

# Public Health Then and Now

## “Cater to the Children”: The Role of The Lead Industry in a Public Health Tragedy, 1900–1955

### ABSTRACT

A major source of childhood lead poisoning, still a serious problem in the United States, is paint. The dangers of lead were known even in the 19th century, and the particular dangers to children were documented in the English-language literature as early as 1904. During the first decades of the 20th century, many other countries banned or restricted the use of lead paint for interior painting. Despite this knowledge, the lead industry in the United States did nothing to discourage the use of lead paint on interior walls and woodwork. In fact, beginning in the 1920s, the Lead Industries Association and its members conducted an intensive campaign to promote the use of paint containing white lead, even targeting children in their advertising. It was not until the 1950s that the industry, under increasing pressure, adopted a voluntary standard limiting the amount of lead in interior paints. (*Am J Public Health*. 2000;90:36–46)

According to the Centers for Disease Control and Prevention, it is estimated that 1 of every 20 children in the United States suffers from subclinical lead poisoning,<sup>1</sup> and a recent article in *Science* argues that “paint appears to be the major source of childhood lead poisoning in the United States.”<sup>2</sup> Yet it is only during the past 15 years that the history of this tragic situation has been addressed in any detail,<sup>3–7</sup> primarily through the documentation of childhood lead poisoning in the public health and medical literature of the first half of the 20th century. Here we analyze the role and influence of the lead industry in shaping popular and professional opinion about lead and lead paint products. Specifically, we discuss how the Lead Industries Association (LIA, the trade group representing lead pigment manufacturers) and its member companies sought to assuage growing public and professional concerns about the dangers to children of lead-based paint. Often employing the image of children themselves, the LIA and its members engaged in aggressive marketing and advertising campaigns to persuade the public of their product’s appropriateness for indoor use.

While some readers of the *Journal* might put the onus on the public health community for not doing more to stop the use of lead-based paint in homes, schools, hospitals, and other interior spaces where children were exposed, we argue that primary responsibility lies elsewhere. The continuing use of lead paint into and after the 1950s cannot be understood without an appreciation of the enormous resources the lead industry devoted to allaying public health concerns from the 1920s through the early 1950s. Whatever responsibility the public health community had for this tragedy pales in comparison with the power and determination of the industry in perpetuating the use of lead-based paint. The lead industry, as a sponsor of research and as a clearinghouse of information about lead, was positioned to be in the forefront of efforts to prevent lead exposure in children. Instead, the industry placed its

own economic interests ahead of the welfare of the nation’s children.

### *Medical Knowledge of the Dangers of Lead-Based Paint*

Historians have shown that knowledge of the dangers of lead poisoning to workers and children can be traced back into the 19th century<sup>8,9</sup> and that in the first third of the 20th century a broad scientific literature on the subject accumulated in Australia, England, and the United States. Alice Hamilton and others documented lead hazards among American workers in the pigment manufacturing, battery, painting, plumbing, ceramics, pottery, and other industries.<sup>10,11</sup> In 1921 the president of the National Lead Company, Edward J. Cornish, wrote to David Edsall, the dean of Harvard Medical School, saying that lead manufacturers, as a result of “fifty to sixty years” experience, agreed that “lead is a poison when it enters the stomach of man—whether it comes directly from the ores and mines and smelting works” or from the ordinary forms of carbonate of lead, lead oxides, and sulfate and sulfide of lead.<sup>12</sup>

At the same time, others began to systematically document the dangers of lead to children. In 1904, J. Lockhart Gibson, an Australian, was among the first English-language authors to directly link lead-based

---

Gerald Markowitz is with the Department of History, John Jay College and Graduate Center, City University of New York, New York, NY. David Rosner is with the Program in the History of Public Health and Medicine, Joseph L. Mailman School of Public Health, Columbia University, New York, NY.

Requests for reprints should be sent to David Rosner, PhD, Program in the History of Public Health and Medicine, Joseph L. Mailman School of Public Health, Columbia University, 100 Haven Ave, Suite 17H, New York, NY 10032 (e-mail: dr289@columbia.edu)

paint to childhood lead poisoning, specifically noting the dangers to children from painted walls and verandas of houses.<sup>13</sup> A year later, he urged, “[T]he use of lead paint within the reach of children should be prohibited by law.”<sup>14</sup>(p753) In 1908 another Australian, Jefferis Turner, delivered a presidential address to the Section of Diseases of Children of the Australasian Medical Congress in which he noted that lead poisoning was due to paint powder that stuck to children’s fingers, which they then bit or sucked.<sup>15</sup> In 1914, Americans Henry Thomas and Kenneth Blackfan, the latter a physician at Johns Hopkins Department of Pediatrics in Baltimore, detailed the case of a boy from Baltimore who died of lead poisoning after ingesting white lead paint from the railing of his crib.<sup>16</sup> In 1917, Blackfan reviewed the English-language literature on lead poisoning in children, noting specifically cases of children who chewed the white paint from their cribs.<sup>17</sup> By the mid-1920s, there was strong and ample evidence of the toxicity of lead paint to children, to painters, and to others who worked with lead as studies detailed the harm caused by lead dust, the dangers of cumulative doses of lead, the special vulnerability of children, and the harm lead caused to the nervous system in particular.<sup>18</sup>

Outside the United States, the dangers represented by lead paint manufacturing and application led to many countries’ enacting bans or restrictions on the use of white lead for interior paint: France, Belgium, and Austria in 1909; Tunisia and Greece in 1922; Czechoslovakia in 1924; Great Britain, Sweden, and Belgium in 1926; Poland in 1927; Spain and Yugoslavia in 1931; and Cuba in 1934.<sup>19</sup> In 1922, the Third International Labor Conference of the League of Nations recommended the banning of white lead for interior use.<sup>20</sup> In the United States and Canada, there were calls for the use of non-lead-based paints in interiors. As early as 1913, Alice Hamilton wrote that “the total prohibition for lead paint for use in interior work would do more than anything else to improve conditions in the painting trade.”<sup>21</sup> By the early 1930s, a consensus developed among specialists that lead paint posed a hazard to children.<sup>22–27</sup> Robert Kehoe, medical director for the Ethyl Gasoline Corporation and director of the Kettering Laboratories of the University of Cincinnati, perhaps the nation’s leading expert on lead poisoning, concluded that “strenuous efforts must be devoted to eliminating lead from [children’s] environment,”<sup>28</sup> especially since safer alternatives to lead, specifically titanium- and zinc-based paints, existed throughout the late 19th and early 20th centuries. In 1914, the director of the scientific section of the Paint Manufacturers’ Association noted with approval the

# Cater To The Children

Do you make it a point in your store to show courtesy to your youthful customers? Do you give them the same consideration and attention that you do the older folks, or do you brush them aside as of less importance?

Have you stopped to think that the children of today are the grown-ups of tomorrow and that a child is particularly quick to remember a kindness and slow to forget a slight or an injustice?

A busy parent sends a child—perhaps a shy little girl—to make a purchase. If there is a choice of stores, the child naturally makes a practice of

going where she is made to feel welcome and where she is waited on promptly. She wins approval for doing her errand quickly and it takes less time from her own interests.

This is one of the seemingly small matters which many successful merchants consider worth attention.



Source. *Dutch Boy Painter* (January/February 1918): advertising section.

**FIGURE 1**—“Cater to the Children.” From 1907, when the Dutch Boy logo was adopted by the National Lead Company, children were a central element in the company’s advertising campaigns.

development of “sanitary leadless” paints and predicted that “lead poisoning will be done away with almost entirely.”<sup>29</sup>

Despite the accumulating evidence of lead paint’s dangers to young children, the industry did nothing to discourage the use of lead paint on walls and woodwork or to warn the general public or public health authorities of the dangers inherent in the product. In fact, it did the opposite: it engaged in an energetic promotion of lead paint for both exterior and interior uses from the 1920s through the Second World War. For a portion of that period,

white lead in paint was “the most important outlet for pig lead metal,”<sup>30</sup> according to the LIA, which was organized in 1928 to promote the use of lead.<sup>31</sup> A can of pure white lead paint was composed of huge amounts of lead, creating a large market for mining companies and pigment manufacturers.<sup>32</sup>

Within 6 months of the LIA’s founding, its secretary, Felix Wormser, noted, “Of late the lead industries have been receiving much undesirable publicity regarding lead poisoning.”<sup>33</sup> A year later, the *United States Daily*, a newspaper “Presenting the Official News



### Do Not Forget the Children— Some Day They May Be Customers

We are not even overlooking the children in our campaign for a record paint business this fall. The children's paint book, which is reproduced in only two colors above, carries a paint message to the grown-ups, while its jingles and "pictures" amuse the little ones. Moreover, in the back of the book there is a special paint message to the parents.

By all means do not hand out these children's paint books at random. One way is to hand a copy to each youngster who comes into your store with a parent. Parents appreciate little attentions of this sort paid their children. They like to trade at stores where the youngster is not overlooked. Another effective method is to mail the paint books to the children of prospective customers. Accompany the book with a pleasant little personal letter, working in subtly a few references to your store and the "Save the Surface" idea. There are other ways to distribute these clever little books, which you no doubt will work out to your advantage. Order a supply of these children's paint books today.



Source. *Dutch Boy Painter* (August 1920): 126.

**FIGURE 2**—"Painting the House That Jack Built." The Dutch boy, carrying a bucket of white lead, reminds retailers to court customers through their children by offering children's "paint books."

of the Legislative, Executive and Judicial Branches of the Federal Government," ran a front-page story on lead poisoning and children: "Lead poisoning as a result of chewing paint from toys, cradles and woodwork is now regarded as a more frequent occurrence among children than formerly."<sup>34</sup>

The reaction of the lead industry to growing negative publicity was to assure the public as well as the public health community that such fears were unfounded and that there was no reason to suspect that toys were being

painted with lead pigments. In 1933, Charles F. McKahnn and Edward C. Vogt, pediatricians at Harvard Medical School and Boston's Infants' and Children's Hospitals, published an article in the *Journal of the American Medical Association* in which they mentioned a personal communication from Felix Wormser that led them to believe that "the lead industry and the manufacturers of cribs and toys . . . have cooperated by substituting other types of pigments for the lead pigments formerly used."<sup>35(p1131)</sup> Two years later, a major toy com-

pany acknowledged that it had been assured that its toys were safe but had found that the toys had been painted with lead. On investigation, the company found that the paint manufacturers were "willing to sign an agreement that the paint furnished would be non-poisonous, but only a few agreed that they would furnish materials that were entirely free of lead."<sup>36</sup> Another company responded to an inquiry from the Children's Bureau by informing the bureau that "we found that lead in the form of Lead Chromate was being used extensively in colored finishes [of toys]."<sup>37</sup>

Throughout the 1930s and 1940s, continuing reports of poisoned children and workers caused heightened concern among the lead pigment manufacturers, despite the LIA's assurances to the public health community. At the annual meeting of LIA members in June 1935, Wormser noted, "Hardly a day goes by but what this subject receives some attention at the headquarters of the Association." The threat of negative publicity about the health problems associated with lead was so serious that Wormser told the members, "[I]f all other reasons for the establishment of a cooperative organization in the lead industries were to disappear, the health problem alone would be sufficient warrant for its establishment."<sup>38,39</sup> The LIA responded to the undesirable publicity by seeking to rebut research findings and other news of lead's toxicity, whether to children or adults.

Sometimes even major corporations were intimidated. In the early 1930s, the Metropolitan Life Insurance Company had reported on the potential hazards to children from lead, and shortly thereafter Louis Dublin, the respected statistician at the Metropolitan, wrote to the US Children's Bureau requesting that because of the "strong remonstrance by the Lead Industries Association" about the publicity resulting from the earlier article, the Bureau refrain from mentioning "[t]he Metropolitan, either directly or by inference, in connection with whatever releases you may make." The Metropolitan official explained that "you will readily understand that we wish to avoid any controversy with the lead people."<sup>40</sup>

In 1939, the National Paint, Varnish and Lacquer Association (NPVLA), a trade group representing pigment and paint manufacturers, among others, privately acknowledged its "responsibility to the public and the protection of the industry itself with respect to the use of toxic materials in the industry's products."<sup>41</sup> In a letter marked "CONFIDENTIAL Not for Publication," the association informed its members that "the vital factor concerning toxic materials is to intelligently safeguard the public." The letter said that manufacturers should apply "every precautionary measure in manufacturing, in selling and in use where

toxic materials are likely to or do enter a product” and noted that “children’s toys, equipment, furniture, etc. are not the only consideration.” It warned NPVLA members that toxic materials “may enter the body through the lungs . . . through the skin, or through the mouth or stomach.” The letter specifically pointed out that lead compounds such as white lead, red lead, litharge, and lead chromate “may be considered as toxic if they find their way into the stomach.”

The NPVLA reproduced for its members a set of legal principles established by the Manufacturing Chemists’ Association regarding the labeling of dangerous products. The first principle was “A manufacturer who puts out a dangerous article or substance without accompanying it with a warning as to its dangerous properties is ordinarily liable for any damage which results from such failure to warn.” Even when a product was widely understood to be dangerous, the Manufacturing Chemists’ Association suggested that warnings be included. Further, the legal principles stated, “The manufacturer must know the qualities of his product and cannot escape liability on the ground that he did not know it to be dangerous.” The NPVLA letter concluded by calling on NPVLA members to make a “sincere effort in taking advantage of every possible precaution in the use of toxic materials in manufacturing, selling and in use.”<sup>42</sup>

### Do Not Forget the Children

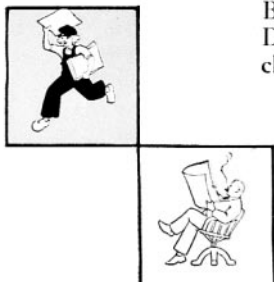
The lead pigment manufacturers did not act on the NPVLA’s advice. Rather, they actively sought to promote the use of lead in general and the safety of lead for interior uses in particular. Sherwin-Williams’ logo was a can of paint poured over the entire globe, with the slogan “Covers the Earth.” The Dutch Boy logo of National Lead Company paints was a familiar symbol in the first half of the 20th century and was an essential part of the company’s marketing strategy for white lead. In addition to appealing to master painters, homeowners, wives, and mothers, National Lead sought to influence generations of owners by marketing directly to children. In fact, children were a prime target of the company’s advertising campaign from early on, even before the LIA was founded. In a promotion to paint distributors, the company advised store owners, “Do Not Forget the Children.”<sup>43</sup> In the 1920s, National Lead produced “A Paint Book for Girls and Boys” titled *The Dutch Boy’s Lead Party*. Its cover showed the Dutch Boy, bucket and brush in hand, looking at lead soldiers, light bulbs, shoe soles, and other members of the “lead family.”<sup>44</sup> The Dutch Boy also promoted the

#### THE DUTCH BOY PAINTER



### CHILDREN’S PAINT BOOKLET

PARENTS are always interested in the things that interest their children. There is no question but that the Dutch Boy paint book interests youngsters. Distributing this booklet, therefore, to children in your neighborhood will bring you to the attention of their parents, identifying your store as headquarters for the Dutch Boy white-lead they see advertised in newspapers.



Source. *Dutch Boy Painter* (January/February 1929): 20.

**FIGURE 3**—“Dutch Boy Conquers Old Man Gloom.” The advertised booklet shows how paint can be used on toys and in children’s rooms to lift children’s moods.

use of lead paint in schoolrooms, suggesting that summer was the best time to “get after the school trustees to have each room repainted” with “flat paint made of Dutch Boy white-lead and flatting oil.”<sup>45</sup>

By the late 1920s and into the Depression, as information about lead paint’s danger to children continued to accumulate—and after the LIA had acknowledged the inappropriateness of using lead paint on children’s toys and furniture—the National Lead Company used the Dutch Boy to promote the use of lead in children’s rooms. In one of its several paint

books for children, National Lead suggested that its paint “conquers Old Man Gloom”:

The girl and boy felt very blue  
Their toys were old and shabby too,  
They couldn’t play in such a place,  
The room was really a disgrace.

.....  
This famous Dutch Boy Lead of mine  
Can make this playroom fairly shine  
Let’s start our painting right away  
You’ll find the work is only play.

The booklet shows the Dutch Boy mixing white lead with colors and painting walls and furniture.<sup>46</sup>

# Finger Prints



**T**HERE is no cause for worry when fingerprint smudges or dirt spots appear on a wall painted with Dutch Boy white-lead. A little soap and water will remove them easily without harming the paint or marring the beauty of the finish. Painted walls are sanitary, cheerful and bright.

We carry a complete line of painting supplies including Dutch Boy white-lead, linseed oil, flattening oil, brushes and all other accessories.

Visit our store and let us help you plan your home decoration.

**Dealer's Name and Address Here**

No. DF-25

Thousands of homes and offices still have souvenir figures [of the Dutch Boy Painter] in the form of paper weights, statuettes, etc. The appeal was particularly strong to children and the company has never overlooked the opportunity to plant the trademark image in young and receptive minds. One of the most successful promotions for many years was a child's paint book containing paper chips of paint from which the pictures (including, of course, several Dutch Boys) could be colored . . . . The company still will loan a Dutch Boy costume—cap, wig, shirt, overalls and wooden shoes—to any person who writes in and asks for it for any reasonable purpose, and the little painter has graced thousands of parades and masquerades.<sup>51</sup>

This marketing of the Dutch Boy image was seen as an essential element of National Lead Company's increasing profitability; the company's sales rose from \$80 million in 1939 to more than \$320 million in 1948. The continuing use of the Dutch Boy image was understood by the broader marketing industry as a clever method of improving the image of National Lead. In 1949, one marketing journal noted that "putting the boy, with his wooden keg and brush, in the attitude of a house painter, gave animation to the subject, tied him up with the product and suggested that the quality of the paint was so good that even a child could use it."<sup>52</sup>

In addition to portraying children in its advertisements, the pigment industry emphasized lead paint's "healthful" qualities. As early as 1923, National Lead advertisements in *National Geographic Magazine* promoted the idea that "lead helps to guard your health."<sup>53</sup> Throughout the 1920s, National Lead advertisements in *The Modern Hospital* called the company's tinted paint "the doctor's assistant" because of its cheerful color and the fact that it could be washed with soap and water. The ads assured readers that walls covered with National Lead paint "do not chip, peel or scale."<sup>54</sup> In 1930 the ads suggested, "Every room in a modern hospital deserves a Dutch Boy quality painting job."<sup>55</sup>

In the early 1930s the LIA produced a book, *Useful Information About Lead*, that suggested that the "prospective paint user" would be well advised to use paints containing a high percentage of lead, "the higher the better." A section called "White Lead in Paint" stated that "well painted buildings, both inside and out, go hand in hand with improved sanitation." The book included no warnings about the dangers of lead, despite the fact that the book was produced "to disseminate accurate information regarding lead products and how they best may be used." It included pictures of home and hotel interiors with captions such as "White lead paint is widely used for home interiors."<sup>56</sup> The theme of safety continued to be

Source. *Dutch Boy Painter* (August 1927): 117.

**FIGURE 4—"Finger Prints." This ad, one of several suggested to paint dealers, conveys to parents that white lead on interior walls is not only easy to clean but sanitary for young children.**

To emphasize the benign qualities of lead paint, a National Lead Company's advertisement depicted a child in a bathtub scrubbing himself with a brush. His Dutch Boy cap, clothes, and shoes were slung on a chair, and a can of Dutch Boy All-Purpose Soft Paste and paintbrush sat on the floor next to him. The caption read, "Takes a Scrubbing with a Smile."<sup>47</sup> Another promotion showed a crawling infant touching a painted wall. The caption proclaimed, "There is no cause for

worry when fingerprint smudges or dirt spots appear on a wall painted with Dutch Boy white-lead."<sup>48</sup> The explicit message was that it was easy to clean the wall; the implicit message was that it was safe for toddlers to touch woodwork and walls covered with lead paint. The theme of children painting appeared in numerous advertisements and articles.<sup>49,50(p77)</sup>

Even in 1949, National Lead remained particularly proud of its marketing campaign directed at children.

used to promote lead paint through the early war years. In 1943 Eagle Picher advertisements in *National Painters Magazine* urged professional painters to use “four arguments with prospects—you’ll find they really sell paint jobs.” The fourth argument was that “Eagle White Lead is just about the purest, safest, most fool-proof paint you or anybody else can use.”<sup>57</sup>

### The White Lead Promotion Campaign

In addition to specific companies’ ads, in 1938 the lead industry as a whole, through the LIA, began its White Lead Promotion Campaign, the single largest activity undertaken by the LIA up until that date. The purpose of the campaign was to increase interest in white lead in paint because the LIA recognized that “white lead is also constantly subject to attack from the health standpoint.”<sup>58</sup> The LIA thought that there was a “morale problem” and that advertising would help “to offset the stigma attached to lead because of attacks made upon it by consumer organizations.” The association believed the campaign would “help to dispel fear or apprehension about its use.”<sup>59</sup>

Early in the promotion campaign, LIA secretary Felix Wormser made it clear that white lead was being promoted for use in interiors.<sup>60</sup> In a 1938 article, the LIA’s *Lead* magazine produced an elaborate economic rationale for using lead paint in residential housing, specifically in low-cost construction.<sup>61</sup> The magazine continued to promote white lead for interiors of low-cost homes in its July 1939 issue. In an article on decorating plywood structures, the magazine showed pictures of a recreation room and a kitchen painted with white lead.<sup>62</sup>

Two representatives of the LIA, Seldon Brown and W.L. Frazee, traveled throughout the country visiting officials of public and private institutions in efforts to convince them to use white lead. The LIA specifically targeted markets in urban areas. In mid-October 1940 the LIA reported, “In the course of his work with government officials in the neighborhoods of New York City, our representative also conducted a survey of painting practices of 36 real estate developments. A separate report of this survey has been sent to interested members.”<sup>63</sup> Brown reported his success with the Brooklyn Brewcourt Management Company: “Through a demonstration of the true costs of white lead as compared with mixed paint for interiors, Mr. Kilman plans to use white lead on several jobs and probably all future works.”<sup>64</sup>

# Sunshine stimulates...



## GET SUNNY EFFECTS WITH COLOR

● Patients who show a tendency toward depression or morbidity during convalescence are frequently stimulated by the harmony and beauty found in the colors of nature. The yellow sunlight... the cheering color combinations in flowers, in woodland scenes... when properly combined in hospital rooms, may play an important role in hastening recovery. Warm reds and yellows are recommended for patients of certain temperaments. Restful greens are frequently beneficial to nervous individuals.

Our Department of Color Research and Decoration has conducted exhaustive studies on the uses of color in hospitals and is equipped to apply this knowledge to the individual requirements of your hospital.

Superintendents and other hospital officials, as well as architects, are invited to consult this department regarding decorative problems. This service is offered without cost or obligation.

Address Department of Color Research and Decoration in care of our nearest branch.

**NATIONAL LEAD COMPANY**

New York, 111 Broadway — Buffalo, 116 Oak Street — Chicago, 900 West 18th Street — Cincinnati, 659 Freeman Avenue — Cleveland, 820 West Superior Avenue — St. Louis, 722 Chestnut Street — San Francisco, 2240 24th Street — Boston, National Boston Lead Co., 800 Albany Street — Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue — Philadelphia, John T. Lewis & Bros. Co., Widener Building.



Source. *The Modern Hospital* 38 (February 1932): 15.

FIGURE 5—“Sunshine Stimulates.” This ad shows the cheering effects of a painted hospital interior.

In 1940 the campaign was expanded to include municipal, state, and county institutions. Brown specifically marketed white lead paint for public schools, noting in reports to the association whether institutions he visited used mixed paint or white lead on both exterior and interior walls. The LIA claimed that Brown made a total of 427 calls in his first 2 years on the job, of which 380 were to state, county, and miscellaneous institutions. Brown was particularly insistent on pushing white lead for interior use. When he visited one superintendent of maintenance for Seattle’s public school system, Brown ini-

tially met with resistance. The superintendent, he reported, was “completely sold on white lead for exteriors, but can’t see the value of white lead for interiors and [I] was not able to convince him. It was suggested that a demonstration of white lead and flat wall paint be [run] for this department by a lead salesman.”<sup>65</sup> Brown also reported on his ability to sell the virtues of white lead to those who knew little about it.<sup>66-69</sup> In Flint, Mich, the superintendent of maintenance for the Board of Education was “very interested in our description of the qualities of interior white lead. [He] said that he thought that

**Keep maintenance costs down with Dutch Boy...**

**USE IT EVERYWHERE!**



**I**F there's one place where paint must withstand severe service, it's in the hospital. Some paint simply won't stand repeated washing. But paint made with Dutch Boy does.

What's the answer? Why is it that paint made with Dutch Boy stands up so well even in the rigorous service to which it is exposed in hospitals? Well...here's the story in a nut-shell. White-lead is insoluble in water and remains so. There's nothing in white-lead paint that dissolves and washes off.

But that's not the whole story of Dutch Boy's superiority in hospital service. Wherever used... as a paint for wood, plaster, wall board, masonry or metal... in flat or eggshell finishes for interiors... gloss paint for outside uses... undercoatings for enamels... plastic paint... Dutch Boy effects worthwhile economies. It helps keep maintenance costs down because it lasts longer.

Furthermore, the beauty of the finishes Dutch Boy produces is an extra... a bonus. It helps you give your hospital that well-groomed, spick and span look of comfort and efficiency. With Dutch Boy White-Lead, flating oil and a few tinting materials, it's a simple matter to obtain the exact color and finish for any room you want to paint.

For helpful information on economical hospital painting, address Department of Color Research and Decoration at our nearest branch. For addresses, see reverse side.



**Special Decorative Service for Hospitals**

The National Lead Co. Dept. of Color Research and Decoration was created a number of years ago to make extensive studies of color, including its use in hospitals and its effect on patients. The information since gathered by the Department and tested in many hospitals in all parts of the country is now available to responsible hospital executives. As the reverse side of this page suggests, color can be put to good use in your hospital. Send your inquiry regarding color to the Dept. of Color Research and Decoration in care of our nearest branch.



The well known brand of Carter White-Lead is also made by the National Lead Company. In purchasing either Carter or Dutch Boy White-Lead, the buyer is assured of obtaining white-lead of the highest quality.

Source. *The Modern Hospital* 38 (February 1932): 16.

**FIGURE 6—“Keep Maintenance Costs Down.” Here National Lead touts white lead’s durability (“insoluble in water”) and attractiveness for hospital interiors.**

white lead was going out because he has heard so little about it. [He knew] nothing about white lead for interiors. [But he] plans to run comparative tests between white lead and present mixed paint used on interiors.”<sup>70,71</sup>

In addition to selling to schools, the LIA marketed lead paint to cities, hotels, and even health departments. Frazee reported that he had visited Little Rock, Ark, where he convinced a local hotel manager to have “his entire hotel, inside and out, done with lead and lead reducing oil.”<sup>72,73</sup> In Pierce County, Washington, the LIA representative visited

the county health department, where he “explained properties of interior white lead paint, stressing sanitary aspects of a highly desirable and washable surface.”<sup>74</sup>

In addition, the White Lead Promotion Campaign comprised an advertising campaign, the placement of articles promoting the use of white lead in trade and popular journals, and mailings. In 1939, *Dutch Boy Painter* magazine announced a “big, new, cooperative advertising effort in behalf of white-lead. . . . A series of large-size advertisements in such widely read magazines as

the *Saturday Evening Post*, *Colliers*, *American Home*, *Country Gentleman*, and *Better Homes and Gardens* will bring the white-lead story to the public in general and to home-owners in particular.” The magazine campaign would produce “67,570,526 separate messages that will be carried in the publications named.”<sup>75,76</sup>

In 1940, the secretary of the LIA praised the campaign’s success in countering concerns about lead’s effect on human health:

One beneficial result of our campaign is the good will it is building up for lead in general. I have always felt that the cultivation of good will for our metal and publicity about the indispensable work it does for mankind is something that lead needs more than other common metals because lead in many forms is constantly under attack on account of its toxic qualities. Our campaign helps to meet this issue.<sup>77</sup>

The LIA saw its promotional campaign as an important antidote to the negative publicity that lead was receiving in the national press: “[I]n the long run [the campaign] will share in dispelling anxiety about [lead’s] use. In any event the problem remains serious for our industry. Hardly a day passes but what this office has to devote some attention to lead poisoning,” said Wormser in 1941.<sup>78</sup>

***The Dangers of Lead Paint Become National News***

In December 1943 the issue of lead poisoning from paint among children, already familiar to those in the industry and to some pediatricians and public health professionals, became national news. *Time* magazine reported on an article by pediatricians Randolph Byers and Elizabeth Lord in the *American Journal of Diseases of Children*. The *Time* article noted that parents’ lack of understanding of the dangers of lead-based paint led many to use this toxic material on toys, cribs, and windowsills. When children chewed the painted surfaces, a variety of physical and nervous disorders resulted. “All but one child, Dr. Lord discovered, were school failures. Only five had normal I.Q.s, and four of the five were so erratic that they could not learn easily.”<sup>79</sup> The reaction of the LIA secretary was to deny the reliability of Byers and Lord’s data; he went so far as to pay a personal visit to Byers in Boston. In a preliminary report on the *Time* piece, the LIA maintained that the assumption regarding the relationship between lead poisoning in early infancy and later mental retardation had not been proven and that many of the cases of lead poisoning had “never been conclusively proven.”<sup>80</sup>

The LIA's denials of the dangers posed by lead paint came despite detailed warnings from Robert Kehoe that the association's position was indefensible. Shortly after publication of the Byers and Lord article and the *Time* article, Robert Kehoe wrote to Wormser, "I am disposed to agree with the conclusions arrived at by the authors, and to believe that their evidence, if not entirely adequate, is worthy of very serious consideration." He informed the head of the LIA that in his own work he had seen "serious mental retardation in children that have recovered from lead poisoning."<sup>81</sup> Kehoe left no doubt that he would be willing to assist the board of LIA, but he objected to Wormser's denial of the importance of paint in causing lead poisoning in children. Kehoe argued that the position of the LIA was insupportable. "Unfortunately for Wormser's thesis, comparable results have been obtained in almost every other area of the United States where there have been facilities that enable accurate investigation of this type to be made."<sup>82</sup> "Small children crawl about on the floor and contaminate themselves pretty generally with every kind of dust or dirt that is within their environment. Eventually everything they get on their hands goes into their mouths, and therefore considerably greater opportunities exist for the dangerous exposure of small children of a variety of materials."<sup>83,84</sup>

But the LIA refused to accept the mounting research and evidence of lead poisoning. In December 1945, the association proposed a campaign to counteract the "medical and public misinformation usually amounting to actual prejudice against lead, because of its toxic qualities, [and which] is a subject of vital importance to all the lead industries in the United States." The LIA complained, "If anything, the problem has become even more serious in the last five years than ever before, owing primarily to the spread of considerable anti-lead propaganda and also to occasional faulty medical research which has penetrated deep into medical annals and caused many physicians and hospitals to assume erroneous positions on the question of lead poisoning." The LIA believed that the issue was "so fundamental" to the future welfare of the lead industries and the continued manufacture and use of many important lead products, such as white lead, red lead, litharge, sheet lead, and pipe lead, that unless immediate attention were paid to the problem "the opposing forces may grow strong enough to do us injury which it would take years of work to correct." As a result, the LIA outlined a safety and hygiene program, one purpose of which was to address the existing literature saying that lead represented a health hazard to the worker and the consumer.<sup>85</sup>

In 1946 the problem intensified: Wormser reported to the LIA that

attention to the serious problem faced by all the lead industries because of the toxic nature of our metal is occupying a growing rather than a diminishing amount of the Association's time. This is largely owing to attacks upon lead that cannot be ignored for, if unchallenged, they may very easily lead to the sponsoring of totally unwarranted State and Federal legislation of a regulatory or prohibitive character. . . . Suffice it to say here that this is an unending battle from which we can only withdraw at our peril.<sup>86</sup>

In general, Wormser continued to argue that the danger to the public was minimal.<sup>87</sup>

As late as 1952, the LIA continued to promote the usefulness of white lead in both interior and exterior coverings. In its book *Lead in Modern Industry*, the LIA noted that "white lead adds more desirable qualities to paint than any other white pigment and has practically no undesirable qualities to nullify its advantages." The book continued, "the profitable application of white lead is not confined to exterior use. Pure white lead paints can be utilized to advantage for interior decoration, particularly in public and traditional buildings where elaborate decoration is used and it is very expensive and inconvenient to repaint often."<sup>88</sup>

In summaries of his activities in 1952, the director of health and safety of the LIA, Manfred Bowditch, called childhood lead poisoning "a major 'headache' and a source of much adverse publicity." He counted 197 reports of lead poisoning in 9 cities, of which 40 cases were fatal, although he noted that this was an "incomplete" estimate, especially for New York City.<sup>89</sup> In New York, 44 cases were reported, of which 14 were fatal. Between 1951 and 1953, according to George M. Wheatly of the American Pediatrics Association, "there were 94 deaths and 165 cases of childhood lead poisoning . . . in New York, Chicago, Cincinnati, St. Louis, and Baltimore."<sup>90</sup>

Reports from health departments, publicized in the popular press, were demonstrating the widespread nature of the lead paint hazard. In 1952 the LIA collected "nearly 500 newspaper clippings featuring lead poisoning, often in sizable headlines."<sup>91</sup> In 1956 the LIA noted that a headline in the New York *Daily News*, "Lead Poisoning Killed 10 Kids in Brooklyn in '55, Highest Toll in the City," was "based largely on data from the Health Department."<sup>92</sup> In addition to "the common run of newspaper studies on childhood and other types of plumbism," the LIA noted 2 "items of adverse publicity transcending [them] in importance." In July 1956 *Parade* magazine, which reached more than 7 million readers of 50 newspapers across the country, ran an article titled "Don't

Let YOUR Child Get Lead Poisoning," and the CBS television network carried a broadcast on childhood lead poisoning.<sup>93</sup>

### *Blaming the Victims*

The LIA recognized as early as 1952 that to continue fighting a rearguard action attacking the extent of the lead poisoning problem would be "prohibitively expensive and time-consuming."<sup>94</sup> But the association continued to deflect responsibility for this tragedy away from the industry itself, placing the blame on poverty, not on the lead industry: "The major source of trouble is the flaking of lead paint in the ancient slum dwellings of our older cities, [and] the problem of lead poisoning in children will be with us for as long as there are slums."<sup>95</sup> Bowditch acknowledged "that the overwhelmingly major source of lead poisoning in children is from structural lead paints chewed from painted surfaces, picked up or off in the form of flakes, or adhering to bits of plaster and subsequently ingested." But who was responsible for this condition? According to Bowditch and the LIA, "Childhood lead poisoning is essentially a problem of slum dwellings and relatively ignorant parents." He maintained that lead poisoning was "almost wholly confined to the older cities of the eastern third of the country" and that "until we can find means to (a) get rid of our slums and (b) educate the relatively ineducable parent, the problem will continue to plague us."<sup>96</sup>

The president of the NPVLA, Joseph F. Battley, elaborated on this theme but used contemporary psychological explanations to rationalize away corporate responsibility for the pollution of children's environments. There might be dietary deficiencies, he said, but even "a well-fed child may still be emotionally hungry because he does not receive as much loving attention as he needs. Another may suffer from a sense of insecurity. To gain the comfort and reassurance they crave, they often place inedible objects [i.e., flaking paint] in their mouths."<sup>97</sup> As late as 1959, lead poisoning was still "a headache" for the industry.<sup>98</sup>

In the 1940s and early 1950s, state and local health departments sought to warn consumers about the dangers lead paint presented to children and others. The industry organized to oppose these efforts. Early labeling regulations in California in 1945 and Maryland in 1949 were opposed by the LIA and NPVLA, and the LIA took credit for the repeal of Maryland's statute.<sup>99</sup> Confronted with pressure in a number of localities and states for increased regulation, the NPVLA's counsel suggested that "the best course to pursue from the standpoint of the industries interested in the use of lead as a pigment and otherwise is to launch a campaign



of education directed at the legislatures to forestall any further unnecessary legislation.”<sup>100</sup>

In May 1954, the New York City Health Department proposed a sanitary code provision that would have banned the sale in the city of paints containing more than 1% lead and would have required lead paint to be labeled as poisonous and not for interior use.<sup>101</sup> This was consistent with the recommendations of the American Medical Association, which suggested labels saying “WARNING: This paint contains an amount of lead which may be POISONOUS and should not be used to paint children’s toys or furniture or interior surfaces in dwelling units which might be chewed by children.”<sup>102</sup> Both the NPVLA and the LIA opposed such wording. They supported and helped to develop the standard adopted in 1955 by the voluntary American Standards Association, which did not require the use of the word “poison.”<sup>103</sup> New York City’s regulation limited the amount of lead in interior paints to 1% but did not include the more explicit warning, and the industry adopted the same voluntary standard. Even in 1958, the LIA continued to oppose “any legislation of a prohibitory nature.”<sup>104</sup>

Although the industry claimed that it had stopped using lead in interior paints in the 1940s, and it is clear that other pigments increasingly replaced lead during that time, lead continued to be present in paints sold for interior use well into the 1950s. In one survey commissioned by the US Department of Housing and Urban Development, “about one third of [Pittsburgh’s] dwelling units built in [1940–1959] had surfaces with high (2 mg/cm<sup>2</sup> or more) concentrations of lead and nearly 10 per cent of the rooms tested had such lead levels.”<sup>105</sup> In 1970, federal legislation prohibited the use of lead paint in federally financed and subsidized housing, and the Consumer Products Safety Commission prohibited the use of all lead paint after February 27, 1978. Yet in 1971, the New York City Health Department tested 76 paints and “found eight of them with amounts of lead ranging from 2.6 to 10.8 percent.”<sup>106</sup>

### A Terrible Legacy

Despite the medical evidence concerning the dangers to children of lead-based paint, the reports from Baltimore and other cities of lead poisoning of children, occasional articles in the popular press concerning the dangers of lead-based paint, and internal correspondence from leading lead authorities around the country acknowledging that lead paint was a serious hazard, the industry neither removed lead from paint nor warned consumers of its danger until very late in the game. In fact, at critical

moments during this long history, the lead industry actually misled the public health community, assuring it that lead paint was not being used on toys, interior surfaces, or cribs. The industry also consciously used children in its advertising and promotion campaigns in ways that aggravated the public health crisis. By employing children in its marketing strategies, the industry reinforced the public’s perception that lead paint was safe, thereby countering the increasing medical, public health, and popular literature documenting lead paint’s dangers. This terrible legacy still haunts us today, as more and more cities become aware of the enormous intellectual, physical, emotional, and economic costs of the decades during which an entire industry ignored the growing evidence of lead’s impact on children’s health and shaped Americans’ understanding of the dangers posed by lead. □

### Acknowledgments

We would like to acknowledge the New York City Law Department, for which we originally composed an affidavit, for giving us unfettered access to recently released documentary material gathered in the course of discovery proceedings in its suit “The City of New York, the New York City Housing Authority, and the New York City Health and Hospitals Corporation, Plaintiffs, Against Lead Industries Association, Inc. Et. Al.” (index no. 14365/89). We would also like to thank Christian Warren and Christopher Sellers for providing us with copies of documents from their own research, as well as Adele Oltman, Nina Kushner, and Donald Olson for their research assistance.

### Endnotes

- Centers for Disease Control and Prevention, *Morbidity and Mortality Weekly Report* 46 (1997): 141, cited in B. P. Lanphear, “The Paradox of Lead Poisoning Prevention,” *Science* 281 (1998): 1617–1618.
- B. P. Lanphear, “The Paradox of Lead Poisoning Prevention.” See also D. Ryan, B. Levy, S. Pollack, and B. Walker, Jr, “Protecting Children From Lead Poisoning and Building Healthy Communities,” *American Journal of Public Health* 89 (1999): 822–824.
- D. Rosner and G. Markowitz, “A ‘Gift of God’? The Public Health Controversy Over Leaded Gasoline During the 1920s,” *American Journal of Public Health* 75 (1985): 344–352; W. Graebner, “Hegemony Through Science: Information Engineering and Lead Toxicology, 1925–1965,” in *Dying for Work: Workers’ Safety and Health in Twentieth Century America*, ed. D. Rosner and G. Markowitz (Bloomington: Indiana University Press, 1987), 140–159.
- R. Rabin, “Warnings Unheeded: A History of Child Lead Poisoning,” *American Journal of Public Health* 79 (1989): 1668–1674; E. Silbergeld, “Preventing Lead Poisoning in Children,” *Annual Review of Public Health* 18 (1997): 187–210; P. Reich, *The Hour of Lead: A Brief History of Lead Poisoning in the United States Over the Past Century, and of Efforts by the Lead Industry to Delay Regulation* (Washington, DC: Environmental

Defense Fund, 1992); R. Wedeen, “Shaping Environmental Research: The Lead Industries Association 1928–1946,” *Mount Sinai Journal of Medicine* 62 (1995): 386–389.

- Elizabeth Fee’s article on lead poisoning among children in Baltimore (E. Fee, “Public Health in Practice: An Early Confrontation With the ‘Silent Epidemic’ of Childhood Lead Paint Poisoning,” *Journal of the History of Medicine and Allied Sciences* 45 [1990]: 588) was perhaps the most detailed community study.
- C. C. Sellers, *Hazards of the Job: From Industrial Disease to Environmental Health Science* (Chapel Hill: University of North Carolina Press, 1997).
- C. Warren, *Brush with Death: A Social History of Lead Poisoning* (Baltimore, Md: Johns Hopkins University Press, forthcoming). To date, this is perhaps the most detailed and sophisticated analysis of the ways that lead has been introduced into the broader environment.
- See *Lead Diseases: A Treatise from the French of L. Tanquerel des Planches*, trans. S. L. Dana (Lowell, 1848). Boston, Mass: Tappan, Whitmore & Mason.
- M. D. Stewart, “Notes on Some Obscure Cases of Poisoning by Lead Chromate Manifested Chiefly by Encephalopathy,” *Medical News* 1 (1887): 676–681.
- A. Hamilton, “Industrial Diseases, With Special Reference to the Trades in Which Women are Employed,” *Charities and the Commons* 20 (1908): 655, 658. See also T. Legge and K. Goadby, *Lead Poisoning and Lead Absorption* (New York, NY: Longmont, Green & Co, 1912), 35; T. Oliver, *Lead Poisoning: From the Industrial, Medical, and Social Points of View* (New York, NY: Paul B. Hombre, 1914), vii, 55–65.
- US Department of Commerce and Labor, Bureau of Labor, “List of Industrial Poisons,” *Bulletin* 86 (1910): 163.
- Edward J. Cornish to David Edsall, 12 May 1921, courtesy of Christopher Sellers.
- J. L. Gibson, “A Plea for Painted Railings and Painted Walls of Rooms as the Source of Lead Poisoning Amongst Queensland Children,” *Australian Medical Gazette* (1904): 149–153. See also J. C. Burnham, “Biomedical Communication and the Reaction to the Queensland Childhood Lead Poisoning Cases Elsewhere in the World,” *Medical History* 43 (1999): 155–172.
- J. L. Gibson, “The Importance of Lumbar Puncture in the Plumbic Ocular Neuritis of Children,” *Australian Medical Congress Transactions* 11 (1905): 750–754.
- A. J. Turner, “Lead Poisoning in Childhood,” *Australasian Medical Congress* (1908): 2–9; J. L. Gibson, “Plumbic Ocular Neuritis in Queensland Children” *British Medical Journal* 2 (1908): 1488–1490; T. Oliver, “A Lecture on Lead Poisoning and the Race,” *British Medical Journal* 1911 (May 13): 1096–1098.
- H. M. Thomas and K. D. Blackfan, “Recurrent Meningitis, Due to Lead in a Child of Five Years,” *American Journal of Diseases of Children* 8 (1914): 377–380; A. Breinl and W. J. Young, “The Occurrence of Lead Poisoning Amongst North Queensland Children,” *Annals of Tropical Medicine and Parasitology* 8 (1914): 575–590; J. L. Gibson, “The Diagnosis, Prophylaxis and Treatment of Plumbic Ocular Neuritis Amongst Queensland Children,” *Medical Journal of Australia* 2 (1917): 201–204.

17. K. D. Blackfan, "Lead Poisoning in Children with Especial Reference to Lead as a Cause of Convulsions," *American Journal of the Medical Sciences* 153 (1917): 877–887.
18. See, for example, R. Strong, "Meningitis, Caused by Lead Poisoning, in a Child of Nineteen Months," *Archives of Pediatrics* 37 (1920): 532–537; L. E. Holt, "General and Functional Nervous Diseases," chap 2 in *The Diseases of Infancy and Childhood for the Use of Students and Practitioners of Medicine*, 8th ed (New York, NY: Appleton & Co, 1923); L. E. Holt, "Lead Poisoning in Infancy," *American Journal of Diseases of Children* 25 (1923): 229–233; Council of the Queensland Branch BMA, "An Historical Account of the Occurrence and Causation of Lead Poisoning Among Queensland Children," *Medical Journal of Australia* 1 (1922): 148–152; J. Ruddock, "Lead Poisoning in Children With Special Reference to Pica," *Journal of the American Medical Association* 82 (1924): 1682–1684; C. V. Weller, "Some Clinical Aspects of Lead Meningo-Encephalopathy," *Annals of Clinical Medicine* 3 (1925): 604–613; C. F. McKhann, "Lead Poisoning in Children," *American Journal of Diseases of Children* 32 (1926): 386–392; L. W. Holloway, "Lead Poisoning in Children," *Journal of the Florida Medical Association* 13 (1926): 94–100; F. L. Hoffman, "Deaths from Lead Poisoning," *US. Bureau of Labor Statistics Bulletin* 426 (1927): 33–34 (Hoffman lists 11 boys and 8 girls under the age of 18 years who died from lead poisoning; a number of these children were poisoned by paint from windows, walls, toys, or cribs).
19. E. E. Pratt, *Occupational Diseases, A Preliminary Report on Lead Poisoning in the City of New York* (Albany, NY: J. B. Lyon & Co, 1912), 373–377; T. Oliver, *Lead Poisoning: From the Industrial, Medical, and Social Points of View* (New York, NY: Paul B. Hoeber, 1914), 56–57; F. L. Hoffman, *Lead-Poisoning Legislation and Statistics* (Newark, NJ: Prudential Press, 1933); International Labour Office, *White-Lead: Data Collected by the International Labour Office in Regard to the Use of White Lead in the Painting Industry, Studies and Reports*, Series F, Industrial Hygiene, No. 11 (Geneva, Switzerland: International Labour Office, 1927).
20. "Prohibition of White Lead in Belgium," *American Journal of Public Health* 13 (1923): 337.
21. A. Hamilton, "Hygiene of the Painters' Trade," *Bureau of Labor Statistics Bulletin* 120 (1913): 66.
22. N. Porritt, "Cumulative Effects of Infinitesimal Doses of Lead," *British Medical Journal* (1931): 92–94.
23. Hoffman, *Lead-Poisoning Legislation and Statistics*.
24. C. F. McKhann, "Lead Poisoning in Children," *Archives of Neurology and Psychiatry* 27 (1932): 294–304.
25. E. Vogt, "Roentgenologic Diagnosis of Lead Poisoning in Infants and Children," *Journal of the American Medical Association* 98 (1932): 125–129.
26. "If Your Children Chew Paint," *Scientific American* 149 (1933): 291.
27. C. F. McKhann and E. C. Vogt, "Lead Poisoning in Children," *Journal of the American Medical Association* 149 (1933): 1131–1135.
28. R. Kehoe, abstract of discussion in C. F. McKhann and E. C. Vogt, "Lead Poisoning in Children," *Journal of the American Medical Association* 101 (1933): 1131–1135.
29. H. A. Gardner, *The Toxic and Antiseptic Properties of Paints*, Bulletin 41 of the Educational Bureau of the Paint Manufacturers' Association (Philadelphia, Penn: Paint Manufacturers' Association, 1914), 12.
30. Report of the Secretary, Annual Meeting of the Lead Industries Association, 5 June 1934, New York City Law Department Lead Industries Association Documents (hereafter cited as LIA Papers). See Christian Warren, "Toxic Purity: How America Became a Nation of White-Leaders," *Business History Review* (forthcoming).
31. [Wormser ?] to William J. Donovan, 21 September 1928, National Archives, Federal Trade Commission Documents.
32. Wormser to Members Supporting the White Lead Promotion Program, 20 February 1939, Bulletin No. 1, LIA Papers.
33. LIA Directors Meeting, 29 May 1929, LIA Papers.
34. "Lead-Free Paint on Furniture and Toys to Protect Children," *United States Daily*, 20 November 1930, p.1.
35. McKhann and Vogt, "Lead Poisoning in Children."
36. The A. Shoenhut Company to Ella Oppenheimer, Children's Bureau, 17 April 1935, National Archives, Record Group 102 (Children's Bureau), Central File, 1933–1936, File: Diseases Due to Metallic, 4-5-17.
37. Newark Varnish Works to Ella Oppenheimer, 25 April 1935, National Archives, Record Group 102 (Children's Bureau), Central File, 1933–1936, File: Diseases Due to Metallic, 4-5-17.
38. LIA Annual Meeting, 13 June 1935, LIA Papers.
39. LIA Board of Directors Meeting, 17 January 1940, Exhibit A, "Report of the Secretary," LIA Papers.
40. Louis Dublin to Ella Oppenheimer, 14 September 1933, courtesy of Christian Warren.
41. NPVLA Executive Committee Minutes, 11 July 1939, LIA Papers.
42. NPVLA letter "To Class 'A' Members," 18 July 1939, LIA Papers.
43. "Do Not Forget The Children—Some Day They May Be Customers," *The Dutch Boy Painter* (August 1920): 126.
44. "The Dutch Boy's Lead Party," *The Dutch Boy Painter* (July 1924): 139.
45. "When the School Room is Empty," *The Dutch Boy Painter* (July 1924): back page.
46. *The Dutch Boy Conquers Old Man Gloom—A Paint Book for Boys and Girls* (New York, NY: National Lead Company, 1930).
47. "Takes a Scrubbing with a Smile" (advertisement), *The Modern Hospital* 48 (1937): 35.
48. "Fingerprints," *The Dutch Boy Painter* (August 1927): 117.
49. *Dutch Boy Painter—Carter Times* (January–February 1931 and September–October 1931).
50. "Types of Stencils . . . How to Use Them," *Dutch Boy Painter—Carter Times* (1933): 75–80.
51. National Lead Company Sales Manual, "Important" [ca 1949], LIA Papers.
52. National Lead Company, *Modern Packaging*, April 1949.
53. "Lead Helps to Guard Your Health" (advertisement), *National Geographic Magazine* (November 1923): 44.
54. "Clean and Bright Hospital Walls" (advertisement), *The Modern Hospital* (July 1921): 171; "Color—the Doctor's Assistant," *The Modern Hospital* (July 1922): 169.
55. "Every Room in a Modern Hospital Deserves a Dutch Boy Quality Painting Job" (advertisement), *The Modern Hospital* (July 1930).
56. Lead Industries Association, *Useful Information About Lead*, 1st ed (New York, NY: Lead Industries Association, 1931), 49–53, 104.
57. "These 4 Points Will Help You Sell Paint Jobs TODAY!" *National Painters Magazine* (1943).
58. Wormser to Members Supporting the White Lead Promotion Program, LIA Papers, Letter, February 20, 1939.
59. LIA Advisory Committee, White Lead Promotion, Minutes of 10th Meeting, 20 October 1941, LIA Papers.
60. LIA Advisory Committee, White Lead Promotion, Minutes of 2nd Meeting, 12 April 1939, LIA Papers.
61. "White Lead Paint Economical for Interiors," *Lead* 8 (1938): 7, LIA Papers.
62. "Modern Exteriors, Interiors Combine Plywood and White Lead," *Lead* 9 (1939): 5, LIA Papers; the same issue of *Lead* contained other articles about interior decoration of low-cost housing: "Successful Low Cost Homes Benefit with White Lead," p. 11; "A New Simplified White Lead Painting Guide," p. 5; "Lead Products Aid in Pierce Foundation Experimental Home: Low Cost House Styled with White Lead and Flashed with Sheet Lead," p. 10.
63. LIA Advisory Committee, White Lead Promotion, Minutes of 8th Meeting, 18 October 1940, Exhibit A, Progress Report, LIA Papers.
64. White Lead Promotion Campaign, Bulletin 37, 23 May 1941, LIA Papers.
65. White Lead Promotion Campaign, Annual Summary, 11 October 1940, LIA Papers.
66. White Lead Promotion Campaign, Bulletin 42, 23 January 1942, LIA Papers.
67. White Lead Promotion Campaign, Bulletin 47, 20 May 1942, LIA Papers.
68. White Lead Promotion Campaign, Bulletin 40, 2 October 1941, LIA Papers.
69. White Lead Promotion Campaign, Bulletin 43, 23 February 1942, LIA Papers.
70. White Lead Promotion Campaign, Bulletin 40.
71. White Lead Promotion Campaign, Bulletin 32, 15 January 1941, LIA Papers.
72. White Lead Promotion Campaign, Bulletin 25, 11 October 1940, LIA Papers.
73. White Lead Promotion Campaign, Bulletin 32.
74. White Lead Promotion Campaign, Annual Summary, October 11, 1940.
75. "Lead Industry Begins Campaign to Advertise White-Lead," *The Dutch Boy Painter* 32 (1939): 27, LIA Papers.
76. Board of Directors Meeting, 16 May 1939, Secretary's Report, "Summarizing the Activities of the Lead Industries Association for 1938," LIA Papers.
77. Report of the Secretary, Annual Meeting, 6 June 1940, LIA Papers.
78. Annual Report, 22 September 1941, LIA Papers.
79. "Paint Eaters," *Time*, 20 December 1943, 49.
80. Lead Industries Association, "Preliminary Report of Investigation of 'Time' Article 'Paint Eaters,'" *Lead Hygiene and Safety Bulletin* (1944): 40.
81. Kehoe to Wormser, 7 February 1944, LIA Papers.
82. Kehoe to J. H. Schaefer (Vice President, Ethyl Corp), 29 January 1945, Box 90, LIA Papers.

83. Kehoe to Dr. R. L. Gorrell, City-County Health Unit, Las Animas County, Trinidad, Colo, 5 September 1945, LIA Papers.
84. Kehoe to R. H. Kotte, 14 February 1951, LIA Papers.
85. Executive Committee Meeting, Exhibit D, 28 December 1945, LIA Papers.
86. LIA Annual Meeting, Minutes, Report of the Secretary, 26 April 1946.
87. F. Wormser, "Facts and Fallacies of Lead Exposure" (1946), 10 [courtesy of Christian Warren].
88. Lead Industries Association, *Lead in Modern Industry* (New York, NY: Lead Industries Association, 1952), 153–54; this book continued to be promoted by the LIA until at least 1962. See "Lead Library of Technical Information," *Lead* (1962), 26.
89. Manfred Bowditch to Ziegfield, "1952 Activities," 16 December 1952; "Lead Hygiene" (minutes of the Annual Meeting, 9–10 April 1953), LIA Papers.
90. *New York Times*, 9 November 1954, p. 26.
91. "Lead Hygiene," LIA Papers.
92. Quarterly Report of the Secretary, 2 April 1956, LIA Papers.
93. Quarterly Report of the Secretary, 1 October 1956, LIA Papers.
94. Bowditch to Ziegfield, 16 December 1952, courtesy of Christian Warren.
95. Report of Health and Safety Division, Manfred Bowditch, Director, Annual Meeting, 24–25 April 1957, LIA Papers.
96. Bowditch to Kehoe, 26 December 1957, courtesy of Christian Warren.
97. National Paint, Varnish and Lacquer Association, "Watch Your Child's 'Eating Habits'!"
98. Annual Report for 1959, LIA Papers.
99. Annual Meeting, Report of the Secretary, 13–14 April 1950, LIA Papers.
100. T.J. McDowell, "Suggested Course of Action for NPVL Association Re: Labeling Laws," [ca July 1954] in NPVLA, Minutes, Subcommittee on Model Labeling, 15 July 1954, LIA Papers.
101. J. Trichter (Assistant Commissioner of Environmental Sanitation, New York City Department of Health) to C. W. Slocum (Devoe & Reynolds [paint] Company), 24 August 1954, LIA Papers.
102. B. E. Conley (Secretary, American Medical Association) to J. Trichter, 9 September 1954, LIA Papers.
103. American Standards Association, "American Standards Specifications to Minimize Hazards to Children from Residual Surface Coating Materials" (Z66.1-1955), approved 16 February 1955.
104. Quarterly Report of the Secretary, 10 January 1958, LIA Papers.
105. Rabin, "Warnings Unheeded," 1672.
106. *Ibid.*