dollars into company shares. The Sherwin-Williams Co. alone increased in value by nearly half a billion dollars.

Paint company lawyer John Tarantino said the state's failure to convince the jury that lead-based paint is a public nuisance shows that litigation is not the answer. The state passed a new lead-enforcement law this year, he said, and it should give the law a chance to help kids.

"I hope the state will take something home this," Tarantino said. "The jury has made it clear this is not an argument you can get unanimity on."

But Atty. Gen. Sheldon Whitehouse, who filed the state's suit, said today's decision is more of a delay than a set back. He said he will call for the judge to find for the state as a matter of law. If that fails, he said he will try to start a new trial as soon as possible."

"The only concern with this delay is that more kids get poisoned and the defendants are intransigent about doing one darn thing other than be litigious," Whitehouse said.

Jury foreman George L. Mansi, of Bristol, a retired Air Force major, said he thought the state proved its case. " I thought we had an obligation to protect the kids who can't help themselves," Mansi said. He said the jury took a straw poll last Thursday and came out 4-2 against finding a public nuisance. One person on each side switched positions during four days of deliberations he said, but the outcome remained the same.

The biggest issue for those opposed to the nuisance finding, Mansi said, was that the state conceded it couldn't prove that any children were poisoned in hospitals, schools or other public buildings --- locations that were part of the state's argument. The other five jurors declined to talk to reporters.

State lawyer Leonard DeCof said the defendants got away with a trick question when they inquired about poisonings at hospitals, schools and other public buildings. Most young children in Rhode Island are routinely screened for lead. When elevated levels are found, the state goes to their homes -- it has rarely checked hospitals, schools chools or other public buildings.

After calling the mistrial, Silverstein invited lawyers from both sides to meet with the jury. He told the jurors they could answer lawyers' questions if they liked, but they didn't have to. " It would be helpful when the case is retried, as it almost certainly will be," Silverstein said.

DeCof said after the briefing he didn't want to reveal any of his strategies to the other side, but he was anxious to start another trial. "It's an education process," he said. "We're going to be trying this case again and we'd like to know how this case was perceived." "I'm a nonbeliever in spin and trying my case in the media," DeCof added. "Any language crowing about we got them or we stopped them, that's just gingerbread. We brought a theory on one has ever advanced, and we're going forward with it."

However the case proceeds will likely be determined not by Whitehouse, but by whoever succeeds him as attorney general. Democrat Patrick C. Lynch issued a statement saying he was disappointed by news of the hung jury and he vowed to continue the "valiant work begun by Whitehouse to protect the most vulnerable members of our society."

Republican J. William W. Harsch was more cautious. Lead poisoning is a big issue to him, he said, but the nuisance suit is not the only way to pursue the issue. He's also worried that if this case can't be won as a public nuisance, that might weaken the state's's ability to bring similar cases where other environmental problems threaten public health and safety. Tarantino said he hope the candidates would let the New state law focus on high-risk properties. "We've said all along the problem is not with the majority of the properties," he said.

Oct. 30, 2002 David McPherson Journal Staff Writer *Paint stocks soar after mistrial announced*

Sherwin Williams shares gain nearly 14 percent in 20 minutes after the deadlock is declared. The stock price was $25.04 at 2:50 p.m., $28.01 at 3:10 p.m., a peak

at $28.55, and a close at $27.68. The close was up 12.7 percent representing $470 million dollar gain.

November 6, 2002 Providence Journal Editorial *Seeking Gold in Lead*

This has not been a great year for Rhode Island Atty. Gen. Sheldon Whitehouse. In September, he narrowly lost the Democratic gubernatorial nomination. And last week, there was a mistrial in Rhode Island's misbegotten lead-paint lawsuit.

Since it was first announced, in 1999, we have looked with dismay upon Mr. Whitehouse's suit, hatched in conjunction with an immensely rich South Carolina trial lawyer named Ron Motley, to seize hundreds of millions of dollars from paint makers. Copycat suits were filed in New York City, San Francisco, Chicago, Milwaukee, New Jersey and several school districts and housing authorities, based on anticipation of the big payoff. But now a Rhode Island jury has split 4 to 2 for the paint companies, resulting in a mistrial. Mr. Whitehouse, whose gubernatorial campaign made much of his lead-paint battle, leaves office in January. The future of these heavily politicized (and astonishingly greedy) lawsuits is up in the air.

Oct. 31, 2002 Wall Street Journal *The Hand of Providence* (Editorial)

Most Americans would be mortified to have their homes declared a public nuisance. But that's just one difference between most Americans and trial lawyers.

The good news this week is that a Providence, Rhode Island, jury rejected an effort by the firm of Ron Motley to endorse the novel legal idea that the mere presence of lead paint in a house constitutes a public nuisance. After four days of deliberation, the jury split 4-2 for the paint companies, resulting in a mistrial. The bad news is that the lawyers and their attorney general allies are sure to be back.

You remember Mr. Motley. His law firm walked away with what will eventually be upward of $3 billion from the tobacco wars. In Providence he tried to reprise that act over paint. "If I don't bring the entire lead paint Industry to its knees within three years," Mr. Motley vowed to the Dallas Morning News back in 1999, "I will give them my boat." That "boat" is of course a yacht.

Ostensibly this suit was about - of course - the children. "We are doing it for the health of Rhode Island's children," proclaimed state Attorney General Sheldon Whitehouse when he announced his landmark suit against eight paint manufacturers and an Industry trade association in 1999. No doubt it was also "the children" who motivated him to have this trial go ahead head this year, when he happened to be seeking the Democratic gubernatorial nomination.

Mr. Whitehouse lost that race in September, but the Frankenstein he and Mr. Motley created in their litigation lab took on a life of its own. Under traditional consumer liability laws, plaintiffs would have to prove that a specific in some specific house caused some damage.

So Mr. Whitehouse and his hired guns went the other route: If the mere presence of lead paint is enough to get a building declared a public nuisance, the problem -- and the payoff -grow exponentially.

But what made this suit really ugly is that by any measure the paint industry has been a model corporate citizen. Not only was lead paint perfectly legal for decades, early on it was even touted as a health benefit, primarily because it was both durable and washable. When the industry found that lead in residential paint posed dangers to children, manufacturers in 1955 voluntarily agreed to a standard aimed at removing lead from interior paint. Uncle Sam didn't get around to its first regulation on lead paint until 1970, and not until 1978 was it banned.

Now, there's no denying that children can and do get lead poisoning from lead paint. But after that there's more politics than science. The risk comes mostly from paint dust that gets on a child's hands and ultimately into his mouth. Which helps explain why children with unacceptable high levels of lead in their blood disproportionally come from poor families far more likely to be living in homes where the old paint is deteriorating.

How to protect against this? A Brown University chemistry professor testified that, in ordinary circumstances, even a single overcoat of non-lead paint would be enough to prevent harm. "Left to its own devices, " he told the court, " we're talking centuries." Worth noting here is that even in Rhode Island, overall lead levels in children continue to decline.

The point is that protecting children against lead paint is far easier than projecting companies against frivolous lawsuits. It hardly seems to matter that not one of the the nearly four dozen cases already brought again the paint industry has succeeded. As the lawyers understand all too well, all they need for the big score is one little jury. The urgent question is when

the political system is going to respond and stop this now-legal looting.

Nov. 4, 2002 Letter written to Wall Street Journal (But not published)

To the Editor:

The recent editorial on the lead dispute in Rhode Island (The Hand of Providence, Thursday, Oct.31, 2002) has many inaccuracies, not the least of which is a complete misrepresentation of the industry's history. As we document in our book, *Deceit and Denial: The Deadly Politics of Industrial Pollution* (University of California Press/Milband Fund 2002) the lead industry was hardly "a model corporate citizen," as you claim. In fact, childhood lead poisoning was documented in the United States as early as 1914 (and in Australia a decade earlier.) Lead poisoning was discussed in the lead industry's trade association meetings many times from 1930 on. Despite their acknowledgment that children were dying from lead poisoning due to the ingestion of lead paint, the industry continually represented this as a minor problem; they argued that their "general problem [was] how to establish a good name for lead," through advertising and challenging the opinions of clinicians who increasingly argued that lead poisoning was a serious issue. Your representation of the value of lead paint as "a health benefit" is also grossly misleading. It was the lead industry itself that made this claim through a massive advertising campaign aimed at off-setting the growing negative attention lead paint was receiving in the medical literature in the first half of the 20th century. Even after 1950 when lead paint was broadly understood as a poison to children the industry fought regulation and warnings on its products. In the minutes of the industry's meetings representatives of the industry argued that regulations were to be resisted, not encouraged. Despite decades of denial about lead's poisonous properties to children the federal government was finally forced to intervene in the 1970s to make sure that the lead industry did not use lead in paints produced for use on interior surfaces. A respected newspaper like the Wall Street Journal should not depend on industry's self-serving rewrite of history for its editorial judgements.

Sincerely

Gerald Markowitz and David Rosner

Gerald Markowitz (Professor of History, John Jay College and CUNY Graduate Center) and David Rosner (Professor of Sociomedical Sciences and History, Columbia University, Mailman School of Public Health.) The writers are authors of Deceit and Denial: The Deadly Politics of Industrial Pollution.

June 20, 2003.

A second attempt to sue the lead industry was allowed by a ruling of Superior court Judge Michael A. Silverstein June 19, with the trial to begin April 5, 2004.

Chapter 11: Questions

1. Explain why there was no significant white lead production in the United States prior to the War of 1812. Consider governmental regulations and geography in your answer.
2. List the most important early U.S. manufacturers of white lead (prior to the Civil War).
3. Why did white lead production end up localized west of the Allegheny Mountains?
4. When was the first protective U.S. tariff?
5. In tables 1, 2, and 3, why do lead imports drop so significantly after 1871. How did this phenomena impact structural changes in the white lead industry?
6. Apart from National Lead who were the main white lead producers in the United States at the turn of the century?
7. How did Eagle-Picher respond (in a business fashion) to the changes in the environmental landscape from 1900 to 2000?
8. Why did Carter Lead of Nebraska operate a white lead production plant in Chicago when they had to ship western ore to Chicago?
9. List and elaborate on the main consumption patterns for lead from 1886-1903 in the United States?
10. Who was the main architect behind the push to fully integrate (horizontally and vertically) the lead industry at the turn of the century in U.S.?
11. How did transportation franchises and civic corruption play out in the development of the "Lead Trust"\
12. How did the Guggenheim interests avoid the financial woes of the other lead miners in the 1890s.
13. What factors lead to the rescinding of the 1893 Sherman Silver Act and what consequences did this have on the domestic lead industry?
14. What company in 2000 is a "direct" descendent of the Electric Storage Battery Co.?
15. In one short paragraph trace the history of National Lead from 1920-1965.
16. What impact, if any, did the Progressive movement have on the lead industry?
17. Who was Alice Hamilton and what were her significant contributions to environmental history?
18. In 1970 President Nixon of the U.S. established the Environmental Protection Agency (EPA). What "era" was ushered in and how did National Lead respond to that changed legal climate?

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