

ADVERTISEMENTS

1924

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1924

Magazine Ads

0000-NLI-000017090

NATIONAL LEAD COMPANY

American Architect
9-10-11-12-13-14-15-16

American Federationist
1

American Magazine
2-3-103-105-106-107-108

American Paint Journal
4-5-6-7

American Paint & Oil Dealer
42-43-44-45-46-47-48-49-50-51

American Painter
8-85-87-88-90-91-92

Architectural Forum
9-10-11-12-13-14-15-16

Breeders Gazette
17-18-19-20-21-103-104-106-107

Brotherhood of Painters, Decorators

Country Gentlemen
21-22-23-104-106

Drugs Oils & Paints
70-72

Engineering News Record
24-25-26-27-28-29-30-31-32-33-34

Gas Age Record
35-36-37-38-39-40-41

Good Hardware
44-45-46-48-49

Hardware Age
42-43-44-45-46-47-48-49

Hardware Retailer
42-43-44-45-46-47-48-49-50-51

Hoards Dairyman
17-18-19-20-21-104-106

Indiana Farmers Guide
17-18-19-20-21-104-106

Kansas Farmer & Mail & Breeze
17-18-19-20-21-103-104-106-107

Marine Engineering
52-53-54-55-56

Master Painter and Decorator
88-90-91-92

Marine Engineering & Shipping Age.
54

Michigan Farmer
17-18-19-20-21-103-104-106-107

Modern Hospital
57-58-59-60-61-62

National Geographic
2-3-18-103-105-106-107-108

0000-NLI-000017091

- 2 -

Nations Business
2-3-103-105-106-107-108

Ohio Farmer
17-18-19-20-21-104-106

Oil and Gas Journal
63-64-65-66-67-68-69

Oil Paint and Drug Reporter
70-71-72-73-74

Oklahoma Farmer & Stockman
17-18-19-20-21-104-106

Paint, Oil & Chemical Review
70-71-72-73-75

Painter and Decorator
76-77-78-79-80

Painters Magazine
81-82-83-84-85-86-87-88-89-90-91
92-93-94

Pocket List of Railroad Officials
95-96

Prairie Farmer
17-18-19-20-21-103-104-106-107

Railway Age
97-98-99-100-101

Railway Review
97-98-99-100-101-102

Rural New Yorker
17-18-19-20-21-103-104-106-107

Saturday Evening Post
2-3-103-104-105-106-107-108

Scientific American
2-3-103-104-105-106-107-108

The Farmer,
17-18-19-20-21-103-104-106-107

Wallace's Farmer
17-18-19-20-21-104-106

Wisconsin Agriculturist
17-18-19-20-21-104-106

Save the surface and you save all the rest.

You can wash these walls

Walls painted with Dutch Boy white-lead and Dutch Boy flattening oil can be washed again and again without harm to the handsome flat finish this paint gives.

Flat paint made of Dutch Boy white-lead and flattening oil adds beauty and long life to any interior. It can be tinted to any color desired. It is easy to apply and sticks tight to the surface. It is economical because it spreads far and holds its color and finish indefinitely.

These are the reasons why painters everywhere use Dutch Boy white-lead and Dutch Boy flattening oil.

NATIONAL LEAD COMPANY
 New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 559 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut St.

American Federationist, January, 1924, issue.

Save the surface and you save all the rest.

Is paint tougher than steel?

The hardest iron and steel crumble with rust unless red-lead protects the surface. Put Dutch Boy red-lead on guard against rust destruction. It forms a tough film through which the elements cannot penetrate.

Dutch Boy red-lead withstands constant exposure in all kinds of weather. It sticks fast to metal and does not chip or scale.

Dutch Boy red-lead comes in paste form for mixing with linseed oil.

NATIONAL LEAD COMPANY
 New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 559 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut St.

23203 ¼ Page American Federationist—Feb. ★

Save the surface and you save all the rest.

Spare the paint and you spoil the house

Keep your home in good condition with Dutch Boy white-lead. Mixed with pure linseed oil, it forms a long-lasting protection against sun, rain, and snow.

This standard paint ingredient used by skilled painters everywhere is the most economical by the square foot, by the year, and by the job. It is easy to apply, brushes out smoothly, and does not chip or scale.

NATIONAL LEAD COMPANY
 New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 559 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut St.

23202 ¼ Page American Federationist—April ★

Save the surface and you save all the rest.

Weather-proof and worry-proof

Dutch Boy white-lead and red-lead keep the surfaces they cover safe from the attacks of rot and rust.

Dutch Boy red-lead puts around iron and steel a tough, elastic covering that air and moisture cannot pierce.

Dutch Boy white-lead can be mixed with pure linseed oil for exterior painting and with flattening oil for interior painting. It makes a paint that saves wood and other non-metallic surfaces from rot and deterioration.

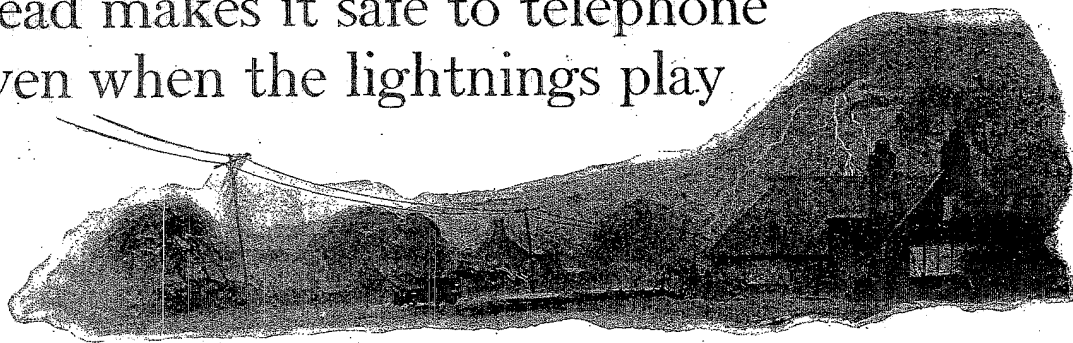
Both these Dutch Boy products are used by painters everywhere as standard protective paints.

NATIONAL LEAD COMPANY
 New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 559 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut St.

23201 ¼ Page American Federationist—March ★

0000-NLI-000017093

Lead makes it safe to telephone even when the lightnings play



PLAIN gray lead seems a stupid, lumpy metal. Yet when thunder crashes and lightning flashes around your house, that same lead enables you to use your telephone without danger of electrocution. Even if a bolt of lightning strikes the wires while you are talking, lead protects you from harm.

Lead is the principal part of the fuse which is used in the modern telephone system as a protection against unusually heavy electric currents. When a lightning bolt reaches the fuse, it melts the lead of the fuse. This stops the current and prevents it from reaching your instrument.

There are about 76,000,000 fuses in telephone systems in the country, and lead is in them all. More than 27,000 pounds of lead are used every year in renewing burned-out fuses.

A secondary protection

Every telephone line has, in addition to a fuse, a device called a protector. Small particles of lead in these protectors, which are both in the exchange and your end of the telephone line, melt when lightning strikes the line and break the line over which the current is traveling toward you. The amount of lead used in this way is about 1,000,000 pounds. Renewals require the use of about 700,000 pounds more every year.

How lead helps you phone

Lead in fuses is only one of many uses to which this metal is put in the telephone system. Every time you telephone you summon the help of lead. In the telephone instrument and box is an average of 51 soldered connections. Lead is in all of them. Exchanges in the United States and telephone lines running out of them have billions of soldered connections, with about 322,000,000 pounds of lead in them. Changes in con-

nections require the use of about 70,000,000 more pounds of lead every year.

Sheaths of lead

Millions of pounds of lead are necessary to provide snug coverings for telephone cables. One company uses in a year more than 53,000,000 pounds, to cover 35,800,000 feet of cable. Today there are in this country about 82,000 miles of telephone, telegraph, radio and elec-



tric light cable covered with lead—327,300,000 pounds of it. Along this cable are more than 6,000,000 pounds of lead for connecting and sealing the ends of cable to keep out moisture, and for terminal boxes.

Where you see lead most

IN telephone systems, you do not see it or realize the important work lead is doing. But in paint, lead in the form of white-lead, the basic lead carbonate, and red-lead, a lead oxide, is known the world over. And after all, it is this use of lead that is most universal.

For generations painters have used white-lead on such surfaces as wood, and red-lead on metal as standard protection

against the assaults of the weather. Rot cannot destroy the house whose surfaces are covered with pure white-lead and pure linseed oil. Rust cannot attack the iron and steel that are thoroughly protected with red-lead.

Property owners who jealously protect their money investments know from experience that white-lead gives the surest protection for the surfaces of their houses. These owners have learned the truth of the words, "Save the surface and you save all." They realize now that the cost of good paint is secondary to protection of the covered surface.

Producers of lead products

Dutch Boy white-lead is the name of the pure white-lead made and sold by National Lead Company. On every keg of *Dutch Boy white-lead* is reproduced the picture of the Dutch Boy Painter shown below. This trade-mark guarantees a product of the highest quality.

Dutch Boy products also include red-lead, linseed oil, flattening oil, babbitt metals, and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.

If you wish to read further about this wonder metal, we can tell you of a number of interesting books on the subject.

The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Company, New York. If you are unable to get it at your bookstore, write us or the publishers.



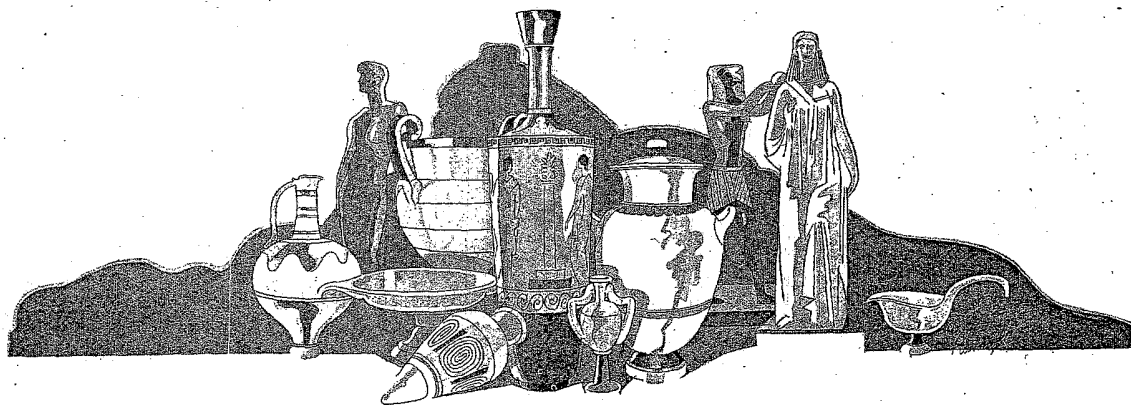
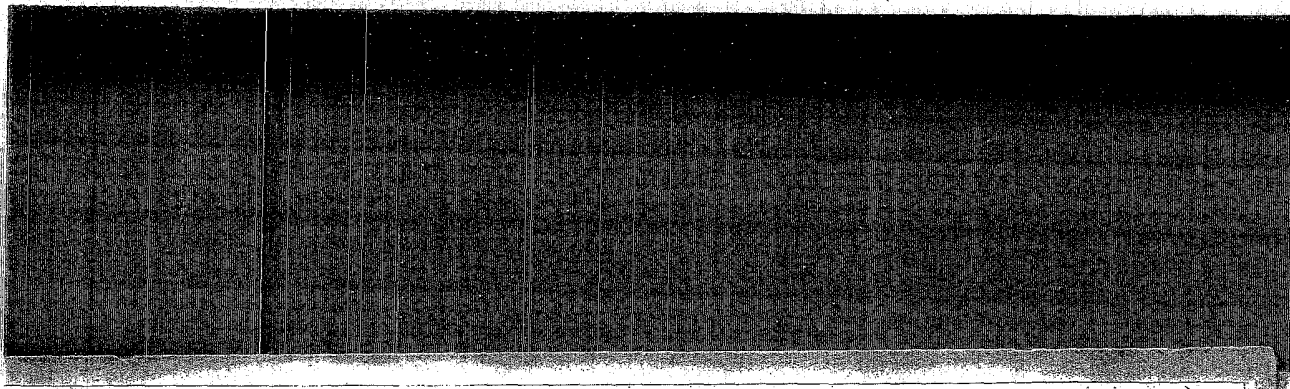
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 405 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

0000-NLI-000017094

This advertisement will appear in the following:-

American, May
Saturday Evening Post, May 2



LEAD gives to chinaware its beauty and lustre

GLAZED china is nothing more than clay shaped in various forms and covered with a thin skin of glaze. It is this thin coating that transforms the rough porous clay body into a beautiful, smooth, lustrous china plate or cup or saucer. And in making this glaze, lead has always been one of the most essential ingredients.

For twenty centuries pottery has been coated with lead glazes. Green pottery made in China during the Han dynasty (206 B.C. to 220 A.D.) bore a lead glaze, as did the pottery of the ancient Assyrians and Egyptians. For hundreds of years Europe and every country influenced by European civilization have used pottery made of common clay covered with lead glazes.

At the very beginning of the pottery industry the desirability was recognized of using the lead products—white-lead, red-lead and litharge—in the manufacture of fine chinaware. With the growth of the industry there arose the need for the manufacture of these lead products by companies, such as National Lead Company, from which the pottery maker could depend on getting white-lead or red-lead or litharge of the required purity and fineness.

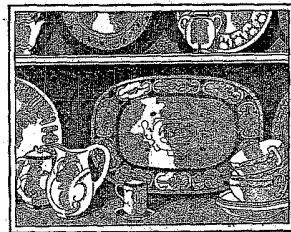
Quantity of lead used

Today many thousands of pounds of lead are used every year in making both transparent lead glazes for fine chinaware and brilliant, glossy opaque enamel glazes put on sanitary bathroom fixtures, swimming pool, bathroom and kitchen tile and ornamental tile. In connection with enamel glazes on sanitary ware, potters say that those with a high percentage of lead adhere better to the metal base and are less likely to crack.

Any one of the three

lead products, white-lead, red-lead or litharge, can be used in making lead glazes. But potters usually prefer white-lead for the finest and purest results. Red-lead and litharge, however, if absolutely pure, make just as white a glaze as white-lead.

Makers of fine chinaware will use, as does one manufacturer, as much as 80,000 pounds of white-lead a year and only 1,000 pounds of red-lead. Others in the industry use large quantities of red-



The glaze on this china contains lead. The clay body is covered with the glaze mixture and is then heated to a high temperature to fix the glaze.

lead. They will reverse the above figures and use many times as much red-lead as white-lead.

The use of lead paint

ALTHOUGH lead in pottery is constantly serving and helping to beautify your home, the tonnage of lead used in this way is not so great as that used in paint. Everywhere you go you see white-lead paint protecting houses from the attacks of weather. For generations the professional painter has used white-lead to save the surface. From our forefathers' time it has always been the standard for surface protection. Approximately 350,000,000 pounds of white-lead are used on wooden and other non-metallic sur-

faces each year. Red-lead paint prevents rust from eating into and destroying iron and steel.

So long as property is adequately covered with white-lead and red-lead, rot and rust cannot harm it. Property owners are awakening to the realization that paint protection is real economy. Many who never before seriously considered the truth of the maxim, "Save the surface and you save all," are now using white-lead and red-lead to protect their investments.

Save the surface and you save all.

Producers of lead products

Dutch Boy white-lead and Dutch Boy red-lead are the names of the pure white-lead and red-lead made and sold by National Lead Company. On every keg is reproduced the picture of the Dutch Boy Painter shown below. This trademark guarantees a product of the highest quality.

Dutch Boy products also include linseed oil, flattening oil, babbitt metal and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write us.

If you wish to read further about this wonder metal, we can tell you of a number of interesting books on the subject. The latest and probably most complete story of lead and its many uses is "Lead, the Precious Metal," published by Century Co., New York. Price, \$3.00. If you are unable to get it at your bookstore, write the publisher or send your order through us.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 151 State St.; Buffalo, 116 Oak St.; Chicago, 909 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 890 West Superior Ave.; St. Louis, 723 Chestnut St.; San Francisco, 446 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 315 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 457 Chestnut Street.

This advertisement will appear in the following publications:

American—December

National Geographic—December

Scientific American—December

Nations Business—December

Saturday Evening Post—December 6

0000-NLI-000017095



Pure Linseed Products

delivered when you want them

You can get prompt shipment on any of the following linseed products from our warehouses, which are conveniently located throughout the country. All these products are manufactured under a guarantee of absolute purity backed by more than a century's experience:

Dutch Boy linseed oil
Dutch Boy flatting oil
Raw, boiled, double-boiled
and blown linseed oil
Linseed oil cake
Linseed oil meal

Write to our nearest branch for complete information on any of these products. We shall also be glad to send you samples and quote prices on any quantity you desire.

*"Save the surface and
you save all" - ~~and~~ *Linseed**

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut Street; San Francisco, 465 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

*This advertisement appears in the following magazine:
American Paint Journal, May 19, 1924 issue*

0000-NLI-000017096



Paint Products of unvarying excellence

For more than a century we have been making paint products under a positive guarantee of unvarying excellence. We shall be glad to have you determine the true value of this guarantee the next time you need—

White-lead	Red-lead
Linseed oil	Flatting oil
Basic Lead Sulphates	
Colors, dry and in oil	

With branches located throughout the country in convenient distributing centers, we can give you immediate delivery of any of these products. Just send your order to the branch that is nearest to you.

"Save the surface and
you save all" — *Arch. & Build.*

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State St.; Buffalo, 116 Oak St.; Chicago, 200 West 12th St.; Cincinnati, 609 Freeman Ave.; Cleveland, 320 West Superior Ave.; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 487 Chestnut St.

*This advertisement appears in the following magazine:
American Paint Journal, May 26, 1924 issue*

When you buy

Dry white-lead
Paste white-lead
Coach and car lead
Flake white

with each order you also receive a recognized guarantee of quality. This certifies that every ounce of white-lead shipped you is strictly pure, extremely fine in texture and uniformly white—a guarantee made possible by over a century's experience backed up by constant laboratory research.

Distributing centers throughout the country can give you quick delivery on any of these products in any quantity.

Write to our nearest branch for more specific information and current prices.



"Save the surface and
you save all" *—The Lead*

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.;
Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 320
West Superior Ave.; St. Louis, 722 Chestnut Street; San Francisco, 485
California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth
Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

*This advertisement appears in the following magazine:
American Paint Journal, June 16, 1924 issue*

Lead Oxides as specified

You can always rely upon getting from us lead oxides of the specified fineness, purity, and color.

Our red-lead and litharge are right for glass-, varnish-, rubber-, and battery-making and for oil refining.

We also make painters' red-lead and assayers' and paper-makers' litharge.

Orange mineral made by us is unusually fine and pure in color for the manufacture of vermilion, printing-ink and dipping paint.

Our nearest branch will give you prompt shipment and will also gladly send you prices and any other specific information you desire.



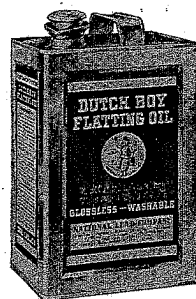
Dry red-lead
Paste red-lead
Liquid red-lead
Litharge
Orange mineral

"Save the surface and
you save all" *—The Paint Journal*

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.;
Chicago, 909 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820
West Superior Ave.; St. Louis, 722 Chestnut Street; San Francisco, 485
California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth
Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

*This advertisement appears in the following magazine:
American Paint Journal, June 23, 1924 issue*



A new era in flat finishes

FOR sheer richness of finish, or for spreading rate per gallon, or for high speed of application, the advent of Dutch Boy flatting oil has opened a new era, an entirely unprecedented conception, in flat finishes.

This is a strong statement, and we expect you to question it. We want you to be skeptical—to check us up on it. Once you try Dutch Boy flatting, we know you will thank us for "putting you next" to a flatting medium which marks a new era in interior decoration.

Like a rubbed-down job

If you have never done a job with white-lead and Dutch Boy flatting oil, there is a treat in store for you. You will marvel that such a handsome finish is possible with flowed-on flat paint.

Being a varnish-type vehicle, Dutch Boy flatting oil produces a silky, solid, substantial finish on the order of a rubbed-down job. The finish is not dead and lifeless. It is more like the handsome matt finish of an eggshell.

"Goes on like butter"

Actual cost figures from a number of contracting painters show an almost unbe-

lievable speed in application and an unusually great covering power per gallon. Savings such as these are always worth while, but especially so in these days of high labor costs.

Painters say that paint made with Dutch Boy flatting oil "goes on like butter." It flows smoothly from the brush. It levels itself nicely.

Of major importance, too, is the fact that Dutch Boy flatting oil makes a flat paint which sets so slowly that a helper is not required in working on long stretches. One man can do a whole room alone without risk of laps and joints showing.

Just add it to the lead

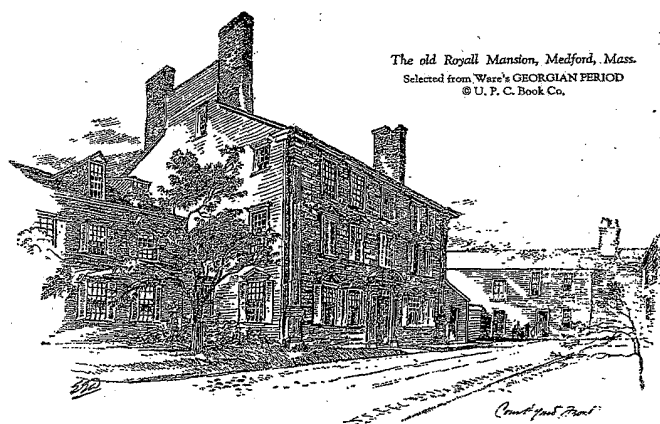
Dutch Boy flatting oil is complete in itself. It contains exactly the right amount of every ingredient to insure a fine job. Add no turpentine. Add no linseed oil. Add no drier. Just mix the flatting oil into the white-lead and "go to it." Full directions on the one- and five-gallon cans.

Use Dutch Boy flatting oil as per directions (just as it comes in the can) and you will be rewarded with astonishingly pleasing results and lower labor costs.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

DUTCH BOY FLATTING OIL



The old Royall Mansion, Medford, Mass.
Selected from Ware's GEORGIAN PERIOD
© U. P. C. Book Co.

Built in the days of Miles Standish

AMONG the Colonial homes still standing, few appeal to architects with such dignity and stateliness as the Royall House in Medford, Mass.

A small part of this mansion was built in 1632 by Governor Winthrop and is reputed to be the oldest existing structure in America. In 1732 Isaac Royall began enlarging the original building. The Royall House as it stands today was completed in 1738.

Wood is the principal construction material. Part of the exterior is in the original white pine, almost three hundred years old. The whole structure is in excellent condition, due largely to the character of the wood and the protection afforded by paint.

The main doorway on the east is flanked by Doric pilasters, and the porch at the south side, supported by Doric columns, is said to be a particularly fine example of Georgian architecture.



An unusual feature of this Colonial house is the vertical emphasis obtained from the treatment of the windows.

Placed one above the other, they seem to increase the height of this three-story structure.

On the west facade the corners of the house are finished with pilasters resting on unusually high pedestals. The corners of the east facade are rusticated.

*These measured drawings
sent free*

All of these Royall House details have been accurately measured and drawn by A.C. Fernald and F.C. Adams. These and other measured drawings will be sent to any architect requesting Portfolio No. 00 of Early American Architecture.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.

*Save the paper and
you save all the world.*

NATIONAL LEAD COMPANY

Makers of Dutch Boy white-lead, the logical choice for preserving and beautifying distinctive design.
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 620 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co., of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

This advertisement appears in the following publications:

Page—*Architectural Forum*—Jan.

Page—*American Architect*—Jan. 2

0000-NLI-000017101



Trinity Church, Newport, R. I.
From original sketch by C. R.
Eggers appearing in Sketches of
Early American Architecture.

TRINITY CHURCH at Newport, Rhode Island, was built in 1726. It is typical of the churches erected in New England during the early history of the Colonies.

This church stands today in the old part of Newport, hedged in by small wooden structures and narrow, quaint streets, reverently preserving the dignity and quiet refinement that characterized New England meeting houses.

Old Trinity has always been associated with stirring scenes of early wars. During the occupation of Newport by the British, a fire destroyed a large part of the town. Among the few structures to escape the flames was Trinity Church. Down through the years it has been stoutly protected from every threatened danger.

The Colonial architect-builder who erected old Trinity has long since been forgotten. Yet his craftsmanship still lives in the careful handwork of doorway, pulpit and tall spire.

This work, according to architects, is best shown in the delicate moldings of pulpit and sounding board, which are broken above and below the

pilasters. These are set back a little, giving to pulpit and reading desk an effect of soft lights and shadows. Square and fluted piers support the vaulted ceiling.

*Detailed drawings of
Trinity sent free*

This pulpit, sounding board, vaulted ceilings and other interesting details of old Trinity have been

measured and drawn by Frank E. Wallis, architect, New York. These measured drawings, together with those of other Colonial buildings, are now ready for mailing to any architect requesting a set. Simply write us for Portfolio No. 2 of Early American Architecture.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.



Save the surface and
you save all the detail

NATIONAL LEAD COMPANY

Makers of Dutch Boy white-lead, the logical choice
for preserving and beautifying distinctive design

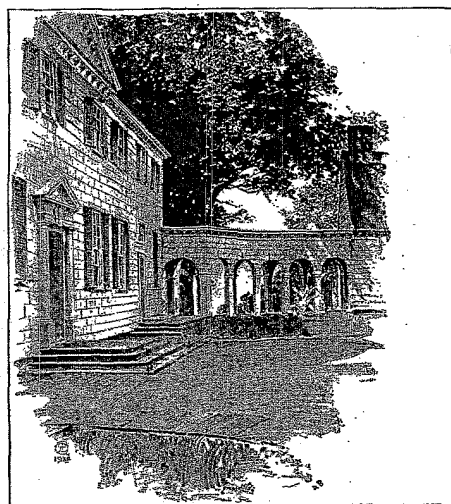
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 520 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 630 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 483 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 4th Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

This advertisement appears in the following publications:

Page—*Architectural Forum*—Feb.

Page—*American Architect*—Jan. 20

0000-NLI-000017102



Mt. Vernon, Va., from the original sketch by O. R. Eggers appearing in "Sketches of Early American Architecture."

The home of WASHINGTON, statesman and architect

ON the right bank of the Potomac, in Fairfax County, Va., stands Mount Vernon, the home of George Washington.

The stately Colonial mansion was built in 1743 by Lawrence Washington, an older brother of George. In 1784 George Washington developed the arrangement of the present buildings.

Mount Vernon as it stands today is 96 feet long by 30 feet, with two stories and a generous garret. A portico extending the whole length of the river front is carried on square columns. Above the entablature of this portico runs a light balustrade. Three dormer windows pierce the river side of the roof; there are two on the west, and one on each of the ends. A small observatory with spire cuts the center of the ridge.

The house proper is built entirely of wood, very solidly framed. The outer covering is of broad, thick boards, worked into chamfered panels to give the appearance of stonework. You would expect that these boards and panels should have split and rotted long ago. Yet they are in

perfect condition today, protected as is the rest of this staunch old building with white paint.

Detailed drawings of Mount Vernon sent free

A copy of the original "grounds plan" for Mount Vernon, together with detailed measured drawings by T. E. Laist, forms part of our new Portfolio of Early American Architecture. This portfolio also contains measured drawings of other important Colonial buildings. It will be sent free to any architect who writes for Portfolio No. o.

The historical notes you have just read will not, however, appear in the portfolio. So keep this page for reference after you receive your portfolio.



NATIONAL LEAD COMPANY

Makers of Dutch Boy white-lead, the logical choice for preserving and beautifying distinctive design

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 699 Freeman Ave.; Cleveland, 620 West Superior Ave.; St. Louis, 721 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros., 437 Chestnut St.

This advertisement appears in the following publications:

Page—*Architectural Forum*—March

Page—*American Architect*—Feb. 27th

0000-NLI-000017103

BENEDICT ARNOLD'S home

*Considered by architects
as the best example
of Georgian work in
Philadelphia.*

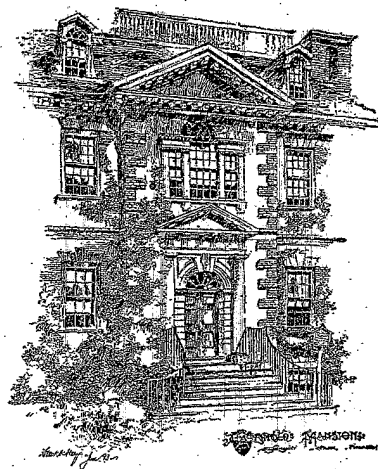
MANY families prominent in the early history of our country have lived in this spacious Colonial home: It was built in 1761 for John MacPherson, a wealthy merchant and mariner of Philadelphia. Don Juan Miralles, Spanish Minister, occupied it in 1777. Benedict Arnold bought the estate in 1779 for £17,000, but forfeited it in 1781 under the Act for the Attainder of Traitors.

Baron de Steuben, Inspector-General of the Army under Washington, also resided at Mt. Pleasant. It became the property of Philadelphia in 1868.

The stateliness of this old mansion, architects agree, is due largely to its impressive height emphasized by a predominance of vertical lines. The hip roof, for example, is heightened in effect by a high balustrade. The four dormers, which light the attic, and the tall chimneys, obscured within the walls until they emerge above the roof, also accent the vertical lines.

In its construction, architects consider Mt. Pleasant particularly interesting. The 18-inch walls are reared upon a gray ashlar base 6 feet high. Two courses of molded brick appear at the level of the first floor. The walls above this brick base are stuccoed a reddish buff color, and continue by means of tooling the rectangular pattern of the masonry below.

Quoins, five bricks high, carry the brickwork decoration past a band-course at the second floor level and upward to the main cornice. Lintels of brownish stone incised in imitation of flat arches span the window openings. The broad window frames and all other woodwork are painted white.



Mt. Pleasant, or Arnold's mansion, was built in 1761. It overlooks the Schuylkill River in what is now Fairmount Park, Philadelphia.

This portfolio of drawings sent to you

The most important interior and exterior details of Mt. Pleasant mansion have been accurately measured and drawn by Chas. L. Hillman. These measured drawings form only a part of a working size, loose-leaf Portfolio of Early American Architecture. A copy will be sent without charge to any architect requesting it. Just write us for Portfolio No. 2.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.



NATIONAL LEAD COMPANY

Makers of Dutch Boy white-lead, the logical choice for preserving and beautifying distinctive design

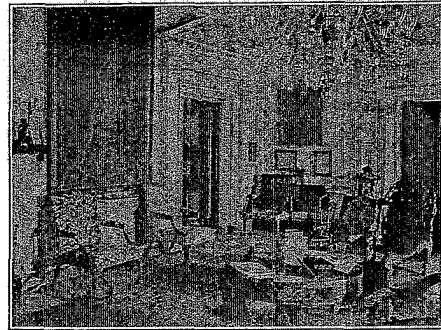
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 639 Freeman Ave.; Cleveland, 520 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co., of Pa., 316 4th Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

This advertisement appears in the following publications:

Page—*Architectural Forum*—April
American Architect—March 26

0000-NLI-000017104

Drawing-room, Bull-Pringle House, Charleston, S. C. Selected from Wace's Georgian Period. © U. P. C. Book Co.



BULL-PRINGLE'S

famous Colonial Room

THE BULL-PRINGLE HOUSE was built in 1765 by Miles Brewton, a wealthy merchant of Charleston, S. C. It is simple and plain in its plan, sturdy in construction, and stately in effect.

Today architects regard it as a notable example of the two-story porch treatment in Colonial architecture.

The main doorway, centrally placed and flanked by pilasters, leads into a stone-flagged hall. This hall runs through to the rear, dividing the lower floor into two suites.

At the rear of this hall is a handsome mahogany staircase of two flights, with gracefully turned banisters and carved stair-ends. The half-pace landing at the end of the first flight is lighted by a deeply recessed three-light window. From this landing an excellent view is obtained of the quaint old courtyard in the rear and the slave quarters.

The upper hall of this old Colonial mansion is very dignified and elaborate, with heavily pedimented doors to the chambers and a deeply arched entrance to the drawing-room.

Passing into this drawing-room, even a casual observer is quickly impressed with its atmosphere of old-time splendor. Expert critics have pronounced this drawing-room as the most beautiful Colonial room in America. It is a long, inviting

chamber, with a rich dado, handsome cornice, and elaborate mantel which is carried up to the coved ceiling.

Lofty paneled walls complete the charm of this spacious room. Painted throughout in tints of cream and ivory, these walls add warm hospitality to a room which would otherwise be severely formal.

You can use these measured drawings

The interiors of the Bull-Pringle House have been accurately measured and drawn by E. Eldon Deane. These measured drawings, together with full-size plates of other Colonial

structures, both exteriors and interiors, have been compiled in a Portfolio of Early American Architecture. Write us for your copy of Portfolio No. 2.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.



Save the expense and you own all the detail!



Front view of Bull-Pringle House showing the two-story Colonial porch.

NATIONAL LEAD COMPANY

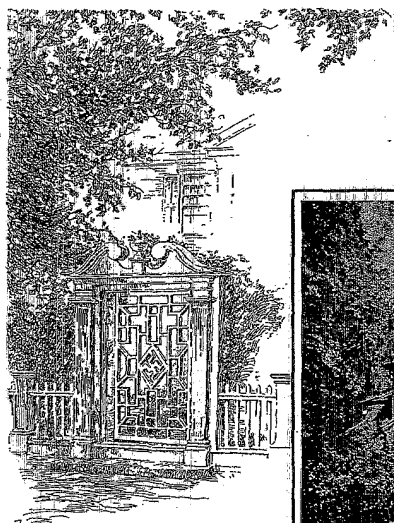
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This advertisement appears in the following publications:

Page—*Architectural Forum*—May
American Architect—April 23

0000-NLI-000017105



Ornate, carved wood gateway of the Thomas Cowles House

The THOMAS COWLES HOUSE, Farmington, Conn.
Courtesy "White Pine Architectural Monographs"



Built by a soldier of fortune

IN 1790, William Spratz, a soldier of many flags, built the Thomas Cowles House at Farmington, Conn. After almost 150 years, it still attracts the eye of all who appreciate beauty born of simplicity and correctly proportioned design.

Upon first glance at this eighteenth-century house, one sees a sloping gambrel roof, pierced by dormers and tall chimneys, the whole comfortably resting on corners made prominent by skilful rustication.

Closer observation reveals a Palladian window, detailed in pilasters and topped by cornice and pediment, which is placed in the center of the second story. This window extends out over the doorway and is supported by two columns from the ground floor. Architects agree that this simple composition forms an entrance which is the embodiment of old-time hospitality.

At the present time, this Colonial house, constructed entirely of white pine, is said to be in perfect condition. The exteriors are painted in light brown with a dark brown trim. The interiors—

spacious staircase-hall and rooms decorated with richly moulded cornice and carved mantels—are all finished in white.

Write to us for these measured drawings

C. Bertram French, architect, New York, has accurately measured and drawn the most interesting details of the Thomas Cowles House. These drawings with others have been compiled in a Portfolio of Early American Architecture. It will be sent free to any architect requesting Portfolio No. 2.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.



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This advertisement appears in the following publications:

Page—*Architectural Forum*—June

American Architect—May 21

0000-NLI-000017106

City Hall, New York
from an original sketch by O. R. Eggers appearing
in "Sketches of Early American Architecture"



New York City Hall restored from time-faded drawings

Modern wonders of architecture overtop New York's City Hall on every side. Yet to this day architects regard this old building as unexcelled for perfect proportions and beautiful design.

It was built in 1803-12 at a cost of \$500,000, an enormous expenditure in those early days of city finance. John McComb, Jr., the architect-builder, received but six dollars a day for his services. For this sum he developed a set of drawings which are considered today as excellent examples of artistic skill.

From these old drawings made by McComb, all but one of the historic interiors of City Hall, which had been altered by changing city authorities, have now been restored as nearly as possible to their original design.

The thoroughness with which this restoration work has been preserved and protected for future generations is shown by the treatment of the Governor's suite.

This suite is finished in a mellow cream enamel. Foundation coats of Dutch Boy white-lead and oil were followed by two coats of enamel. Each coat of paint was thoroughly sandpapered. The enamel was rubbed down with pumice stone and water.



The restoration and decoration of the Governor's suite, as well as the other interiors of New York's City Hall were executed by Grosvenor

Atterbury, Architect, F. A. I. A., with the collaboration of his associate, John Almy Tompkins.

*Plates of John McComb's original
drawings sent free*

In all of this restoration work, McComb's original drawings, wherever they existed, were painstakingly followed. We have been permitted to reproduce a few of these drawings in a Portfolio of Early American Architecture, which also contains accurate measured drawings of other noteworthy Colonial buildings. It will be sent free to any architect who writes for Portfolio No. _____

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.

*Save the article and
you save all the detail*

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Edgewood, near Edgefield, S. C.
Selected from Ware's Georgian Period
© U. S. C. Book Co.

This building blends Colonial with Greek design

EDGEWOOD, near Edgefield, S. C., was once the home of Governor Francis W. Pickens. Built in 1830, it is typical of the interesting Colonial houses to be found in the South.

It is a modest structure, intended for use as an ordinary dwelling. It rambles over the ground with true Southern disregard of space till the front spans a length of full forty yards.

"That the architectural thought is Colonial," says a prominent architect, "is told not only by the successful refinement of the mouldings of the main portico and the decoration of the front with the pediment, but most of all by the artistic feeling that dictated the treatment above the column caps with a series of elliptical arches.

"In the flat pediments of the pavilions there are traces of the influence of the Greek Revival, while the caps and bases are naive imitations of the proper forms. The main house, pavilions and connecting galleries are faced with a long veranda which adds an attractive touch to the structure."

Colonial houses in the South, such as Edgewood,

are generally painted white or light tints of brown or yellow, occasionally with a darker trim. From generation to generation, paint has given lasting protection to these old Southern homes.

These measured drawings will be sent you free Detailed drawings of Edgewood exteriors have been made by E. P. Morrill. They form part of a working-size, loose-leaf portfolio of accurately measured Colonial exteriors and interiors. We have your copy of Early American Architecture ready to mail to you. Write us for Portfolio No. 2.

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This advertisement appears in the following publications:

Page—*Architectural Forum*—August
American Architect—July 16

0000-NLI-000017103



Lead makes it safe to telephone

WHEN thunder crashes and lightning flashes about your farm, lead enables you to use your telephone without danger of electrocution.

Lead is the principal part of the fuse used in the modern telephone system. When a lightning bolt reaches the fuse, it melts the lead of the fuse. This stops the current and prevents it from reaching your instrument and you.

Every time you telephone, you summon the aid of lead. Millions of pounds of lead are in soldered connections in telephone exchanges and telephone lines throughout the country. Many more millions of pounds of lead are necessary to provide coverings for telephone, telegraph, radio and electric light cables.

White-lead paint for exterior or interior use can be tinted to any desired color.

Rust cannot destroy the metal that is thoroughly protected with red-lead. The maxim, "Save the surface and you save all," applies to metal just as surely as it does to non-metallic surfaces.

Handy Book on Painting

If you want to know how to save the surface of wood, masonry or metal on your farm with paint, write for our *Handy Book on Painting*. This book is a storehouse of paint facts and formulas and will be sent free on request.

Producers of lead products

Dutch Boy white-lead and *Dutch Boy red-lead* are names of the pure white-lead and red-lead made and sold by National Lead Company. On every keg of *Dutch Boy white-lead* and *Dutch Boy red-lead* is reproduced the picture of the Dutch Boy Painter shown below. This trademark guarantees a product of the highest quality.

Dutch Boy products also include linseed oil, flattening oil, bab-bitt metals, and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.



In telephone systems you do not see lead or realize the important work it does. But in paint, lead in the form of white-lead, the basic lead carbonate, and red-lead, a lead oxide, is known the world over. About 550,000,000 pounds of white-lead are used in paint each year, while approximately 20,000,000 pounds of red-lead are applied to metal annually in this country.

Paint cheaper than wood

Farm owners who zealously protect their property know from experience that white-lead gives the surest protection for the surfaces of their houses. Rot cannot destroy the outside surfaces of farm houses that are covered with pure white-lead and pure linseed oil. For painting interior walls and ceilings, pure white-lead and flattening oil give protective finishes of unusual beauty.



"Save the surface and you save all."

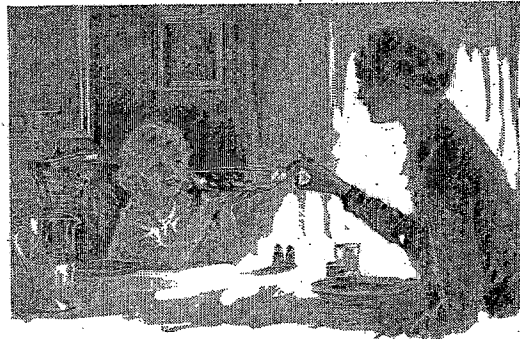
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This advertisement appears in the following publications:

Breeder's Gazette—May 8
Heard's Dairyman—May 9
Ohio Farmer—May 10
Indiana Farmer's Guide—May 17
Prairie Farmer—May 24
Wallace's Farmer—May 30
Oklahoma Farmer and Stockman—May 25
Wisconsin Agriculturist—May 10
The Farmer—May 3
Kansas Farmer's Mail and Breeze—May 10
Rural New Yorker—May 17
Michigan Farmer—May 24

0000-NLI-000017109



"Look-it glistens.

Hold it—it's heavy. Tap it—it rings."

YOU tell fine glass with your eyes, hands, and ears. In the light, the bowl glistens with the rainbow's colors. In your hand, it is heavier than the common glass bowl. When you strike it, you hear a clear, bell-like ring.

Lead, that dull, unattractive metal, in the form of litharge and red-lead (oxides of lead) is responsible for the brilliance of fine glass. It also gives weight to glass. The piece of fine plain glass or cut glass you pick up may be anywhere from 20% to 50% lead.

Although lead helps to make glass an object of admiration, it conceals itself so that there is no visible sign of its presence. It is in its more general use as paint that you can see it on every hand.

On farm houses, barns, fences, any wooden or non-metallic surface, white-lead stands forth

surfaces. Red-lead saves iron fences, iron and steel implements and machinery from rusting out instead of wearing out in service.

Thousands of property owners today believe in the phrase, "Save the surface and you save all." They realize that it is more economical to cover their property with white-lead and red-lead than to pay for the damage that the weather soon does to unpainted surfaces.

A hundred pages of paint facts

If you want to know how to save the surface of wood, masonry or metal on your farm with paint, write for our "Handy Book on Painting." This book is filled with essential paint facts and formulas and will be sent free at your request.

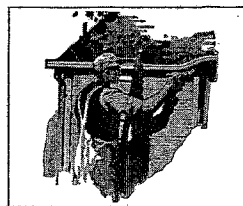
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National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry, and daily life. If you want information regarding any particular use of lead, write to us.

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This man is giving the farm house white-lead protection against the attacks of the weather.

boldly, defying storms and sunshine, air and moisture, in their attempts to start decay. On metal farm equipment, red-lead prevents rust from beginning its work of destruction. White-lead paint and red-lead paint are signs of freshness and cleanliness, of safety against weather attacks, of protection against loss of money invested in the property they cover.

Save the cost of rot and rust

Once upon a time wood was cheaper than paint. That was long ago. It is more economical today to keep house and barn surfaces thoroughly protected with paint—white-lead paint—than to repair and replace rotted parts or to rebuild perhaps after the unprotected house or barn has crumbled under the attacks of the weather.

People everywhere have proved the effectiveness and economy of pure red-lead protection for all metal



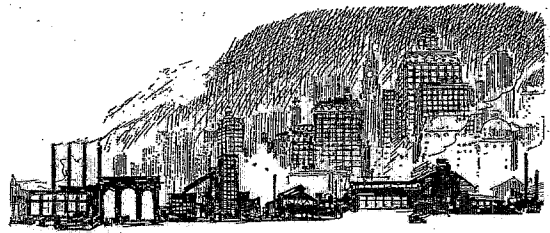
Save the surface and you save all.

This advertisement appears in the following publications:

Breeder's Gazette—June 12
Hoard's Dairyman—June 13
Ohio Farmer—June 14
Indiana Farmer's Guide—June 21
Prairie Farmer—June 28
Wallace's Farmer—June 20
Oklahoma Farmer and Stockman—June 25
Wisconsin Agriculturist—June 14
The Farmer—June 7
Kansas Farmer & Mail and Breeze—June 14
Rural New Yorker—June 21
Michigan Farmer—June 28

National Geographic June

0000-NLI-000017110



Lead gives light when darkness comes

BLACK clouds hide the midday sun. A storm breaks over a community. Everywhere people turn on electric lights.

In the emergency the power plant must supply electricity up to capacity. But only two of the generators are running. Where does the additional current come from?

The electrician turns on the current from many storage batteries. These batteries, made mostly of lead, provide the extra current until other generators are started.

Lead storage batteries are an essential part of the nation's life. They provide power for running farm machinery. They furnish electrical energy for ignition systems of tractors; for starting, lighting and ignition systems of automobiles.

Lead storage batteries propel street cars and electric vehicles. They operate drawbridges and railroad signals. They help to fire guns on warships and to propel submarines under the water's surface.

Where lead serves as paint

Lead aids man faithfully and well in the storage battery. Many millions of pounds of lead are in storage batteries in this country.

But lead serves the nation more generally as paint. For protecting metal surfaces against the attacks of rust, red-lead paint has long been the standard. It guards city skyscraper skeletons, bridges, gas tanks. Red-lead should protect your farm machinery and all metal surfaces on your farm equipment against rust.

Rust costs millions

Every year about \$600,000,000 worth of machinery, tools and metal implements is made useless by rust. Farmers bear a great deal of this loss—a loss which paint would help to prevent. The harrow that lies half buried in dead weeds out back of the wagon shed; the hay rake that stands next to the fence near the end of the lane that leads to a marsh; the binder that is not under shelter—all these become sacrifices to rust unless protected by paint.

Where farmers keep their metal equipment protected by red-lead paint, that equipment is safe from rust, from rapid deterioration and eventual destruction.

Just as red-lead saves metal so white-lead keeps wood and non-metallic surfaces from rotting away. White-lead has been a standard protective paint for generations. Today you can see it everywhere in city and country. Like red-lead it sticks tightly to the surface, is impervious to air and moisture and lasts long.



Many pages of paint facts

If you want to know how to save the surface of wood, masonry or metal on your farm with paint, write for our "Handy Book on Painting." This book is a storehouse of essential paint facts and formulas and will be sent to you free on request.

Producers of lead products

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Dutch Boy products also include white-lead, linseed oil, flattening oil, babbitt metals, and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.

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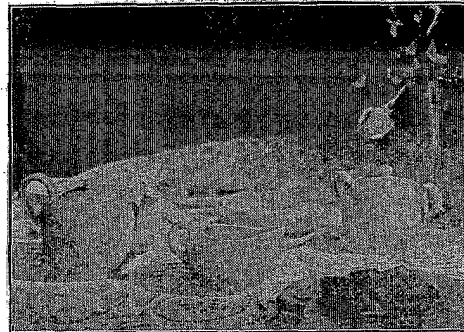


"Here the surface and you are all the time."

This advertisement appears in the following publications:

Half Page—*Breeder's Gazette*—Nov. 13
Hoard's Dairyman—Nov. 14
Ohio Farmer—Nov. 15
Indiana Farmer's Guide—Nov. 22
Prairie Farmer—Nov. 29
Wallace's Farmer—Nov. 21

Oklahoma Farmer and Stockman—Nov. 25
Wisconsin Agriculturist—Nov. 8
The Farmer—Nov. 1
Kansas Farmer, & Mail & Breeder—Nov. 8
Rural New Yorker—Nov. 15
Michigan Farmer—Nov. 22



Lead gives to chinaware its beauty and lustre

GLAZED china is nothing more than clay shaped in various forms and covered with a thin skin of glaze. It is this thin coating that transforms the rough, porous clay body into a beautiful, smooth, lustrous china plate or cup or saucer. And in making this glaze, lead has always been one of the most essential ingredients.

Any one of the three lead products—white-lead, red-lead, or litharge—can be used in making lead glazes. Makers of fine chinaware will use as much as 80,000 pounds of white-lead a year and only 1,000 pounds of red-lead. Others in the industry use large quantities of red-lead. They will reverse the above figures and use 80 times as much red-lead as white-lead.

Where most lead is used

Although lead in pottery is constantly serving and helping to beautify your home, the tonnage of lead used in this way is not so great as that used in paint. Everywhere you go you see *white-lead paint* protecting houses from the attacks of weather.

There is no finer paint than pure white-lead and linseed oil for protecting exterior wooden surfaces from rot and decay. And nowhere is such protection so needed as on farm buildings. Exposed to the full sweep of wind and storm, all houses, barns, and other wooden structures should have adequate coverings of white-lead paint.

In these days when building costs are so high, the far-seeing farmer protects with white-lead paint the money he has invested in his property. In other words, he believes in the slogan, "Save the surface and you save all."

Ask any experienced painter what you should do to save your property from the attacks of the weather. He will tell you to keep it covered with white-lead paint.

He and his fellow craftsmen have used it for generations. Painters know its qualities and have confidence in it.

Red-lead for metal surfaces

Red-lead paint is to iron and steel surfaces what white-lead is to wood. It prevents rust and rust is just as sure to destroy your unpainted machinery, your tools as rot is to destroy your unpainted house or barn. Save wooden surfaces with white-lead paint, and the metal with red-lead.



This man is giving the farm house white-lead protection against the attacks of the weather.

A hundred pages of paint facts

If you want to know how to save the surface of wood, masonry or metal on your farm with paint, write for our "Handy Book on Painting." This book is filled with essential paint facts and formulas and will be sent free at your request.

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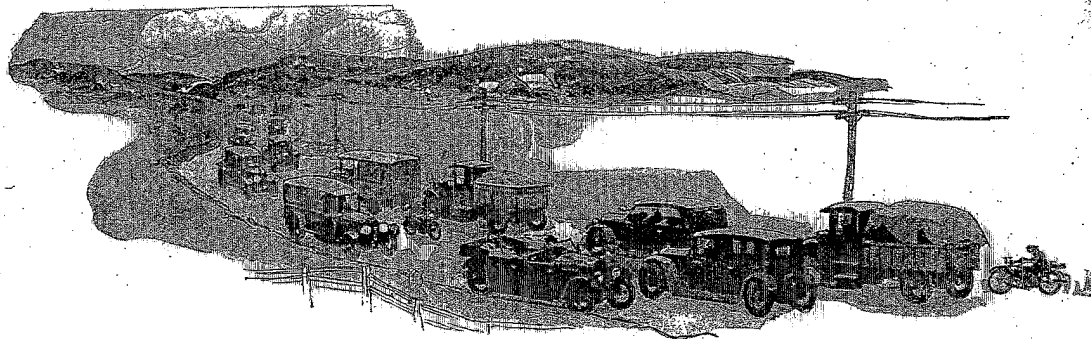
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 181 State Street; Buffalo, 110 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 630 West Superior Avenue; St. Louis, 702 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 218 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 487 Chestnut Street.

This advertisement appears in the following publications:

Half Page—Breeder's Gazette—Dec. 11	Oklahoma Farmer and Stockman—Dec. 10
Hoard's Dairyman—Dec. 12	Wisconsin Agriculturist—Dec. 13
Ohio Farmer—Dec. 13	The Farmer—Dec. 13
Indiana Farmer's Guide—Dec. 20	Kansas Farmer, & Mail & Breeze—Dec. 13
Prairie Farmer—Dec. 27	Rural New Yorker—Dec. 13
Wallace's Farmer—Dec. 19	Michigan Farmer—Dec. 20

0000-NLI-000017112



Tons of lead roll along every highway

HOW much lead is in your automobile—your truck—your tractor? In all the new motor vehicles built annually there are about 110,000,000 pounds of lead.

It is in motor cars that roll along roads and city streets. It is in the farm trucks and tractors that carry your products and help cultivate the soil and harvest your crops.

Where the lead is

The storage battery, which provides electric current for the tractor's ignition system and for the starting, lighting and ignition of truck and automobile, is mostly lead. Lead-tin solder seals the seams of the gasoline tank and radiator of motor car and truck. It is used in the generator that charges the lead storage battery.

Lead is in the hard rubber switch button in your automobile, the soft rubber insulation about the wiring of your engine. Your rubber tires, the rubber top of your car, and the rubber mat on your car step contain lead. Electric light bulbs on your car are made of lead glass. The gasoline you use has been refined with the aid of litharge, a lead oxide.

Where you find the most lead

Lead serves you long and faithfully in your motor vehicles. But as paint lead is more widely used. In the form of paint, lead helps to protect your house, your farm buildings and farm equipment.

In one year approximately 350,000,000 pounds of white-lead paint are used in this country on wooden and other non-metallic surfaces. Nearly 20,000,000 pounds of red-lead paint are applied to metal surfaces annually.

This record shows the awakening of property owners everywhere to the necessity and economy of paint protection.

Air and moisture are deadly enemies of wood and metal. They find easy prey in the farm house, barn, fence and silo that are unprotected by paint.

White-lead a standard protective paint
White-lead paint is the most effective protection for these buildings against



This man belongs to the army of surface saviors. He is giving the farm house white-lead protection against the attacks of the weather.

rot and decay. Pure white-lead mixed with pure linseed oil makes a paint for exterior painting that has been a standard for generations. Skilled professional painters swear by it. Paint manufacturers use it in making their best paints.

Pure white-lead mixed with flaking oil gives a paint that protects and beautifies interior walls and woodwork. This paint can be tinted to any color desired to harmonize with the decorative scheme in your rooms.

So long as the white-lead paint film remains unbroken it presents an impenetrable barrier to air and moisture. White-lead is impervious to the elements that start decay and deterioration. It sticks tight to the surface it covers, spreads far and lasts long.

Just as white-lead paint protects wooden and non-metallic surfaces about your farm, so red-lead keeps your metal from rusting. Unless protected, metal framework of windmills, iron fences, iron and steel implements and machinery often rust out before they have an opportunity to wear out.

If you don't belong to the ever-increasing army of property owners who believe in the maxim, "Save the surface and you save all," join now. Save the wooden and non-metallic surfaces about your farm with white-lead and your metal with red-lead.

Producers of lead products

Dutch Boy white-lead and Dutch Boy red-lead are the names of the pure white-lead and red-lead made and sold by National Lead Company. On every keg of these products is reproduced the picture of the Dutch Boy Painter shown below. This trade-mark guarantees a product of the highest quality.

Dutch Boy products also include linseed oil, flaking oil, rabbit metals and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.

If you wish to read further about this wonder metal, we can tell you of a number of interesting books on the subject. The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Company, New York. If you are unable to get it at your bookstore, write us or the publishers.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 500 West 19th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 320 West Superior Avenue; St. Louis, 728 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 310 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 457 Chestnut St.

0000-NLI-000017113

Breiden's Gazette - March 6
The Farmer Ranch!
Hudson's Countryman March 14
Indiana Farmer's Guide " 15
Kansas Farmer's Guide " 8

This advertisement appears in the following publication:

Page—Country Gentleman—March 15
All Farm Papers for March

Michigan Farmer - March 12
Ohio Farmer " 8
Oklahoma Farmer Stockman " 25
Prairie Farmer " 12
Rural New Yorker " 15
Wellston Farmer " 21

Lead makes it safe to telephone even when the lightnings play



WHEN thunder crashes and lightning flashes about your home, lead enables you to use your telephone without danger of electrocution. Even if a bolt of lightning strikes the wires while you are talking, lead protects you from harm.

Lead is the principal part of the fuse used in the modern telephone system. When a lightning bolt reaches the fuse, it melts the lead of the fuse. This stops the current and prevents it from reaching your instrument.

How lead helps you phone

Every time you telephone you summon the aid of lead. Millions of pounds of lead are in soldered connections in telephone exchanges and telephone lines throughout the country. Many more millions of pounds of lead are necessary to provide coverings for telephone, telegraph, radio, and electric light cables.

Where you find the most lead

In telephone systems you do not see lead or realize the important work it does. But in paint, lead in the form of white-lead, the basic lead carbonate, and red-lead, a lead oxide, is known the world over. For generations painters have used white-lead on such surfaces as wood, and red-lead on metal, as standard protection against the assaults of the weather.

In the early history of this country the settlers found that wood was easy to get and cost nothing. They did not bother to paint the outside of log cabins. They relieved the monotony of unpainted interior walls by hanging up blankets or skins of big game. Such houses were easy prey for the attacks

of the weather. Deterioration went on unchecked.

Nowadays it is easier and much more economical to paint and repaint than to repair the damage that rot, decay and rust can quickly do. Paint protection is not only cheaper than repair work or reconstruction, but it also saves the money you have invested in your farm



property and keeps up its value—in fact, it increases its market value.

White-lead saves the surface

BY saving house surfaces with white-lead, farm owners save all. Rot cannot destroy the outside surfaces of farm houses that are covered with pure white-lead and pure linseed oil. For painting interior walls, ceilings and woodwork pure white-lead and flatting oil give protective finishes of unusual beauty in any color desired. About 350,000,000 pounds of white-lead are used in paint every year.

Red-lead for metal surfaces

Paint protection is likewise just as important for saving your metal as it is for guarding your wooden surfaces. Rust cannot destroy the metal that is thoroughly protected with red-lead. Approx-

imately 20,000,000 pounds of red-lead are applied to iron and steel surfaces annually in this country. And more should be used.

Rust makes useless annually in this country about \$600,000,000 worth of steel and iron implements, machinery and tools. A large percentage of this loss is taken by farmers whose machinery often does not wear out—it rusts out in the field and barn-yard. Use of red-lead would help reduce this loss. The maxim "Save the surface and you save all," applies to metal just as surely as it does to non-metallic surfaces.

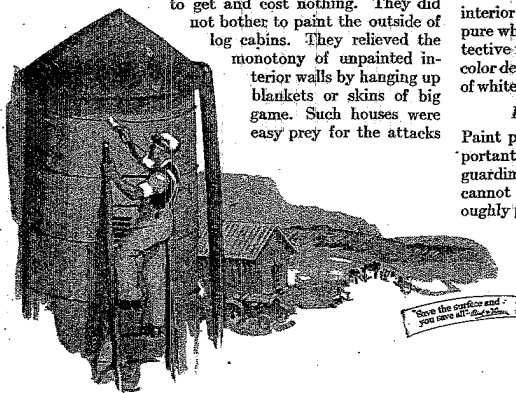
Producers of lead products

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If you wish to read further about this wonder metal, we can tell you of a number of interesting books on the subject. The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Co., New York. Price \$3.00. If you are unable to get it at your bookstore, write the publishers direct or order through us.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 660 Freeman Avenue; Cleveland, 890 West Superior Avenue; St. Louis, 725 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 514 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 487 Chestnut St.

0000-NLI-000017114

"Look, it glistens.

Hold it, it's heavy. Tap it, it rings."

YOU tell fine glass with your eyes, hands and ears. In the light, the bowl glistens with the rainbow's colors. In your hand, it is heavier than the common glass bowl. When you strike it, you hear a clear, bell-like ring.

Lead, that dull, unattractive metal, is responsible for the brilliance of fine glass. It also gives weight to glass. The piece of fine plain glass or cut glass you pick up may be anywhere from 20% to 50% lead. When it is struck, lead-glass in most forms gives forth a musical ring that ordinary glass does not.

One glass manufacturer in a year used 200,000 pounds of lead. The entire glass industry takes about 14,000,000 pounds of the annual lead production in the United States.

Lead helps you see

Both at home and in the street lead, in spectacle and reading glass lenses, aids the vision of many thousands. It is in the enormously powerful lead-glass lens of the astronomer's telescope, the microscopic lens of the biologist and the chemist, and in camera lenses. It is in electric light bulbs that are helping to make night like day in buildings all over the country.

Lead's use as paint

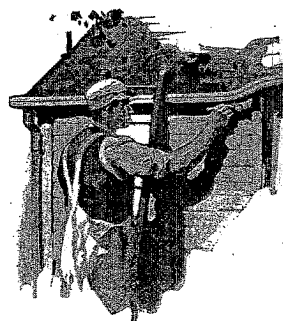
Lead in glass is very bashful and conceals itself so that there is no visible sign of its presence. But in its more general use as paint you can see it on every hand.

On farm houses, barns, fences, any wooden or non-metallic surface, white-lead stands forth boldly, defying storms and sunshine, air and moisture in their attempts to start decay and rot. On metallic surfaces of farm equipment red-lead prevents rust from beginning its work of destruction. Both white-lead

and red-lead paint are signs of freshness and cleanliness, of safety against the weather attacks, of protection against loss of money invested in the property they cover.

Save the cost of rot and rust

Once upon a time wood was cheaper than paint. Today paint is cheaper than wood. It is more economical nowadays to



This man belongs to the army of surface-savers. He is giving the farm house white-lead protection against the attacks of the weather.

keep house and barn surfaces thoroughly protected with paint—white-lead paint—than to repair and replace rotted parts or to rebuild perhaps after the unprotected house or barn has crumbled under the attacks of the weather.

For generations the progressive painter has used white-lead to save the surface. From our forefathers' days it has always been a standard for surface protection. Nearly 350,000,000 pounds of white-lead are applied to wooden and non-metallic surfaces in this country annually. Yet you can see farm buildings, where neg-

lect has allowed decay and rot to start. And you can see metal equipment rusting away in farm yards or out in the fields because it is not adequately protected with red-lead paint.

But there is a brighter picture. More than ever before farmers and property-owners believe in the phrase, "Save the surface and you save all." They realize that it is more economical to cover their property with white-lead and red-lead than to pay for the damage that the weather soon does to unpainted surfaces.

Producers of lead products

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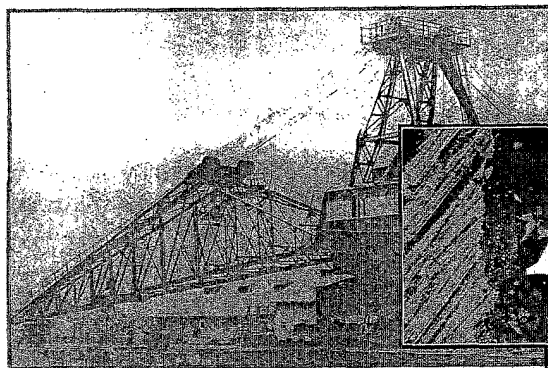
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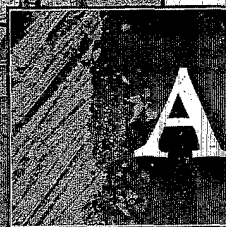
NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 121 State Street; Buffalo, 110 Oak Street;
Chicago, 900 West 18th Street; Cincinnati, 430 Freeman Avenue; Cleveland,
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430 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316
Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

0000-NLI-000017115

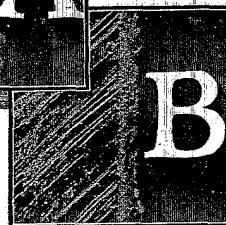


A 50-ton dry dock crane built by the McMyler-Interstate Co., of Cleveland, Ohio.

"A"—WITHOUT RED-LEAD.
The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep, grooved incrustation. The diagonal lines are file marks made in preparing the metal cross section for the microscope.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal. Rust can NOT form here.



A Jack Dempsey reach but just a thin red film for defense

THE wheel base of this crane is only 22 feet. The overturning moment imposed by the loads at extreme radii is exceptionally large, yet it handles these loads with ease and safety—

Main Hoist, 50 tons at 90 ft., 6 in. radius
Auxiliary Hoist, 15 tons at 129 ft., 6 in. radius
Whip Hoist, 5 tons at 133 ft. radius

In designing this crane the engineering problem was complicated by the large overturning moment and also by the extraordinary wheel loads. The load is distributed over 32 wheels and is equalized by a system of equalizer beams, so that the loads on the wheels supporting one corner of the crane are uniform.

Every square inch of metal on such important and costly equipment must surely be protected from rust. Red-lead may provide *only a thin red film for defense*, but the thin red film is adequate. Metal surfaces coated with pure red-lead are safe from rust. Dutch Boy red-lead is *pure red-lead*.

Save the surface and you save all.

Mixed with pure linseed oil, Dutch Boy red-lead makes a paint that cannot be surpassed as a rust preventive. It spreads smoothly and uniformly and has unusual covering power. It sticks tight to clean metal. It dries to a hard, yet elastic, coating which expands and contracts without cracking. It gives *full and economical* protection to the metal surfaces it covers.

Dutch Boy red-lead is obtainable in both paste and liquid form. The *liquid* comes in the natural red-lead color and also in light and dark green, light and dark brown and black finishing coats. The *paste* comes in the natural color only, but can be shaded to browns, greens and blacks.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 427 Chestnut Street.

Dutch Boy Red-Lead



To the unwelcome guest the red coat says, "Keep out!"

HOTELS are built to accommodate guests at a profit. Guests who can not be accommodated at a profit, or who are likely to cause actual money loss, are barred out.

Even when a hotel is in the early stage of its construction, as in the above photograph, the barring out of the unwelcome guest begins. *Rust* is the unwelcome guest barred first. Red-lead is the material used here to bar out rust. Every piece of steel in the skeleton of this big hotel is covered with red-lead. The red coat says, "Keep out!"

A coating of pure red-lead is a sure protection against rust for all metal surfaces. A coating of pure red-lead seals the metal surface against contact with the rust-forming elements. Applied to structural steel, pure red-lead increases the safety factor and adds years of life to the metal.

Dutch Boy red-lead is *pure* red-lead. Mixed with pure linseed oil, Dutch Boy red-lead makes a paint that cannot be surpassed as a rust preventative. It spreads

smoothly and uniformly and has unusual covering power. It sticks tight to clean metal. It dries to a hard, yet elastic, coating which expands and contracts without cracking. It gives *full* and *economical* protection to the metal surfaces it covers.

DUTCH BOY RED-LEAD

Dutch Boy red-lead is obtainable in both paste and liquid form. The *liquid* comes in the natural red-lead color and also in light and dark green, light and dark brown, and black for finishing coats. The *paste* comes in the natural color only but can be shaded to browns, greens and black.

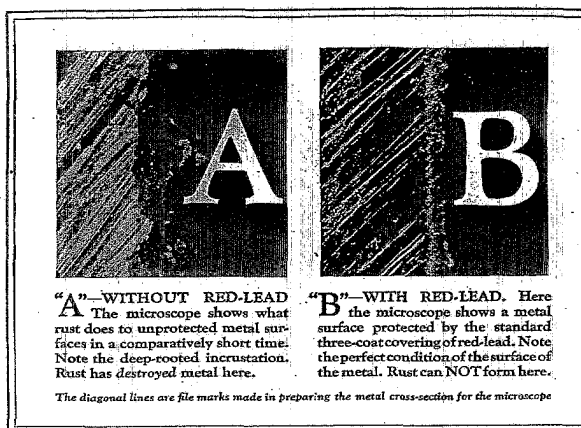


Save the surface and
the cost of repairs.

For specific information on rust-resisting paint coats, address:

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 802 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



What John Smeaton discovered more than a century ago

MANY engineers remember the name of John Smeaton. They remember this eminent British engineer as the father of the Institute of Civil Engineers. They remember that he built some important bridges, and also the Forth and Clyde canal.

Perhaps they also remember the important observation regarding rust which John Smeaton made more than a century ago. To use his own words, he recorded that *"when iron once gets rust, so as to form a scale, whatever coat of paint or varnish is put on over this, the rust will go on progressively under the paint."*

More than a century of engineering experience only confirms John Smeaton's opinion. A clean metal surface that is coated, and kept coated, with pure red-lead can not "get rust." But the metal must be clean and free from rust before the red-lead is applied. Otherwise, the formation of rust is only checked—not prevented.

The shop or priming coat is the most important

In writing structural steel specifications, it is important to make the metal protective specification clear and unmistakable. Spec-

ify that the metal shall be *clean and free from rust and scale* when the shop or priming coat of red-lead is applied.

A priming coat of pure red-lead applied to clean metal protects the metal against contact with the rust-forming elements.

Being pure red-lead, Dutch Boy red-lead gives complete protection against rust to all metal surfaces. Dutch Boy red-lead spreads uniformly. Its film is moisture-proof. It gives *full* protection to each square inch of metal surface it covers.

DUTCH BOY RED-LEAD

Dutch Boy red-lead is obtainable as a paste and also as a liquid. The paste comes only in the natural color but can be shaded to browns, greens, and black. The liquid comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing coats.



"Save the primer and you save all the rest."

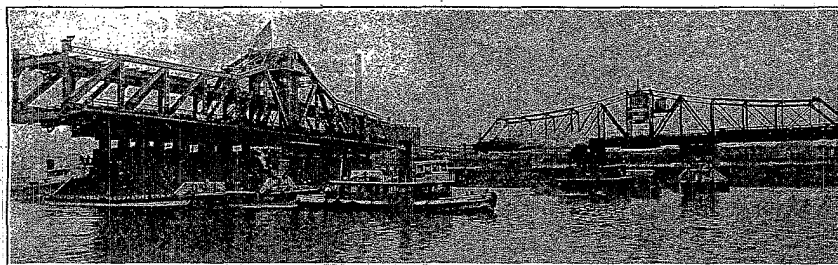
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 920 West 18th St.; Cincinnati, 609 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 712 Chestnut St.; San Francisco, 484 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 417 Chestnut Street.

This advertisement appears in the following publication

Page—Engineering News Record—Feb. 7

0000-NLI-000017118



A 500-ton steel draw outlives its design

THE old draw had to go. It could still carry the load for which it was designed. But elevated railroad requirements had greatly increased since 1878. A new 1100-ton double-deck four-track structure was built to take its place. The photograph shows the new draw being towed into position as the old draw bids farewell to its surroundings and starts down the river.

Steel should last. Steel should outlive the design of the structure of which it is a part. But steel can not last as it should unless each square inch of its surface is kept properly protected.

The engineer can help check the present tremendous annual loss due to rust. This estimated loss in 1922 exceeded by several million dollars the loss caused by fire. If engineering "is the science of making the dollar go the farthest," then surely the engineer must be a conservator as well as a designer of steel structures. He should see that metal gets the protection it needs to keep it safe from rust.

Save the surface and you save all—Red-lead.

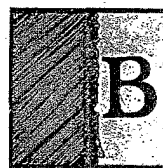
Red-lead is an engineering ma-

terial. Red-lead supplies an added factor of safety. Red-lead preserves the maximum strength of steel by sealing the metal surface against contact with the rust-forming elements. Being pure red-lead, Dutch Boy red-lead gives complete protection against rust to all metal surfaces. Dutch Boy red-lead spreads uniformly. Its film is not thick in one

place and thin in another. It gives full protection to each square inch of metal surface.



"A"—WITHOUT RED LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED LEAD. Here the microscope shows a metal surface protected by the standard 3-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

DUTCH BOY RED-LEAD

Dutch Boy red-lead is obtainable as a paste and also as a liquid. The *paste* comes in the natural color only, but can be shaded to browns, greens, and black. The *liquid* comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing coats.

For specific information on rust resisting paint coats, address:



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 127 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 559 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 445 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

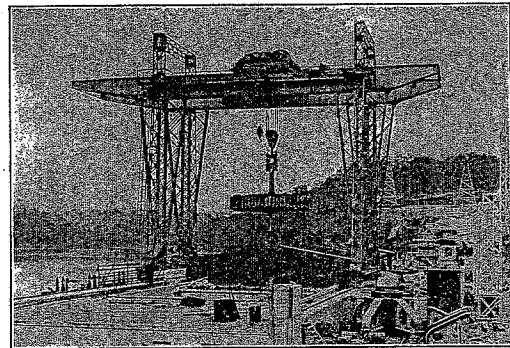
Page—Engineering News Record—February 21

0000-NLI-000017119

This gantry laughs at 240,000 pounds

IN the construction of Mitchell Dam, this big gantry did the heavy work. The photograph shows it transporting a 120-ton generator rotor.

This crane carries a 240,000-pound load as easily as a cat carries her kitten. It cannot carry many pounds of rust without suffering a loss of strength. Rust can so weaken this huge steel frame, if left unprotected, that a load of a few thousand pounds might wreck it.



Paint prevents rust

Only constantly maintained coatings of paint can keep metal safe from rust, as you see in the microphotograph "B." Paint keeps the metal surface sealed against contact with the rust-forming elements, air and moisture.

Red-lead paint gives the most complete protection against rust. Red-lead paint will keep this big gantry safe from the load it has to fear—the metal-eating "load" of rust.

The high cost of rust

The high cost of rust might truthfully be called the high cost of negligence. Rust cannot destroy properly protected metal. Twenty million pounds of red-lead are used every year in this country alone to keep metal safe from rust.

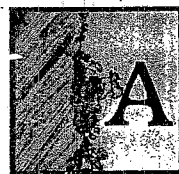
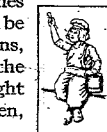
Yet in 1922 the total damage caused by rust exceeded the total damage caused by fire. An additional investment in red-lead would pay huge profits.

DUTCH BOY RED-LEAD

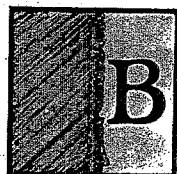
Dutch Boy red-lead is pure red-lead. It gives complete protection against rust to all metal surfaces. Dutch Boy red-lead spreads evenly under the brush and has unusual covering capacity. It is hard enough to be durable, yet elastic enough to expand and contract with the metal. It maintains an unbroken protective coating.

You can get Dutch Boy red-lead as a paste and also as a liquid. The *paste* comes in the natural red-lead color and can be shaded, if desired, to browns, greens, black, etc. The *liquid* comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing coats.

Write us for specific information on rust-resisting paints.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to an unprotected metal surface in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal surface.

The diagonal lines are file marks made in preparing the specimen cross sections for the microscope.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

Page—Engineering News Record—March 6

0000-NLL-000017120

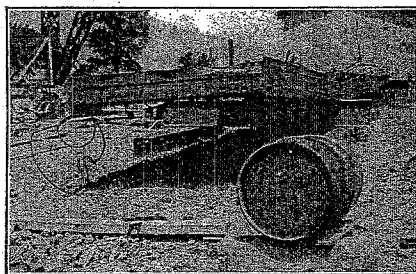


Fig. A. Here is the bent girder as it came out of the wreckage

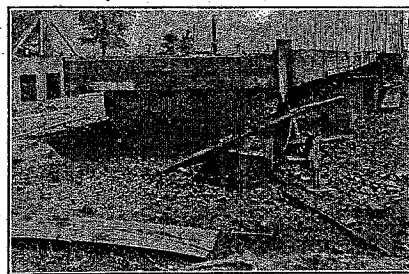


Fig. B. Here is the straightened girder ready to go back on the job

A flood came down the valley

THE 68' x 6' plate girder in Fig. A, before it was bent, was part of a certain railroad bridge. A flood came roaring down the valley. It turned the bridge into a mass of tumbled masonry and twisted steel. The engineers got busy with a crane. The bent girder was pulled out of the wreck and, by ordinary blacksmithing methods, straightened as shown in Fig. B. Now the girder is part of a new bridge.

The flood could not destroy this girder. But rust can destroy it. And rust will destroy it unless its surface is kept thoroughly protected with paint.

The destruction of unprotected metal by rust is sheer waste. Metal that is eaten up by rust is gone forever. Very few people realize the magnitude of this loss. But in 1922, the estimated total damage caused by rust exceeded by several million dollars the total damage caused by fire. This loss can be reduced by keeping all metal thoroughly protected.

There is nothing like pure red-lead to keep metal from rusting. In the well-known Havre de Grace bridge test, conducted by the American Society for Testing Materials, a number of rust-

resisting paints were tested for durability over a seven-year period. The paint which showed up best contained the highest percentage of pure red-lead.

DUTCH BOY RED-LEAD

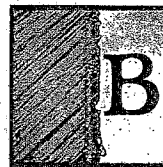
Dutch Boy red-lead is pure red-lead. Mixed with pure linseed oil, it spreads smoothly under the brush, and has unusual covering capacity, thus effecting economy in application. It gives complete protection against rust to all metal surfaces.

Dutch Boy red-lead is obtainable as a paste and also as a liquid. The paste comes in the natural red-lead color and can be shaded if desired to browns, greens, black, etc. The liquid comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing coats.

Write us for specific information on rust-resisting red-lead paints.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surface in a comparatively short time. Note the deep rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 315 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

Page—Engineering News Record—March 20

0000-NLI-000017121

3,000,000 lbs. pressure

The photograph shows a steel column test in the testing laboratory of the Bureau of Standards. The big testing machine is of 10,000,000 pounds capacity. The steel column, a 23½ ft. solid rolled H-section, withstands 3,063,600 pounds total loading before failing.

Columns crumple and beams bend as tests similar to this go on to determine accurately the strength of steel. For the engineer must work on facts derived from actual tests.

Paint also is tested

Just as such experiments determine the strength of steel, so paint tests prove over and over again to the engineer the value of red-lead in protecting steel against rust. No matter how strong steel is, rust can soon eat into it if it is left unprotected.

The American Society for Testing Materials conducted the Havre de Grace bridge test to find the best paint for safeguarding exposed metal surfaces against rust. The test lasted eight years. It proved that a high-grade red-lead paint gives the best protection against air and moisture. The high-grade red-lead paint outlasted all other paints used.

Nearly twenty millions pounds of red-lead are used each year in this country to safeguard metal against rust. Yet this is not enough. The



use of more red-lead would repay its cost ten times over. For, in 1922, the estimated total damage caused by rust was *greater than the damage caused by fire.*

Being pure red-lead, Dutch Boy red-lead gives complete protection against rust to all metal surfaces. Being high-grade red-lead, Dutch Boy red-lead spreads evenly under the brush and has unusual covering capacity. A coating of Dutch Boy red-lead sticks tight to clean metal and does not crack or scale.

Dutch Boy Red-Lead

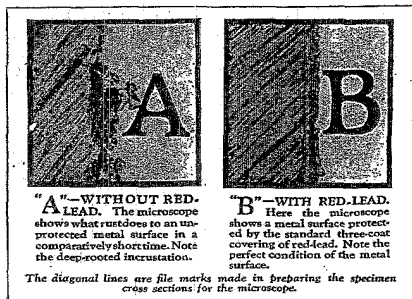
Dutch Boy red-lead is obtainable in paste and also liquid form. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc. The *liquid* comes in the natural color and also shaded to light and dark brown, light and dark green, and black for finishing coats. For specific information on protective paint coatings, address our branch office nearest you.



Have the number and name of the branch office nearest you.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to an unprotected metal surface in a comparatively short time. Note the deep-rooted incrustation.

"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal surface.

The diagonal lines are file marks made in preparing the specimen cross sections for the microscope.

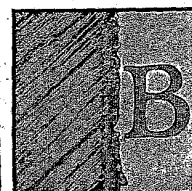
This advertisement appears in the following publication:

Page—Engineering News Record—April 3

0000-NLI-000017122



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation. The diagonal lines are file marks made in preparing the metal cross section for the microscope.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can NOT form here.

Some people don't believe in signs

SIGNS of warning at both ends of this bridge read, "Narrow bridge—two vehicles cannot pass!" But a motor truck and a flivver tried it anyway, and their tangled remains lie in the river bed under a crumpled mass of bridge trussing. Some people don't believe in signs.

Another warning sign

There is another danger sign on many bridges. It is the sign of rust—a warning of destruction ahead. Because some people don't believe in signs, rust goes on eating into the steel of bridges and other structures, taking a toll of millions of dollars each year.

Put up the wet-paint sign

Any metal surface will soon carry the rust sign unless it is thoroughly protected by paint. Once the surface looks like illustration "A," no paint (not even red-lead) can stop the rust from eating in under the paint covering.

Put up the wet-paint sign. A clean metal surface that is coated, and kept coated, with pure red-lead will never show signs of rust. Its surface, even when put under the eyes of a microscope, will be as even and firm as the day it left the foundry.

There is nothing like red-lead to keep

metal from rusting. A carefully maintained covering of pure red-lead is an added safety factor throughout the whole metal structure.

Dutch Boy red-lead

Use Dutch Boy red-lead for all your metal surfaces. It is *pure* red-lead. It spreads uniformly. It gives perfect protection against rust at all points of the covered metal surface.

Dutch Boy red-lead is obtainable as a liquid and also as a paste. The *liquid* comes in the natural red-lead color, and also shaded to light and dark brown, light and dark green, and black for finishing coats. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc.

For specific information about rust-resisting paint coats, write to our branch nearest you.



Save the sign and you save all day long

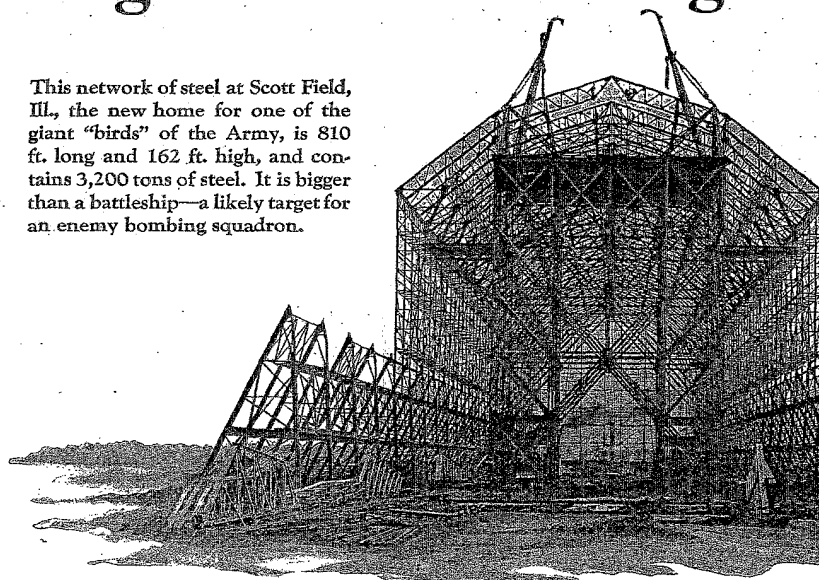
NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 131 State Street;
Buffalo, 116 Oak Street; Chicago, 900 West 18th Street;
Cincinnati, 659 Freeman Avenue; Cleveland, 820 West
Superior Avenue; St. Louis, 722 Chestnut Street; San
Francisco, 485 California Street; Pittsburgh, National
Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadel-
phia, John T. Lewis & Bros. Co., 437 Chestnut Street

This advertisement appears in the following publication:

Page—*Engineering News Record*—May 1.

A giant "bird-cage"

This network of steel at Scott Field, Ill., the new home for one of the giant "birds" of the Army, is 810 ft. long and 162 ft. high, and contains 3,200 tons of steel. It is bigger than a battleship—a likely target for an enemy bombing squadron.



A target for rust at all times

ANTI-AIRCRAFT guns and fighting planes would guard this airship hangar against enemy bombers in war time. But it is threatened by another foe at all times. Rust will destroy its 3,200 tons of slender steel trusses unless the metal is kept thoroughly protected with paint.

Rust signs no armistice. Rust makes no truce. In 1922 the total estimated damage rust did to unprotected (or insufficiently protected) metal was greater than the

total damage caused by fire. Proper protection with paint would have prevented this loss.

Dutch Boy Red-Lead

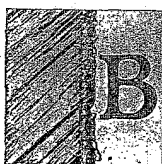
Pure red-lead is a paint which gives complete protection against rust. Dutch Boy red-lead is pure red-lead. It brushes out evenly and has unusual covering power. It forms a tough, elastic coating that is a positive guarantee against rust destruction.

Dutch Boy red-lead comes in both paste and liquid form. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc. The *liquid* comes in the natural color and also shaded to light and dark brown, light and dark green and black for finishing coats.

Write our nearest branch if you desire specific information about the painting of any surface.



"A"—WITHOUT RED LEAD. The microscope shows what rust does to an unprotected metal surface in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal surface.

The diagonal lines are file marks made in preparing the specimen cross sections for the microscope.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

Page—Engineering News Record—May 15

What will keep these big cranes strong?

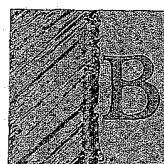
These big double cranes are built strong enough to lift hundreds of tons daily. Only adequate paint protection will keep them strong

THESE cranes are designed to convey heavy cargo from pier to ships. Their ability to continue to lift tons at a time depends largely on the kind of protection they receive against the strength-sapping load of rust.

Even the standard three-coat red-lead covering—the best paint protection known—will not free these cranes from rust indefinitely. No paint can be expected to last forever. At



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to an unprotected metal surface in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal surface.

The diagonal lines are file marks made in preparing the specimen cross sections for the microscope.

regular intervals this defense film should be renewed by *adequate* repaintings of red-lead.

Engineers know that under almost all atmospheric conditions, rust forms quickly on unprotected metal and only regular inspection and repainting can keep metal equipment safe from rust as you see in plate "B." They also know that the metal surface to be painted should always be perfectly clean.

By such a careful inspection and maintenance policy every inch of metal equipment can be guarded all of the time from the metal-eating load of rust.

To get this protection in the fullest measure the red-lead used must be pure. Dutch Boy red-lead is pure red-lead. It spreads evenly under the brush and has unusual covering power. It is hard enough to be durable, yet elastic enough to expand and contract with the metal. It sticks so tight to the metal that



it seems to become a part of the covered surface.

You can get Dutch Boy red-lead in both paste and liquid form. The *paste* comes in the natural orange-red color and can be shaded to browns, greens, black, etc. The *liquid* comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing-coats.

Our branch nearest to you will be glad to send specific information on protective paint coatings for any surface. This advice may help you add years of service to the life of your metal equipment. Write us today.



Save the rust and you save all together.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 W. 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:
Page—*Engineering News-Record*—May 29

0000-NLI-000017125



Pony-truss bridge collapses, throwing street cars and foot passengers into river. Accident not due to overload, but to weakened condition of steel hip hangers and truss members because of inadequate paint protection from rust.

Some of the metal of this wrecked Johnstown bridge had rusted to the thickness of cardboard. The bridge had not been painted in years. Frequent inspections and repainting of pure red-lead would have saved the bridge.

This bridge didn't have a chance!

Not every bridge receives the right kind of paint protection

There was plenty of warning that this highway bridge at Johnstown, Pa., would fail. Every metal part of it was scaled with rust. In some places the rust was a quarter of an inch thick. Yet the warnings went unheeded—rust continued its work of destruction—until at last the weakened bridge gave way with its load of five crowded street cars and hundreds of foot passengers.

Fortunately very few bridges are permitted to rust away. Yet not every bridge receives the right kind of paint protection. An occasional painting merely postpones or lessens corrosion. If the metal is always to look like that in plate "B," every inch of it must be regularly inspected and kept well coated with paint all of the time.

At one time the Johnstown bridge had been protected by paint. But because this film of defense was not regularly maintained, rust soon broke through to destroy.

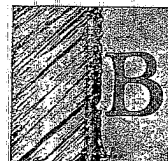
Leading engineers have found that when a clean metal surface is coated with the standard three-coat covering of red-lead and then kept coated, it will never show signs of rust. A

carefully maintained covering of pure red-lead is an added safety factor throughout the whole metal structure.

For this complete protection the red-lead must be pure. Dutch Boy red-lead is pure red-lead. It brushes out easily and evenly. It spreads far, with unusual covering power. It forms a hard, tough film that is elastic enough to expand and contract with the metal.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can not form here.

Dutch Boy red-lead is obtainable as a liquid and also as a paste. The liquid comes in the natural red-lead color and also shaded to light and dark brown, light and dark green, and black for finishing coats.

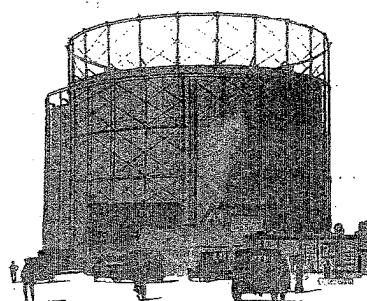
The paste comes in the natural color and can be shaded to dark browns, greens, black, etc. as desired. For more information about rust-resisting paint coats, write to our branch office nearest to you.



Save the surface and you save the money.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



"A"—an untouched photomicrograph showing what rust does to an unprotected metal surface. The diagonal lines are file marks made in preparing the specimen section for the microscope.



"B"—an untouched photomicrograph of a metal surface protected by the standard 3-coat covering of red lead. Note the perfect condition. Rust has not formed.



Exempt your gas-holders from the weather tax

THE weather lays a tax on every unpainted gas-holder you own. With the aid of rust it collects millions of dollars from owners of iron and steel every year. Unless you keep a protective covering of paint about your gas-holders, it will soon put the first entry on your tax bill.

Red-lead exempts your holders

Exemption from this tax on metal lies in keeping your metal like the plate "B" shown above. That calls for the use of red-lead, the paint that best protects metal against the ravages of weather and time.

Red-lead prevents air and moisture from forming the rust spots that weaken metal and endanger the thousands of dollars invested in iron and steel construction. The economy of keeping your gas-holders thoroughly red-leaded is not to be questioned when you consider the enormous amount of metal destroyed by rust each year.

For application next to the surface and for finishing coats use Dutch Boy red-lead. It is

Save the surface and you save all the rest!

pure red-lead and produces a tough, elastic film that is impervious to the attacks of air and moisture. It gives complete protection so long as its film remains unbroken. Dutch Boy red-lead is an economical paint because of its great spreading power and durability. It helps maintain a gas-holder with a minimum expenditure per year.

Dutch Boy red-lead as paste and liquid

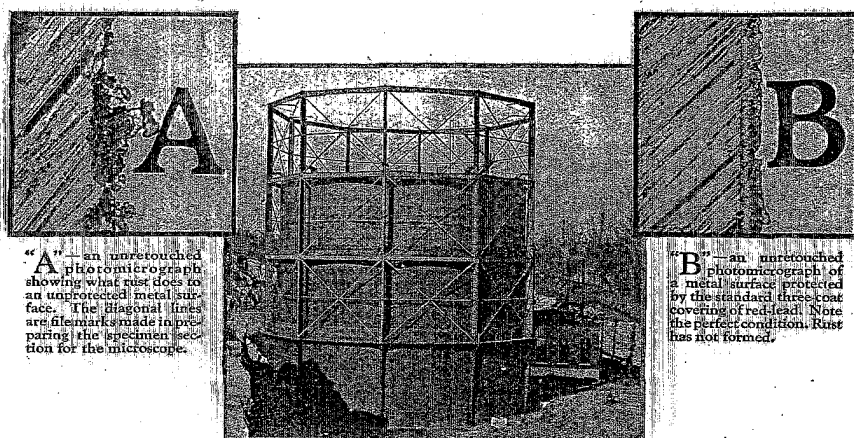
You can get Dutch Boy red-lead both in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The liquid comes also already tinted to black, greens and browns for finishing coats. The untinted paste can be shaded to any desired dark colors.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 216 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 320 West Superior Avenue; St. Louis, 723 Chestnut St.; San Francisco, 426 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Dutch Boy Red-Lead



"A"—an untouched photomicrograph showing what rust does to an unprotected metal surface. The diagonal lines are filemarks made in preparing the specimen section for the microscope.

"B"—an untouched photomicrograph of a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition. Rust has not formed.

Two years from now— Will your gas-holder be like "A" or "B"?

ONE gas-holder was thoroughly protected with three good coats of paint upon construction and was kept so painted. As a result the metal today looks like that in plate "B."

The surface of a second holder was not adequately protected. Air and moisture attacked the metal. Rust formed and ate into the unprotected surface. The weakened metal still stands, but it looks like the "A" plate.

What makes the difference between "A" and "B"

Your gas-holders will be like "A" or "B" as you neglect them or keep them protected with paint. Red-lead is a paint which has proved its ability to withstand the usual wear and tear of weather and time.

Dutch Boy red-lead meets all requirements for gas-holder painting because of its purity and because of the extremely fine grinding of its pigment particles. It makes a paint that spreads far and produces a tough, elas-

tic film impervious to air and moisture. It gives long protection, cuts the cost of painting, and maintains a gas-holder at a low expenditure per year.

DUTCH BOY RED-LEAD

Dutch Boy red-lead gives complete protection against rust to gas-holders and metal surfaces wherever used in the gas plant. It comes both in *paste* form for mixing with pure linseed oil and as a *liquid* ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The *liquid* comes also in black, light and dark green, and light and dark brown for finishing coats. The *paste* can be shaded also to these colors.

For specific information on rust-resisting paint coats, address:



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 715 Chestnut St.; San Francisco, 415 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 216 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Save the surface and you save all the lead.

This advertisement appears in the following publication:

Page—Gas Age Record—February 9th

0000-NLI-000017128

Too few holders like this one

Gas industry needs greater holder capacity. Until more can be added, even greater care is necessary in protecting holders now in use.

BUY steel and build holders! In commenting further on the need for more gas holders, an authority in the gas industry declares that gas-holder capacity has not kept pace with gas sales and that as gas sales are increasing at a more rapid rate, present holders are taxed beyond their capacity.

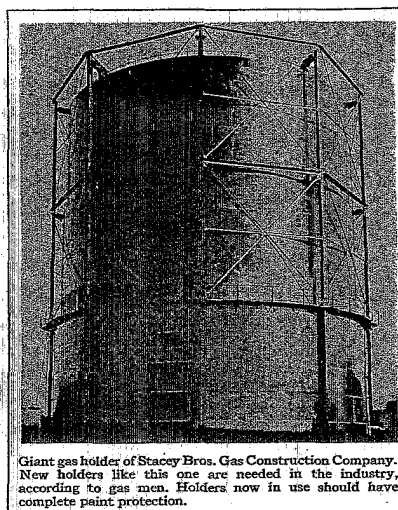
How to meet this condition

The answer to the question is to build more gas holders. But until that can be done, holders now in service must be kept in condition and used to the limit.

Keeping a holder, especially a relief holder, in first-class shape necessitates a constant fight against an old and ever-present enemy—rust. Unless this steel is protected by paint, rust will soon eat into it and in time destroy the holder's usefulness.

What "B" shows

You can see what rust will do to steel by looking at illustration "A." On the other hand, gas-holder steel can be preserved as in "B" by keep-



Giant gas holder of Stacey Bros. Gas Construction Company. New holders like this one are needed in the industry, according to gas men. Holders now in use should have complete paint protection.

ing it thoroughly covered with red-lead paint.

For application next to the metal surface of your holders and for finishing coats on present holders and all new ones, use Dutch Boy red-lead. It is pure red-lead. Mixed with pure linseed oil and spread on clean metal it sticks tight and is impervious to the attacks of air and moisture. It gives complete protection against rust. Dutch Boy red-lead is economical because of its unusual spreading power and durability.

DUTCH BOY RED-LEAD

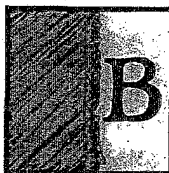
You can get Dutch Boy red-lead both in paste form and as a liquid ready for instant application. Both paste and liquid come in the natural orange-red color for use next to the metal. The liquid comes also shaded to black, greens and browns for finishing coats. The paste can be shaded to browns, greens, black, etc.



Save the trouble and cost of all other brands.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to an unprotected metal surface in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the metal surface.

The diagonal lines are file marks made in preparing the specimen cross sections for the microscope.

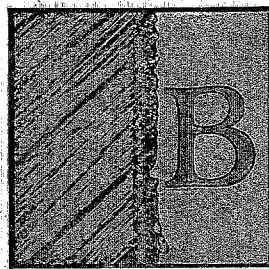
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



"A"—photomicrograph showing what rust does to an unprotected metal surface. The diagonal lines are file marks made in preparing the specimen section for the microscope.

or
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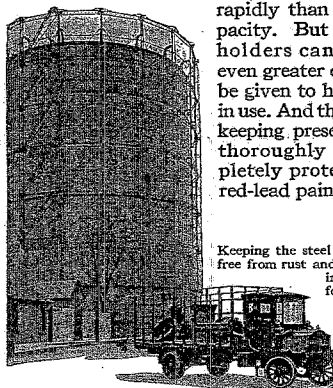
"B"—photomicrograph of a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition. Rust has not formed.

Which shows the condition of your holder steel?

THESE two pictures tell how every year American industry loses millions of dollars—and saves other millions. "A" shows how costly metal is damaged beyond repair—how steel, unprotected by paint, is eaten away under the attacks of rust.

"B" proves that iron and steel can be protected against the rust-forming elements—air and moisture—by paint. It explains how you can keep holder steel strong at a minimum yearly cost.

Whether your holders are like "A" or "B" is of special interest just now to you and the gas industry. An authority connected with the industry says that more holders are needed. Gas sales are increasing more rapidly than holder capacity. But until new holders can be built, even greater care should be given to holders now in use. And that includes keeping present holders thoroughly and completely protected with red-lead paint.



Keeping the steel of this holder free from rust and like the steel in "B" is a job for red-lead.

Man knows no more effective way to give lasting and economical protection to iron and steel against rust than to cover them with red-lead. Railroads, public utilities, steamship companies have proved after long experience the economy of putting red-lead on their metal and of keeping that metal thoroughly covered at all times.

Many owners are keeping holders, especially relief holders, coated with Dutch Boy red-lead—the highest-grade red-lead obtainable. Dutch Boy red-lead makes a paint that is impervious to air and moisture. It sticks tight to metal and forms an elastic film that expands and contracts with temperature changes without cracking.

Dutch Boy red-lead is an economical paint. It has unusual spreading power, is easy to apply, and lasts long. It comes both in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The liquid comes also in black, light and dark green and light and dark brown for finishing coats. The paste can be shaded to browns, greens, black, etc.

For specific information on rust-resisting paint coverings, address:



Save the rust and you save all—Dutch Boy.

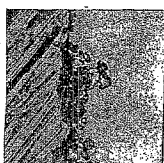
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 487 Chestnut Street.

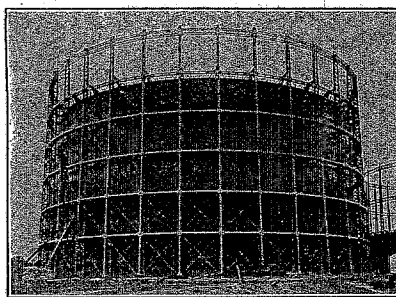
This advertisement appears in the following publication:

Page—Gas-Age Record—March 29.

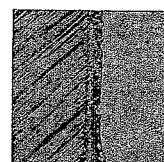
0000-NLI-000017130



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



Gas-holder of the Australian Gas Light Company, Sydney, New South Wales, Australia. This holder, with a capacity of 12,000,000 cu. ft., is the largest on that continent.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

How to keep holder steel like "B"

The life of steel is determined not only by the kind of paint used, but by the method of painting

GAS and steel—both these are essential to gas service. They help pay company salaries and dividends. Producers guard their gas by enclosing it in holders like the one shown above. Most of them protect the steel in those holders against rust.

But there are many gas men who get longer service from their holders than other producers. They keep holder maintenance costs down to a minimum. How do they do it? By giving steel relief and storage holders adequate paint protection—by applying a paint covering and renewing it at regular intervals. In other words, they keep holder steel looking like the steel in plate "B" month after month, year after year.

Plate "A," on the other hand, shows why some gas-holders fail to give their full service. It tells a story of neglect in guarding steel against rust. It exhibits a policy of dangerous economy in withholding full paint protection.

Plates "A" and "B" are well worth study in connection with your own holder steel. They teach a lesson that leading gas producers have learned after years of experience—to prevent rust, keep the paint film intact. They show how pure red-lead paint saves the steel of holders.

No more effective, lasting and economical protection can be given to holder steel than is afforded by pure red-lead. But not even pure red-lead will last forever, and gas-holders are particularly hard on paint. To keep holder steel like "B" and thus keep down maintenance costs, it is necessary to follow a regular repainting program

—to maintain always an unbroken paint film between the steel and the rust-forming elements.

Dutch Boy Red-Lead

Many gas-holder owners have learned that Dutch Boy red-lead most economically gives their metal complete protection against rust. Dutch Boy red-lead is pure red-lead. It sticks tight to clean metal, and makes an elastic paint covering that expands and contracts with heat and cold without cracking. It is impervious to air and moisture. It guards the steel surface of the holder when it is lowered into the water.

Dutch Boy red-lead gives a smooth covering of uniform thickness. It works easily under the brush and has unusual spreading power.

You can get Dutch Boy red-lead in paste form and as a liquid ready for application. Both paste and liquid come in the natural orange-red color for use next to the metal. The liquid comes also shaded to black, light and dark green, light and dark brown. The paste can be shaded to browns, greens, black, etc.

For specific information on protective paint coverings for all metal surfaces write



Seal the surface and you save all the steel.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

Page—Gas Age Record—May 24.

0000-NLI-000017131

Gas and steel—both burn

The huge holder in the picture has a capacity of 3,000,000 cu. ft. of gas. It is made of steel—tons of steel. A permanent structure, you say! Not necessarily.

LEAVE this steel holder exposed to the atmosphere. It will burn just as surely as gas will burn at the touch of a match—for it will rust.

All burning or combustion is simply oxidation. When gas burns, it takes on air or oxidizes. That is just what metal does when it rusts. The oxidation of metal, however, is slower (it is slow combustion, while the burning of gas is rapid combustion) but it is just as sure.

You can prevent gas from burning by keeping fire away from it. You can prevent holder steel from rusting by keeping air and moisture from it with a tough, elastic, long-wearing coating of red-lead.

Over and over again pure red-lead paint proves its value in completely protecting iron and steel gas equipment from corrosion and deterioration. Complete protection, however, means more than coating metal with red-lead when you first put it into service. It calls for regular repainting afterward. It demands always keeping an unbroken film of paint between

the metal and air and moisture. When you give such protection, you prolong the life of your gas-holders indefinitely. Also you can maintain your holders at a minimum painting cost per year.

Gas-holder owners find that Dutch Boy red-lead gives the metal in their holders full protection against rust. Dutch Boy red-lead is pure red-lead. Mixed with pure linseed oil and spread on the surface of clean metal, it sticks tight. It is impervious to air and moisture. It makes an elastic paint covering that expands and contracts with heat and cold without cracking.

You can get Dutch Boy red-lead in paste form and also as a liquid ready for application. Both paste and liquid come in the natural orange-red color for use next to the metal. The *liquid* comes also shaded to black, light and dark green, and light and dark brown. The *paste* can be shaded to browns, greens, black, etc.

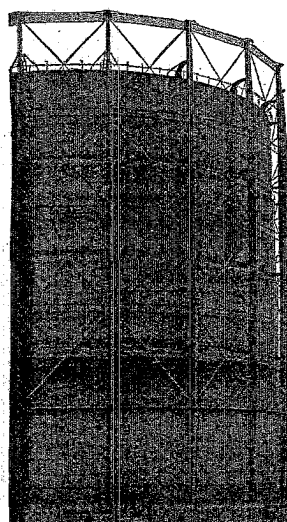
For specific information on protective coverings for metal surfaces, write us.



Give the holder and you have it protected.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 W. 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



You can readily see how this steel holder will burn by looking at Plate "A". Then look at "B" and see how this burning can be prevented.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can not form here.

This advertisement appears in the following publication:

Page—Gas Age Record—June 21

0000-NLI-000017132

Gas-holder advertises "oldest city in country"

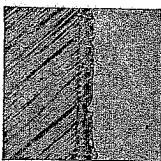
Tucson, Arizona, claims to be the oldest city in the United States. It is said that the King of Spain granted a charter to Tucson within fifty years after Columbus landed. The city announces its age record on the steel sides of a local gas-holder.

This storage holder, too, may live to see the day when it holds an age record. But it can establish that record only, if throughout the years, its owners give it full paint protection.

Full paint protection means more than the initial paint coatings put on at the time of construction. It includes seeing that an unbroken film of rust-resisting paint always covers the metal.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



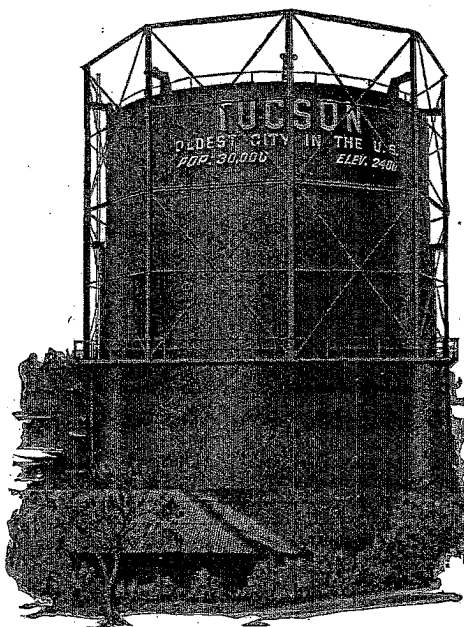
"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can not form here.

PLATE "A" shows what happens to metal that does not receive full paint protection against the attacks of air and moisture. Rust soon begins to eat into the steel and to weaken it. Deterioration goes on rapidly. The result is higher maintenance and repair costs, perhaps complete replacement of the steel walls.

Gas producers who use pure red-lead interpose an impenetrable barrier between their holder steel and air and moisture. They keep their metal surfaces looking like the steel surface in plate "B" and thus help to keep maintenance costs down to a minimum.

Dutch Boy Red-Lead

Many of these gas producers keep their holders coated with Dutch Boy red-lead—the highest grade red-lead obtainable. Dutch Boy red-lead makes a paint that is impervious to air and moisture. It sticks tight to metal and forms an elastic film that expands and contracts with temperature changes without cracking.



Gas-holder of the Tucson Gas, Electric Light and Power Company, of Tucson, Arizona, which serves artificial gas to what is believed to be the oldest city in the United States. The length of life of this holder depends on the paint protection it receives.

Dutch Boy red-lead is an economical paint. It has unusual spreading power, is easy to apply and lasts long. It comes in both paste form for mixing with pure linseed oil and as a liquid ready for application. Both paste and liquid come in the natural orange-red color usually used next to the metal. The liquid comes also in black, light and dark green, light and dark brown for finishing coats. The paste can be shaded to browns, greens, black, etc.

For specific information on rust-resisting paint coverings, address

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

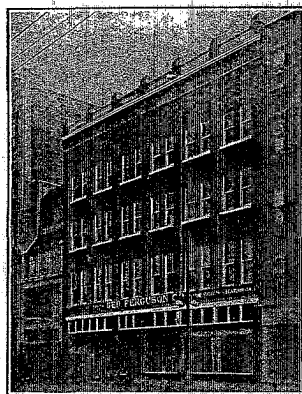


Show the picture and you'll get all the facts.

This advertisement appears in the following publication:

Page—Gas Age Record—July 19

The home of the Geo. Ferguson Company, New Rochelle, N. Y. This building was recently enlarged to take care of a steadily growing business.



Give the advertiser, you need it, today.

Have your sales doubled in the last four years?

"OUR Dutch Boy white-lead sales multiply rapidly," writes Mr. F. W. Chillingworth of the Geo. Ferguson Company, New Rochelle, N. Y. "Many years ago we started with a small stock. Year by year sales grew larger.

"We thought 1920 a banner year when 10 tons of Dutch Boy moved out of our store. But this record increased to 13 tons in 1921—then to 16 tons in 1922.

"Last year we more than doubled our 1920 total by selling almost two carloads or 24 tons."

The Geo. Ferguson Company first opened its doors in 1857. It now occupies the large building pictured above. It is a store of many activities, but there is one sales policy that applies to paint as well as to its many other products. That policy is: concentrate on those items which move across the counter rapidly.

The growth of this company may be credited largely to this policy of pushing standard products having a rapid turnover. Old customers know they can get what they want at Ferguson's. New customers know that Ferguson's exists to



Mr. F. W. Chillingworth, Secretary of the Geo. Ferguson Company, who believes in pushing nationally advertised products.

supply them with nationally advertised products. They all keep coming in, stocks move rapidly, investments return quickly—and the Ferguson Company enjoys a healthy, steady business growth.

What other reports show

As with the Ferguson Company, Dutch Boy white-lead is bringing to merchants everywhere quick sales and many profits. It makes no difference whether these merchants are large or small. All their

reports show decided increases in the number of sales made each year.

Write to our nearest branch or ask the Dutch Boy salesman for more facts and figures about this fast-moving paint product.

Our new window display will start your Dutch Boy sales. Our paint booklets, slides, cuts, etc., will help keep your stocks on the move. Just tell us your needs in your letter.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publications:

Page—Hardware Age—March 20

Hardware Retailer—March

American Paint & Oil Dealer—March

0000-NLL-000017134



Save the money and
you save all the time.

Anyone can make this simple blowpipe test to determine the purity of white-lead.



How you can test white-lead

HOW do you know the white-lead you sell is *pure* white-lead? You can easily tell. Here is a simple test that you can make in your own store.

White-lead is made from pure metallic lead by corrosion. If the white-lead which you sell is absolutely pure, you can quickly change it back to its original state—metallic lead—by subjecting it to the blowpipe test. If, on the other hand, the white-lead is not pure, it will not change completely and cleanly to a lead globule, but will leave a slag of the adulterants.

This interesting and conclusive test requires only the four things listed below:

- 1—A bit of white-lead, the size of a small pea.
- 2—A flame from a candle, gas jet, or alcohol lamp.
- 3—A blowpipe.
- 4—A piece of charcoal to hold the white-lead while the test is made.

You will find this test both instructive and profitable. And

you can easily make it yourself. We will gladly send you the blowpipe, the piece of charcoal, and samples of pure white-lead and adulterated white-lead.

Test both the pure and the adulterated white-lead. Compare the results. Then test the white-lead you are now selling.

If it is Dutch Boy white-lead, the heat of the blowpipe flame will quickly reduce it to its original state of metallic lead. This proves beyond question the purity of Dutch Boy white-lead. It tells you why Dutch Boy white-lead is regarded everywhere as the standard paint to save the surface.



Testing set sent free

Write on your letterhead to the address below. It will bring you free of charge the complete Dutch Boy testing set.

NATIONAL LEAD COMPANY

Room 1816—Dept. A
111 Broadway, New York, N. Y.

This advertisement appears in the following publications:

Page—*Hardware Age*—April 17

Hardware Retailer—April

American Paint and Oil Dealer—April

A sieve of silk for white-lead

Silk bolting cloth forms a screen so fine there are 27,000 holes to the square inch. Before white-lead is considered fine enough to merit the Dutch Boy trade-mark, it must pass through the microscopic holes in this silk testing sieve.



Left—Photograph of silk bolting cloth, actual size. Right—The same cloth magnified four times. Compare the holes, which are scarcely noticeable, with those in the enlargements of fine linen and cheesecloth shown below.



Fine linen—actual size and enlarged four times.



Cheesecloth—actual size and enlarged four times.

EVEN when enlarged four times, the meshes of silk bolting cloth are so minute as to be almost invisible. As shown by the illustrations, the finest linen is coarse in comparison. Yet every one of the millions of particles which make up a keg of Dutch Boy white-lead must be sifted through a screen of this superfine silk bolting cloth.



See the picture and you know all about it.

White-lead which will not pass through this silk sieve is rejected as too coarse for the Dutch Boy trade-mark. That which goes through is so impalpably fine that more than one hundred particles could be laid side by side upon the head of a pin.

It is this extreme fineness which accounts for the ease of application and remarkably spreading power of Dutch Boy white-lead. This fineness also explains why Dutch Boy white-lead forms a smooth, even film which clings so tightly

that it seems to become a part of the covered surface. And this fineness is one of the reasons why Dutch Boy white-lead is in such demand that hardware dealers in all parts of the country report fast turnover and increasing sales of this standard paint product.

Free sample of bolting cloth

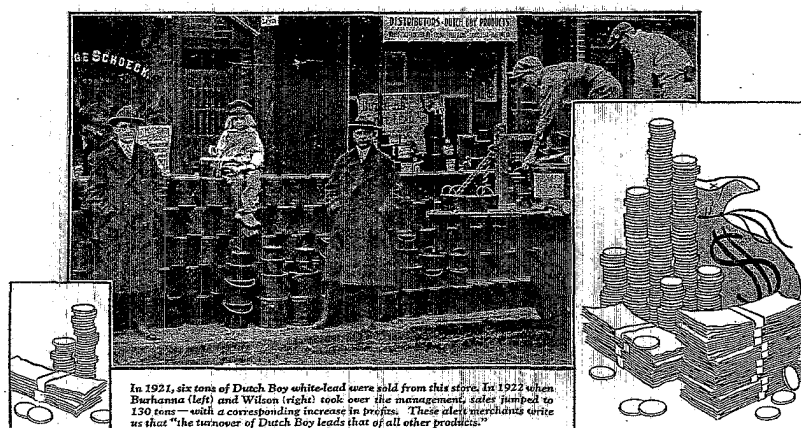
You can get an even better idea of the extreme fineness of Dutch Boy white-lead by examining the actual silk bolting cloth.

Write us on your letterhead and we will send you a free sample of bolting cloth together with "The Story of White-Lead," an interesting folder which tells how white-lead is made and illustrates each operation in the manufacturing process. You can use this sample and the folder to help sell more Dutch Boy white-lead.

NATIONAL LEAD COMPANY
Room 1816—Dept. D
111 Broadway, New York, N. Y.

This advertisement appears in the following publications:

Page—*Hardware Age*—May 15
Hardware Retailer—May
American Paint & Oil Dealer—May
Good Hardware—May



In 1921, six tons of Dutch Boy white-lead were sold from this store. In 1922 when Burhanna (left) and Wilson (right) took over the management, sales jumped to 130 tons—with a corresponding increase in profits. These alert merchants write us that "the turnover of Dutch Boy leads that of all other products."

In one year sales increased from 6 to 130 tons

Burhanna and Wilson believe that records are made to be broken. In 1922 these alert merchants took over the management of a Philadelphia paint store whose Dutch Boy white-lead sales had never exceeded six tons a year.

"Our first year," write these alert merchants, "Dutch Boy sales jumped to 130 tons. In 1923 we sold approximately the same amount as in 1922."

But are they satisfied with a sales increase of over 2067%? Not according to their letter, which continues to say that "1924 should see our total sales of Dutch Boy white-lead increase to at least 150 tons!"

Successful merchants everywhere refuse to be satisfied with their previous sales records. These merchants also believe that shelves which empty many times a year are far more profitable than crowded storerooms of goods which bring in profits slowly. They not only put their money in nationally advertised merchandise, but, like Burhanna and Wilson, they put their personal sales efforts behind these well-known products.

Burhanna and Wilson have found that such an active sales policy in back of Dutch Boy white-lead boosts the sales of all products. The closing paragraph of their enthusiastic letter contains a message for every merchant. It reads, "Many customers who would not have been interested in us now come into our store because we keep in stock the famous Dutch Boy white-lead."

This fast-moving paint product will do the same for you. Write to our nearest branch or ask the Dutch Boy salesman for more information. We will gladly send you window displays, paint booklets, movie slides, newspaper cuts, etc. These features, together with our continued national advertising, will help bring new customers to your store and keep all your products on the move.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 908 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 810 West Superior Avenue; St. Louis, 721 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publications:

Page—Hardware Age—June 19
Hardware Retailer—June
American Paint & Oil Dealer—June
Good Hardware—June

0000-NLI-000017137

Mr. Sproull
sold 24,000
lbs. in 1918.



The next year
sales totalled
40,000 lbs.



In 1920 sales
doubled—50,000
lbs.

Sproull's \$500 starts big paint business

The kind of stock you buy, not the money
you invest, determines your business success.
Here is a dollars-and-sense message for every
alert paint merchant

Back in 1918, Mr. Geo. Sproull started a paint store in Shreveport, La., with a capital of but \$500. Today Sproull's Paint Store is one of the largest distributors of paint supplies in northern Louisiana.

From the start Mr. Sproull put his money in stocks that returned his dollars quickly. The day he opened for business, Dutch Boy white-lead was on sale. And it sold in the amount of 24,000 pounds the first year.

In 1919, this figure went to 40,000 lbs. Sales doubled the next year. Then they jumped to 120,000 lbs. in 1921 and to 160,000 lbs. in 1922. Last year all previous records were broken by total sales of 182,450 lbs.—over 91 tons of Dutch Boy white-lead.

Mr. Sproull writes that his Dutch Boy stock turns over regularly four and five times each year. Like other progressive merchants, he invests his dollars in standard merchandise which moves steadily out of his store. These merchants know that a forced disposal of shelf-weary stock by price-cutting or distress sales is a poor turnover policy. They put their money in advertised, standard mer-

chandise. Then they are sure of a steady flow of profits and a safe business growth.

These alert merchants know that the sale of merchandise at the counter is only the first chapter in the true turnover story. The product itself must satisfy customers and build repeat orders. It must measure up to the manufacturer's claims. It must have back of it a well-known manufacturer's pledge of service in his continuous, consistent national advertising.

These are a few of the reasons why Mr. Sproull and merchants everywhere who first bought Dutch Boy white-lead by the hundred-weight now buy it by the ton and carload. They explain the reports which keep coming in telling of such rapid increases in the sales of Dutch Boy white-lead.

You, too, can boost your sales records with this fast-moving paint product. Write to our nearest branch or ask the Dutch Boy salesman for more information. We are always glad to furnish window displays, paint booklets, slides, cuts, etc., which together with our national advertising, help to keep your Dutch Boy stock on the move.

NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street;
Chicago, 300 W. 18th Street; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West
Superior Ave.; St. Louis, 722 Chestnut Street; San Francisco, 443 California Street;
Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John
T. Lewis & Bros. Co., 497 Chestnut Street.



Last year 182,450 lbs.
of Dutch Boy were
sold—an increase
over the 1918 figure
of 65%.



This advertisement appears in the following publications:

Page—*Hardware Age*—July 24
Hardware Retailer—August
American Paint & Oil Dealer—August
Good Hardware—August.

1916

3,700 lbs.

1919

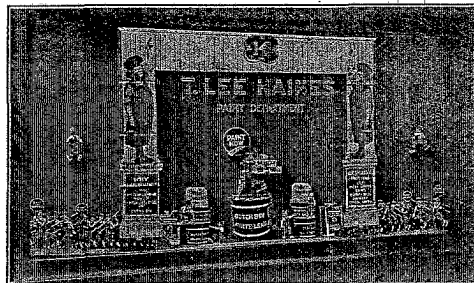
85,500 lbs.

1921

189,800 lbs.

1923

269,000 lbs.



"My Sales should be greater!"

said Mr. Haines and each year he made a new record

MR. T. Lee Haines of Camden, N. J., first made this statement in 1916 when his Dutch Boy white-lead sales totalled only 3700 pounds. And the next year he sold over twice as much—8100 pounds.

But doubling his white-lead business didn't satisfy Mr. Haines, for in 1918 he sold 19,725 pounds of Dutch Boy. Still he said, "My sales should be greater!" And they jumped to 85,500 pounds the next year and to 138,900 pounds in 1920.

This rapid increase in his Dutch Boy sales only indicated to Mr. Haines the possibilities for the future growth of his white-lead business. He continued to display Dutch Boy in his window. He distributed Dutch Boy booklets, and in various ways actively pushed this nationally advertised paint product. As a result, his sales in 1921 went to 189,800 pounds, in 1922 to 239,525 pounds and in 1923 to 269,000 pounds. The 1923 sales are 72 times those of 1916.

Today Mr. Haines, like many other merchants who have tapped the always-increasing demand for Dutch Boy white-lead, confidently reports that his sales for 1924 will exceed his 1923 record.

Perhaps you can match Mr. Haines' Dutch Boy record. Perhaps you can even better it. At any rate, no matter how much Dutch Boy white-lead you sell now, an active sales policy will help you sell more.

Use a new window display. Try a series of movie slides at your local theatre. Use some space in your town paper. Above all, echo Mr. Haines' business-getting slogan, "My sales should be greater!"

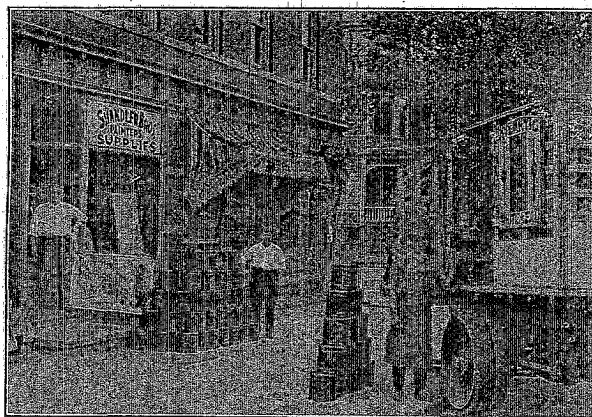
We'll do our part to lend a hand. Just tell us what you need in the form of window displays, booklets, newspaper cuts, etc. Write us about any special sales plans you may want to work out. It's not too late to make 1924 a big Dutch Boy white-lead year—and it's the right time to get a running start on next year's business.

Save the surface and you save all! *Paint & Varnish*

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 W. 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 483 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

ADVERTISING DEPARTMENT
BUILDING.



How high is "up" for your white-lead sales?

FOR ten years the Dutch Boy white-lead sales of Shandler Brothers, Irvington, N. J., paint merchants, have been steadily climbing upward.

The climb started back in 1915 with 1000 lbs. of Dutch Boy. The next year Dutch Boy went to 1978 lbs. In 1919 sales had reached the 8250 lb. rung. Still they kept mounting.

Old customers brought in new customers. New customers soon became steady customers. And 50,000 lbs. was the record for 1921. Last year this figure more than doubled — 120,025 lbs. of Dutch Boy.

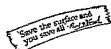
This enviable sales increase from 1000 to 120,000 lbs. did not make Shandler Brothers think that the Dutch Boy had climbed to the top of the sales ladder. These merchants continued to use every opportunity for pushing their Dutch Boy business. As a result, when the final report is in for 1924 it will probably show an even greater increase, for up to August 100,325 lbs. have been sold, with four months still to go.

For Shandler Brothers the top of the Dutch Boy sales ladder is far out of sight. Nor do they see a limit to their

white-lead profits. The reason is clear to any merchant who sells Dutch Boy white-lead. This nationally advertised paint product is used wherever people paint. It has been the choice of skilled painters for generations. It makes new friends and keeps old customers coming back to your store for more.

Use a window display, some movie slides or a series of newspaper advertisements of Dutch Boy white-lead. Let the house-owners, the business men, all the people in your community who buy or use paint, know that you carry the well-known Dutch Boy brand. The results will surprise your cash register.

The above-mentioned sales helps will be gladly sent you upon request. Just write to our nearest branch or speak to the Dutch Boy salesman the next time he calls.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 500 W. 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



1923
120,025 lbs.

1922
90,035 lbs.

1921
50,000 lbs.

1920
11,750 lbs.

1919
8,250 lbs.

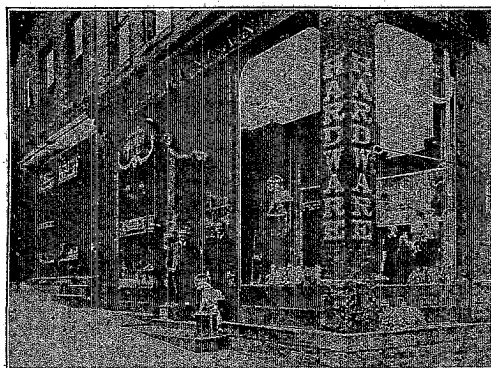
1917
2,700 lbs.

1916
1,978 lbs.

1915
1,000 lbs.

This advertisement appears in the following publications:

Page—*Hardware Age*—Sept. 18th
Hardware Retailer—Oct.
American Paint & Oil Dealer—Oct.
Good Hardware—Oct.



Good window display is one of the methods Mr. J. R. Duncan employs for attracting more white-lead sales



31,525 pounds
in only five months

"Our Dutch Boy sales jump higher every year"

—and Mr. Duncan adds, "That's because
we don't merely carry white-lead—we sell it!"

IN the latter part of 1919, Mr. J. R. Duncan bought out a Jeannette, Pa., hardware store. Prior to Mr. Duncan's ownership, this store had never sold annually over 3,000 lbs. of Dutch Boy white-lead. Yet the very first year, 1920, Mr. Duncan sold 4,650 lbs. He pushed his Dutch Boy sales to 12,050 lbs. in 1921. Still he wasn't satisfied. By the end of 1923 his annual sales of this widely used paint product were 20,000 lbs.

Mr. Duncan might have been contented with the thought that he had reached the limit of his white-lead sales. But increasing his Dutch Boy sales seven times in four years only acted as an incentive for greater selling effort. As a result, up to June, 1924, he sold 31,525 lbs. of Dutch Boy, beating his last year's record by 11,525 lbs. in only five months' time.

Ask Mr. Duncan if he "carries"
Dutch Boy white-lead in stock,

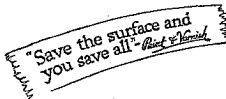
and he'll quickly reply, "I sell it!" His attractive Dutch Boy windows tell you that. The minute you walk into his store you'll see Dutch Boy well displayed. Nor does Mr. Duncan lose an opportunity to use his personal selling ability in order to keep his Dutch Boy sales record growing.

Merchants in all parts of the country refuse, like Mr. Duncan, to consider a Dutch Boy sales record as a sales limit. And each year their profits on Dutch Boy grow bigger.

We're willing to work with any merchant for greater white-lead sales. New window displays are ready for you. Newspaper cuts, movie slides and other helps, prepared by experts, are yours for the asking. Just tell the Dutch Boy salesman what you can use, or write us direct.

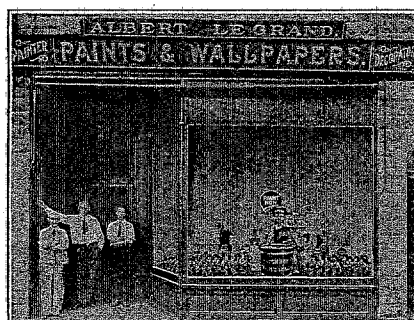
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street;
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, 485 California Street; Pitts-
burgh, National Lead & Oil Co. of Pa., 316 Fourth
Avenue; Philadelphia, John T. Lewis & Bros. Co.,
437 Chestnut Street.



This advertisement appears in the following publications:

Page—Hardware Age—Oct. 16th
Hardware Retailer—Nov.
American Paint & Oil Dealer—Nov.
Good Hardware—Nov.



Now MR. LEGRAND sells five times as much

"My customers like Dutch Boy white-lead so well they tell others about it," writes Mr. Albert Legrand, paint dealer of Rutherford, N. J. "That's why my sales have jumped from 2000 pounds in 1920 to over five tons in 1923—an increase of more than 450%."

Mr. Legrand believes in actively pushing products which bring customers and



their friends back to his store again and again. A fast-moving stock such as Dutch Boy soon piles up many profits. Over a period of months, it is the quick-selling, shelf-shy article which shows the big gain and keeps the paint dealer's business steadily growing.



From city, town, and cross-road stores in every section of the country, reports like Mr. Legrand's have been steadily coming in. Many alert merchants tell us of increases in

Dutch Boy white-lead sales as high as 2100%. All of them energetically put their selling efforts behind Dutch Boy white-lead because it is a standard paint product backed by years of national advertising.

Without exception, these merchants tell us that by keeping their customers coming in for Dutch Boy white-lead, they invariably boost the sale of many other products. In this same manner, Dutch Boy white-lead can make your business grow.

Ask the Dutch Boy salesman or write us direct for more information about the quick sales and many profits Dutch Boy will bring you.

A complete sales-making window display, such as you see in the picture above, and other helps are ready for mailing to you. Ask for Dealer Helps

No. in your letter.

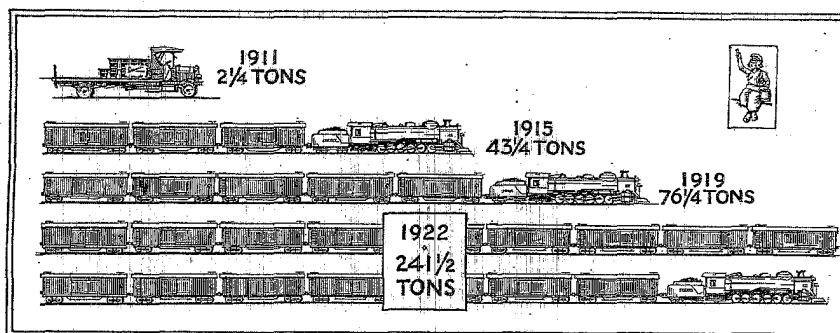


NATIONAL LEAD COMPANY

New York, 121 Broadway; Boston, 151 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 699 Freeman Ave.; Cleveland, 380 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street

DUTCH BOY WHITE-LEAD

FOR INTERIOR AND EXTERIOR PAINTING



From truck-load to train-load

How Conlin put over a 10,633% sales increase

FOURTEEN YEARS ago, James J. Conlin, a paint merchant of Bridgeport, Conn., put in a stock of Dutch Boy white-lead. His first year's sales totalled 2 1/4 tons. In 1912 his sales grew to 18 1/2 tons. Each year his Dutch Boy sales grew larger.

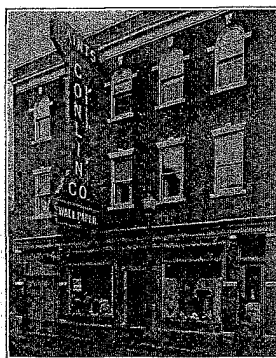
By 1915 he was selling more than 19 times as much as in 1911. Then sales jumped to 76 1/4 tons in 1919, a year when many merchants were finding it difficult to keep normal stocks moving.

But the record growth in Mr. Conlin's Dutch Boy sales was made in the last few years—189 3/4 tons in 1921, and 241 1/2 tons in 1922, this last representing an increase over the first year's sales of 10,633%.

Quick sales—many profits

Mr. Conlin's record is a remarkable indorsement of the rapid-turnover principle practiced today by every successful merchant. From the start back in 1911, Mr. Conlin concentrated his efforts on products which sold quickly.

Today, this same sales policy is just as vigor-



This is the new three-story home of the Conlin Company, Bridgeport, Conn. When Mr. Conlin began selling Dutch Boy white-lead in 1911 his store was small, his sales force but one clerk. Today, it takes 15 people to carry on Mr. Conlin's growing business.

Dutch Boy White-Lead

ously employed. Mr. Conlin personally drills all clerks in actively pushing Dutch Boy white-lead and other fast-moving Dutch Boy products. He tells us that he attributes his success largely to the principle of quick turnover as illustrated by his record of Dutch Boy white-lead sales.

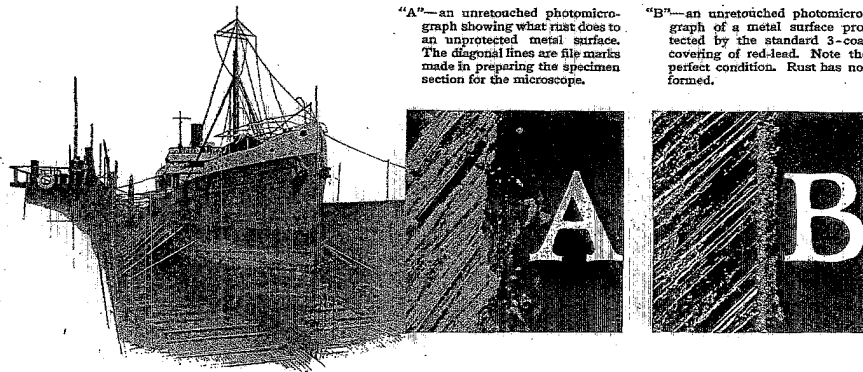
This story is more than a tribute to the enterprise of Mr. Conlin. It is a message to every alert paint merchant throughout the country who would like to see the dollars come in faster.

Write us or ask the Dutch Boy salesman for more information about the quick sales and many profits of Dutch Boy white-lead. Salesmaking helps—attractive window displays, special paint booklets, movie slides, newspaper cuts, etc.—are yours for the asking. Specify your needs in a letter to our nearest branch.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State St.; Buffalo, 116 Oak Street; Chicago, 500 West 18th St.; Cincinnati, 629 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 116 Fourth Avenue; Philadelphia, John T. Lewis & Bros., Co., 427 Chestnut Street.

HARDWARE RETAILER February 1924 Issue
AMERICAN PAINT & OIL DEALER February 1924 Issue



"A"—an unretouched photomicrograph showing what rust does to an unprotected metal surface. The diagonal lines are file marks made in preparing the specimen section for the microscope.

"B"—an unretouched photomicrograph of a metal surface protected by the standard 3-coat covering of red-lead. Note the perfect condition. Rust has not formed.

Keeping your ship's plates like "B"

"**D**RYDOCKED for scraping and painting of the hull," reads the shipping report. The owners of that ship are taking precautions to see that her plates will not be like the "A" plate.

This repainting of a ship's hull is only one chapter in the constant struggle to protect its steel against rust. Fresh and salt water, and exposure to varying atmospheric conditions—all aid rust in its attempts to weaken and destroy a ship's metal. Only by seeing that your metal is thoroughly protected with paint—with red-lead paint—will you keep that metal strong, reduce depreciation, and prevent future repairs that may be very costly.

Vital spots need paint especially

A bulkhead may never have to help save one of your vessels from Davy Jones's locker. But the strength of its vital metal must be preserved against the day when it may be needed. It is just such vital parts of a ship that need constant red-lead protection against rust. The same protection should be given not only to hulls and bulkheads,

but also to cargo holds and coal bunkers.

Dutch Boy red-lead is an ideal ship paint. It is pure red-lead and makes paint that dries to a hard, tough layer. It gives positive protection against air and moisture, salt and fresh water.

Dutch Boy red-lead tested

Dutch Boy red-lead has been tested, used, and its value as a protector of ship's metal proved. It is used on vessels of the United States Navy and on the smallest craft.

Dutch Boy red-lead comes in both paste form for mixing with linseed oil and as a liquid for immediate application. Both forms come in the natural orange-red color usually used next to the metal. The liquid also comes already tinted to black, browns, and greens for finishing coats. The paste can be shaded to any desired color.

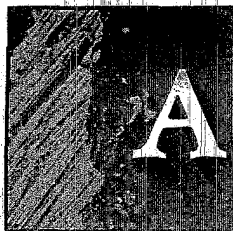


NATIONAL LEAD COMPANY

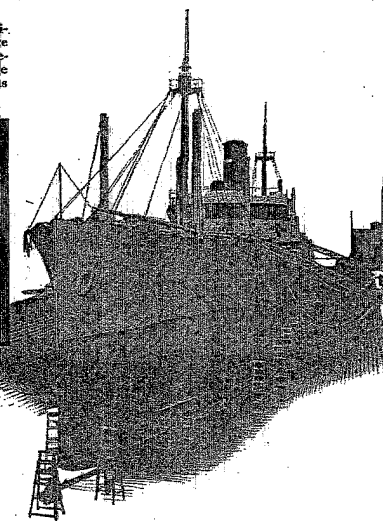
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 483 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut Street.

Dutch Boy Red-Lead

"A"—an untouched photomicrograph showing what rust does to an unprotected metal surface. The diagonal lines are file marks made in preparing the specimen section for the microscope.



"B"—an untouched photomicrograph of a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition. Rust has not formed.



When low repair bills are high

THE ship needs a spell in drydock. Her weatherbeaten sides should be scraped and covered with fresh coats of paint. Otherwise before long her plates will be brothers to Plate "A," scarred with rust.

The superintendent who puts off laying up such a ship for overhauling and repainting may feel that he is protecting her owner's profits by holding down his repair bills. But keeping repair bills low for the sake of making the repair reserve look large is false economy.

Rust sends repair bills soaring

Putting off covering your ship's iron and steel with new coats of paint gives rust a chance to add extra dollars and cents to your repair bill. Rust can make repair reserves look sick and increase the rate of depreciation of all metal parts of the vessel.

Only by keeping your ship's metal adequately protected with paint will you get the full service that you expect her metal to give. Only thorough overhauling, scraping, and repainting will keep that metal safe from rust.

Dutch Boy red-lead ideal ship paint

Owners of ships in salt and fresh water use Dutch Boy red-lead next to the metal and also for finishing coats

on hulls, cargo holds, coal bunkers, and bulkheads. Dutch Boy red-lead is pure red-lead finely and uniformly ground. It produces a dense, tough film that sticks tight to metal and keeps out the rust-forming elements, air and moisture. It protects metal constantly exposed to salt and fresh water.

Red-lead in two forms

Dutch Boy red-lead is highly oxidized and finely ground. It is put up both in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. Both forms come in the natural orange-red color that is usually used next to the metal. The *liquid* also comes in black, browns, and greens for finishing coats. The *paste* can be shaded to black, browns, and greens.

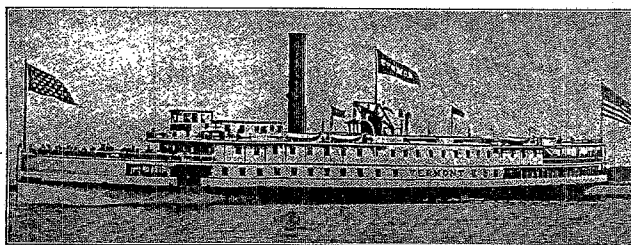


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New York, 111 Broadway; Boston, 151 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 650 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 725 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

DUTCH BOY RED-LEAD

Save the surface and you save all the life of the ship.



S.S. "Vermont" of the Champlain Transportation Company. This steamer operates daily between Plattsburg and Monticello Landing on Lake Champlain. Its captain is Ell B. Rockwell, whose picture is also on this page.

The oldest captain and his ship

CAPTAIN Ell B. Rockwell is the oldest steamboat captain in active service in America. Today he commands the S.S. "Vermont," of the Champlain Transportation Company, operating on Lake Champlain and Lake George. This company was incorporated in 1827 and is said to be the oldest in the world.

Captain Rockwell can tell of many changes in company operating policies in past years. But he says that one policy has never changed—that of protecting their vessels with pure white-lead. On the first vessel the company built, our white-lead was used. All succeeding ships have been similarly protected.

White-lead inside and out

On vessels of all types pure white-lead paint beautifies interior walls, ceilings and woodwork and protects exposed surfaces from deterioration. It is impervious to air and moisture. It gives full protection to the surfaces painted.

The ships of the Champlain Transportation Company are all painted with Dutch Boy white-lead. Mixed with Dutch Boy flattening oil, this pure white-lead makes a paint that gives staterooms, dining saloons, and other ship interiors flat finishes of unusual richness and beauty. By adding the proper coloring matter you can get any shade or tint you need to carry out any particular decorative scheme and add to the atmosphere of comfort and luxury that passengers look for.

Dutch Boy white-lead and flattening oil also make an economical paint to use because of the ease with which it can be applied, its spreading power, and its durability. By keeping your ship interiors thoroughly protected with this Dutch Boy combination

Capt. Ell B. Rockwell of Alburgh, Vt., began his nautical career at the age of twelve. Today after seventy years of service he still guides his ship, the "Vermont," on her daily trips.



you take a long step toward holding down repainting costs.

White-lead on exposed surfaces

On exterior wood surfaces Dutch Boy white-lead, when mixed with pure linseed oil, forms a tough, elastic gloss paint that prevents deterioration of the covered surface. This coating gives full protection against air and moisture. It expands and contracts with temperature changes without cracking.

Besides protecting the surface from deterioration Dutch Boy white-lead and linseed oil make a paint that spreads far, is easy to apply and lasts long. Such a paint enables ship superintendents to keep painting costs down to a minimum.

In addition, this pure white-lead may be left white or tinted to any desired color.

As Dutch Boy white-lead protects non-metallic surfaces, so Dutch Boy red-lead keeps ship metal safe from rust. Dutch Boy red-lead is pure red-lead that is impervious to the rust-forming elements, air and moisture. The Champlain Transportation Company has used protecting coats of Dutch Boy red-lead on the steel hulls of its vessels for years.

Dutch Boy Red-Lead

Ship builders and owners use Dutch Boy red-lead next to metal of hulls, bulkheads, cargo holds, and other metal surfaces inside and out.

On metal to be finished in a dark color, the standard three-coat red-lead covering gives complete protection. The first coat should be the natural red-lead color, the second coat slightly shaded with lampblack to facilitate inspection, and the finishing coat shaded to black or some other dark color.

Where steel hulls, the superstructure, stocks, holds, etc., are to be finished in white or a light color, the standard practice is to use red-lead next to the metal and finish with coats of white-lead tinted to the desired color. This combination was used on the S.S. "Vermont" shown on this page.

For detailed information regarding paint protection for your vessels, write to

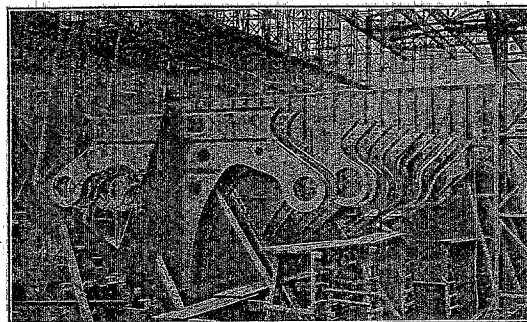
NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 131 State St.;
Buffalo, 115 Oak St.; Chicago, 900 West 18th St.;
Cincinnati, 659 Freeman Ave.; Cleveland, 530 West
Superior Ave.; St. Louis, 722 Chestnut St.; San
Francisco, 485 California St.; Pittsburgh, National
Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia,
John T. Lewis & Bros. Co., 437 Chestnut St.





See the picture and you will be satisfied.

View of new 13,500 ton twin-screw Hamburg-American liner, Albert Ballin, under construction in the Blohm and Voss Shipyard, Hamburg, Germany. This picture shows the spectacle framing at stern of the vessel.



Spectacle frames of stout steel—but

THESE massive steel spectacle frames support the propeller shafts of the new Hamburg-American liner, Albert Ballin.

The Ballin's steel spectacle framing is made of the best mild Siemens-Martin steel. It may be the strongest in the world. But if it is unprotected against rust, it will soon lose its strength.

The continued safety of any ship and her passengers depends on keeping the vessel's steel strong enough to battle wind and wave. That includes giving all metal complete paint protection against rust. Such protection should be given during construction to spectacle framing and any other steel that will be concealed and inaccessible after the vessel is built. It should be given regularly to hulls, bulkheads, and such places as cargo holds and chain lockers.

Unprotected steel soon loses its strength and looks like plate "A"; ships rapidly depreciate in value without proper paint protection. When rust eats its way into metal, it forces up scraping and repainting costs. It often ties up shipping in the drydock.

Shipbuilders and marine superintendents know from experience that the most complete protection against rust for ship steel and other metal marine equipment is red-lead. Keep

metal thoroughly covered with pure red-lead paint and you keep it like the metal shown in plate "B"—strong and free from rust.

DUTCH BOY RED-LEAD

Dutch Boy red-lead is pure red-lead. It makes a coating that air and salt or fresh water cannot penetrate. It dries to a hard, tenacious covering that seems to become a part of the covered steel.

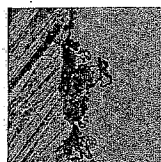
In addition to saving the metal surface, Dutch Boy red-lead is economical to use. It can be applied quickly and easily. It has unusual spreading power and durability.

You can get Dutch Boy red-lead in paste form for mixing with linseed oil and as a liquid ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The liquid comes also in black, light and dark green, and light and dark brown for finishing coats. The paste can be shaded to browns, greens, black, etc.

For specific information on rust-resisting paint coats, write:

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 115 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 840 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

This advertisement appears in the following publication:

Page—Marine Engineering—May

How long will this steel look like "B"?

The life of steel is determined not only by the kind of paint but by the method of painting

The S.S. Albert Ballin, shown here under construction, is equipped with the latest appliances for comfort and safety. In it are thousands of tons of the finest steel.

Will all this steel be as strong five years from today as it is now? That depends on the steps taken to prevent rust from attacking and weakening it. It depends on whether the steel becomes like the steel in Plate "A" or remains like the section in "B," protected from rust by an adequate paint covering.

While a vessel is on the ways under construction, its owner and builder should see that its steel is thoroughly cleaned of all rust and grease; then thoroughly coated with a rust-resisting paint. Overlapping steel plates, rivet heads, all steel surfaces that will be covered later or will be inaccessible when the vessel is completed—these places should receive extra paint protection. They are the danger spots.

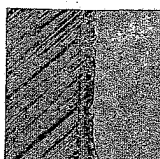
The second job is maintenance. Only by keeping an unbroken film of paint between the metal and the rust-forming elements can steel be kept in prime condition. This means following a regular inspection and repainting schedule to keep the film intact.

Ship-owners have tried many paints to protect ship metal. But of them all they have found that red-lead is by far the best. They know today the economy of keeping an unbroken red-lead paint film on all steel. And they keep down maintenance costs by putting red-lead paint on hulls, cargo holds, chain lockers and all ship steel at regular intervals.

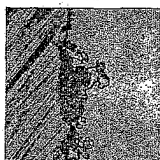
The U. S. Government also realizes the need for red-lead protection. It specifies pure red-lead for preventing deterioration of the steel of its warships.

Dutch Boy Red-Lead

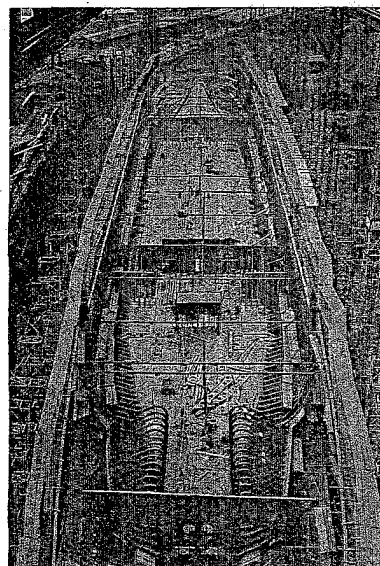
Dutch Boy red-lead is pure red-lead and is used by ship-owners everywhere. It is an economical paint to use because of its unusual spreading power and durability. It makes a tough film that is impervious to air and moisture. It sticks tight to metal, and is elastic enough to expand and contract with temperature



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



The new twin-screw Hamburg-American liner, Albert Ballin, while under construction at Hamburg, Germany. It is on the transatlantic run today, equipped with stability bulges, anti-rolling tanks and all modern safety devices. It is 627 ft. long and has accommodations for 1580 passengers.

changes. Properly applied and maintained, it will keep the plates of your vessel looking like "B."

You can get Dutch Boy red-lead in paste form for mixing with linseed oil and also as a liquid ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The liquid comes also already tinted to black, light and dark green, and light and dark brown for finishing coats. The paste can be shaded to browns, greens, black, etc.

For specific information on rust-resisting paints for the metal surfaces of your ships, write to us.

NATIONAL LEAD COMPANY

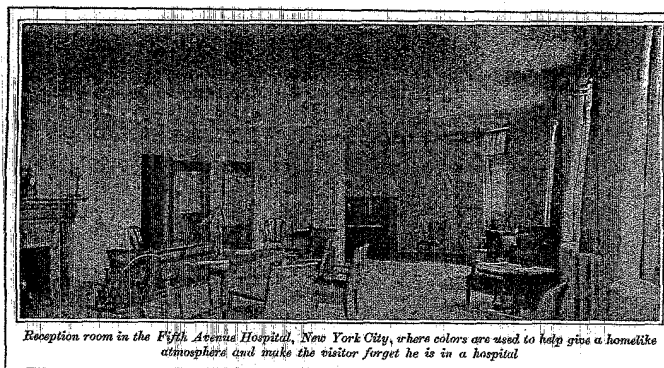
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 250 West Superior Avenue; St. Louis, 723 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



Save the surface and the time of repair.

This advertisement appears in the following publication:

Page—*Marine Engineering*—June



How your reception room can welcome visitors with color

"I wish I hadn't come." "Hospitals are such depressing places."

These are the thoughts of many people as they enter a hospital. Reassuring words often fail to change such a mental attitude. But the right colors in your reception room can cheer and soothe the mind. Color can do what words fail to do.

Physicians and hospital executives have found that carefully selected color schemes fill the depressed minds of both patients and visitors with hope and courage. Many hospitals today have replaced cold, white-painted walls and ceilings in reception rooms and throughout the hospital with warm colors.

Color experts regard the use of the right colors on walls and ceilings of the hospital reception room as especially important. Those colors which have a soothing, cheering influence are the ones suggested to put the visitor in the right frame of mind to cheer up the patient he comes to see.

How to get these colors

For walls, ceilings and woodwork you can easily get the colors you want to use by adding coloring matter to Dutch Boy white-lead and Dutch Boy flatting oil. This combination gives tinted flat

finishes of unusual beauty and softness. It reflects the light evenly, without glare. It gives a rich, solid, rubbed-down effect that you cannot get with other flowed-on paints.

Dutch Boy white-lead and flatting oil also gives a paint covering that can be washed with soap and

water as often as hospital regulations demand. Such a paint can be kept looking like new for years. This one quality that saves cost of frequent repainting makes it an economical paint to use.

"What colors shall we use?"

In our Department of Decoration are men who are color experts, fully qualified to select the proper color schemes for any room in a hospital or for an entire building.

If you will send photographs with a description of the rooms you intend to decorate, we will suggest color schemes

for them, without obligation. More than one scheme for each room will be submitted for use under different lighting conditions. We will also send actual painting formulas and color samples for walls, ceilings and trim and give the light-reflecting values of the colors.



Save the paper and you give it to the patient.

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Buffalo, 114 Oak Street; Chicago, 900 West 18th
Street; Cincinnati, 629 Freeman Avenue; Cleve-
land, 820 West Superior Avenue; St. Louis, 722
Chester Street; San Francisco, 482 California
Street; Pittsburgh, National Lead & Oil Co. of
Pa., 316 Fourth Avenue; Philadelphia, John T.
Lewis & Bros. Company, 437 Chestnut Street

For the reception room

The following color scheme is a suggestion based on the photograph of the reception room above:

Ceiling Cream
Side wall Sandstone
Woodwork Natural wood finish
Floor Gray and blue-green mixture
Furniture Walnut with brown leather covering
Draperies Blue-green with old gold bands
Table cover Terra cotta

Another attractive decorative scheme would make use of the following colors:

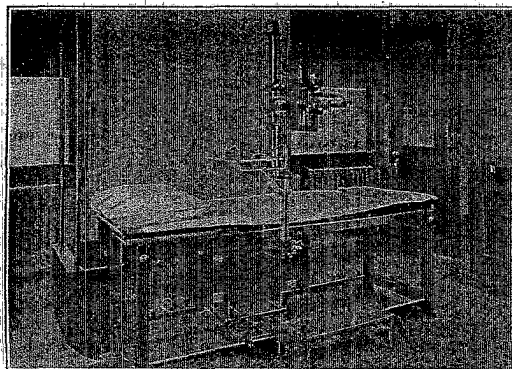
Ceiling Cream
Ceiling banding line Pale terra cotta
Side wall Warm buff
Moulding Ivory
Side wall panel or banding line Deep rich brown
Floor Terra cotta and warm gray
Hangings Gold-Terra cotta style

Future advertisements will include color suggestions for other rooms in a hospital.

SEND FOR COLOR BOOKLET

Write for free booklet, "Interesting Wall Effects suitable for Hospitals and Public Institutions." It gives detailed information about artistic wall finishes, such as two-tone tinted finishes, two-tone mottled effects, two-tone glaze and Tiffany finishes, which can be obtained economically with paint.

Reprint of Advertisement from MODERN HOSPITAL, January, 1924, issue.



X-ray room in the Fifth Avenue Hospital, New York City. In this hospital color is used on walls and ceilings throughout to stimulate or to soothe according to mental and physical condition of the patients.

Color in the X-Ray Room

The old order of "white for sanitation" is passing

COLOR has entered the hospital to stay. Physicians and hospital executives are today taking advantage of the powerful influence colors have on the nerve centers and the physical welfare of many of their patients.

The therapeutic value of color has been so thoroughly established that in many hospitals interiors from roof to basement have been appropriately decorated. In reception room and ward, in solarium and corridor, color creates pleasing mental impressions and relieves the eyes of patients and hospital staff.

In X-ray rooms in many large hospitals throughout the United States color is now on walls and ceilings instead of the white and black frequently used in the past.

Black is depressing—gloomy. White is cold, glaring, cheerless. A carefully selected color scheme for the X-ray interior can, however, relieve the strain on the eyes and mind of the operator, who often must stay in the room for long periods at a time.

How to get the right colors

There are various shades and tints, any of which may be suitable for your X-ray room. You will have no difficulty in getting exactly the color you want by tinting a combination of Dutch Boy white-lead and Dutch Boy flattening oil. Simply by adding

the proper amount of coloring matter your painter can give your wall, ceiling and woodwork finishes of unusual durability, softness and beauty.

Furthermore, Dutch Boy white-lead and flattening oil make a paint that can be washed as frequently as rules of sanitation require. Soap and water will keep this paint surface fresh and clean.

This combination of Dutch Boy white-lead and flattening oil, besides

doing away with frequent repainting, is economical in application. It has unusual spreading power and can be applied quickly and easily. Where this paint has already been used, figures show surprisingly low costs of application.

Helping you choose the colors

We have a Department of Decoration which has made a study of color selection for individual hospital rooms or for an entire hospital. This department is at your service and will gladly help you in choosing color schemes for your hospital interiors. If you will send photographs of the rooms to be decorated, a description of the use to which those rooms will be put, the class of patients treated in each, and the exposure of the rooms, color plans will be submitted. With our recommendations we will send actual painting formulas and color samples for walls, ceilings, and trim and give the light-reflecting values of the colors.



Save the picture and you save all the color.

Color Scheme for X-Ray Room

The following color suggestion is not offered for general use in all hospitals. It is based on the photograph shown above and is only one of many schemes used in hospitals in this country. Your X-ray room may require an entirely different treatment. The decoration of each room presents an individual problem. Our Department of Decoration will gladly recommend a color scheme for your X-ray room if you will send a photograph of it and a description of your lighting facilities.

Side wall.....dark violet red
Ceiling.....dark violet red light-
ened considerably
by addition of
white-lead
Radiators.....dark violet red
Trim, including window
frames, doors, cabinet
and apparatus frame.....dark reddish brown
Floor.....color on the order of
terra cotta

*Dark violet red is selected because of its remarkable light-absorption power. It reflects only 18.76% white light.

Future advertisements will discuss use of color in other hospital rooms.

SEND FOR COLOR BOOKLET

Write for free booklet, "Interesting Wall Effects Suitable for Hospitals and Public Institutions." It gives detailed information about artistic wall finishes, such as two-tone figured finishes, two-tone mottled effects, two-tone glaze and Tiffany finishes, which can be obtained economically with paint.

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February

COLOR—and the surgeon's eyes

Does light from your operating-room walls hinder or help the surgeon's work?

THE surgeon straightens up for a moment's respite from a delicate operation. Does the glare from dazzling white walls strike his eyes? If so, he sustains a visual shock, and for a second or two his sight is blurred as he looks back at the operating table.

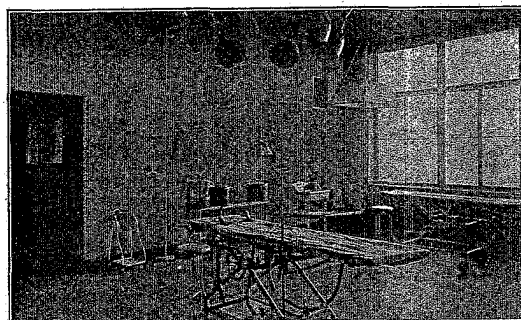
In many hospitals surgeons have already brought about the use of colors on operating-room walls and ceiling in place of glaring white. They have found that such colors as greens and grays cause no eye-strain, and still reflect the light necessary for an operation.

In a certain hospital a green operating room became the most popular working place in the institution. The color scheme of room and equipment was conducive to rapid and efficient work. The light-reflection from all parts of the room was reduced so as not to interfere with the most essential light rays, those coming from the patient's wound.

When the room was decorated in glaring white, the eyes of the surgeons were forced to try to keep out, by pupil contraction, all extraneous light. At the same time they attempted to let in, by pupil dilation, all the most necessary light from the wound. As a result, the doctors suffered from nerve fatigue through an overstraining of the accommodative and visual capacities of the eye. The remedy was use of the right colors on walls, ceilings, woodwork, and equipment.

*The right colors—
how can you get them?*

This question can be answered only by consideration of each operating



room separately. The tints and shades used in one operating room may not be suited to another.

Color suggestions for your use

We have a Department of Decoration which has made a study of color as applied to hospital decoration. This department will gladly help you choose color schemes for your operating room—all your hospital interiors. If you will send photographs of the rooms to be decorated, a description of the use to which those rooms will be put, the type of patients treated in each, and the exposure of each, color plans will be submitted. With our recommendations we will send painting formulas and color samples for walls, ceilings, and trim and give the light-reflecting values of the colors.

After you have selected a suitable color scheme, you can get it easily by tinting a combination of Dutch Boy white-lead and Dutch Boy flatting oil. One great advantage in using Dutch Boy white-lead and flatting oil is that they make a paint which can be washed with soap and water as often as necessary. You have not only a paint covering of

unusual durability, but also one that demands no sacrifice of sanitation for the sake of color.

This combination of Dutch Boy white-lead and flatting oil is economical for two reasons—its durability and its ease of application. It has unusual spreading power and flows from the brush quickly and easily. Wherever it has been used properly, the cost of application has been surprisingly low.

Send for color booklet

Write for booklet, "Interesting Wall Effects Suitable for Hospitals and Public Institutions."

It gives detailed information about artistic wall finishes, such as two-tone figured finishes, two-tone mottled effects, two-tone glaze and Tiffany finishes, which can be obtained economically with paint.

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Save the paper and you save all the color.

Sixteen-bed ward in the Children's Pavilion at Mount Sinai Hospital, New York City. In this ward as well as in others, color has been successfully used to prevent strain on patients' eyes and to aid in convalescence.



© Underwood & Underwood

The Council favors tinted walls

Colors instead of white, on walls of ward in Mt. Sinai Hospital, carry out ideas for relieving eye-strain

THE Eyesight Conservation Council of America recommends the use of color in hospital wards. It favors the banishing of white from walls and ceilings because white produces a glare which is hard on patients' eyes. It predicts that dazzling white in the future will be entirely discarded for colors that are restful and soothing.

In a recent bulletin the Eyesight Conservation Council says:

"Tan or buff, cream, light blue, light gray, and light olive-green are colors that are not likely to cause eye-fatigue."

The ward in Mount Sinai Hospital shown above is done in color. Many other hospitals throughout the country have also put color on the walls and ceilings of their wards. Physicians and superintendents in these hospitals have discarded white as cold, cheerless, and trying on the eyes of their patients. They have learned that not only do the proper colors relieve eye-strain but they also have the power to soothe or stimulate the nerves. By helping to cure mental disorder, carefully selected colors often greatly hasten physical recovery.

Getting the right colors

There is no such thing as a color scheme which is suitable generally for all hospital wards. Each ward in each hospital presents a different

problem. The scheme best suited for a particular ward can be arrived at only by considering such factors as the type of patients treated in the room, its dimensions, exposure, illumination, etc.

How we can help you

Our Department of Decoration has made a special study of proper color selection for hospital interiors. This Department will gladly help you select color schemes for a single room or an entire building. If you will send photographs of the rooms to be decorated, a description of the use to which those rooms are put, the amount of illumination each room receives and the height and size of the rooms, we can suggest definite color plans. With our recommendations we will send painting formulas and color samples for walls, ceilings and trim and give the light-reflecting values of the colors. This service puts you under no obligation.

White-lead and flattening oil

After you have chosen the proper shades and tints, your painter can get them exactly by adding colors in oil to Dutch Boy white-lead and Dutch Boy flattening oil. This combination gives tinted flat finishes of great beauty. It reflects light without glare. It is easy to apply and has unusual spreading power.

Walls painted with Dutch Boy white-lead and flattening oil can be kept looking like new for years. They can be washed with soap and water as often as hospital sanitation demands. Because of these qualities—ease of application, great spreading power and extreme durability—Dutch Boy white-lead and flattening oil help to keep down the cost of hospital maintenance and repairs.

Wherever this combination has been used properly, the cost of application has been surprisingly low.

Send for color booklet

Write for free booklet, "Interesting Wall Effects Suitable for Hospitals and Public Institutions."

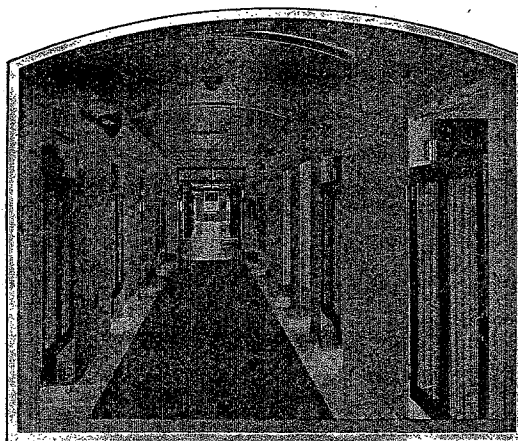
It gives detailed information about artistic wall finishes, such as two-tone figured finishes, two-tone mottled effects, two-tone glaze and Tiffany finishes, which can be obtained economically with paint.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 609 Freeman Avenue; Cleveland, 829 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 484 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 437 Chestnut Street.

Corridor in private pavilion,
Mount Sinai Hospital, New
York City.



Down the corridor on the first trip—

*After many weary days in bed, a patient prepares to refresh his eyes with new scenes.
As he passes through the door of his room, will he be confronted by a dark,
gloomy corridor or perhaps cold, cheerless walls of glaring white?*

THE negative and often harmful effect of white or of unsympathetic colors on convalescing patients is being recognized more and more. Hospitals all over the United States have been studying the therapeutic value of different colors. They have learned that the effect of white and certain colors is harmful to patients sensitive to color influences. They have found that certain shades and tints stimulate such minds—that others soothe—that these all aid in physical recovery.

The study of color has not been confined to wards and operating rooms. Corridors, the solarium—all parts of the hospital have been considered, and suitable colors used effectively in place of white. And in using such colors, the rules of hospital sanitation have not been disregarded or the cost of hospital maintenance increased.

Dark corridors, for instance, may be brightened by the use of sunlight colors. A good color scheme for corridors that receive a fair amount of illumination is: ceiling, a very pale gray just off white; walls, a light warm gray; woodwork, ivory; doors, mahogany; floors, medium brown.

Such colors, of course, are not recommended as suitable for every hospital. There is no color scheme that can be adopted generally for corridors or any other part of a hospital.

The amount of illumination varies. Other factors, which might necessitate another color scheme, must be considered.

When you plan to use color

Our Department of Decoration has made a study of proper color selection for hospital interiors. This department will gladly help you select color schemes for a single room or an entire building. If you will send photographs of the rooms to be decorated, a description of the use to which these rooms will be put, the amount of illumination each room receives and the height and size of the rooms, we can suggest definite color plans. With our recommendations we will send painting formulas and color samples for walls, ceilings and trim and give the light-reflecting values of the colors. This service puts you under no obligations.



This picture of the Dutch Boy Painter is familiar to all who use Dutch Boy white-lead and Dutch Boy flatting oil. The Dutch Boy Painter has become the exponent of beauty and protection, and inspires confidence in all whom he serves.

The paint to use

The selection of the proper colors for corridors and other parts of the hospital calls for careful consideration. But after you decide on the colors, you can easily get the exact shades and tints. Tell your painter to use Dutch Boy white-lead and flatting oil on walls, ceilings and woodwork.

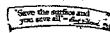
With Dutch Boy white-lead and Dutch Boy flatting oil you can obtain any color

you desire. These materials, when properly mixed, give a velvety flat finish that shows no glaring high lights and casts no deep, harshly defined shadows.

This combination of Dutch Boy white-lead and flatting oil also has economical advantages. It has unusual spreading power. A gallon of it covers an unusual amount of surface. It stays washable. Therefore, you can use the tinted flat paint without sacrificing hospital cleanliness. It gives a sanitary covering that is as clean and beautiful after washing with soap and water as when the paint was first applied.

Booklet on Hospital Decoration

Write to us on your office stationery for the new booklet, "Interesting Wall Effects Suitable for Hospitals and Public Institutions." It will be sent you free. It gives detailed information about artistic wall finishes, such as two-tone figures finishes, two-tone mottled effects, and two-tone glaze and Tiffany finishes, all of which can be obtained economically with paint.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 181 State Street; Buffalo, 118 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 600 Freeman Avenue; Cleveland, 910 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 516 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 497 Chestnut Street.

Reprint of Advertisement from MODERN HOSPITAL, May, 1924, issue.

*Solarium, private pavilion,
Mount Sinai Hospital, New
York City. Color on walls
and ceilings of solariums can
do much to hasten the recovery
of convalescing patients.*



*Save the surface and
you save all the rest.*



Do your walls frown or smile?

*Color on the four walls of a hospital room can exert a
cheering or depressing influence on a patient's mind*

SOME colors stimulate and cheer. They remind you of the friend who greets you with a warm smile and hearty handshake. Other colors cast gloom over all who see them. They frown continuously down from walls and ceilings.

Nowhere has the discovery of the influence of color on mental and physical well-being been of greater value than in hospitals. It has led to the replacement of white on walls, ceilings and woodwork with scientifically selected color schemes.

For the convalescent patient the use of color is particularly essential. Often the morbid current of a patient's thoughts can be changed by new and attractive color harmonies. The chance to exert this influence of color comes in the solarium. Here walls of yellow buff and bright golden yellow on a sunshine order have been used with success. These are colors which cheer and stimulate. The ceiling of the solarium might be painted a cream to carry out the decorative scheme.

An advisory color service

No color scheme, of course, can be said to be the ideal one for all solariums. There is no such thing as a standard color treatment for solariums or for any other part of a hos-

pital. Illumination, the use to which the room is put, its relation to other rooms, and other factors have to be considered in selecting the right colors.

Our Department of Decoration has made a special study of proper color selection for hospital interiors. If you will send photographs of the rooms to be decorated, a description of the use to which those rooms will be put, the amount of illumination each room receives and the height and size of the rooms, we can suggest definite color plans. With our recommendations we will send painting formulas and color samples for

walls, ceilings and trim and give the light-reflecting values of the colors. This service puts you under no obligation.

How to get the colors

After you have decided what colors you need, then use the paint that gives the exact shades and tints. Tell your painter to use Dutch Boy white-lead and Dutch Boy flatting oil. By adding colors-in-oil to this Dutch Boy combination, he can give you any desirable color from the most delicate tint to the tint of richest hue.

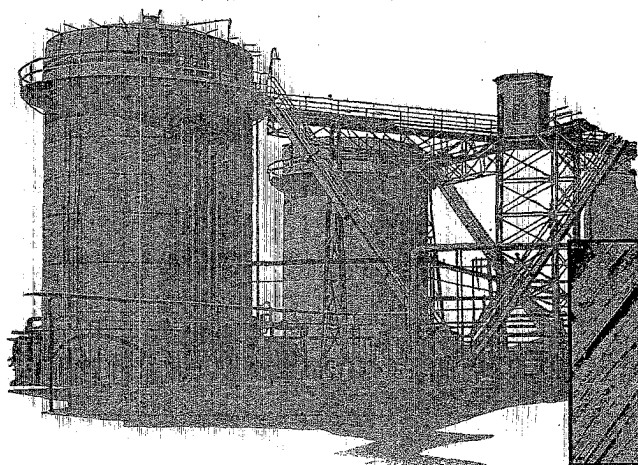
These paint materials give rich, flat finishes that reflect light without glare. They make a paint that is particularly economical for hospitals. Such a paint is easy to apply, spreads far and is washable. It permits delicately tinted walls to emerge from the ordeal of soap and water as clean and as beautiful as when the paint was first applied. It enables you to carry out every rule of hospital sanitation.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 609 West 18th Street; Cincinnati, 428 Freeman Avenue; Cleveland, 520 West Superior Avenue; St. Louis, 782 Chestnut Street; San Francisco, 435 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 516 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 457 Chestnut Street.

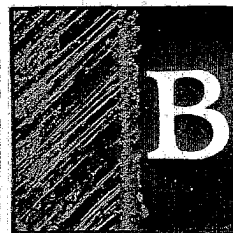
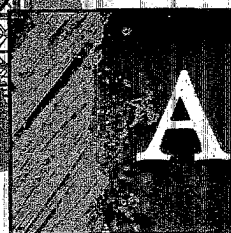
"Interesting Wall Effects"

Write for free booklet, "Interesting Wall Effects Suitable for Hospital and Public Institutions." This booklet gives detailed information about artistic wall finishes, such as two-tone figured finishes, striping, stenciling, paneling, novel one-tone finishes, two-tone mottled effects, and two-tone glaze and Tiffany finishes, all of which can be obtained economically with paint. It discusses the question of flat vs. gloss finishes and gives detailed information on the advantages of Dutch Boy flatting oil for hospital use.



"A"—an unretouched photograph showing what rust does to an unprotected metal surface. The diagonal lines are file marks made in preparing the specimen cross section for the microscope.

"B"—an unretouched photograph of a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition. Rust has not formed.



Two years from now— will your metal be like "A" or "B"?

AT one refinery, paint protects the steel sides of the stills. As a result, the metal looks like that in plate "B." At a neighboring refinery, where the stills are unpainted, rust is eating away the metal. The weakened, scarred metal still stands, but the metal looks like the "A" plate.

Your refinery metal will be like "A" or "B" as you neglect it or keep it protected.

Keep red-lead on your tanks

You may take a chance with your tanks and neglect to give them adequate paint protection. But rust won't neglect the metal in those tanks. Your neglect will cost you dearly unless you give your tanks adequate assistance in their battle against rust.

By using Dutch Boy red-lead you place on your tanks pure red-lead. This red-lead is a finely ground and uniform pigment. It makes a paint that spreads far and produces a tough, elastic film impervious to air and moisture. It gives long protection and cuts cost of repainting to a minimum.

Dutch Boy red-lead keeps metal like "B"

Dutch Boy red-lead supplies complete protection against rust to tanks and metal surfaces wherever

used in the oil industry. You can get Dutch Boy red-lead both in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. Both come in the natural orange-red color usually used next to the metal. The *liquid* comes also in black, greens, and browns for finishing coats. The *paste* can be shaded to black, browns, greens, etc.

White-lead to keep tanks cool

Dutch Boy white-lead put on top of Dutch Boy red-lead gives a light finishing coat that reduces heat absorption by the metal and decreases evaporation of the stored oil or gasoline. Dutch Boy white-lead has all the properties that enable it to resist the penetration of air and moisture and guard your tanks against rust.

For specific information on rust-resisting paint coats, address:



NATIONAL LEAD COMPANY

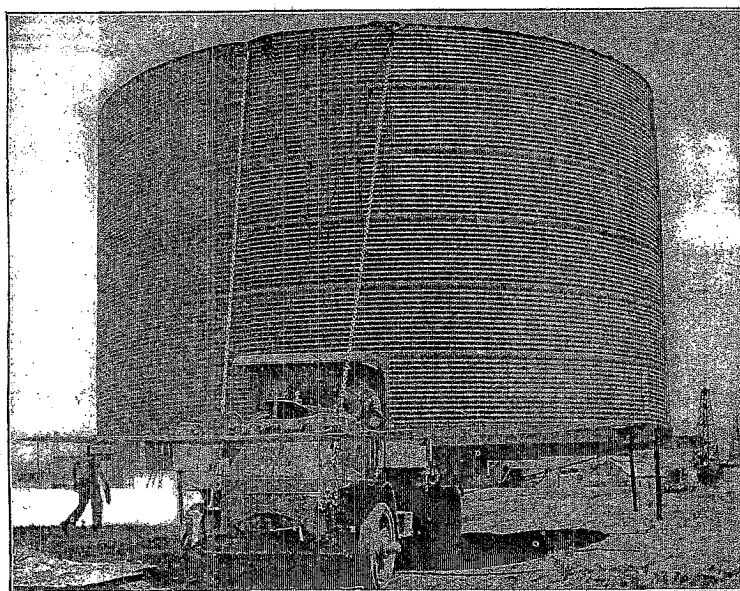
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

LITHARGE

We also make litharge of the correct physical character and chemical purity for oil refining. You can rely on its unvarying uniformity at all times. Our nearest warehouse can give you quick shipment.

DUTCH BOY RED-LEAD

The answer to a cry for more tank storage in the Elk Hills Field in California. This tank was swung aboard a motor truck and rushed off across country. The tank has a capacity of 1500 barrels, is 30 feet in diameter and 24 feet high.



SAVING THE OIL

OIL gushes from a new well. The need for more tank storage is urgent. So to prevent the oil from rushing over the surrounding country and being wasted, a huge storage tank is sent to the rescue.

Consumption of crude and refined oil increases each year, and every barrel of crude oil stored and saved is worth many times the effort.

But just as important as saving your oil is preservation of your costly metal storage tanks. Such tanks represent a capital investment that neither the oil industry nor you can afford to waste. If you do not keep your storage tanks protected against rust, repair and maintenance costs will mount quickly. Rust can destroy the tank that is not thoroughly protected.

No matter where a tank is—or any other metal oil equipment for that matter—it is constantly in danger from the attack of rust. And rust will see to it that such iron and steel if left unpainted will soon look like the metal in Plate "A" shown elsewhere on this page.

Keeping your metal like "B"

Red-lead paint will keep metal surfaces looking like "B"—untouched by rust. Experience has taught many owners of oil refineries, tank cars and storage tanks that when equipment is kept

thoroughly covered with pure red-lead maintenance costs are held down to a minimum.

Because it is *pure* red-lead, Dutch Boy red-lead supplies complete protection against rust to all metal surfaces. Mixed with pure linseed oil and spread on clean metal it sticks tight. It gives a tough, elastic coating that expands and contracts with the metal without cracking and lasts long.

DUTCH BOY RED-LEAD

You can get Dutch Boy red-lead in paste form and also as a liquid ready for the brush. The *liquid* comes in the natural red-lead color and also in light and dark green, light and dark brown and black for finishing coats. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc.

White for finishing coats

When you want finishing coats of light-colored paint to reduce heat absorption by the tank metal and decrease evaporation, use white-lead over under-coats of red-lead. Paint made of Dutch Boy white-lead and pure linseed oil can be left white or it can be tinted to any desired light color.

For specific advice on protective paint coatings for metal surfaces, write us.



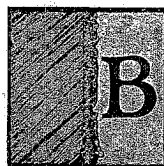
Save the surface and you save the fuel.

NATIONAL LEAD COMPANY

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"A"—WITHOUT RED LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.

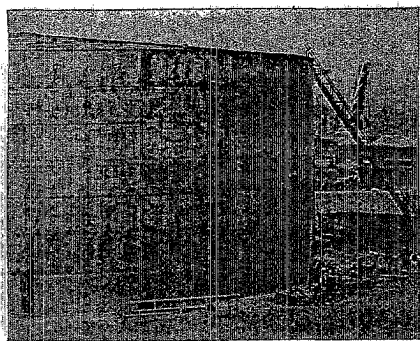


"B"—WITH RED LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

LITHARGE

We also make litharge of the correct physical character and chemical purity for oil refining. You can rely on its unvarying uniformity at all times. Our nearest warehouse can give you quick shipment.

Four million gallons of food for flivvers



This enormous storage tank at River Rouge, Michigan, can hold enough gasoline to drive 3,000 flivvers from the Atlantic to the Pacific and back again, four times. Yet, while acting as a reservoir of food for motor cars, this steel tank can itself be converted into food—for rust.

Tank metal is safe when protected as in plate "B"

LEAVE the metal surface of this tank unprotected by paint, and rust will soon start to eat a gigantic meal. Without an adequate paint covering, the steel will soon look like the "A" plate shown elsewhere on this page.

But rust cannot get a single bite out of this metal. After the tank was finished every inch of its surface was thoroughly safe-guarded against rust by a tough, elastic, long-wearing coat of red-lead. It is now protected as illustrated in the "B" plate.

Over and over again pure red-lead paint coverings prove their value in completely protecting all iron and steel oil equipment from corrosion and deterioration. Complete protection means more than coating metal with red-lead when you first put it into service. It calls for regular repainting afterward so that an unbroken film of paint is always between the metal and air and moisture. When you give metal such complete paint protection, you not only prolong the life of your equipment indefinitely, but you can also maintain your tanks and other oil equipment at a minimum cost per year.

DUTCH BOY RED-LEAD

Oil tank owners find that Dutch Boy red-lead gives the metal in their tanks full and lasting protection against rust. The outside of the huge tank shown above is now covered with a protective coating of Dutch Boy red-lead, which was used because it is *pure* red-lead.

When mixed with pure linseed oil and spread on the surface of clean metal, Dutch Boy red-lead sticks so tight it seems to become part of the metal itself. It is impervious to air and moisture. It forms a paint covering that is dense and tough, yet elastic enough to

expand and contract with heat and cold so that its surface does not crack.

Dutch Boy red-lead spreads evenly under the brush. It gives to all metal surfaces a smooth protective paint covering of uniform thickness. It is easy to apply and has unusual spreading power.

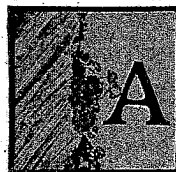
You can get Dutch Boy red-lead in paste form and also as a liquid ready for application. *The liquid* comes in the natural red-lead color for coats next to steel and also in light and dark green, light and dark brown and black for finishing coats. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc.

White-lead for finishing coats

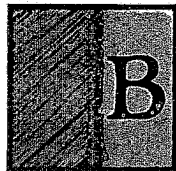
Light-colored finishing coats reduce heat absorption by the tank metal and decrease evaporation. To get this light color use Dutch Boy white-lead on top of undercoats of Dutch Boy red-lead. Dutch Boy white-lead also has the properties that enable it to keep out air and moisture and guard both the inside and outside of your tanks against rust. The inside of the tank at River Rouge is covered with Dutch Boy white-lead over Dutch Boy red-lead. For specific advice on protective coverings for metal surfaces, write us.



Give the surface and you have all the world.



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust cannot form here.

NATIONAL LEAD COMPANY

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Storage tanks of the Standard Oil Company at River Rouge, Mich. All these tanks are painted inside and out with Dutch Boy red-lead undercoats and Dutch Boy white-lead finishing coats.

When the sun shines on this farm of 55's

*the heat of the bright rays is broken by a simple method
you too can adopt*

A HOT sun beats down. The only shade on this farm of 55's is cast by the tanks themselves. Yet the heat of the bright rays is broken—its penetrating force reduced—by a very simple and economical method; namely, the use of white paint. These Standard Oil Company tanks are painted white because white reflects the most heat and thus keeps oil cooler.

Wherever oil is stored in tanks, some loss from evaporation will occur. But like the Standard Oil Company, many producers, refiners and marketers are cutting this oil evaporation to a minimum by painting their tanks white or in light colors.

Tests made by the U. S. Bureau of Mines show that the temperature of oil in tanks painted white is from eight to ten degrees cooler than that in dark-colored tanks. These tests prove that the saving in barrels of oil pays the cost of painting.

You save oil by painting your tanks white or in light colors. You also save the tanks themselves by using a paint that insures protection against rust. In order to get this double saving in the fullest measure, the paint film must stick tight to the metal

surface. It must be tough to weather the elements. It must keep out air and moisture—the rust-forming elements.

In painting the Standard Oil tanks shown above, Dutch Boy red-lead was used next to the metal. This is the rust-resisting paint that is used on iron and steel everywhere—a positive guaranty against rust. Then finishing coats of Dutch Boy white-lead were applied over the red-lead priming. Dutch Boy white-lead was used for the top coats because it combines the necessary whiteness with the ability further to protect the covered surface from rust deterioration.

This combination of Dutch Boy white-lead and Dutch Boy red-lead forms a paint film that not only reflects the sun's rays but also resists all attacks of rust-forming elements. Both these paints are easy to apply and have unusual spreading power. Add these qualities to extreme durability and you have a paint film that is economical and one that cuts down storage-tank maintenance as well as oil evaporation.

For more complete information about Dutch Boy red-lead and Dutch Boy white-lead protective paint coverings, write to our branch nearest to you.



Save the oil and
the metal.

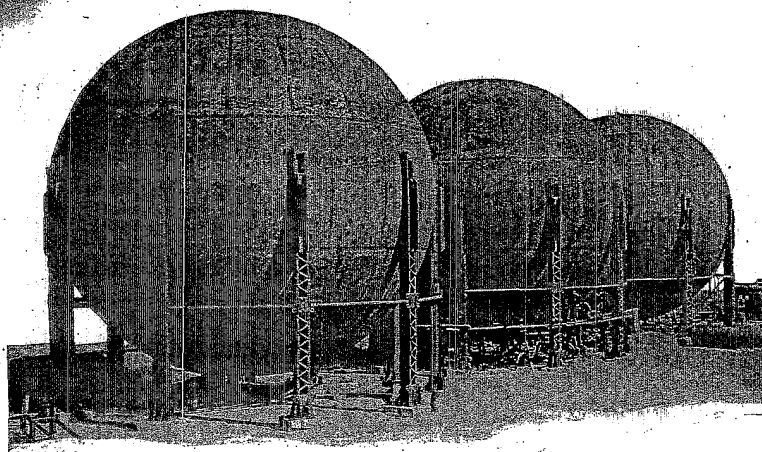
LITHARGE

For oil refining you want litharge of correct physical character and extreme chemical purity. Our nearest warehouse can give you quick shipment of such litharge in any quantity you desire.

At all times you can rely on its unvarying uniformity, for it is made by the makers of Dutch Boy white-lead and Dutch Boy red-lead.

NATIONAL LEAD COMPANY

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These hollow balls of steel have a capacity of 10,000 barrels or 420,000 gallons. They are 48 feet in diameter. Their shape is said to distribute internal pressure so evenly that evaporation of highly volatile oil is virtually eliminated.



A—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation. The diagonal lines are file marks made in preparing the metal cross-section for the microscope.

B—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can NOT form here.

The oil is safe— but how about the tanks?

These huge steel globes are particularly designed to prevent loss of gasoline by evaporation. And there is a particular kind of paint that prevents oxidation.

EVERY year evaporation causes enormous losses of highly volatile oil products. Now more than ever before producers and refiners are faced with the serious problem of preventing these losses. These giant globes are one of the latest inventions to provide a storage place that keeps casing-head gasoline and similar oil products from vanishing into thin air.

Just as oil men are discovering ways to save the oil from evaporation, so they are finding the right method of saving their tanks and other metal equipment from rust destruction.

They find that it is not enough to paint metal equipment only when it goes into service. Constantly they keep a careful check on the condition of their storage tank, pipe line, and tank car steel. At regular intervals, the defense film of red-lead paint is renewed. By this regular paint maintenance they keep every square inch of metal always safe from rust as in plate "B."

The regularly maintained three-coat covering of red-lead is a positive guaranty against rust destruction of all metal. For this complete protection

the red-lead must be pure. Dutch Boy red-lead is pure red-lead. It brushes out easily and evenly. It spreads far with unusual covering power. It forms a hard, tough film that sticks so tight that it seems to become part of the metal itself. Yet it is elastic enough to expand and contract with the metal. A clean metal surface that is coated, and kept coated, with Dutch Boy red-lead will never show signs of rust decay. Its surface, even when under the eye of the microscope, will be as even and firm as the day it left the foundry.

LITHARGE

For oil-refining you want litharge of correct physical character and extreme chemical purity. Our nearest warehouse can give you quick shipment of such litharge in any quantity you desire.

At all times you can rely on its unvarying uniformity, for it is made by the makers of



DUTCH BOY RED-LEAD
and
DUTCH BOY WHITE-LEAD

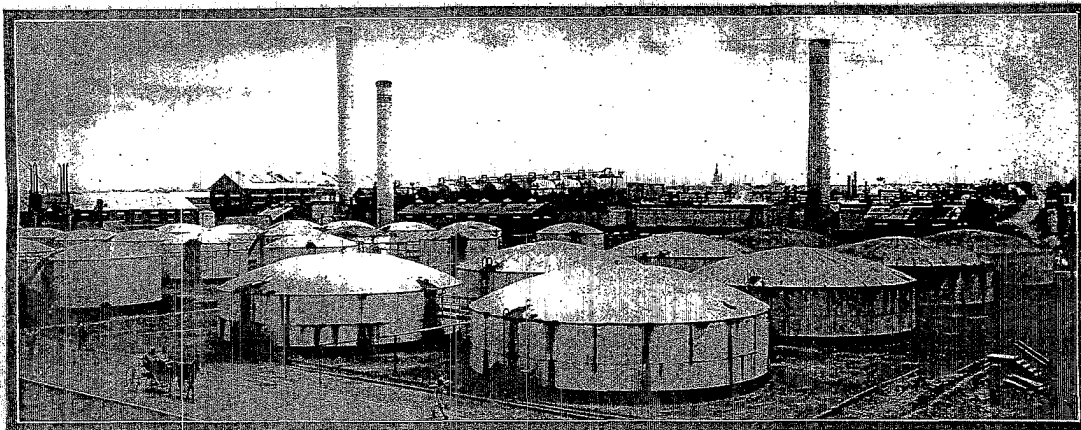
You can get Dutch Boy red-lead in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. The *liquid* comes in the natural red-lead color for coats next to steel and also in light and dark green, light and dark brown, and black for finishing coats. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc.

When you want finishing coats of light-colored paint to reduce heat-absorption and decrease oil-evaporation, use Dutch Boy white-lead on top of first coats of Dutch Boy red-lead. Dutch Boy white-lead also has the properties that enable it to resist the penetration of air and moisture and to guard tanks against rust.

Our nearest branch will gladly give you specific advice on protective paint for metal. Write for this information, which may help you get longer service from your metal equipment.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; 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, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



These distillate storage tanks of Cosden & Company are all painted in light colors. By the use of light-colored paints, oil losses by evaporation are cut to a minimum. In addition, the quality of the oil is kept at a more uniform grade.

Lost—millions of gallons of oil

Producers constantly discover that they take out of storage tanks less oil than they put in. How can they reduce this loss?

ACCORDING to a government report, one-thirtieth of the country's production of gasoline is lost through evaporation in one stage only of handling crude oil.

It is estimated that in 1919 this loss amounted to 122,000,000 gallons in the mid-continent field alone.

Losses through evaporation are particularly costly, since the most valuable part of the oil escapes—the gasoline. As the big losses occur during the few days in which the oil is stored on the leases, it is evident that the problem lies largely with the tanks. Keep them cooler and the losses will be materially reduced. That can be done by painting the tanks white or in light colors, thus reducing heat absorption.

Tests conducted by the U. S. Bureau of Mines show the value of painting storage tanks white or in light colors. It was determined that the temperature of oil in white-painted tanks was always from eight to ten degrees cooler than the temperature of oil in dark-colored tanks. Evaporation loss was therefore cut to a minimum in the white tanks.

You not only save oil by painting your tanks white or in light colors. You also insure the quality of the oil in the

tanks. As evaporation removes the most volatile part of the oil—the gasoline—it lowers the grade of your product. Light-colored paint, by reducing evaporation, enables you to take out of your tanks a better grade of oil.

Added to the saving in oil is the saving of the tanks themselves. Producers

and refiners who get this double protection in the fullest measure paint their tanks and save the steel surfaces with Dutch Boy white-lead and Dutch Boy red-lead.

For the undercoats next to the metal Dutch Boy red-lead is the paint to use. This is a rust-resisting paint that is used on iron and steel everywhere—a positive guaranty against rust. Then heat-resisting finishing coats of Dutch Boy white-lead are applied over the red-lead undercoats.

This combination of Dutch Boy red-lead and Dutch Boy white-lead forms a paint film that not only reflects the hot rays of the sun but also resists all attacks of the rust-forming elements, air and moisture. Both these paints are easy to apply and have unusual spreading power. Add these qualities to extreme durability and you have a paint film that is economical and one that cuts down storage-tank maintenance.

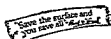
Our nearest branch will be glad to give you complete information about Dutch Boy red-lead and Dutch Boy white-lead protective paint coverings for your tanks and other metal equipment. Write today for this helpful advice, which may save many gallons of oil for every tank you operate.



Litharge

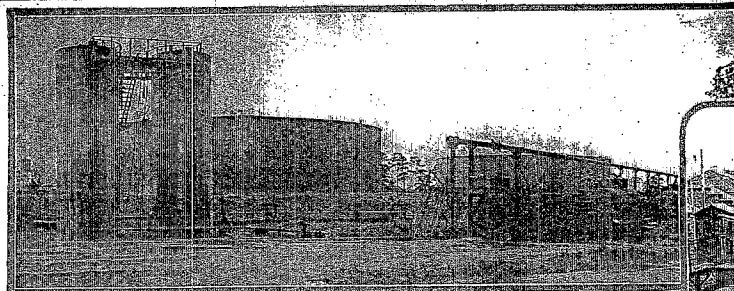
For oil refining you want litharge of correct physical character and extreme chemical purity. Our nearest warehouse can give you quick shipment of such litharge in any quantity you desire.

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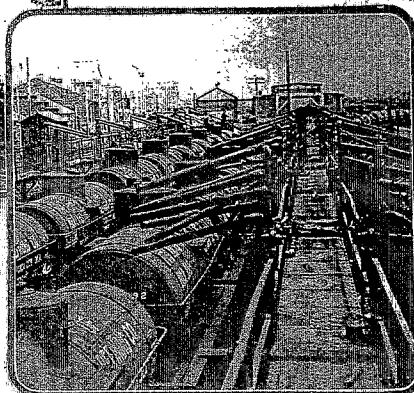


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Tanks, tank cars, and loading racks such as these require constant maintenance if they are to give long, continuous service. And there is a particular method of painting which gives such steel equipment the best protection.



Five years from now will your tanks be like "B"?

*The life of steel is determined not only by the kind of paint
used but by the method of painting*

OIL men have tried many methods for protecting their metal equipment from rust. They have found that any old kind of painting at any old time is false economy. Such painting will not keep tank, pipe line, tank car, and other steel always looking like the metal you see in plate "B."

Today they know that adequate paint protection means more than painting only when the metal first goes into service. It means more than an occasional touching up over the rust spots. The metal surface must be clean not only the first time it is painted, but for every subsequent painting. If paint is applied over rust, the rust goes on eating into the metal, and the protective power of the paint is nullified.

Even the standard three-coat red-lead covering—the best paint protection that can be used for metal—requires careful maintenance. At regular intervals this defense film must be renewed by repaintings of pure red-lead. Only by a constant inspection and paint-maintenance policy can you be sure that your metal equipment will give its full measure of service.

Because it is pure red-lead, Dutch Boy red-lead gives uniform protection against rust at all points of the covered surface. A clean metal surface that is coated, and kept coated, with Dutch Boy red-lead will never show signs of rust. Its surface, even when under



"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep pitted surface. The diagonal lines are file-marks made in preparing the metal cross-section for the microscope.



"B"—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard three-coat covering of red-lead. Note the perfect condition of the surface of the metal. Rust can not form here.

the eye of a microscope, will be as even and firm as the day it left the foundry—just like the metal surface in "B."

Dutch Boy red-lead is easy to apply and has unusual spreading power. It is impervious to air and moisture. It forms a tough, elastic film that clings so tightly that it seems to become a part of the covered surface.

You can get Dutch Boy red-lead in paste form for mixing with pure linseed oil and as a liquid ready for immediate application. The liquid comes in the natural red-lead color for coats next to steel and also in light and dark green, light and dark brown, and black for finishing coats. The paste comes in the natural color and can be shaded to browns, greens, black, etc.

When you want finishing coats of light-colored paint to reduce heat-absorption and decrease oil-evaporation, use Dutch Boy white-lead on top of first coats of Dutch Boy red-lead. Dutch Boy white-lead also has the properties that enable it to resist the penetration of air and moisture.

Write to our nearest branch for more specific information about metal protective paints.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 300 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 455 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.



Save the surface and you save all the time.

Litharge

For oil-refining you want litharge of correct physical character and extreme chemical purity. Our nearest warehouse can give you quick shipment of such litharge in any quantity you desire. At all times you can rely on its unvarying uniformity, for it is made by the makers of

**DUTCH BOY
RED-LEAD**

The Dutch Boy Digest

A page of discussion and comment of interest to users of National Lead Company products, digested chiefly from The Dutch Boy Painter and The Dutch Boy Quarterly

Published by National Lead Company

MONDAY, APRIL 21, 1924

Manufacturers of Lead Products

A Few Cold Facts Which Tell How Oil Is Boiled

Old Kettle Cooking Compared with New Devices

At first, boiled oil was made by putting raw oil and driers into an iron kettle set in brick over a fire, and the workman stirred it constantly or at least frequently, to keep the driers in suspension until they dissolved. The bottom of the kettle, directly over the fire, tends to get very hot, and it naturally happened that some of the oil, not being stirred constantly to prevent it, got cooked to what might be called an excessive degree, and this makes oil dry with a varnish gloss and resist water more. This highly cooked portion eventually became completely mixed with the rest, and while such a mixture was perhaps not all exactly alike it would dry harder than it would if every drop of it had been heated to exactly the degree which was shown by the thermometer, and no hotter. Boiled oil is usually cooked at about 450° F. for several hours, and what is called "double-boiled" oil has more cooking—that is, longer, but not hotter—with a little more drier than the regular article.

Ordinary Oil-boiling

Kettles are limited in size to what a man can stir; but for large amounts the following practice is in common use: A tank is built to cook a certain quantity, say 500 gallons, and is heated by a steam-coil inside; the oil expands considerably when heated, and there is some foam, and the tank is big enough to take care of that. The steam is not under high pressure, but it is superheated by passing thru heated pipes before it goes to the oil, so the oil may be heated sufficiently. The drier and oil are put in the tank, in which there is a device for stirring the mixture with enough drier for, say, 2000 gallons of oil. When this is all dissolved it is run into a larger tank with 1500 gallons of raw oil; this large tank is also heated with steam pipes and has some sort of stirring device and the whole is heated at a somewhat lower heat than was necessary to dissolve the driers. For a considerable time; in fact, it takes a day for a big tank of hot oil to cool off.

Cause of Color

The advantages of this way are that the heat is under better control, and as none of the oil is against the hot bottom of a kettle it does not get so dark-colored; the 1500 gallons do not have to be heated so much, and that again makes the mixture paler; pale boiled oil is desired by everybody. This makes good oil. The old-fashioned kettle-boiled oil is made by only a few, in old manufacturing plants.

Tons of Lead Needed in Making Glass

Lead in Some Optical Glass as High as 75%

For certain kinds of glass, lead is a necessary ingredient. Many hundreds of tons of it are used for this purpose in the form of red-lead (Pb_3O_4) and litharge (PbO). The use of red-lead, however, is by far the greater.

Essentially glass is a mixture of silicon oxides (silicates) and sodium, potassium, calcium and lead oxides. The mixture, finely ground, is melted in a furnace, requiring a temperature of 2,000° F. to bring about complete liquefaction. Before the necessary chemical unions occur the mixture is heated to as high as 2,800° F. for as long as twelve hours.

The red-lead used does not have to be the ultra-finely ground product used by painters, since it loses its physical identity and becomes a transparent silicate in the mix; neither is it as highly oxidized as painter's red-lead, altho the red-lead's oxygen content is mainly relied on to oxidize and thus eliminate the impurities in the mix.

Lead increases the refractive power of microscope, telescope and camera lenses to a maximum by increasing their density to a degree similar to that of a diamond. In eyeglasses it is used perhaps not so much for its ability to increase their refractive power as for the brilliance, toughness, ease of grinding with which it endows them. Some optical glass contains lead to the extent of seventy-five per cent, and this is the most brilliant glass made.

The high refractive power with which lead endows glass accounts for the sparkle which is the charm of cut glass. Practically all cut glass contains lead; often a third of it is lead, which incidentally is the reason why cut glass is so heavy. Lately dinner services made entirely of lead glass have come into favor. The lead glass has a wonderful polish and a beautiful ring that others cannot imitate.

How Far Should a Gallon of Paint Spread?

A Gallon Contains 231 cu. in. and Would Cover 231 sq. in. if Laid an Inch Thick

It is difficult to say how thick a coat of paint should be. For protective purposes the total film should be not less than 1-200 of an inch. This would mean three coats of not less than 1-600 of an inch each.

A white-lead and linseed-oil paint mixed four gallons to the 100 pounds easily and naturally brushes out to about 1-400 of an inch in thickness; which makes about 600 square feet

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Litharge and Glycerine Used To Resist Acid

Chemical Compound Resists Heat and Moisture

A cement valuable for a number of purposes for which ordinary cement would be neither practical nor desirable is that known as litharge-glycerine cement. It is produced by adding to a mixture of five parts of ninety-five per cent pure glycerine and three parts water sufficient litharge (PbO) to form a paste of any desired consistency.

The resultant cement forms a chemical compound which when it sets becomes of incredible hardness. It hardens rapidly, remaining soft for only about ten minutes. The addition of ten per cent inert matter such as silica, Fuller's earth and iron oxide will delay the setting time considerably and also prevent cracking to a certain extent.

Litharge-glycerine cement will withstand a high degree of combined heat and moisture. Its most conspicuous feature, however, is its resistance to practically all acids, provided they are not of full strength. Its chief use is in paper mills. The acid-resisting properties of litharge-glycerine cement make it valuable for lining the digesters or sulphate liquor tanks, both for cementing the bricks or tile and for the facing or lining.

Another common use of this cement is for forming water-tight connections between iron pipes and partitions, fittings, also for cementing glass apparatus, brass work, hardware, etc.

New Paint for Poland

Miss Georgia Ely of Olivet, Mich., just returned from Poland, found that a shipment of cocoa and condensed milk had been sent from America, but the natives, unfamiliar with it, believed it to be paint. So they mixed the two and coated their houses a sweet, sticky brown.

to the gallon or 300 square feet two coats. It can be brushed out to cover more surface, but this is rarely desirable.

History Shows Ancients Used White-Lead

Lead Ore Found in Almost All Parts of World

As far back as we have written language we find mention of lead. Its common ore, galena, which is brilliantly crystalline and about as heavy as metallic iron, is found in almost all parts of the world.

The ease with which lead may be obtained from its ore is shown by the fact that the early settlers in this country used to set fire to a fallen hollow log and put some of the ore in the burning concavity, in the bottom of which enough melted lead would accumulate to furnish them with material for bullets. The Indians made a fire over a bowl-shaped hole in the ground and by putting the lead-ore on the fire they secured lumps of metal from the hole under the fireplace, to sell to the traders.

Met Various Needs

As lead is about half as heavy again as iron, and may easily be cast or beaten into almost any form, it is not surprising that it should have been known to the ancient races of men.

The Assyrians used lead, as we do now, to secure iron bolts in holes drilled in rocks and buildings. The Greeks, and probably many other nations of antiquity, were acquainted with white-lead and red-lead. The Romans used lead-pipe for city water-works, and understood not only soldering, but the more difficult art of lead-burning, which consists in fusing together two adjacent edges of sheet-lead with a blowpipe. In the middle ages, sheet-lead was frequently used, as it is now, for roofing material.

In the Prologue to the Canterbury Tales, written about 1386, Chaucer enumerates among standard medicinal drugs quicksilver, litharge, brimstone, ceruse (i. e., white-lead), and borax, which is the earliest English mention of lead compounds for this purpose.

More Common as Paint

But in general, white-lead is spoken of as paint, and paint does not appear to have been used as a preservative, as we use it now, but primarily for decoration, and especially as a cosmetic. From this latter use comes the implied meaning of deception; thus Chaucer, in the Parson's Tale: "Paint thy confession by fair words to cover thy sin," and in 1456 Sir G. Hays: "This story is painted in many places"; in 1519, Horman: "They white their face and neck with ceruse"; in 1599, Chapman says: "She is very fair, I think she be painted"; and Hexham: "To paint one's face as gentlewomen do."

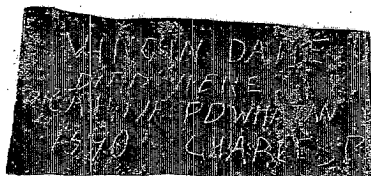
The Dutch Boy Digest

A page of discussion and comment of interest to users of National Lead Company products, digested chiefly from The Dutch Boy Painter and The Dutch Boy Quarterly

Published by National Lead Company

MONDAY, MAY 26, 1924

Manufacturers of Lead Products



This 300-year-old lead slab was recently unearthed in Washington, D. C. It may furnish a clue to the disappearance of Virginia Dare, the first white child born in America. The slab is fourteen inches long, six inches wide and an eighth of an inch thick. The inscription reads: "VIRGIN DARE DIED HERE CAPTIVE POW-HATAN 1590 CHARLES R." Vir-

ginia Dare was the granddaughter of Governor John White and daughter of one of his official staff, whose expedition left England in 1585 to establish an agricultural colony at Roanoke Island. A year later, Governor White, on returning, found trace of neither the colony nor the child.

The lead seemed none the worse for its 300 years spent underground.

Red-Lead is Easily Tested By Weighing

Less Than Standard Weight Shows Adulteration

Inspection of red-lead paint by weight is not only the easiest method, but it is accurate enough for practical purposes. All that is needed is a gallon measure of known weight and any ordinary pair of scales. Climatic and other conditions under which the metal surfaces are to be painted have much to do with establishing what the weight of the red-lead paint should be, a trade principle which is well known to all painters and paint inspectors.

Red-Lead Heaviest Pigment

Specifications for railroad and public work—municipal and state—require that red-lead paint shall weigh not less than twenty-four pounds per gallon, and not more than twenty-eight pounds. Government specifications allow the same maximum weight, but the minimum weight is placed at twenty-six pounds per gallon. National Lead Company recommends the use of a pure red-lead paint weighing about twenty-five pounds, the weight, of course, to be varied wherever conditions affecting the paint demand it.

As red-lead is the heaviest pigment, any adulteration will show lessening of weight. This is, in fact, an argument in favor of red-lead—it is so easy to inspect. A similar reason may be urged for using paste red-lead, one hundred pounds of which measures but two and one-eighth gallons and is the smallest one-hundred-pound package ever seen in the paint trade; an adulterated material requires a package so much larger as to be easily noticeable.

Weight Should Be Specified

The extended or adulterated red-lead paints on the market usually weigh not more than eighteen pounds; but, in order that this or any other paint should be capable of accurate inspection, it is necessary that the consumer specify the weight which he desires; then the inspection by weight will show at once whether the paint is up to the specified standard.

The pigment must contain ninety-seven per cent true red-lead or it would harden in the container, and the maker would not venture to put it on for inspection. It must be fine, because it cannot be oxidized to ninety-seven per cent unless it is extremely uniform, so.

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Oil Losses Cut By Painting Tanks White

Light Colors Should Help to Keep Tanks Cool When Sun Rays Are Hot

In one stage only of handling crude oil, one-third of the country's production of gasoline is lost through evaporation. According to a government bulletin, in 1919 this loss amounted to 122,000,000 gallons in the mid-continent field alone. Losses through evaporation are particularly costly, since the fraction that escapes is the most valuable part of the oil—the gasoline.

As the loss occurs during the few days in which the oil is stored on the leases, it is evident that the problem lies with the tanks. To curtail this loss the most important thing to consider is keeping the temperature of the oil as low as possible.

A plan which at present is receiving considerable attention both from oil operators and the U. S. Department of Interior is concerned with painting tanks with a finishing coat of white or light-colored paint. Experiments without number have proved that the temperature of oil in tanks painted white is 8 to 10 degrees lower than that in black tanks. In one experiment statistics on the amount of evaporation in two tanks painted black and white, respectively, were kept. In a period of nine months a saving of almost \$1,000 was recorded in favor of the white tank. The case possesses added interest since the age of the oil in the black tank was less than that in the black tank and under exact conditions should have shown a higher rate of evaporation. The white tank, however, more than overcame this tendency. Unquestionably a tank finished in a dark color will absorb more heat with a resultant increase in evaporation losses than will a tank finished in a light color.

Silk Sieve Tests Fineness of White-Lead

Put Through Cloth That Has 27,000 Holes to Sq. In.

In the process of manufacture white-lead, after it has been ground in water but before it has been ground in oil, is washed through a screen or sieve of No. 21 silk bolting cloth, the openings in which are about one one-thousandth of an inch in diameter. The coarsest particles should therefore be only of that magnitude. But an oblong particle will wash through a hole of its smaller diameter, and some few may be a half longer than one one-thousandth of an inch. Of course that is small; but when we consider that a coat of paint is only two one-thousandths of an inch thick, and has places where it is less, these particles come pretty near reaching through it; whereas the ideal paint film has several or many layers of particles in it. Hence the desire of the manufacturer is to reduce by grinding the pigment to a much smaller size than this.

The "classifier," an apparatus for determining the proportion of coarse and fine particles in a pigment, enables the inspector to learn whether the factory is doing this or not, and to determine the exact percentage of these maximum-size particles, as well as that of the ultimately fine ones.

National Lead Company operates numerous factories which for several years have sent in daily composite weekly samples for inspection, with the result that the proportion of these larger particles has been lessened in some cases as much as nine-tenths of the earlier percentages. This has been done partly by greater care in grinding and partly by a better system of flotation.

These so-called coarse particles do not appear to be crystals, but little fragments of crusts of white-lead which formed on the "buckles." They can easily be broken down into a fine powder, but in some way they have slipped through the mill as little compact lumps. Since there is no affinity between this substance and water, the latter does not penetrate and soften the coarse particles, as it would similar lumps of clay; but most of them are probably broken down afterward when the lead is ground with oil in another mill.

Atlantic Linseed Oil

We manufacture under this brand:

Raw, boiled and double-boiled linseed oils—pure, well settled, carefully filtered and free from fumes. Heavy-bodied linseed oils, both raw and boiled for printing-inks.

For varnish making:

Diamond V Oil for general use.

"AA" Diamond V Oil for light-colored varnishes.

Perfection Diamond V Oil for light-colored varnishes and white enamel paints.

Your orders will be promptly filled.

NATIONAL LEAD CO.

Atlantic Branch
111 Broadway, New York

"Old Method" Insures Pure Linseed Oil

Flax Seed Grows In Many Parts of the World

Even before Rome became an empire, linseed oil was known and used in making paint. And never since then has an oil been discovered that will dry into a tougher, more durable film, and at the same time be produced more cheaply than linseed oil. No wonder it has been called the painter's oil "par excellence."

As long as there is moisture and the sun's heat in proper proportion and in due season, flax seed from which linseed oil is derived may be produced almost anywhere. Argentina, the United States, India, Russia (when conditions are normal) and Canada, in the order named, are the most important flax seed producing countries of the world. Of lesser importance are Manchuria, Japan, countries bordering on the Mediterranean Sea, Holland, and Belgium. It is interesting to note that in about all the countries mentioned, except the United States and Canada, the seed of the flax plant is termed linseed. In the United States and Canada it is referred to simply as flax seed.

Imports of Flax Seed Large

The production of flax seed on the North American continent has been insufficient to meet domestic demands for more than a decade. Linseed oil is therefore rarely exported. On the contrary, the importation of flax seed for North American use, for over a period of ten to fifteen years, has ranged from twenty-five to sixty per cent of this continent's total linseed oil requirements.

The flax seed plant forms the basis of two distinct industries—linseed oil and fibre. The seed yield from a plant grown for fibre is much lower than that derived from flax grown primarily for seed, although, as a matter of fact, the seed constitutes a valuable by-product for fibre producers. The seed is of a flat, oval shape, somewhat pointed at one end, and is lustrous, and generally of a pale brown color. The size and general appearance of seed grown in the various producing countries possess characteristics which will enable an expert to determine the country of its origin.

"Old Method" Thorough

Several methods of extracting oil from the seed are used in this country. The system used by National Lead Company is known as the "Old Method" and includes five steps. The first step is to crush the seed by feeding it to a mill consisting of two or three sets of iron rolls placed one above the other. Second, heating—in which the seed passes from the crushing mill into a large kettle. This liberates the oil, allowing it to be more readily extracted. Third, moulding—here the seed passes from the kettle into a moulding machine, where it is moulded into cakes. Fourth, pressing—the cakes of meal are then pressed by hydraulic pressure, the oil flowing into tanks, and the oil cakes being removed to be sold as cattle feed. In the fifth step the oil is filtered by running it through a filter press, after which it is placed in tanks. After the oil has stood for some time in the tanks the foots (mucilaginous matter) settle to the bottom, leaving the oil clarified.

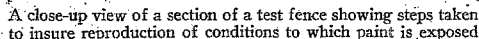
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Manufacturers of Lead Products



Because of the need of thorough and scientific study of the merits of different paints, National Lead Company, about six years ago, purchased a ten-acre farm at Sayville, Long Island, to be used for paint testing. It is probably the most scientific development of its kind in this country. This farm is about two miles from the seashore in a country district with plenty of trees and shrubbery around so that the tests are conducted under fairly average conditions.

The idea held by the company was to make a very careful, scientific and impartial study of various paint materials. Practically everything that comes up in outdoor painting is considered. No special regard is paid to the origin of the materials tested. Those made by National Lead Company and those made by others are tested impartially.

All tests are made on a standard type of fence constructed in such a way as to reproduce conditions which a paint on the exterior of a building must withstand. The fences are of regular building construction covered with standard siding or metal panels with a roof and eaves to shed the water. The fences are painted on both sides (north and south exposure) and also on the ends so that conditions are as much like a building as possible. The panel material, which includes cedar,ypress, pine and sycamore, is placed on the fences before it is painted, and the paint is applied before the priming coat is done in the field as in standard painting practice.

All of the painting work is done by experts. A record is kept of each test, giving all possible information about the paint and how it was applied, and includes the formula, analysis, specific gravity, spreadability, working time, the difference between coats, color, brush marks, condition of the surface, degree of gloss, and other characteristics such as running, crawling, spotting and hiding.

Regular inspections are made every three months and a complete report of the condition of the paint is made. The report includes general appearance, condition for repainting, cracking, gloss, checking, chalking, cracking, scaling, discoloration, fading, and any other conditions of interest which are present. Each test under each condition is given a definite grading, from perfect condition and zero defects to complete failure.

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Only One Form Discolors White-Lead Film

Some people have the impression that any sulphur gas is detrimental to a white-lead paint film. This is not true. If sulphur is present in the atmosphere, it is usually in the form of sulphur dioxide, sulphur trioxide or hydrogen sulphide. These three forms are different chemical compounds, and they differ greatly in their effect on white-lead.

Sulphur dioxide is the ordinary sulphur gas given off by the burning or oxidation of sulphur. When sulphur dioxide comes in contact with white-lead it may convert the white-lead to lead sulphite. This compound is insoluble and white; therefore the film is not discolored nor is it weakened.

Sulphur trioxide, when present in the atmosphere, is usually in the form of sulphuric acid vapor. This vapor might be present in the atmosphere in the neighborhood of industrial plants, particularly where the acid is heated to high temperatures, but it occurs so rarely that it does not require much consideration. Even if it should be present, sulphur trioxide, or sulphuric acid vapor, would not injure the foliage, but it is not infrequently found where lead it converts the same to lead sulphate, one of the valuable constituents of basic lead sulphate, the well-known white pigment. Hydrogen sulphide is a gas generated in the decomposition of organic and inorganic matter containing sulphur, and is sometimes given off by certain factories. It is the only form which discolors white-lead and it is so seldom that it is not an important consideration.

Lead Also Speeds Up the Rubber Curing Process

Crude rubber is simply a soft semi-plastic gum obtained from the milk or latex of certain trees, coagulated into lumps by means of either acid or smoke. Toughness, elasticity and resiliency, which make rubber commercially valuable, are lacking. To supply these qualities crude rubber must be combined with sulphur and other materials and the resulting compound subjected to heat. This is vulcanizing or curing.

It is possible to make good rubber with only rubber gum and sulphur, but by adding certain other materials, its toughness, weight and durability are considerably improved and the time required for curing is shortened. Lead products are used for this purpose in the form of litharge, white and blue basic lead sulphate and white-lead.

Speeding up or accelerating the vulcanizing or curing process is accomplished by substances known as accelerators, and for this use Itharge functions very well. Besides hastening vulcanizing it makes it possible to work at a lower temperature. The advantage of this is largely in the saving of time and fuel and to a certain extent it toughens the rubber and makes it more durable. Furthermore, though it is an excellent accelerator, Itharge acts slowly enough to minimize the danger of over-cure. The lead oxide averages about ten per cent of the entire compound.

Greater toughness and durability are gained by adding white or blue basic lead sulphate and sometimes litharge. When blue basic lead sulphate is used the cured article seems to have a certain smooth velvety surface finish somewhat superior to that obtained with white basic lead sulphate. On the other hand, goods of lighter color may be made with the white basic lead sulphate and it is sometimes preferred for that reason.

Lead is interestingly put to use in the special rubber clothing worn by x-ray operators to guard against the injurious effects of continued exposure to the x-ray. The hoods, gloves, aprons, etc., used contain about sixty per cent lead as compared to the twenty to forty per cent contained in ordinary rubber clothing. The purpose here is not simply to bring about the conditions outlined in the above, but to utilize lead's ability to resist the rays.

While litharge and red-lead seem similar in composition, they are quite different, with different characteristics. Litharge enters more or less readily into other chemical compounds, which makes it particularly suitable for the manufacture of various lead compounds. It is not so satisfactory, however, as a paint pigment because a paint pigment should not react with the other materials in the paint. Red-lead, on the other hand, is a very stable compound, particularly in regard to paint vehicles. It is not acted on by air, while litharge is. The fact that it does not react with paint vehicles is only one of the characteristics which have placed red-lead in the foremost position as a pigment for the protection of iron, steel and other metal surfaces.

Softens with Age. Loses Weight in Short Time

Poppy seed oil is used in this country mainly as a vehicle for artists' colors. The seed is obtained from two varieties of poppy grown extensively in Asia Minor, Persia, India, Egypt, South Russia, Germany and Northern France.

The oil content of poppy seed is fairly uniform. It is a pale straw color, very clear, with little or no odor when fresh and has a pleasant taste with narcotic properties.

The French are the largest producers. Before the World War they crushed from twenty to forty-five thousand tons yearly and Germany crushed about three-quarters as much. The French grind the seed and press cold. The pale oil yielded by the first pressing is of excellent quality, especially when from white seeds.

Water is added to the oil cake remaining from the first pressing, and the mixture is again pressed. Frequently it is pressed a third time. The product of these last two pressings, which is of a reddish-brown color, is most often used in making paint and soap.

Linseed Oil Superior

Poppy seed oil dries in the same manner as does linseed oil, by combining with oxygen from the air. One chemist found that in twelve days a film of poppy seed oil on glass gained eleven per cent in weight, and linseed oil, fifteen per cent. After forty days the poppy seed oil had lost half of its original gain while the linseed oil had lost almost none. Often the poppy seed oil film will lose its entire gain in weight in a fairly short time.

These findings really establish the superiority of linseed oil because when an oxidized film of paint or varnish loses weight a shrinkage of the film results in internal stresses and strains, thereby causing the film to crack.

Cracking of the film is most likely with poppy seed oil and least likely with linseed oil. Poppy seed oil has an undesirable tendency to soften as soon as it ages. In comparison with linseed oil it dries rather slowly and produces a somewhat softer film.

Atlantic Linseed Oil

We manufacture under this brand:

Raw, boiled and double-boiled linseed oils—pure, well-settled, carefully filtered and free from foots.

Heavy-bodied linseed oils, both raw and boiled for printing-inks.

For varnish making:

Diamond V Oil for general use.
"AA" Diamond V Oil for
light-colored varnishes.

Perfection Diamond V Oil for
light-colored varnishes and
white enamel paints.

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NATIONAL LEAD CO.
Atlantic Branch
111 Broadway, New York.

The Dutch Boy Digest

A page of discussion and comment of interest to users of National Lead Company products, digested chiefly from The Dutch Boy Painter and The Dutch Boy Quarterly

Published by National Lead Company

MONDAY, JULY 21, 1924

Manufacturers of Lead Products

How Litharge and Red-Lead Are Made

Metal-Lead Converted to Oxides Under Terrific Heat

Lead has two principal oxides of industrial importance, litharge and red-lead. Melted lead exposed to the air at proper temperature combines with oxygen, the resulting product being the protoxide, or litharge, the chemical formula for which is PbO , indicating that one atom of lead is united with one atom of oxygen.

It is made by calcining or roasting pig lead in specially constructed furnaces in which the heat is reverberated from an arched roof upon the material treated. The hearth or space where the oxidation takes place is about ten feet square. Fire boxes are at the sides. The arch is two-and-one-half to three feet above the hearth. About one-and-a-half to two tons of pig lead are placed in the furnace and at 620° F. the lead commences to melt, but there is not much oxidation until the temperature is raised considerably higher. It must often be as high as 1600° F. before oxidation is complete.

While the lead is molten, it is constantly stirred or rabbled with iron-handled hoes in order to expose all parts of the lead to the oxidizing action of the air. Gradually the molten mass becomes granular and, with continued heat, all the lead is converted into oxide. If the heat has been sufficiently intense to render the oxide pasty, it will, when removed from the furnace and cooled, break down into small, bright yellow flakes, known as flake litharge. Skillful regulation of the temperature, however, will cause it to become a powder. The process requires from 24 to 36 hours.

If the yellow litharge is cooled and ground and again roasted in contact with air, in a reverberatory furnace, it takes up a little more oxygen and turns to a brilliant scarlet red. This is red-lead and its composition is expressed by the chemical formula Pb_3O_4 . The process consists of heating the litharge to a suitable temperature in a reverberatory furnace. After about forty-eight hours of heating at about 900° F. the buff-colored, powdered litharge takes on more oxygen and becomes red-lead.

LEWIS Linseed Oil

Under this brand we manufacture raw, boiled and double-boiled linseed oil—pure, well settled and carefully filtered.

We also make the following special oils:

"SPH" Oil adapted for making special printing ink varnishes, enamels, leather and linoleum.

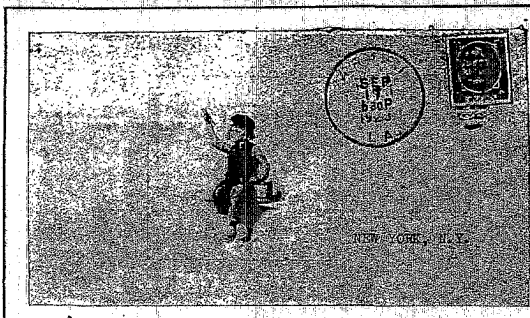
"AAA Refined" Oil of the right character for making clear varnishes and white printing inks.

"SPC" Oil, cold pressed raw linseed oil of clear light color, used to give a durable high gloss for exterior painting.

"Heavy Bodied" and "Air Treated" Oils of high specific gravity. Used straight for making printing inks and plate oils. Also used in the manufacture of preparations having a linseed oil base.

From our ample stocks we can fill your orders promptly.

John T. Lewis & Bros. Co.
437 Chestnut St. Philadelphia, Pa.



Uncle Sam does read advertisements. The above envelope, with only the Dutch Boy trade mark and the words "New York, N. Y." was mailed from New Orleans, La. It arrived at its destination safe and sound and without delay.

Nature Liberal in Supplying Paint Products

Paint For One House Means Mining Tons of Lead Ore

For every brushful of lead-and-oil the painter spreads, some sweating miner had to dig up a shovelful of lead ore, some husky farmer had to cultivate several stalks of flax and some busy negro had to tap a pine tree down in Carolina. It is surprising to learn just how generous Nature must be in furnishing the material for painting just one house.

Suppose this house were twenty-five feet by thirty-five feet and thirty feet high to the ridge, with a sloping shingle roof. The approximate data for painting a house of this kind outside and inside would be about as follows:—Outside walls, 2,900 sq. ft.; roof, 1,100 sq. ft.; walls and ceilings, 5,300 sq. ft.; a total of 9,300 sq. ft.

For the outside and roof it would require about twenty gallons of paint; for the inside about twenty-five gallons, making a total of forty-five gallons. Divided into its component parts, forty-five gallons of paint would take:—

White-lead in oil..... 700 pounds
Lined oil..... 15 gallons
Turpentine..... 9 gallons

Some mighty interesting statistics can be deduced from these figures. To secure sufficient metallic lead to make seven hundred pounds of white-lead it is necessary to mine a small mountain of ore weighing some 9,000 pounds. Average lead ore as taken direct from the mine contains less than six per cent of pure lead, which amount is further reduced by metallurgical losses which occur during smelting.

A half acre of flax would have to be planted to get the necessary fifteen gallons of lined oil. If properly cultivated, a half acre will yield six bushels of flax. Flax is a touchy crop growing best on land adapted to raising wheat. It is called a "ten-year" crop because the land upon which it is raised is not in condition to grow a second crop before ten years.

The needed nine gallons of turpentine represents a whole season's yield of twenty-five full grown pine trees. When one goes behind the scenes in this manner the tremendous magnitude of the painting industry becomes apparent. The slogan "Save the Surface and You Save All" takes on a deeper meaning, for think of what must be done before the surface can be saved. The steps necessary to protect a house built of wood are more complicated than those necessary to procure the lumber to build it!

Is Your Name on the Mailing List?

If you would like to be put on our mailing list to receive free of charge the Dutch Boy publications which contain tons of interest to you, write your request on your letterhead and mail to our nearest branch. If you are interested in any of our products, our nearest branch will also be glad to quote prices or give you any information desired.

NATIONAL LEAD COMPANY
New York, 111 Broadway; Buffalo, 121 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 859 Freeman Avenue; Cleveland, 222 West Superior Avenue; St. Louis, 723 Chestnut Street; San Francisco, 445 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 516 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 437 Chestnut Street.

New Oil is Extracted From Grape Seeds

But It Is Only Fair as a Vehicle for Paint. Dries Slowly and Remains Tacky

Among the by-products of grapes already commercially produced are cream of tartar and tannin from the stems, jelly from the skins, and oil cake and tannin from the seeds. Oil from the seeds seems destined to be another.

This oil has been found to possess many characteristics which make it fairly suitable as a vehicle in paint. A sample recently tested by the Paint Manufacturers' Association proved to be of a clear appearance and of a light amber color, somewhat lighter than an average raw linseed oil. The tests showed that raisin seed oil with five per cent liquid drier added produces a film which becomes fairly firm in fourteen hours, but remains tacky for eight days. With ten per cent liquid drier added, the period of tackiness is reduced. The results, however, were superior to those obtained with raw soya bean oil, similarly treated. Paint made of white-lead and raisin seed oil, with ten per cent drier added, dries to a fairly firm film in twelve hours. The paint remained tacky for eight days and developed a slightly pinkish cast upon drying. This may have been due to the presence of substances that would develop the color upon oxidation.

Experiments have been conducted in Italy, France, Germany and Spain to determine the possibilities of the oil pressed from the seeds obtained as waste from grapes and from raisins, but it seems only in Spain has it been used as a vehicle for paint, and this generally in conjunction with linseed oil.

How Lacquer Is Produced and Its Uses

Chinese and Japanese Product Differs From Ours

Lacquer is a word derived from lac, a substance commonly known as shellac which is a resin produced in India. Shellac is soluble in alcohol and solutions of it are known as shellac-varnish. When refined and purified this makes a nearly colorless, transparent liquid which has long been used for coating metallic objects partly to prevent the action of air from dulling their appearance and partly to give them a brilliant color by dissolving some coloring matter in the shellac-lacquer.

These lacquered objects are usually put in an oven and heated to a temperature high enough to cause the resinous matter to fuse. Baking makes it adhere better and be more durable and lustrous. The brilliant yellow and orange colors of optical instruments are produced in this way. In order to secure as much durability as possible, several successive coats are frequently baked on.

Other resins, among which may be mentioned sandarac, mastic, elemi, Venice turpentine, Burgundy pitch, benzoin, dragon's blood, and some others, have been used to impart certain qualities to lacquer of this description. Sometimes they are cheapened by the addition of common rosin. Some of these auxiliary resins, especially dragon's blood, impart color, but recently the coloring matter has been largely replaced by an artificial dyestuff.

The use of lacquer has been greatly extended of late years by the use of pyroxylin. This is an artificial product made by treating cotton fibre with acid, which entirely changes its composition and makes a substance which is soluble in certain liquids, the most important of which is amyl-acetate, a thin, transparent liquid having the pungent odor of bananas and frequently called banana oil, although it is not made from that fruit. This is a powerful solvent, especially of resins of all kinds. It is transparent and produces a hard film, elastic and durable. It is used not only for coating metals, but as a mixing varnish for metallic paints, such as those made from aluminum powder and bronze powder.

Asiatic Method Differs

Chinese and Japanese lacquer is something entirely different from these preparations. The former are produced from the juices of trees which grow in those countries. These trees are related to our dogwood or sumac. They produce a milky juice resembling that of the milk-weed, which is purified by various operations and is then used as a varnish. Frequently it is colored by the addition of pigments or metallic powders so that it resembles an enamel paint. This lacquer is applied not only on metal but also on wood and the finest work requires something like thirty operations before it is perfect. This kind of lacquer is not baked on and in fact does not improve its drying, but unlike all other varnishes or paints it dries best in a cold, damp, dark closet or box. To produce the best results, much time is required and some of the most valuable specimens of lacquered ware, which are usually small boxes, trays and the like, require from six years to twenty years before they are ready for their final finish. The fine specimens are usually to be seen only in museums or valuable private collections.

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Published by National Lead Company

MONDAY, NOVEMBER 17, 1924

Manufacturers of Lead Products

Insect Deposit Forms Basis For Shellac

Generations of Insects Coat Twigs Heavily with Lac

Shellac is manufactured from lac, the excretion of the East Indian insect "Tachardia Lacca." The young insects swarm twice a year, alighting on twigs of various species of trees to feed on the sap, which they obtain by piercing the bark with their tiny beaks. When they excrete the sap it soon dries, and the multitude of very small insects becoming cemented to the twig, lay myriads of minute eggs and finally die. In a short time the eggs burst forth into life and the swarm of young insects appear on the branches like blood-red dust. Generation after generation dwell upon the same twig until the lac coating often attains a thickness of half an inch.

In May and June and again in October and November, the incrustated twigs are gathered by natives and broken into short pieces. These are the stick lac of commerce. Prior to the introduction of synthetic dyes, stick lac was collected mainly for the production of the red lac dye, and shellac was a by-product. Lac dye is not used now, and the stick lac is collected only for the manufacture of shellac.

How Shellac Is Made

The stick lac is crushed, washed to remove most of the dye, and dried. From this comes the so-called seed or grain lac. The grains are ruby red about the size of wheat. Shellac is usually made by melting dry seed lac with approximately one-twentieth to one-twenty-fifth of one per cent of arsenic sulphide (orpiment), with or without the addition of small amounts of rosin, in long narrow bags over charcoal fire. The ends of the bag held by natives are twisted until the softened lac mixture is forced through. The material forced through the bag is then softened again and made into thin sheets which are broken into the familiar flake of the shellac of commerce.

Garnet shellac is a product usually made from the residue of impure lac left in the bag after the squeezing process. After eliminating the sand and other impurities, the dark colored product is fused into a mass the shape of a button.

The grading of shellac is based upon freedom from rosin and dirt and upon the color of the flakes. Rosin has been the most common adulterant of shellac because of its low price and especially because it greatly facilitates the melting of the seed lac. The best grades of shellac are free from rosin but material containing from three to five per cent of rosin is a common grade and for many purposes serve as well as the pure material.

Shellac has a diversity of uses in the industries, but when it is mentioned the average man thinks of it in its varnish form. The resistance of a dried film of shellac to turpentine and turpentine substitute is of great value where shellac is employed as a first coating to fill the pores of wood and cover resinous knots and streaks, because the varnish or wax polish applied afterwards does not soften the shellac. This valuable property is not possessed by many of the so-called shellac substitutes upon the market.

Our Publications Will Be Sent Free

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New York, 111 Broadway; Boston, 121 State Street; Buffalo, 115 Oak Street; Chicago, 909 West 18th Street; Cincinnati, 659 Franklin Avenue; Cleveland, 220 West Superior Avenue; St. Louis, 122 Chestnut Street; San Francisco, 425 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 427 Chestnut Street.

No Simple Way for Testing Linseed Oil

Name of Reliable Maker Is the Best Guarantee

A painter sends the following suggestion for testing linseed oil for adulteration:

"Procure from any drug store two lime-water tablets and a clean three-ounce bottle. Place the tablets in the bottle and fill with equal parts of clean water and linseed oil. Shake until tablets have dissolved. If the oil is pure, it will assume a creamy nature and remain that way. If adulterated, it will separate at once and the water will settle to the bottom. If allowed to stand a week, it will show the percentage of adulteration."

This test is not reliable. Lest others may be using it and relying upon it, the Research Laboratories of National Lead Company were requested to make a report on the test. The laboratory report follows:—

"It is probable that this method of testing was proposed on account of the fact that the lime in the lime water will react with linseed oil, forming a saponified (soapy) matter which upon shaking will give the creamy appearance described. This is due to the formation of an emulsion (liquid resembling milk) or a colloid solution (resembling glue or jelly) with the water present. Mineral oil is not saponifiable (soap producing) and would separate from the emulsion formed by the linseed oil, thus showing the amount of adulteration."

"The test would operate, in general, only in the case of adulteration with mineral oils and would not show adulteration with vegetable or other saponifiable oils. Even with mineral oil it is our opinion that the test would not be reliable to within ten per cent; that is, linseed oil might be adulterated with ten per cent of mineral oil and show little, if any, adulteration by this test."

"In the tests which we made we used linseed oil pure, linseed oil mixed with fifty per cent mineral oil, and linseed oil mixed with fifty per cent cottonseed oil. In the case of mineral oil, the test showed adulteration, but in the case of the cottonseed oil mixture the emulsion was more perfect than with the pure linseed oil and there was no separation."

There is no simple and reliable test for all the different kinds of adulteration possible in linseed oil. Laboratory tests or the name of a reliable manufacturer are the best guarantee.

Red-Lead Paint Good Priming For Wood

Particularly Suitable For Pitchy Wood Like Pine

A rule in painting is to make each coat more elastic than the preceding one. On metal and in repainting wood, this can usually be accomplished by using more oil in the second coat than in the first coat and a still greater quantity in the third coat. Most new wood, however, must be treated differently as, unlike metal, it absorbs oil. Hence, it is necessary to use considerable oil in the priming coat, or else the oil will all go into the wood and leave the pigment as a dry, non-adhesive coating, not fit to bind the next coat to the wood.

On the other hand, if the wood surface is full of pitch, the oil is not readily absorbed. This gives rise to the practice of using with the oil a considerable amount of turpentine, which has a solvent action on the pitch, and makes the absorption more uniform.

For some unknown reason, red-lead is less likely to soften and blister over these pitchy spots than white-lead. It was formerly supposed that this might possibly be due to chemical action between the litharge of the red-lead and the resinous matter; but experience shows no difference in behavior between red-leads, containing 85 to 95 per cent PbO₂ (true red-lead), so that theory has been given up.

But it seems to be true that red-lead paint sticks best to pitchy surfaces, and that is the practical thing to know. And as red-lead paint is harder than white-lead paint, and no less tough, it naturally makes a good priming coat for any kind of wood.

A good priming coat for yellow pine and the like is as follows:—100 pounds waste red-lead, 1½ gallons raw linseed oil, 1½ gallons turpentine and ¾ gallon drier, which makes 6 gallons of paint.

LEWIS Linseed Oil

Under this brand we manufacture raw, boiled and double-boiled linseed oils—pure, well settled and carefully filtered.

We also make the following special oils:

"SH" Oil adapted for making special printing ink varnishes, enameled leathers and linoleum.

"AAA Refined" Oil of the right character for making clear varnishes and white printing inks.

"SPC" Oil, cold pressed raw linseed oil of clear light color, used to give a durable, high gloss for exterior painting.

"Heavy Bodied" and "Air Treated" Oils of high specific gravity. Used straight for making printing inks and white oils. Also used in the manufacture of preparations having a linseed oil base.

From our ample stocks we can fill your orders promptly.

John T. Lewis & Bros. Co.
437 Chestnut St. Philadelphia, Pa.

Making of White-Lead Long Process

From Pigs to Pigment Takes 90 to 120 Days

The white-lead factory receives refined lead in the form of pigs. It is there cast into perforated metal disks called "buckles."

The buckles are carried to the corroding rooms in the stack house. Here workmen place the buckles in earthenware corroding pots. These pots have a shoulder about two inches from the base upon which the buckles rest, some ten to fourteen buckles to a pot. In the bottom is poured about a half pint of weak acetic acid (practically vinegar).

The filled pots are placed on a bed of spent tan-bark. On the layer of pots is laid a floor of loose boards. In these boards is spread another bed of tan-bark. Then another layer of filled pots is added. Tier after tier is built up in this way until a stack of about thirty feet is constructed with a width of twenty feet and a length of twenty-two feet.

What Happens in the Stack

In the stack slow decomposition of the bark sets in. The heat of its fermentation ranging from 160 to 180 degrees Fahrenheit vaporizes the acetic acid. The slowly rising fumes attack the surface of the lead and change it to lead acetate. At the same time the decomposing tan-bark is giving off carbonic acid gas which in the presence of the moisture in the mass acts on the thin film of lead acetate converting it to carbonate of lead. This carbonate of lead is the white-lead of commerce.

The last chemical action liberates acetic acid in the lead acetate. The acid thus freed attacks the metallic lead just below the first thin film of lead carbonate changing it to lead acetate, which in turn is changed to carbonate of lead. The action continues until at the end of three to four months, the lead is corroded into white-lead. The stacks are next taken down or "stripped." The buckles are now extremely white.

The corroded buckles are dumped from the pots into a dust-tight box and conveyed by a traveling crane to a series of rolls and screens. They are first broken up by tumbling and all uncorroded portions of lead are separated from the white-lead. The white-lead is then pulverized in a set of corrugated rollers, still encased in dust-proof enclosures, after which it is mixed with water.

Now the white-lead is ground until it is fine enough to float through long oblong boxes called "drag-boxes." Then it floats into the "rake-tubs." Here the white-lead is washed free of acids and impurities. The white-lead then flows on to a screen of silk bolting cloth containing 27,000 meshes to the square inch. The white-lead which passes this final test for fineness is pumped on to steam-jacketed drying pans.

The dried white-lead is then conveyed to mixers in which it is transformed into a paste by the addition of linseed oil. A millstone does the mixing.

Through small gates the paste drops to a set of mills which grind it until it squeezes through in dough-like chunks and falls upon a moving belt which carries it to the weighing department.

Oil Paint & Drug Reporter Nov. 17, 1924.

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Published by National Lead Company

APRIL 23, 1924

Manufacturers of Lead Products

Tons of Lead Used in Making Glass

Lead in Some Optical Glass as High as 75%

For certain kinds of glass, lead is a necessary ingredient. Many hundreds of tons of it are used for this purpose in the form of red-lead (Pb_2O_3) and litharge (PbO). The use of red-lead, however, is by far the greater.

Essentially glass is a mixture of silicon oxides (silicates) and sodium, potassium, calcium and lead oxides. The mixture, finely ground, is melted in a furnace, requiring a temperature of 2,000° F. to bring about complete liquefaction. Before the necessary chemical unions occur, the mixture is heated to as high as 2,800° F. for as long as twelve hours.

The red-lead used does not have to be the ultra-finely ground product used by painters, since it loses its physical identity and becomes a transparent silicate in the mix; neither is it as highly oxidized as painter's red-lead, although the red-lead's oxygen content is mainly relied on to oxidize and thus eliminate the impurities in the mix.

Lead increases the refractive power of microscope, telescope and camera lenses to a maximum by increasing their density to a degree similar to that of a diamond. In eyeglasses it is used perhaps not so much for its ability to increase their refractive power as for the brilliance, toughness, ease of grinding with which it endows them. Some optical glass contains lead to the extent of seventy-five per cent, and this is the most brilliant glass made.

The high refractive power with which lead endows glass accounts for the sparkle which is the charm of cut glass. Practically all cut glass contains lead; often a third of it is lead, which incidentally is the reason why cut glass is so heavy. Lately dinner services made entirely of lead glass have come into favor. The lead glass has a wonderful polish and a beautiful ring that others cannot imitate.

How Far Should a Gallon of Paint Spread?

It is difficult to say how thick a coat of paint should be. For protective purposes the total film should be not less than 1-200 of an inch. This would mean three coats of not less than 1-600 of an inch each.

A white-lead and linseed-oil paint mixed four gallons to the 100 pounds easily and naturally brushes out to about 1-400 of an inch in thickness; which makes about 600 square feet to the gallon or 300 square feet two coats. It can be brushed out to cover more surface, but this is rarely desirable.

Write for Publications They Will Be Sent Free

If you would like to be put on our mailing list to receive free of charge the issues of The Dutch Boy Painter and The Dutch Boy Quarterly which contain items of interest to you, write your request on your letterhead and mail to:

NATIONAL LEAD COMPANY
New York, 411 Broadway, Boston, 441 State Street; Buffalo, 170 Oak Street; Chicago, 500 W. 4th Street; Cincinnati, 220 Freeman Ave.; Cleveland, 130 W. Superior Avenue; St. Louis, 723 Chestnut Street; San Francisco, 418 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 310 Fourth Ave.; Philadelphia, John A. Lewis & Sons Company, 337 Chestnut St.

Acid Proof Cement Contains Litharge

Chemical Compound Resists Heat and Moisture

A cement valuable for a number of purposes for which ordinary cement would be neither practical nor desirable is that known as litharge-glycerine cement. It is produced by adding to a mixture of five parts of ninety-five per cent pure glycerine and three parts water sufficient litharge (PbO) to form a paste of any desired consistency.

The resultant cement forms a chemical compound which when it sets becomes of incredible hardness. It hardens rapidly, remaining soft for only about ten minutes. The addition of ten per cent inert matter such as silica, Fuller's earth and iron oxide will delay the setting time considerably and also prevent cracking to a certain extent.

Litharge-glycerine cement will withstand a high degree of combined heat and moisture. Its most conspicuous feature, however, is its resistance to practically all acids, provided they are not of full strength. Its chief use is in paper mills. The acid-resisting properties of litharge-glycerine cement make it valuable for lining the digesters or sulphite liquor tanks, both for cementing the bricks or tile and for the facing or lining.

Another common use of this cement is for forming water-tight connections between iron pipes and porcelain fittings; also for cementing glass aquariums, brass wick holders on lamps, etc.

New Paint for Poland

Miss Georgia Ely of Olivet, Mich., just returned from Poland, found that a shipment of cocoa and condensed milk had been sent from America, but the natives, unfamiliar with it, believed it to be paint. So they mixed the two and coated their houses a sweet, sticky brown.

White-Lead Known to Ancient Races

Lead Ore Found in Almost All Parts of World

As far back as we have written language we find mention of lead. Its common ore, galena, which is brilliantly crystalline and about as heavy as metallic iron, is found in almost all parts of the world.

The case with which lead may be obtained from its ore is shown by the fact that the early settlers in this country used to set fire to a fallen hollow log and put some of the ore in the burning concavity, in the bottom of which enough melted lead would accumulate to furnish them with material for bullets. The Indians made a fire over a bowl-shaped hole in the ground and by putting the lead-ore on the fire they secured lumps of metal from the hole under the fireplace, to sell to the traders.

Met Various Needs

As lead is about half as heavy again as iron, and may easily be cast or beaten into almost any form, it is not surprising that it should have been known to the ancient races of men.

The Assyrians used lead, as we do now, to secure iron bolts in holes drilled in rocks and building-stones. The Greeks, and probably many other nations of antiquity, were acquainted with white-lead and red-lead. The Romans used lead-pipe for city water-works, and understood not only soldering, but the more difficult art of lead-burning, which consists in fusing together two adjacent edges of sheet-lead with a blowpipe. In the middle ages, sheet-lead was frequently used, as it is now, for roofing material.

In the Prologue to the Canterbury Tales, written about 1386, Chaucer enumerates among standard medicinal drugs quicksilver, litharge, brimstone, ceruse (i. e., white-lead), and borax, which is the earliest English mention of lead compounds for this purpose.

More Common as Paint

But in general white-lead is spoken of as paint; and paint does not appear to have been used as a preservative, as we use it now, but primarily for decoration, and especially as a cosmetic. From this latter use comes the implied meaning of deception; thus Chaucer, in the Parson's Tale: "Paint thy confession by fair words to cover thy sin," and in 1456 Sir G. Hays: "This story is painted in many places"; in 1519, Horman: "They white their face and neck with ceruse"; in 1599, Chapman says: "She is very fair, I think she be painted"; and Hexham: "To paint one's face as gentewomen do."

This advertisement appears in the following publication:
Page—Paint, Oil and Chemical Review—1924

0000-NLI-000017167

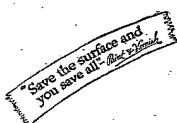


White-lead — the preferred paint

Professional painters prefer white-lead for many reasons.

White-lead gives a better-looking job.
White-lead gives a longer-wearing job.
White-lead gives increased protection to the surfaces it covers.

Many painters prefer Dutch Boy white-lead because of its purity, its unusual covering power, and the ease with which it spreads under the brush.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 699 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street

Dutch Boy White-Lead

This advertisement appears in the following publication:

Page—*Painter and Decorator*—Feb. *September*



White-lead the weather-proof paint

The increased cost of building materials has made the property owner realize as never before that it pays to protect his house with paint that is really *weather-proof*. He therefore favors white-lead.

The painter is glad to give him white-lead. Using white-lead, the painter can do his best work.

Many painters prefer to use Dutch Boy white-lead. They know Dutch Boy white-lead is *pure* white-lead. They like its covering power and the ease with which it spreads under the brush.

NATIONAL LEAD COMPANY

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Dutch Boy White-Lead

This advertisement appears in the following publication:

Page—*Painter and Decorator*—March—*July, December.*



White-Lead

the skilled painter's paint

To insure the best results, the painter uses white-lead. With it he can do a good-looking job and also give long-lasting protection to the surface covered.

Skilled professional painters have used white-lead for generations as a standard paint covering. To these craftsmen white-lead is as essential as good brick and mortar are to the skilled mason.

Many painters use Dutch Boy white-lead exclusively. They like its purity and the ease with which it spreads under the brush.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.;
Chicago, 900 West 19th St.; Cincinnati, 559 Foreman Ave.; Cleveland,
820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485
California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth
Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Save the surface and
you save ill-effects

Dutch Boy White-Lead



White-lead

the standard protective paint

The architect draws the plans. The contractor builds the house. To the painter remains the important work of protecting the surface of the complete home.

For generations professional painters have used white-lead to give complete and long-lasting protection to non-metallic surfaces. They know that white-lead gives a coating that resists the attacks of the severest weather. They know that a job done with white-lead is a satisfactory job to the owner and to themselves.

Skilled painters all over the country prefer to use Dutch Boy white-lead exclusively. They like Dutch Boy white-lead because it is pure white-lead—because it has unusual covering power and spreads easily under the brush.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 215 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 699 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 435 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Sons, Co., 437 Chestnut Street.



Dutch Boy White-Lead

This advertisement appears in the following publication:

Page—*Painter and Decorator*—May, *October*

0000-NLI-000017171



White-lead—the quality paint

More and more property-owners each day think of paint for preserving as well as beautifying their homes.

White-lead is the paint for you to use on the houses of these owners—inside and outside. It enables you to do a job that pleases the eye. It weatherproofs the surface it covers, keeps out air and moisture, and prevents decay.

The painter who uses white-lead makes himself known as one of the body of skilled craftsmen. He not only adds to his reputation by the good work he does, but also promotes the interests of the painting industry as a whole.

Many professional painters use Dutch Boy white-lead exclusively. They know Dutch Boy white-lead is pure white-lead. They favor it because of its unusual spreading power, durability, and ease of application.

NATIONAL LEAD COMPANY

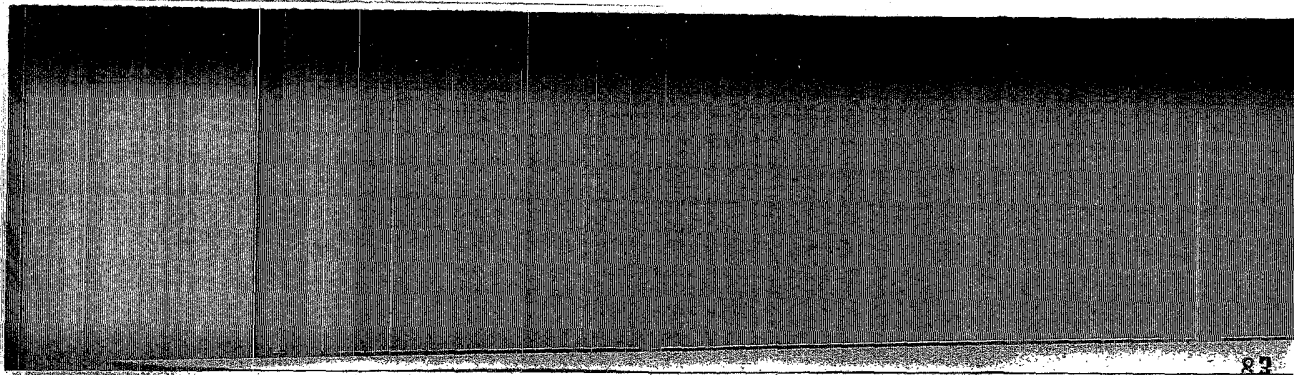
New York, 121 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 300 West 28th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Save this notice and you save 10¢ per can.

Dutch Boy White-Lead

This advertisement appears in the following publication:

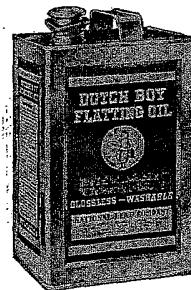
Page—*Painter and Decorator*—June, ~~November~~



NEW BEAUTIES *in painted surfaces*
NEW POSSIBILITIES *in the decorator's art*
NEW ECONOMIES *and conveniences for painters*

—all these are accomplished with that remarkable material, Dutch Boy flatting oil.

That not one of these is an exaggerated claim can be proved to any open-minded painter. They all have been proved to the satisfaction of many. We have enthusiastic endorsements of these statements from painters in every part of the country. If you have not tried Dutch Boy flatting oil, simply because you have been fooled and disappointed so many times by new things, we ask your serious consideration for a moment.



We assume that you would like a vehicle to use with white-lead which admits of greater speed in application than turpentine and therefore costs less to spread.

1 Dutch Boy flatting oil makes white-lead go on like butter. We have actual figures of contracting painters showing almost unbelievable speed of application, a tremendous factor in these days of high per-hour labor cost.

You would like a vehicle to use with white-lead which would give a spreading rate that decreases the cost per square of *quality* work to that of cheap work.

Dutch Boy

When Writing Advertisers Kindly Mention THE PAINTERS MAGAZINE

OVER

0000-NLI-000017173



Four seasons beat a pair

UP to recently the painting business has been looked upon as a two-season business. This situation is changing. The painting business is beginning to look like a *four*-season business. Painters are beginning to see the vision of work during twelve months a year.

"Save-the-surface" advertisements in national magazines are doing a lot to make the painting business a *four*-season business. These advertisements are educating house-owners on the economy of having certain kinds of painting done during the seasons when the painter is not rushed with more work than he can take care of.

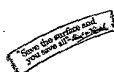
"Save-the-surface" advertisements are convincing the house-owner that he pays dearly for the paint he needs but does not buy. These advertisements show the house-owner that it is cheap-

er-to *repaint* now than to do a lot of repairing a few months from now.

The wide-awake master painter is putting money in the bank as the result of getting behind these "Save-the-surface" advertisements with all the weight of his personal influence and salesmanship.

The wide-awake master painter is *selling* painting contracts instead of waiting for them to come to him. He is awakening to the possibility of getting enough business the year round to keep his full force going strong. He is making the painting business a *big* business by extending it through *four* seasons.

For *good* results the year round, use *good* paint. Use *Dutch Boy white-lead*—a paint that has been a standard for generations.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 500 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 725 Chestnut St.; San Francisco, 481 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 315 Fourth Avenue; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut Street.

Dutch Boy White-Lead

FOR INTERIOR AND EXTERIOR PAINTING

This advertisement appears in the following publication:
Page—*Painter's Magazine*—February—*August*

0000-NLI-000017174

A new era in flat finishes

For sheer richness of finish, or for spreading rate per gallon, or for high speed of application, the advent of Dutch Boy flatting oil has opened a new era, an entirely unprecedented conception, in flat finishes.

THIS is a strong statement, and we expect you to question it. We want you to be skeptical—to check us up on it. Once you try Dutch Boy flatting oil, we know you will thank us for “putting you next” to a flatting medium which marks a new era in interior decoration.

Like a rubbed-down job

If you have never done a job with white-lead and Dutch Boy flatting oil, there is a treat in store for you. You will marvel that such a handsome finish is possible with flowed-on flat paint.

Being a varnish-type vehicle, Dutch Boy flatting oil produces a silky, solid, substantial finish on the order of a rubbed-down job. The finish is not dead and lifeless. It is more like the handsome matt finish of an eggshell.

“Goes on like butter”

Actual cost figures from a number of contracting painters show an almost unbelievable speed in application and an unusually great covering power per gallon. Savings such as these are always worth

while, but especially so in these days of high labor costs.

Painters say that paint made with Dutch Boy flatting oil “goes on like butter.” It flows smoothly from the brush. It levels itself nicely.

Of major importance, too, is the fact that Dutch Boy flatting oil makes a flat paint which sets so slowly that a helper is not required in working on long stretches. One man can do a whole room alone without risk of laps and joints showing.

Just add it to the lead

Dutch Boy flatting oil is complete in itself. It contains exactly the right amount of every ingredient to insure a fine job. Add no turpentine. Add no linseed oil. Add no drier. Just mix the flatting oil into the white-lead and “go to it.” Full directions on the one- and five-gallon cans.

Use Dutch Boy flatting oil as per directions (just as it comes in the can) and you will be rewarded with astonishingly pleasing results and lower labor costs.

NATIONAL LEAD COMPANY

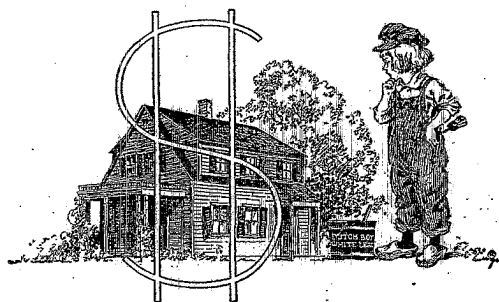
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.



0000-NLI-000017175

This advertisement appears in the following publication:

Page—*Painter's Magazine*—February



Many an old house has money in it

SOME old houses have the money hidden between the rafters, in the walls, or under the floor.

But most old houses have the money sticking out of their weatherbeaten boards, *right in plain view* for the wide-awake master painter who is on the lookout for painting contracts.

Every house that *looks* old simply for want of paint is a potential painting contract. In many cases, the contract is virtually signed, sealed, and ready for delivery to the master painter who *goes after* the business instead of waiting for the business to come to him.

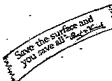
Many of these contracts are constantly ripening into cash bonuses because "Save the sur-

face" advertisements in leading magazines are constantly showing the house-owner that it is cheaper to repaint than to repair.

The house-owner is awakening to the truth of the famous slogan—"Save the surface and you save all."

The wide-awake master painter is beginning to cash in on the effect of this "Save the surface" advertising. He sees the possibility of doing a good, healthy amount of business the year round and of keeping his organization recruited right up to full strength and busy twelve months in the year. He is rapidly learning that this **CAN** be done.

For good results, use *good* paint. Use *Dutch Boy white-lead*.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 151 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 721 Chestnut St.; San Francisco, 415 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Dutch Boy White-Lead

FOR INTERIOR AND EXTERIOR PAINTING

This advertisement appears in the following publication:

Page—Painters' Magazine—March—1918

Loud in their praise of flatting oil

"So pleased were the owners (of the new 17-story Connecticut Trust Co. building) that unsolicited they wrote us a very complimentary letter."

SOME mighty strong claims have been made by us for Dutch Boy flatting oil. But painters who have put this remarkable flatting medium through every practical test tell us that it does everything we claim for it—and more.

The Highland Paint & Wall Paper Company, contracting painters of Springfield, Mass., checked up our claims. This company used white-lead and Dutch Boy flatting oil on the interiors of the Connecticut Trust Company's new 17-story building at Hartford, Conn. The results were so markedly superior that even the owners of the building expressed their surprise and pleasure.

"It will stay put," writes Mr. Bowen of the Bowen Paint & Wall Paper Co., Fort Scott, Kansas: "It covers well, spreads easily, and leaves an ideal flat finish." In his opinion, Dutch Boy flatting oil gives the painter a new feeling of confidence.

We have said that this new flatting medium not only gives a finish that approximates a rubbed-down job but also that it saves time, money, and labor. Mr. Geo. Jungmann, master painter of Brooklyn, N. Y., who has used it on various jobs, backs up this claim. Part of his letter reads: "Your flatting oil is the most wonderful thing in the paint line I ever used. It gives such great covering

capacity and such easy working qualities that it is cheaper in the end—and such a difference in the job."

Other letters tell us that paint made with white-lead and Dutch Boy flatting oil sets so slowly a whole room can be done by one man without the danger of laps and joints showing. Some speak of its unusual ability to take stippling on smooth, sand-finished and canvassed surfaces. Mr. C.C. Randrup of Sioux City, Iowa, adds to these praises the fact that walls painted with Dutch Boy flatting oil have a depth and richness which ordinary flat paints lack. And he says that washing will not mar this beautiful flat finish.

From all parts of the country come similar letters claiming almost unbelievable results with Dutch Boy flatting oil. But no matter what other painters may say, you must try it yourself to appreciate truly the new beauties, the new possibilities, the new economies in flat finishes now at your command.

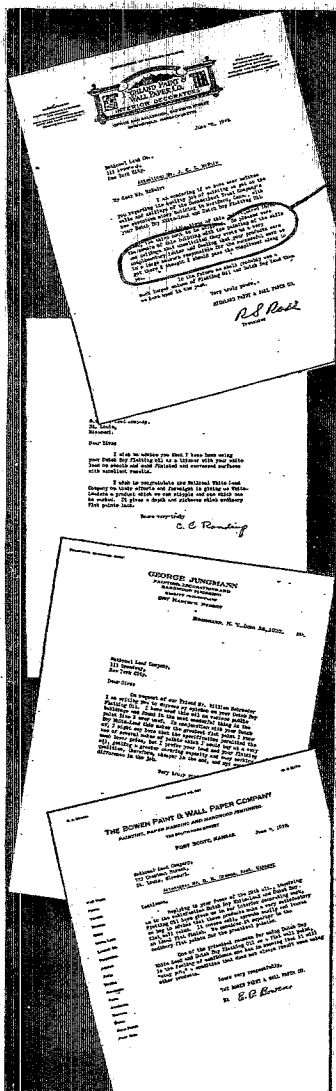
Try Dutch Boy flatting oil on your next interior job. It is easy to use, for it is complete in itself. *It needs no turpentine—no linseed—no drier.* Just mix it into the white-lead; take your brush; start in painting.



Save the surface and you save the material.

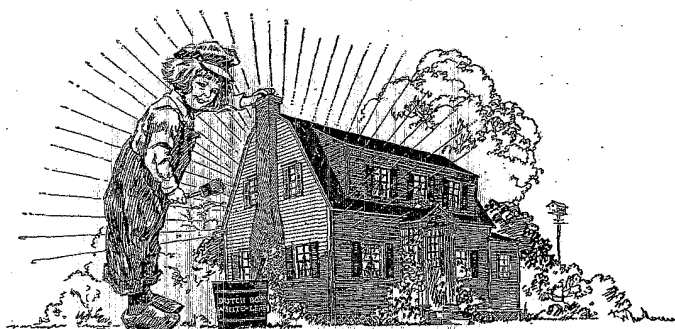
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 137 State Street; Buffalo, 115 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 711 Chestnut Street; San Francisco, 48 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 437 Chestnut Street.



This advertisement appears in the following publications:

Page—Painters' Magazine—March—August
American Painter—April



Naked houses are out of style

THE log cabins of our forefathers were never painted. Paint was too costly. The naked wood was left exposed to the weather. When cabins rotted and fell apart, new cabins were built. Wood was cheaper than paint.

But naked houses are not in style now—for three reasons: Reason No. 1 is the fact that wood is now far more costly than paint. Reason No. 2 is that "Save the surface" advertisements are showing people that it is cheaper to repaint than it is to repair, or replace. Reason No. 3 is that naked frame houses are not beautiful.

"Save the surface" advertisements are constantly selling the house-owning public on the economy of frequent repainting.

"Save the surface" advertisements are sowing the seed for a billion-dollar crop of painting

contracts for wide-awake master painters.

The wide-awake master painter is beginning to realize that "Save the surface" advertisements are helping him do a big job. But he does not expect these advertisements to do the whole job for him. He knows he must get behind these advertisements with personal selling. "Save the surface" advertisements ripen the fruit for him to pick. But he *must* do the picking himself.

The wide-awake master painter is *selling* painting. Moreover, he is beginning to get contracts the year around. He sees the possibilities in this plan of keeping his organization recruited to full strength, and his full force going strong twelve months in the year.

For *good* results, use *good* paint. Use *Dutch Boy white-lead*.



NATIONAL LEAD COMPANY

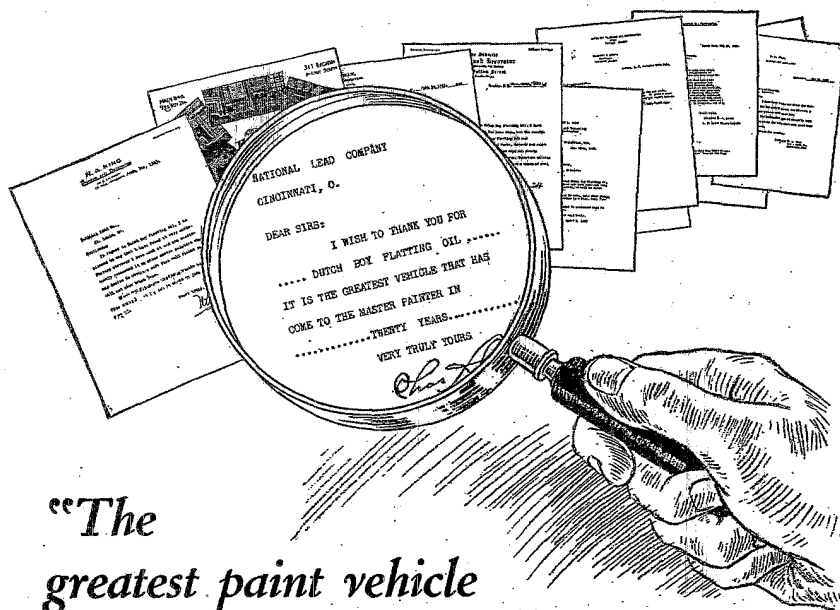
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Dutch Boy White-Lead

FOR INTERIOR AND EXTERIOR PAINTING

This advertisement appears in the following publication:

Page—*Painters' Magazine*—April—October.



"The greatest paint vehicle in 20 years"

That's what Mr. Chas. A. Howell, a successful master painter of Nashville, Tenn., says about Dutch Boy flatting oil.

What he says is backed up by statements from painters in all parts of the country who have voluntarily expressed their enthusiastic approval of this remarkable flatting medium. These painters praise the new beauties and the decided economies made possible by Dutch Boy flatting oil. Read what some of these painters say:

From Milwaukee, Wis., comes this letter from W. A. Wolf, master painter: "It seems I have better success with each Dutch Boy flatting oil job. For stippled work it cannot be beat. It is positively the only flat wall paint that can be washed."

Mr. I. W. Lower writes from South Bend, Ind.: "I can highly recommend Dutch Boy flatting oil, as it guarantees a permanent flat finish that will withstand moisture, is washable, and will not scale or crack."

"Will be glad to recommend Dutch Boy flatting oil to all master painters," says

Mr. Henry L. Laum of Dodgeville, Wis., who has obtained unusual results with it on metal as well as plaster walls and woodwork. "It is easy to work, sets slow to avoid laps, and dries to a fine, dull finish."

Why not try Dutch Boy flatting oil on your next job? As you put the paint on, note the ease of application, the great covering power, the slow setting. Check the cost carefully with that of any other interior job. Then estimate what it means to your customers to get a flat wall finish that closely resembles a rubbed-down job at the price of a straight painting job.

Best results can be obtained with Dutch Boy flatting oil only by using it just as it comes in the can. Add no turpentine. Add no linseed oil. Add no drier. Just mix it as it is into the white-lead. Dutch Boy flatting oil already contains the exact amount of every ingredient necessary to insure a fine job.



See the surface and you are all set.

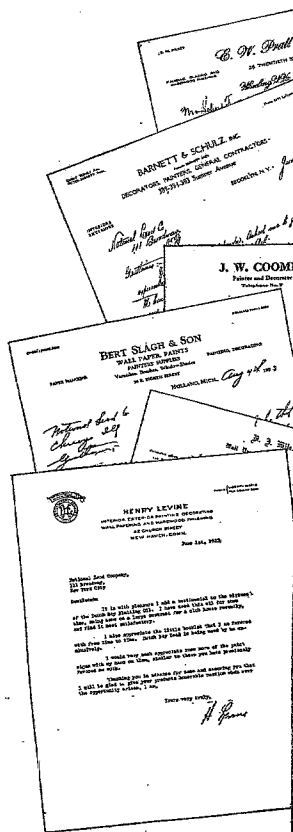
NATIONAL LEAD COMPANY

New York, 212 Broadway; Boston, 111 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 489 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publications:

Page—Painters' Magazine—April—*Sept.*
American Painter—May

0000-NLI-000017179



Cuts down paint stock

Mr. A. W. Strehlow of Milwaukee, Wis., writes: "When mixed with white-lead, Dutch Boy flatting oil produces a washable, velvety finish. . . . splendid for Tiffany and two-tone effects. . . . a good undercoater. These and many other uses of Dutch Boy flatting oil have enabled me to cut down my paint stock."

Great covering power

Mr. J. F. Bradley of New Orleans, La., says, "Paint made with Dutch Boy flatting oil covers twice as much surface per gallon as paint made with turpentine. It doesn't fill the house with strong, unpleasant paint fumes. I am so well pleased that I will never use turps again for interior work."

Doesn't spatter—sets slowly

From John T. Doyle of Auburn, N. Y., comes this letter: "My workmen can do better flatting with Dutch Boy flatting oil than they can with turpentine, as it does not spatter. In doing mottled work or glazing it works much better than turpentine, as it does not set up so quickly."

No laps—less labor

Part of Mr. Jack Morgan's letter from Knoxville, Tenn., reads: "Dutch Boy flatting oil cannot be praised too highly. It covers more surface per gallon with much less labor and time. It does not show laps or brush-marks, nor does it wear out the painter who applies it."



See the picture and you know all the story.

What these letters mean to you

Painters from all parts of the country continue to write us enthusiastic letters about Dutch Boy flatting oil. These letters are based on fact—the personal experience of painters. They tell you of savings in both labor and time. They offer proof that with a flowed-on paint you can now get rich, substantial flat finishes that closely resemble a rubbed-down job.

We've made remarkable claims for Dutch Boy flatting oil. The painters who have tried out this new flatting medium not only back up every claim but tell us of even greater possibilities and

economies that Dutch Boy flatting oil makes possible.

Try Dutch Boy flatting oil on your next job. Use it just as it comes in the can. Add no turpentine. Add no linseed oil. Add no drier. Just mix Dutch Boy flatting oil into the white-lead and start in painting. Then check up costs—compare results.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 151 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 48; California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Company, 437 Chestnut Street.

This advertisement appears in the following publications:

Page—Painter's Magazine—May - October

American Painter—August

Master Painter and Decorator—June

No summer slump for Mr. Hobbs

"I landed my first job in Fond du Lac from your Never Fail Plan. Since then I have been kept busy there. It sure has worked to capacity for me."

—Lester Hobbs, Oakfield, Wis.



"WHY wait for a possible summer slump?" thought Mr. Hobbs last spring. So he wrote us for the Never Fail Plan. Promptly this plan for getting off-season business started its work for him.

He landed one job, then another. Soon he had enough painting contracts to keep him busy all through the summer months.

Mr. Hobbs is just one of hundreds of painters who are using the Never Fail Plan to help put an end to slack times. This plan convinces doubtful prospects that delayed painting hastens rust, rot and ruin. It makes them feel that paint is not an expense but an investment. It urges them to adequately protect their homes with paint *now when the work should be done*.

If you are earnestly determined to go after extra work for the coming summer months, let the Never Fail Plan help you swing the contracts.

The coupon sent now will start the plan going. Cut it out and mail today.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak Street;
Chicago, 922 West 18th St.; Cincinnati, 619 Freeman Ave.; Cleveland, 820
West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 435 Cal-
ifornia Street; Pittsburgh, National Lead & Oil Co. of Penna., 216 Fourth
Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Save the surface and
you save all *the paint*

TEAR OFF ALONG THIS LINE

National
Lead Company
111 Broadway
New York, N. Y.

Gentlemen:

Please send me details of
your Never Fail Plan. Tell me
how it can help me in getting
more jobs in my locality.

Signed _____

Address _____

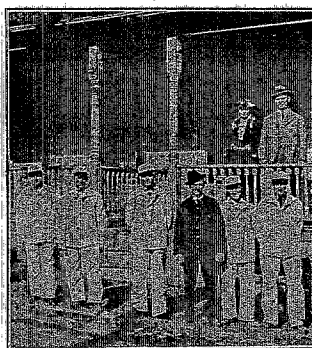
This advertisement appears in the following publication:
Page—Painters' Magazine—May

0000-NLI-000017181

CHAS. McCLAIN of Altoona, Pa., and his painting crew. This master painter wrote us as follows: "Last June your Never Fail Plan brought me five jobs from the ten names I sent you. One man gave me fourteen houses to paint, inside and out, thanks to this plan. I recommend it to all painters, as it surely brings results."



Save the coupon and you save 50¢



Fourteen painting jobs in one contract

LAST summer was a busy season for Mr. McClain and his crew of five men. With the help of the Never Fail Plan this alert painter convinced 50% of his prospects that painting can be done just as well in the summer as any other time.

This Never Fail Plan gets the off-season business. It helps to keep the painter busy every month of the year. At the same time it pulls the big contracts. It helped Mr. McClain swing one contract which called for painting fourteen houses inside and out. And this was in addition to four other worthwhile jobs.

What the plan did for these painters

Mr. McClain's enthusiastic letter is but one of many that continue to come in from towns and cities all over the country. Mr. W. H. Sheets of Lincoln, Kans., writes, "I have landed doubtful jobs by using your Never Fail Plan where I wasn't known." Mr. Herman Muller of David City, Neb., says, "The Never Fail Plan was the foundation of my business."

And Mr. William Harper of Rush

Hill, Mo., who used the plan last summer, reports, "Eight jobs out of ten—and the other two for fall work—that's what your Never Fail Plan did for me!"

*You can get
more jobs this summer*

These painters and others went actively after summer business—and got results with the Never Fail Plan. You can do the same.

Sign your name to the coupon now before you forget it. A two-cent stamp starts the plan working.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 500 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 427 Chestnut St.

National Lead Company,
111 Broadway,
New York, N. Y.

Gentlemen:

Please send me details of your Never Fail Plan. Tell me how it can help me in getting more painting jobs in my locality.

Name.....

Street and No.....

City and State.....

This advertisement appears in the following publications:

Page—*Painter's Magazine*—June

American Painter—July

Master Painter and Decorator—May

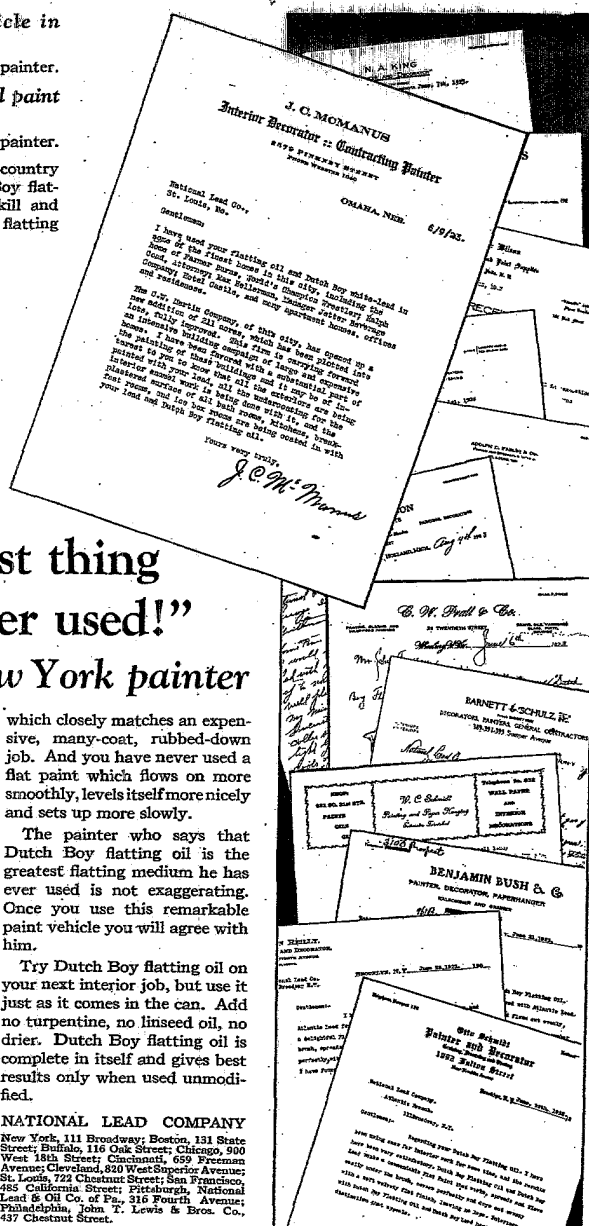
"The greatest paint vehicle in twenty years!"

writes a Tennessee painter.

"Positively the only flat wall paint that can be washed."

adds a Wisconsin painter.

Painters from every part of the country enthusiastically endorse Dutch Boy flatting oil. You owe it to your skill and pocketbook to try this exceptional flattening medium.



"The greatest thing I have ever used!"
says a New York painter

THE only painters who have not emphatically endorsed Dutch Boy flatting oil are those who haven't used it.

How about you? There must be something remarkable about this flattening vehicle to evoke such strong endorsements as those quoted.

Painters tell us that Dutch Boy flattening oil makes possible new beauties in interior decoration. Those who have checked up on costs report substantial savings all along the line—in the number of gallons used, in the time and labor required for application.

All agree that it sets so slowly as to leave more than enough time for joining laps. That means a whole room can now be done by one man without the aid of a helper.

White-lead flatted with Dutch Boy flattening oil gives a silky, solid, substantial eggshell finish

which closely matches an expensive, many-coat, rubbed-down job. And you have never used a flat paint which flows on more smoothly, levels itself more nicely and sets up more slowly.

The painter who says that Dutch Boy flattening oil is the greatest flattening medium he has ever used is not exaggerating. Once you use this remarkable paint vehicle you will agree with him.

Try Dutch Boy flattening oil on your next interior job, but use it just as it comes in the can. Add no turpentine, no linseed oil, no drier. Dutch Boy flattening oil is complete in itself and gives best results only when used unmodified.

NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 520 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut Street.

R. C. RASMUSSEN, master painter of Sleepy Eye, Minn., is going to make the Never Fail Plan a permanent partner. He writes: "The Never Fail Plan is the best system for getting painting jobs I ever used. The last time it scored 100%. I expect to use this system all the time."



"Here the system and you save all the time."



Busy all summer

A PAINTING contract from every prospect! That was Mr. Rasmussen's record in June of last year, when the Never Fail Plan scored again for this master painter. No wonder he says he will use this business-getting plan all the time.

Before hot weather had a chance to slow up his work, Mr. Rasmussen went after summer business with the Never Fail Plan. The jobs came in quickly, and Mr. Rasmussen spent a busy and profitable summer season.

Plan works anywhere

From coast to coast this plan is helping swing painting contracts for enterprising painters. Mr. E. K. Brubaker of Berlin, Pa., tried the plan a year ago June. He reports, "The Never Fail Plan has worked fine for me—six jobs and two of the other four booked for spring."

From Nevada, Iowa, Mr. A. W. R. Bolter writes that he "landed just one-half of the contracts through the Never Fail Plan, with two more on the way."

One painter, Mr. A. H. Guenther of Hartley, Iowa, is so enthusiastic about the plan that he thinks "every painter should use it." He says, "The Never Fail Plan brought me big results—I have been busier this year than any other."

Hundreds of letters like these prove that the Never Fail Plan, when backed by the supporting efforts of an alert painter, helps bring in the off-season business. It can do as much for you.

Painter sorry he put off action

If you want to get the full benefit of this plan, send for it now. Some painters put off asking for its help. But once they have used the plan, they write us like Mr. Earl Graham of Vernon, Ill., who says, "Am sorry I did not send in earlier for your Never Fail Plan!"

The summer season is just beginning. Now is the time to go after July and August painting contracts. Your name on the coupon below starts the Never Fail Plan working for you immediately.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 920 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 550 West Superior Avenue; St. Louis, 712 Chestnut St.; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 516 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

National Lead Company,
111 Broadway,
New York, N. Y.

Gentlemen:

Please send me details of your Never Fail Plan. Tell me how it can help me in getting more painting jobs in my locality.

Name.....

Street and No.....

City and State.....

This advertisement appears in the following publications:

Page—*Painter's Magazine*—July

American Painter—June

Master Painter and Decorator—July

W. L. WEYGANDT, master painter, of Decatur, Ill. He used the Never Fail Plan with the following result: "I want to thank you for your help with the Never Fail Plan. One of the jobs it brought me was the largest I ever contracted for—nearly \$1000. And I saw this prospect only once before he signed the contract!"

Send the coupon and you have it all—free!



How Weygandt got his biggest contract

THE largest painting contract that ever came Mr. Weygandt's way was obtained with the help of the Never Fail Plan. His prospect lived in another town. Mr. Weygandt had seen him only once. He had little hope of getting the work. But he used the Never Fail Plan and signed up a \$1000 contract.

This is but one of the jobs that Mr. Weygandt secured through the Never Fail Plan. And Mr. Weygandt is but one of a constantly growing number of master painters who are using this plan to help put their business on a year-round basis.

The ability of the Never Fail Plan to help painters get business even during the so-called off-seasons makes the plan of unusual value to every painter.

*This painter got some big
winter business*

The Never Fail Plan kept Mr. Robert Jones, of Niantic, Ill., busy last winter. His letter says: "Your Never Fail Plan pulled seven big jobs and a few small ones. It also helped me get several good jobs for spring."

From Mr. J. H. Hall, of Bastrop, La., comes this letter: "Your Never Fail Plan is very good. I got all contracts except two, and may get them later."

And two painters, Wood & Pirtle, of Fredericktown, Missouri, say: "Your Never Fail

Plan is a cooperative jewel. We wish to thank you for what it has done for us."

Easy to start plan working

There is no red tape, no mystery, about the Never Fail Plan. It is simplicity itself. Any master painter can use it. All you have to do to start the plan working for you is to write your name on the coupon below and mail it to us.

Do what other painters have done. Test out the plan yourself now at a time when jobs are hard to get. The coupon, an envelope and a two-cent stamp may make this your busiest winter season.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State St.; Buffalo, 116 Oak Street; Chicago, 900 West 19th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Avenue; St. Louis, 721 Chestnut St.; San Francisco, 415 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bro. Co., 437 Chestnut Street.

National Lead Company,
111 Broadway,
New York, N. Y.

Gentlemen:

Please send me details of your Never Fail Plan. Tell me how it can help me in getting more painting jobs in my locality.

Name

Street and No.

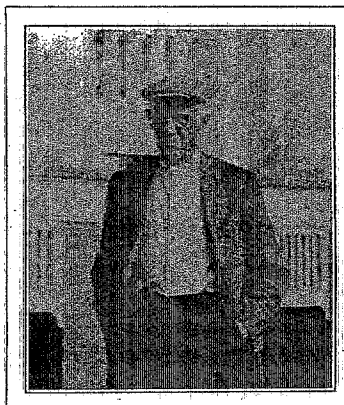
City and State



Six months' work from his first prospect

"Thank you for the Never Fail Plan. I obtained enough work from the first person I called on to last me six months."

Dennis M. Murphy, Memphis, Tenn.



THE Never Fail Plan got business quickly for Mr. Murphy. The very first prospect called on after this plan was sent out gave him enough work to last for half a year. And with more prospects still to be heard from, this master painter has little time to worry about what some painters call—"dull-seasons."

For years past painters everywhere have been getting similar results with the Never Fail Plan. Mr. Murphy's letter is only one of hundreds of enthusiastic reports received from master painters testifying to the value of the plan in helping to get new business in off seasons, as well as in the spring and fall.

When jobs are hard to get, the Never Fail Plan helps to pull the contracts.

In most communities there are painting jobs waiting for some alert painter to go out and get them. The Never Fail Plan helps you get this business and keep your crew busy through winter months, as well as through the regular painting seasons.

Mail this coupon to us today. Immediately the Never Fail Plan will begin its work for you.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 115 Oak Street;
Chicago, 900 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820
West Superior Avenue; St. Louis, 722 Chestnut St.; San Francisco, 485 Cal-
ifornia Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth
Avenue; Philadelphia, John T. Lewis & Bros. Co., 457 Chestnut Street.



Save the surface and
you save all—*Just a Word*

TEAR OFF ALONG THIS LINE

National
Lead Company
111 Broadway
New York, N. Y.

Gentlemen:

Please send me details of
your Never Fail Plan. Tell me
how it can help me in getting
more jobs in my locality.

Signed _____

Address _____

306

THE POCKET LIST

January 1914



Dutch Boy White-Lead

Used for painting station interiors and exteriors and wooden car bodies. Also for stenciling numbers on cars. Gives water-proof film. Lasts long and does not crack or scale.

Dutch Boy Red-Lead

Prolongs life of metal in bridges, tanks, cars, signals—metal wherever used in railroad equipment. Makes tough, yet elastic covering that prevents rust.

Comes in paste form or as a liquid ready for immediate application.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 16th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 485 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 216 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

For mutual advantage please mention Pocket List when writing advertisers.

Pocket List of Railroad Officials



Make both last longer

For cars—Nothing like red-lead to keep metal from rusting. Red-lead used on metal cars helps to keep the cars out of the repair shop. Use pure red-lead such as Dutch Boy red-lead.

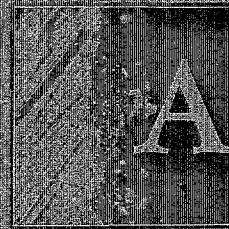
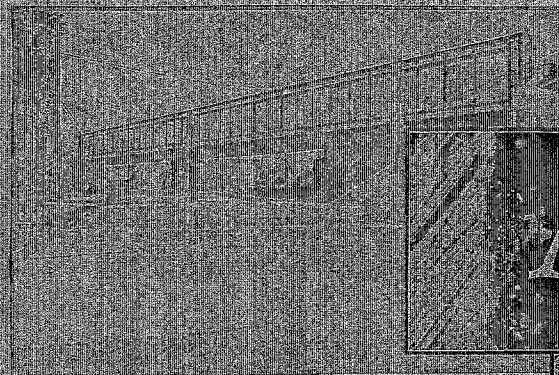
For stations—Nothing like white-lead to protect stations and keep them attractive in appearance. White-lead is the foremost weather-proof paint. Use Dutch Boy white-lead and pure linseed oil for outside painting. Use Dutch Boy white-lead and Dutch Boy flattening oil for interior painting.

NATIONAL LEAD COMPANY

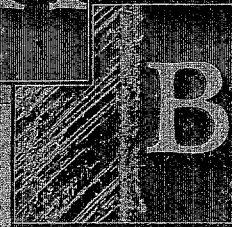
New York, 111 Broadway; Boston, 131 State St.; Buffalo, 116 Oak St.; Chicago, 200 West 18th St.; Cincinnati, 659 Freeman Ave.; Cleveland, 631 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 483 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 497 Chestnut St.

Dutch Boy Products

This advertisement appears in the following publication:
Page—*Pocket List of R. R. Officials*—April, July and Oct.



"A" WITHOUT RED LEAD: The microscope shows what rust does to unprotected metal surface in just a few years. Note the deep pitted incrustation. The diagonal lines are file marks made in preparing the metal for section for the microscope.



"B" WITH RED LEAD: Here the microscope shows a metal surface protected by the standard three-coat covering of red lead. Note the perfect condition of the metal. Rust can not form here.

Save the bridge and
yourself the trouble.

Ten years hence this skew will look like "B"

THIS skew bridge belongs to a road well known for its alert maintenance policy. *Nothing like red-lead to keep metal from rusting—nothing like white-lead to keep wood from rotting* seems to be the hard-and-fast motto of its maintenance department.

Before it is shipped for erection, each square inch of metal in such a bridge should receive a generous shop coat of red-lead.

When the steel plate girders are in place and all bracing and underpinning are assembled into one tightly riveted whole, each square inch of metal surface should receive a second coat of red-lead.

For the *finishing* coat, red-lead should be used again—this time shaded to a dark color or black. Then the metal will have adequate protection against rust.

Dutch Boy red-lead is pure red-lead.

Mixed with pure linseed oil, Dutch Boy red-lead makes a paint that can not be surpassed as a rust-preventive. It spreads smoothly and uniformly and has unusual covering power. It sticks tight to clean metal. It dries to a hard, yet elastic, coating which expands and contracts without cracking. It gives *full and economical* protection to the metal surfaces it covers.

Dutch Boy red-lead is obtainable in both paste and liquid form. The *liquid* comes in the natural color and also shaded to dark browns, greens and black for finishing coats.

The paste can be shaded to any desired dark color.



NATIONAL LEAD COMPANY
New York, 10 Broadway, Boston, 111 State Street, Philadelphia, 116 9th Street,
Chicago, 200 West 18th Street, Cincinnati, 659 Broadway, Cleveland,
Columbus, 100 West 10th Street, Detroit, 1000 Woodward Avenue, Grand Rapids,
Cincinnati, 100 West 10th Street, National Lead is sold by all Paint and Oil
Dealers. Philadelphia, J. L. Lewis & Sons, Co., 477 Chestnut Street.

Dutch Boy Red-Lead

This advertisement appears in the following publications:

- Page—*Railway Age*—Jan. 5
- Page—*Railway Review*—Jan. 5

0000-NLI-000017189

Chalked for a trip to the repair shop

Every time the inspector chalks a street car it goes out of service. His "to be repaired" means back to the repair shop. The car goes out of service. It becomes a liability instead of an asset.

FREIGHT traffic is increasing. It will be one-third greater in the next ten years, according to a recent estimate. More than 720,000 freight cars will have to be built during the next decade to meet the demand of increased traffic.

Save the cost of new cars

Some roads will build a lower percentage of new cars than others. These roads take better care of their cars and make them last longer. These roads use plenty of paint on all their cars. On all-metal cars, and on the metal parts of other cars, they use plenty of red-lead, because red-lead is the most effective rust-resisting paint.

The roads that use plenty of red-lead on their cars are going to reap the highest percentage of profit from the increased freight business. These roads lengthen the lives of their cars by keeping them safe from rust. These roads keep their cars out of the repair



Every day this car lies in the repair shop costs the railroad money. The paint would pay for itself.

shop. They keep these cars out on the road earning profits.

Keep metal looking like "B"

There is nothing like pure red-lead to keep metal from rusting. In the well-known Havre de Grace bridge test, conducted by the American Society for Testing Materials, a number of rust-resisting paints were tested for durability over a seven-year period. The paint which showed up best contained the highest percentage of pure red-lead.

DUTCH BOY RED-LEAD

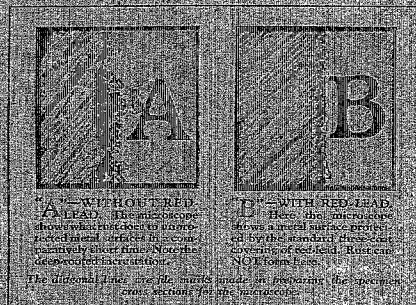
Dutch Boy red-lead is pure red-lead. Mixed with pure insect oil, it spreads evenly and smoothly under the brush, and has unusual covering capacity, thus effecting economy in application. It gives complete protection against rust to all metal surfaces.

Dutch Boy red-lead is obtainable as a paste and also as a liquid. The paste comes in the natural red-lead color and can be shaded, if desired, to browns, greens, black, etc. The liquid comes in the natural color, and also shaded to light and dark brown, light and dark green, and black for finishing coats.

Write us for specific information on rust-resisting red-lead paints.

NATIONAL LEAD COMPANY

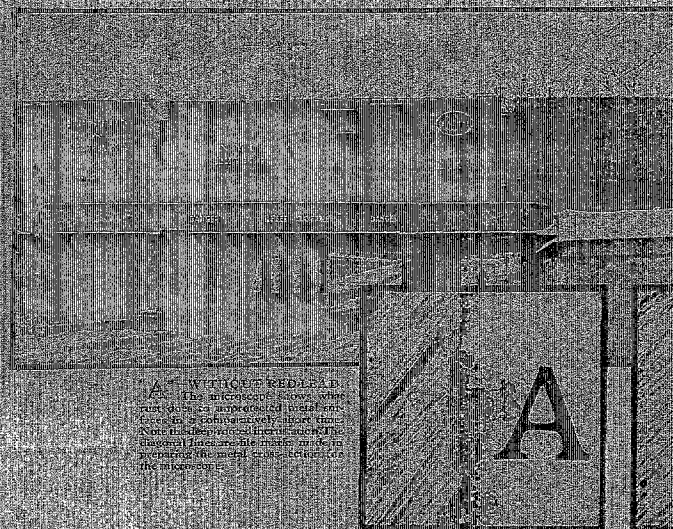
New York, 111 Broadway; Boston, 13 State Street; Buffalo, 116 Oak Street; Chicago, 200 W. 14th Street; Cincinnati, 690 Elmwood Avenue; Cleveland, 324 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 445 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Sons, Corp., 437 Chestnut Street.



A—WITHOUT RED-LEAD. This microscope shows what rust does to unprotected metal surfaces. In consequence they are "chalked" out of service.

The difference here is the matter of paint in preventing the specimen from sections for the microscope.

B—WITH RED-LEAD. Here the microscope shows a metal surface protected by the standard Dutch Boy covering of red-lead. Rusting is NOT found.



A WITHOUT RED LEAD
The microscope shows what rust does to unprotected metal surfaces. In a comparatively short time, there has been considerable corrosion. The structural steel is being made useless, and repairing the metal costs a fortune for the railroad.

B WITH RED LEAD
Here the microscope shows metal surfaces protected by the standard three-coat covering of red lead. Note the perfect condition of the surface of the metal. For the NOT form here.

A long time between coats

IN 1908 the Pennsylvania Railroad built this bridge over Campbell Street, Williamsport, Pa. At that time the steel received shop and field coats of red lead. For fifteen years it has not been repainted. Yet the bridge is still in an excellent state of preservation.

This is an unusual record, even for red lead, for no paint exposed to the elements can be expected to last as long as fifteen years under all conditions. Nevertheless, an incident of this kind indicates the long wear that there is in red-lead paint, properly applied.

To keep metal like "B"

To insure best results in protecting metal, the surface should be clean and free from rust before the shop coat of red lead is put on. Paint spread over rusted metal only shuts in the trouble, for rust once formed continues to eat its way under the paint coat.

For all metal surfaces the standard three-coat red-lead covering is a positive guarantee against damage from rust. This includes a shop coat of straight red lead, a second coat slightly shaded with lampblack to facilitate inspection, and a finishing coat shaded to the desired dark color.

Use Dutch Boy red lead for each of these coats. It is pure red lead. Being pure, it gives to all metal surfaces complete protection against rust. Mixed with pure linseed oil it spreads far, effecting an economy in application. It sticks tight to the metal surface and dries to a tough, yet elastic coating that expands and contracts without cracking.

DUTCH BOY RED LEAD

You can get Dutch Boy red lead in both paste and liquid form. The paste comes in the natural orange-red color and can be shaded to browns, greens, black, etc. The liquid comes in the natural color, and also shaded to light and dark browns, light and dark greens and black for finishing coats.

Our branch nearest you will be glad to send specific information on protective paint coatings for any surface.

NATIONAL LEAD COMPANY
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 One State; Chicago, 1900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 329 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 483 California Street; Philadelphia, National Lead & Oil Co. of Penna., 216 Fourth Street; Philadelphia, John A. Levis & Bros. Co., 237 Chestnut Street.



This advertisement appears in the following publications:

Engineering News-Record, March 13
Engineering Record, March 13

A car on the road is worth two in the shop

AMERICAN railroads are handling a record-breaking volume of freight this year. As a result, more cars are being bought than at any time since 1917.

But the growing traffic strain demands more than new cars. It requires that all freight cars, both new and old, be kept in continuous service.

Proper paint protection against rust will help to keep more cars in service. All steel gondolas, hopper bottom cars, and the steel under-frames of all cars are meals for rust unless paint prevents the rust-forming elements from eating into the metal. A constantly maintained coating of pure red-lead paint keeps these cars out of the repair shop and on the road earning dividends.

For all metal surfaces the standard three-coat red-lead covering is a positive guarantee against damage from rust. This includes a shop coat of straight red-lead, a second coat slightly shaded with lampblack to facilitate

inspection, and a finishing coat shaded to the desired color.

Use Dutch Boy red-lead for all these coats. It is pure red-lead. Mixed with pure linseed oil and brushed on clean metal it spreads far and sticks tight. It gives a tough, elastic coating that expands and contracts with the metal without cracking.

Dutch Boy red-lead is available in paste form and also as a liquid ready for the brush. The liquid comes in the natural color for priming coats and also shaded to light and dark greens, light and dark browns and black for finishing coats. The paste comes in the natural red-lead color and can be shaded to browns, greens, black, etc.

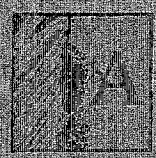
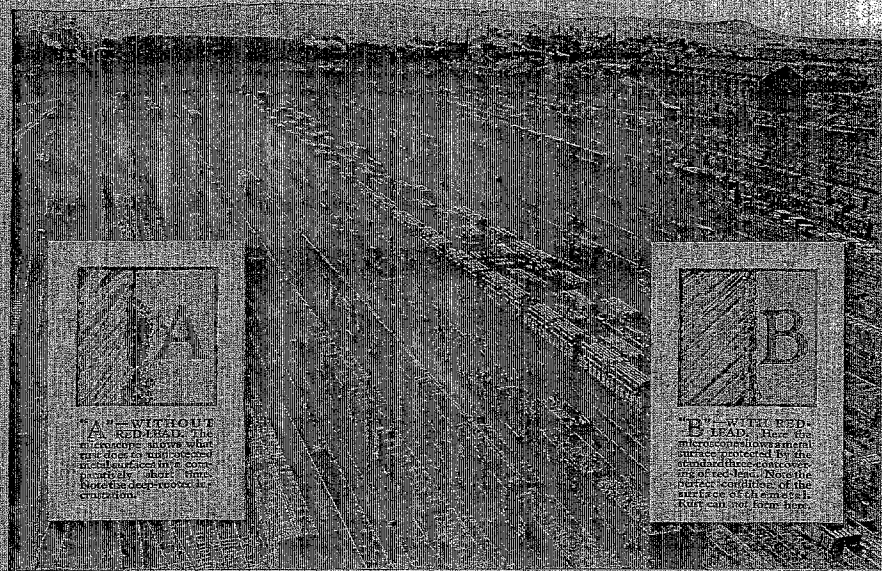
Write us for more specific information on rust-resisting red-lead paints.



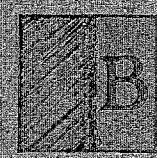
TRADE MARK
NATIONAL LEAD COMPANY

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 630 State Street; Buffalo, 115 Oak Street; Chicago, 230 W. 18th Street; Cincinnati, 609 Broadway Ave.; Cleveland, 230 West Superior Ave.; St. Louis, 222 Chestnut Street; San Francisco, 485 California St.; Philadelphia, 1500 Locust St.; R. O. Co. & Co., 316 South 4th St.; Baltimore, John T. Lewis & Bro., Co., 437 Chestnut Street.



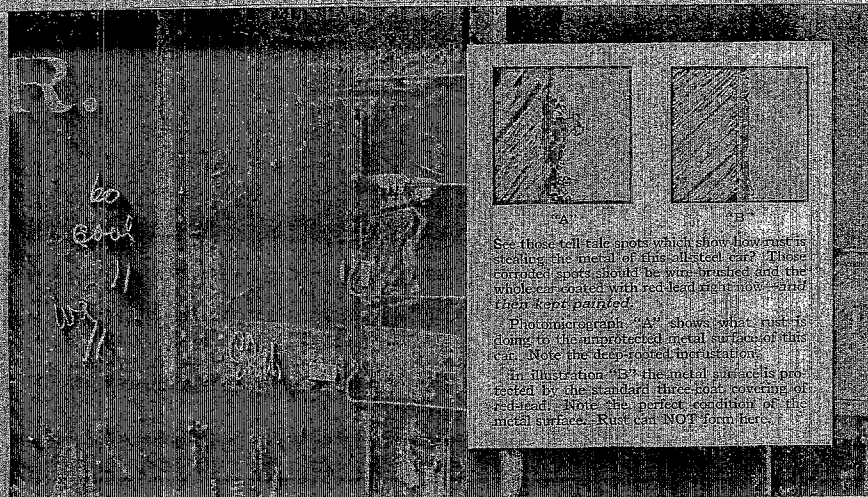
A—WITHOUT RED LEAD. The rusting action which does its full share of metal surface in a comparatively short time. Note the deep rust at crevices.



B—WITH RED LEAD. Here the surface is covered with a protective film of red lead. Note the perfect condition of the surface of the metal. Rust can not form here.

This advertisement appears in the following publications:
Railway Age, April 26, 1924
Railway Review, April 26, 1924

0000-NIL-000017192



See these tell tale spots which show how rust is eating the metal of this all-steel car? These corroded spots should be wire-brushed and the whole car coated with red lead paint now—and then kept painted.

Photomicrograph "A" shows what rust is doing to the unprotected metal surface of this car. Note the deep-rouged deterioration.

In illustration "B" the metal surface is protected by the standard three-part coating of red lead. Note the perfect condition of the metal surface. Rust can NOT form here.

Oust the tramp of destruction

YOUR brakemen are always on the lookout to keep tramps from stealing rides. But are your car inspectors as careful in preventing rust—that tramp of destruction—from not only riding on your cars but from destroying them?

Painting now and then won't keep your rolling stock free from rust. Nor will just any kind of paint protect this equipment. Railroad men have found that there is only one sure method which gives their all-steel gondolas, hopper-bottom cars and the steel underframes of all cars complete paint protection. They keep their cars out of the repair shop because:

1. They make sure the metal is clean before painting. Tests show that rust, once formed gets on eating into metal even when paint is applied over it.
2. They inspect all equipment at regular intervals and keep it adequately coated with paint. Only by inspecting frequently can you be sure your cars have the right protection.
3. They use pure red-lead paint.

Because it is *pure* red-lead, Dutch Boy red-lead properly maintained, supplies complete protection against rust to all metal surfaces. Applied

to dry, clean metal it sticks tight. It forms a tough, elastic film that expands and contracts without cracking. It presents an impenetrable barrier to the rust-forming elements. *It keeps the metal safe from rust as shown in illustration "B."*

Dutch Boy red-lead is obtainable in both paste and liquid form. The *liquid* comes in the natural color and also shaded to light and dark greens, light and dark browns, and black for finishing coats. The *paste* comes in the natural red-lead color, and can be shaded to browns, greens, black, etc.

It is far *cheaper* to preserve metal equipment with Dutch Boy red-lead than to *repair* it with oxy-acetylene torch and pneumatic riveter! Write now to our nearest branch for complete information about protective paints for metal.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 320 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 450 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

This advertisement appears in the following publication:

Page—*Railway Age*—June 7

Railway Review—June 7

April, 1924

RAILWAY REVIEW
MONTHLY PUBLICATION



A—WITHOUT REPAINTING
The Campbell Street Bridge, built in 1908, is still in an excellent state of preservation. It is a fine example of the durability of the red lead paint used in its construction.



B—WITH REPAINTING
The Campbell Street Bridge, built in 1908, is still in an excellent state of preservation. It is a fine example of the durability of the red lead paint used in its construction.

A long time between coats

In 1908 the Pennsylvania Railroad built this bridge over Campbell Street, Williamsport, Pa. At that time the steel received shop and field coats of red lead. For fifteen years it has not been repainted. Yet the bridge is still in an excellent state of preservation.

This is an unusual record for red lead, for its paint, exposed to the elements, can be expected to last as long as fifteen years under all conditions. Nevertheless, an incident of this kind illustrates the long wear that there is in red lead paint properly applied.

To keep metal like "36"

To make both ends in protecting metal, the surface should be clean and free from rust before the dependence of red lead is put on. Paint spread over rusted metal only shuts in the trouble, for rust once formed continues to eat its way under the paint coat.

For all metal surfaces the standard three-coat red lead covering is a positive guarantee against damage from rust. This includes a shop coat of straight red lead, a second coat slightly shaded with lampblack to facilitate inspection, and a finishing coat shaded to the desired dark color.

Use Dutch Boy red lead for each of the coats. It is pure red lead. Being pure it gives to all metal surfaces complete protection against rust. Mixed with pure white paint, it produces every shade of gray and white. It is also a good primer for all other paints. It is a tough, yet elastic coating that expands and contracts without cracking.

DUTCH BOY RED LEAD

You can get Dutch Boy red lead in both paste and liquid form. The paste comes in the natural orange-red color and can be shaded to browns, greens, black, etc. The liquid comes in the natural color, and also shaded to light and dark browns, greens, black, etc. It is a good primer for all other paints.

Our branch nearest you will be glad to send specific information on protective paint coatings for any surface.

NATIONAL LEAD COMPANY
New York, 115 Broadway, Phone 4011 (New York City)
Chicago, 200 West Madison Street, Phone 119
San Francisco, 120 West Market Street, Phone 119
Philadelphia, 120 North Second Street, Phone 119
Pittsburgh, 120 North Second Street, Phone 119
Portland, 120 North Second Street, Phone 119
St. Louis, 120 North Second Street, Phone 119
Washington, 120 North Second Street, Phone 119

Tons of lead roll along every avenue



HOW much lead is in your automobile? In all the new motor vehicles built in a year, there are about 109,234,000 pounds of lead.

Today, in company with steel, glass, nickel, tin, copper, aluminum, leather and rubber in millions of motor cars, lead is inseparably linked with the social and industrial life of the nation. It is helping to carry approximately 7,500,000,000 passengers every year over plains and mountains, through cities and villages. Lead is in the truck that distributes the necessities and luxuries of life to you and your friends.

Where the lead is

Without leaving his seat the modern car owner turns a switch, and electric lights flood the dark road before him. He turns another button, presses a pedal, and his powerful motor hums merrily beneath the hood in front of him.

In making possible this picture, man has called upon the aid of lead. The storage battery that provides electric power for automobile lights, starter, and ignition is mostly lead. It consists of lead plates, every other one covered with litharge and the rest with red lead. Both litharge and red lead are obtained from metallic lead. The plates are in hard rubber containers that have lead in them.

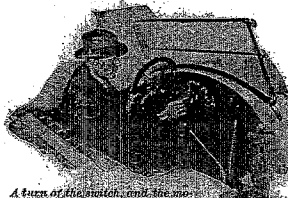
This use of lead in connection with more than 13,000,000 automobiles and trucks in operation today gives you an idea of the amount of lead the automobile manufacturer puts into his product. While this use accounts for the most of the large tonnage of lead used in an automobile, it is not the only use of lead.

Putting lead to work

The next time you step into an automobile, remember that if it were not for lead in solder, the seams of the gasoline

tank would leak. The same kind of solder seals the radiator that helps to keep your engine cool and holds in place the windings of wire in the generator that charges the lead storage battery.

Every time you turn a hard rubber switch button on your instrument board you are touching something that contains lead. When you adjust the mass of wiring about your motor, fingers grasp its soft rubber insulation, which also has lead in it. The rubber tires,



A turn of the switch, and the motorist connects the current from the lead storage battery with the ignition and starting systems.

rubber top, and the rubber mat on the car seat contain lead. The electric light bulbs are made of lead glass. Ground coats of hand-painted cars and light colored finishing coats are sometimes white lead.

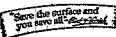
Besides the lead that the car manufacturer uses in giving you a completed automobile or truck, we must add the amount of this metal which helps to refine the gasoline that feeds the engine. Litharge helps to produce more than 4,500,000,000 gallons of gasoline for the yearly consumption of motorists in this country.

Where you find the most lead

Of even greater importance, so far as tonnage goes, than the use of lead by the automobile manufacturer is the lead that you use in general painting.

In one year approximately 350,000,000 pounds of white lead are used on surfaces such as wood. For protection against the ravages of rust nearly 20,000,000 pounds of red lead are applied to metal surfaces annually.

That record reflects the awakening of property owners to the necessity of paint protection. More of these owners than ever before believe today in the truth of the phrase "Save the surface and you save all." And they are relying on white lead and red lead paint to prevent decay eating into the surface and perhaps destroying the entire building.



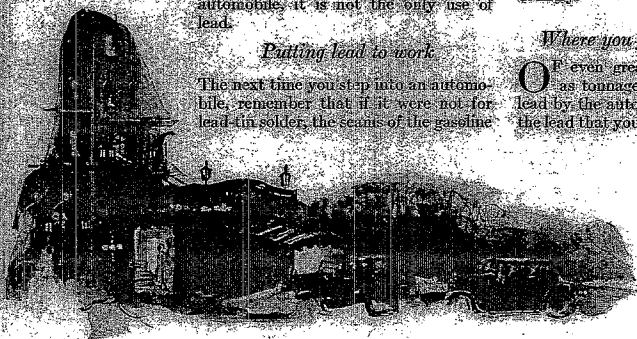
Producers of lead products

Dutch Boy white lead is the name of the pure white lead made and sold by National Lead Company. On every keg of **Dutch Boy white lead** is reproduced the picture of the Dutch Boy Painter shown below. This trade-mark guarantees a product of the highest quality.

Dutch Boy products also include red lead, linseed oil, flattening oil, babbitt metals, and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.

If you wish to read further about this wonder metal, we can tell you of a number of interesting books on the subject. The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Company, New York. If you are unable to get it at your bookstore, write us or the publishers.



NATIONAL LEAD COMPANY

New York: 111 Broadway; Boston: 131 State St.; Buffalo: 116 Oak St.; Chicago: 200 West 14th St.; Cincinnati: 69 Franklin Ave.; Cleveland: 1800 West Superior Ave.; St. Louis: 718 Chestnut St.; San Francisco: 448 California St.; Pittsburgh: National Lead & Oil Co. of Pa., 216 Fourth Ave.; Philadelphia: John T. Lewis & Bros. Co., 437 Chestnut St.

23174. Post-Saturday Evening Post—March 4, 1923.★ Scientific American—March

Amusements
News
Scientific American
Post-Saturday Evening Post

This advertisement appears in the following:

Saturday Evening Post—March 3.
Scientific American—March.
Breeder's Gazette—March 6.

The Farmer—March 1.
Kansas Farmer & Mail & Breeze—March 3.
Michigan Farmer—March 22.

Prairie Farmer—March 22.
Rural New Yorker 15

0000-NLI-000017195



Lead exempts you from the weather tax

HOW much is your weather tax? Thousands of owners in the United States pay such a tax for the share of rain, snow, and sunshine that fall on their properties.

One billion dollars' worth of property crumbles beyond repair in this country each year. And this vast total includes the many millions paid by property owners as weather tax—money that lead would help to save.

Lead exempts you from a weather tax

Lead is the ugly duckling among metals. It isn't so handsome as gold. It isn't so strong as iron. Yet lead performs many functions—for which the other metals are not suitable. In the form of white-lead in paint it is man's mightiest protector of wooden and non-metallic surfaces.

Paint manufacturers use white-lead to make their best paints. Painters apply white-lead paint as a protection and a decoration on buildings you see everywhere.

Approximately 350,000,000 pounds of white-lead are used every year in this country. This makes enough paint to cover with one coat about 3,000,000 houses of average size. On the outside and the inside of homes, churches, schools, barns, theatres and stores, white-lead foils the attempts of sun, air, and moisture to collect a weather tax.

Where man pays the tax

But the weather still collects some of its toll. Frequently you see a home that once was fresh and new, but now is rotting away. The porch floor is not safe. Window sashes are rotting. The sides of the house are weatherbeaten and worn. On inside walls are great damp spots where moisture has penetrated.

White-lead would have prolonged the life of the house. It would have been an impassable barrier to air and moisture. As long as its film was unbroken it would have kept the covered surface safe.

And after all, the first cost of white-lead paint is small when you consider how such paint protects your home, your property, and the money you invested in it.

White-lead a standard covering

From the days of our forefathers, white-lead has been the standard for preventing decay and deterioration and for pro-

with white-lead they obtain the color that will harmonize perfectly with any decorative scheme.

Producers of lead products

National Lead Company makes lead products for practically every purpose to which lead can be put in art, industry and daily life.

Dutch Boy white-lead is the name of the pure white-lead made and sold by National Lead Company. It is extremely fine—so fine that it easily flows through a silk screen containing 27,000 holes to the square inch. This gives opacity and smoothness of film.

On every keg of *Dutch Boy white-lead* is reproduced the picture of the Dutch Boy Painter shown below. This trademark guarantees a product of the highest quality. Dutch Boy products also include red-lead, linseed-oil, flattening oil, babbitt metals, and solder.



Rain and storm have attacked this pillar, which was unprotected by paint. The owner is estimating the size of his weather tax.

viding the desired decoration. Wise property owners everywhere are obeying the rule, "Save the surface and you save all," and are covering the surface with white-lead paint. Thus they avoid paying weather and repair taxes.

For exterior painting they find that white-lead and pure linseed oil make a paint that sticks tight to the surface, is impervious to moisture, and lasts long. And they know that fresh-looking, well-kept property is an asset to the community, a sign of cleanliness and respectability within.

For interior painting of walls and woodwork these owners find that white-lead mixed with flattening oil not only protects the surface but also gives a soft, beautiful finish, restful and pleasing to the eye. By mixing coloring matter

Send for this painting portfolio

We have a portfolio, "The Decoration of Our Homes," which we will gladly send to anyone who is interested in the painting and beautifying of a home. This portfolio contains color plates suggesting decorative schemes for various types of interiors and exteriors.

Besides its use in paint, lead has many other interesting uses. In fact, the story of lead is a fascinating one, and if you want to know more about this wonder metal, we can recommend a number of interesting books. The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Company, New York. If you are unable to get it at your bookstore, write us or the publishers.



NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 151 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 609 Freeman Ave.; Cleveland, 330 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 453 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 210 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 487 Chestnut Street

0000-NLI-000017196



"Save the surface and you save all" - Paint & Varnish

Ordered by the following: *Indiana, Kansas, Oklahoma, Pennsylvania, etc.*

"Look, it glistens.

Hold it, it's heavy. Tap it, it rings."

YOU tell fine glass with your eyes, hands, and ears. In the light the bowl glistens with the rainbow's colors. In your hand it is heavier than the common glass bowl. When you strike it, you hear a clear, bell-like ring.

Lead, that dull, unattractive metal, is responsible for the brilliance of fine glass. Because the lead used in making the glass gives it the density necessary to bend or reflect light rays, the glass has the lustre and color that cheaper glass does not have.

Lead makes glass heavy

Lead also gives weight to glass. The piece of fine plain glass and cut-glass you pick up may be anywhere from 20% to 50% lead. Table glass, such as tumblers and goblets, is from 20% to 40% lead. When it is struck, lead glass in most forms gives forth a musical ring that ordinary glass does not.

Lead also gives the glass a softness that makes cutting and engraving easier and more economical. Despite this softness—because of it, in fact—lead glass retains its strength and offers greater resistance to changes of temperature than ordinary glass.

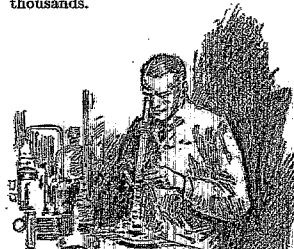
How lead gets into glass

To say that the glassmaker gets beauty by mixing lead and some other materials sounds almost magical. Yet from the same lead that is used for water pipes he gets two powders, red-lead and litharge, by melting the metallic lead in furnaces where the molten lead is exposed to currents of hot air. He takes either the red-lead, or the litharge, and mixes it with silica sand, potash, saltpetre and other chemicals. Then he melts these all together and obtains the liquid glass from which various kinds of glassware are molded or blown.

One glass manufacturer in a year used

200,000 pounds of lead. The entire glass industry takes about 14,000,000 pounds of the annual lead production in the United States.

Lead makes glass an object of beauty and admiration. Both at home and on the street, lead, in spectacle and reading-glass lenses, aids the vision of many thousands.



Under the lead-glass lens of the microscope the scientist recognizes the germs that may cause sickness and perhaps death.

The astronomer searches the Milky Way with the powerful lead-glass lens of his telescope. The chemist and the biologist invoke the aid of the microscopic lens in which is lead. The photographer and the motion picture operator with their camera lenses containing lead record the pictorial history of the world.

In the millions of buildings that are lighted by electricity, lead in electric light bulbs is helping to make night as much like day as possible. The glass used in other ways for illuminating purposes is also generally lead-glass.

Lead as paint

LEAD in glass is very bashful and conceals itself so that there is no visible sign of its presence. But in its more general use as paint, you can see it on every hand. As white-lead, mixed

with pure linseed oil, it protects such surfaces as wood from rot and decay. As red-lead it prevents rust from eating into and destroying iron and steel.

Save the surface and you save all—dutchified

For generations the professional painter has used white-lead to save the surface. From our forefathers' time it has always been the standard for surface protection. Today owners everywhere realize that it is more economical to cover their property with "lead-in-oil" than to pay for the damage that the weather can soon do to unpainted surfaces. They believe in the phrase, "Save the surface and you save all."

Producers of lead products

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Dutch Boy products also include red-lead, linseed oil, flattening oil, babbitt metals and solder.

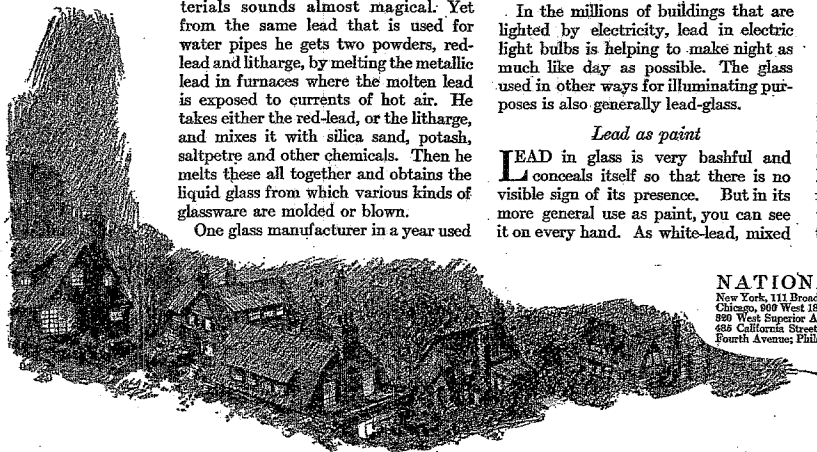
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If you wish to read further about lead, we can tell you of a number of interesting books on the subject. The latest and probably most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Co., New York. Price \$3. If you are unable to get it at your bookstore, write the publisher or order through us.



NATIONAL LEAD COMPANY

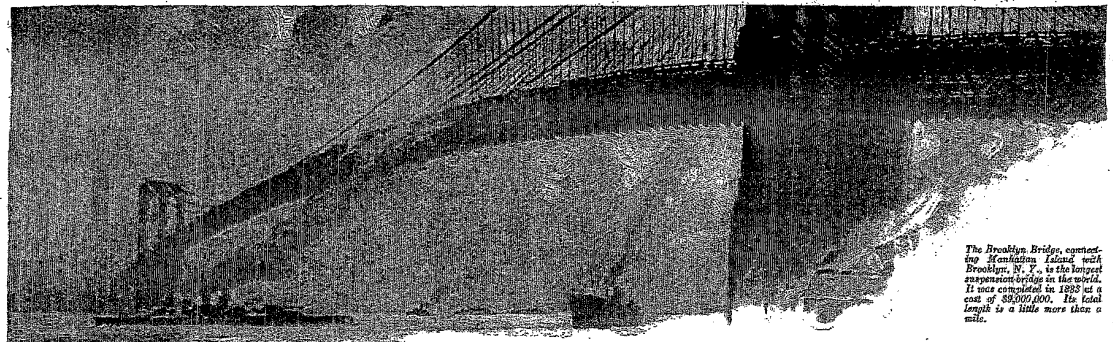
New York, 111 Broadway; Boston, 121 State Street; Buffalo, 116 Oak Street; Chicago, 200 West 18th Street; Cincinnati, 609 Freeman Avenue; Cleveland, 380 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 624 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 310 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 427 Chestnut St.



This advertisement appears in the following publications:

Page Saturday Evening Post—June 7
American Magazine—June
National Geographic Magazine—June
Scientific American—June

0000-NLI-000017197



The Brooklyn Bridge, connecting Manhattan Island with Brooklyn, N. Y., is the longest suspension bridge in the world. It was completed in 1883 at a cost of \$24,000,000. Its total length is a little more than a mile.

Where lead is a shield for steel

STREAKS of red stand out against the sky. Tiny figures suspended in mid-air cover the steel cables of the bridge with red-lead.

The engineer correctly estimates the stresses and the strains on such a structure. He specifies steel of the proper tensile strength and dimensions for it. But from the time the bridge is built, rust seeks to destroy it.

Lead is the shield that protects the steel cables, girders, and beams from rust and prevents the bridge from becoming a death-trap. It keeps the bridge strong today, strong tomorrow, and for years to come.

This is only one of the many ways in which lead constantly serves you and guards your safety. You do not always see lead in use. But as red-lead in paint you see it on metal surfaces everywhere, either in its natural orange-red color or tinted to dark colors. Red-lead is the standard protection for iron and steel.

Nearly twenty million pounds of red-lead are applied to metal every year in this country. Yet this is not enough. Rust destroys millions of tons of steel. Between 1860 and 1920 the world's output of iron and steel was about 1,800,000,000 tons. Of this total it was estimated that 660,000,000 tons were wasted through rusting in use. Just as unpainted houses decay and crumble, so iron and steel, unprotected by paint, rust and are soon ready for the scrap-heap.

Where red-lead saves metal

Wherever iron and steel are, there red-lead is needed to save the surface. Special care should be taken to cover with red-lead iron and steel that becomes in-

accessible for painting after erection.

Railroads in the United States use red-lead to protect their bridges, steel rolling stock and steel structures. Gas and water companies put red-lead on stand pipes, tanks and gasometers. They have found from experience that red-lead protection lowers the cost of maintaining iron and steel structures.

In ships of the United States Navy and on vessels of all types, red-lead

finishing coats for the sake of appearance or for inspection purposes.

Dutch Boy red-lead is the name of the pure red-lead made and sold by National Lead Company. On every keg of *Dutch Boy red-lead* is reproduced the picture of the Dutch Boy Painter shown below. This well-known trade mark guarantees a product of the highest quality.

Dutch Boy products also include white-lead, linseed oil, flinting oil, babbitt metals and solder.

National Lead Company also makes lead products for practically every purpose to which lead can be put in art, industry and daily life. If you want information regarding any particular use of lead, write to us.

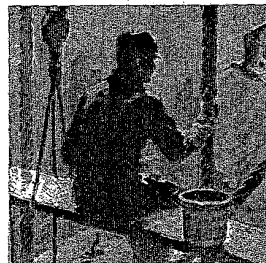
Further information about lead

We have a special booklet, "Protection of Structural Metal," which we shall gladly send to anyone who is interested. This booklet contains information telling when and how to give structural iron and steel red-lead paint protection.

If you desire to read more about the use of lead, not only in paint but also in many forms and for many purposes which will surprise you, we can recommend a number of interesting books. The latest and probably the most complete story of lead and its many uses is "Lead, the Precious Metal," published by the Century Co., New York. Price \$3.00. If you are unable to get it at your bookstore, write the publishers direct, or we shall be glad to place the order for you.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State St.; Buffalo, 115 Oak St.; Chicago, 200 West 18th St.; Cincinnati, 409 Freeman Ave.; Cleveland, 622 West Superior Ave.; St. Louis, 732 Chestnut St.; San Francisco, 405 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 216 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.



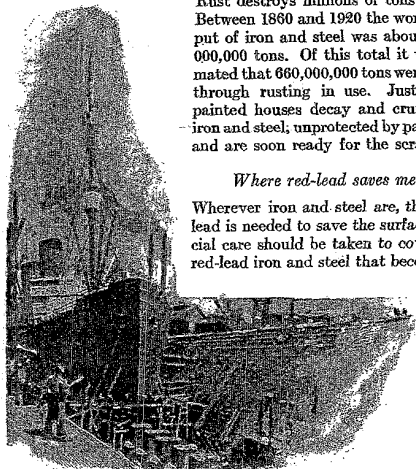
This painter is risking his life to give the steel cables of the Brooklyn Bridge paint protection. He is getting an oil-lead, the strongest shield that steel can have against rust.

guards hulls, cargo holds, coal bunkers, chain lockers—all metal parts of a vessel—from deterioration due to exposure to salt and fresh water and varying atmospheric conditions.

Red-lead keeps rust from attacking metal roofs, steam radiators, registers, pipes, fire escapes, fences, iron gates and exterior ornamental work of all kinds. It covers machinery, trucks, iron pipes, and metal equipment.

Red-lead has been used for generations as the standard protective covering for metal. Mixed with pure linseed oil, pure red-lead makes a paint that dries to a hard, tough layer and clings tightly to the surface. It is insoluble in water.

Red-lead should be and is usually used next to the metal in its natural orange-red color. It is tinted to dark colors for



Breeder's gazette	Sept 11
Country Gentlemen	" 13
The Farmer	" 6
Hoards Dairyman	" 12
Indiana Farmers Guide	" 20
Kansas Farmer + Mail + Breeze	" 13
Michigan Farmer	" 27
Ohio Farmer	" 13
Oklahoma Farmer + Stockman	" 25
Prairie Farmer	" 27
Rural New Yorker	" 20
Wallaces Farmer	" 19
Wisconsin Agriculturist	" 13

Lead gives light when darkness comes

107



BLACK clouds hide the midday sun. A storm is about to break over the city. In every office and home people get up and turn on electric lights.

In the emergency the power plant must supply electricity up to its capacity. But only two of the generators are running, and it takes time to put the others in operation. Where is the additional electricity to come from?

Man turns to lead for aid. In the power plant an electrician throws a switch that turns on the current from many storage batteries. These batteries, made mostly of lead, provide the extra current until other generators are started.

Millions of pounds of lead used

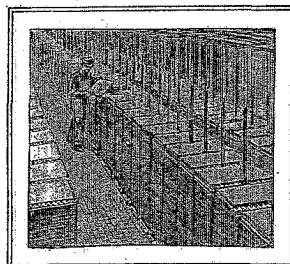
Lead is serving you in storage batteries everywhere. At home, on trips by land and sea or through the air, in peace and war, these lead batteries have become an essential part of the nation's life—the life of each of us.

Storage batteries in this country in use in radio sets, automobiles and central station power plants alone contain many millions of pounds of lead. The amount of lead used in a single storage battery ranges from a few pounds in the smallest to several hundred thousand pounds in the largest battery.

What's inside the storage battery?

Each lead storage battery is an electrical reservoir storing up energy for the time of need. Inside are two sets of lead grids, or perforated plates, covered with lead oxides—one set with red-lead, the other with litharge. These plates are immersed in a weak solution of sulphuric acid. While the smaller sizes of storage batteries are contained in glass jars or hard rubber jars, the large central station batteries are installed in immense wooden tanks lined with lead.

Lead storage batteries supply electricity for telephone, telegraph, and wireless communication. They furnish electrical energy for self-starters, lamps, and ignition systems in millions of automobiles. They supply current for the ignition systems of tractors on many of the 6,000,000 or more farms in the country and gas trucks in every part of the land.



Set of storage batteries reserved for emergency lighting needs in a central power plant

Lead storage batteries propel street-cars, electric industrial and pleasure vehicles, mine locomotives, and electric fire engines. They operate drawbridges, railroad switches, and signals.

Lead at sea and in the air

For yacht lighting and for motor-boat lighting and ignition, storage batteries again come to man's assistance. They supply current for turning turrets, sighting and firing guns on warships. They propel submarines when the undersea craft run beneath the surface. Lead storage batteries even soar through the air in airplanes.

Lead in paint

Lead aids man faithfully and well in the storage battery. But it serves him more generally perhaps as paint. You doubt-

less know that white-lead is the standard paint for wood and non-metallic surfaces. Red-lead, another lead pigment, is the standard paint for metal to protect it against the attacks of rust. You see red-lead everywhere—on skyscraper skeletons, bridges, gas tanks, ships, on metal construction wherever used. It saves the covered surface and hence the entire structure from rapid deterioration and eventual destruction.

Save the surface and you save all the building

Producers of lead products

Dutch Boy red-lead is the name of the pure red-lead made and sold by National Lead Company. It comes in paste form which can be tinted to any dark color.

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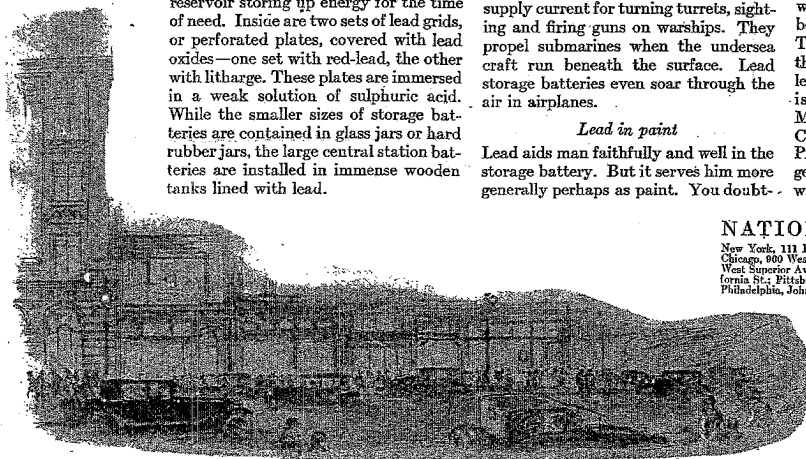
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NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 121 State St.; Buffalo, 116 Oak St.; Chicago, 900 West 18th St.; Cincinnati, 609 Freeman Ave.; Cleveland, 820 West Superior Ave.; St. Louis, 722 Chestnut St.; San Francisco, 436 California St.; Pittsburgh, National Lead & Oil Co. of Pa., 816 Fourth Ave.; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.



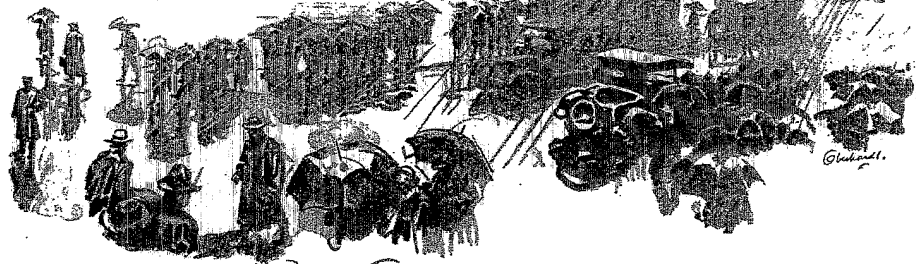
0000-NLI-000017200

This advertisement appears in the following:
Saturday Evening Post—October 4.
Scientific American—October
Breder's Gazette—October 6.

Kansas Farmer & Mail & Breeze—October 11.
Michigan Farmer—October 25.
Prairie Farmer—October 25.

American Magazine Nov
National Business Nov

Lead goes out in every rainstorm



IF a friend tells you he wears lead, don't think he is crazy. Every time he puts on his raincoat and rubber overshoes he dons some lead. When rain beats upon his shoulders and puddles of water lie in wait for his feet, lead helps to keep him dry.

You may not be justified in remarking that people have "lead in their feet." But you can say that they have "lead on their feet." More than 10,000,000 pairs of rubber boots, 68,000,000 pairs of rubber shoes and overshoes, and more than 20,000,000 pairs of canvas shoes with rubber soles are being made annually. In making rubber footwear and clothing, the manufacturer uses from 5% to 15% of lead in some form.

The first raincoat a failure

In the first waterproof clothing, made about 1790, crude gum rubber alone was combined with the fabric. But under the summer heat the rubber melted and fell apart. In cold weather it hardened and became as stiff as a board.

Curing the crude rubber

Attempts to make this soft, sticky gum stay firm and strong—to give it toughness, elasticity and resiliency—finally succeeded in 1839, because of the persistency of Charles Goodyear. Now you can wear waterproof clothing even on the hottest and the coldest days. The curing process is known as vulcanization. The raw rubber is heated and combined with sulphur. At the same time other materials are added to improve further the quality of the rubber. Among them are litharge, basic lead sulphate, and white-lead, all three obtained from the metal, lead.

Lead is used in rubber to obtain a uniform cure and great toughness. Today more than 19,000,000 pounds of lead are used annually by the rubber industry, and yet this tremendous quantity is only

a small percentage of the billion pounds of lead used in various industries in a year.

From water buckets to fire hose

Lead in rubber fire hose helps to protect your life and property from fire. The old bucket brigade and the fireman in his red flannel shirt are no more. The modern



This man is calling upon the lead in his overshoes and coat to help protect him from the rain

fire-fighter wears lead in his rubber coat and boots and hard rubber helmet.

After a ride in an automobile, in whose pneumatic tires there is lead, you enter your home to find there, too, rubber articles containing lead. You walk on it in your rubber bath mat, wear it in a rubber apron, and use it in rubber jar rings, and hot water bottles. Lead is in hard and soft rubber electric insulation, hard rubber combs and pipe stems.

Throughout the country lead in rubber belting is helping to speed up industry. It is in conveyors which carry millions of tons of ore, coal, grain, sugar and other articles through mines, mills and warehouses.

Lead's most general use

NO matter to what extent lead is used by the rubber industry, its most nearly universal use is as paint. On every

hand you see houses covered with white-lead and metal structures protected from rust with red-lead.

Ask a professional painter what gives the greatest protection to surfaces such as wood. He

will tell you pure white-lead mixed with pure linseed oil. He has probably been using it for years for exterior painting.

Property owners are today cutting down repair costs and protecting their investments by more careful adherence to the watchword, "Save the surface and you save all." How do they do it? By covering the surface thoroughly with white-lead paint.

Producers of lead products

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UNITED STATES CARTRIDGE COMPANY

American Rifleman
109, 110, 111, 112, 113, 114, 115,
116, 117, 118, 119, 120, 121, 122,
123, 124, 125, 126, 127, 128, 129.

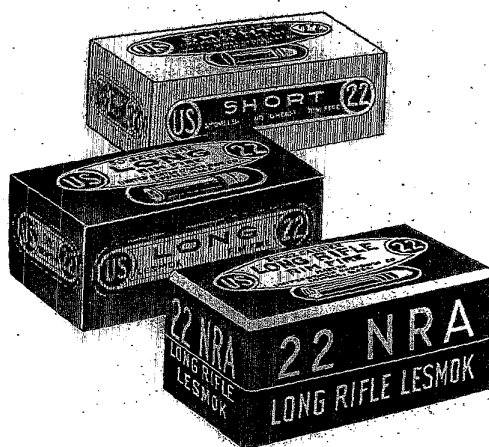
Forest and Stream
132, 133, 134.

Outdoor America
130

Outdoor Life
131, 132, 133, 134

Outdoor Recreation
133

Outers Recreation
132, 134



The end of barrel rust and pitting

MANY a rifle is "shot out" in less than five thousand rounds because of barrel rust and consequent pitting induced by the corrosive priming of cartridges. Such a priming leaves a deposit on the bore of a rifle. This deposit readily absorbs moisture which with air, in contact with steel, causes rust. Pitting of the rifling then results and the accuracy of the arm is destroyed.

All US Rim-Fire Cartridges, including .22 Shorts, .22 Longs and the famous .22 N.R.A.'s, are primed with a special non-fouling, non-corrosive priming—a priming that with ordinary care in cleaning makes rusting and pitting things of the past. By shooting US Rim-Fires, you can maintain the accuracy-life of your barrel indefinitely. We have in our possession a rifle through which a quarter million rounds have been fired, and the barrel is still as smooth and as accurate as on the day it was made.

The next time you buy rim-fire ammunition for rifle, revolver or pistol, try US Cartridges—the kind with the perfected priming. You will be pleased with their accuracy, uniformity and cleanliness.

We have some very interesting exhibits showing the results of tests with our non-rusting, non-pitting priming. We shall be glad to send this information on request.

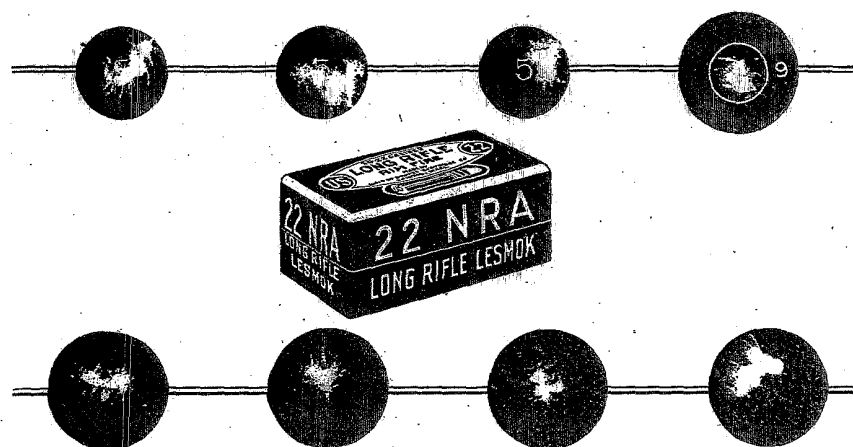
UNITED STATES CARTRIDGE COMPANY

111 Broadway

New York, N. Y.

FROM THE AMERICAN RIFLEMAN, JAN. 1, 1924.

0000-NLI-000017203



Eight Close Groups at 50 Feet

These remarkably close and uniform groups were shot at 50 feet by Mr. Hervey Lovell, of Indianapolis, Indiana, who used the US .22 N. R. A. in a Peterson-Ballard rifle.

Each group consists of five shots with the exception of the second one from the left in the top row. This is a ten-shot group, making 45 shots in the "bull" all told.

Shooters have found that the US .22 N. R. A. "squeezes 'em in closer."

Use the US .22 N. R. A.—the cartridge with the special priming which insures uniform ignition, making one shot perform like another—no "fliers", no misfires. This priming also gives longer accuracy life to your barrel because it is non-fouling and non-erosive.

We have a circular, entitled "Your Rifle—Be Good to It", which contains heaps of good information for the small-bore shooter. Write for your copy today.

UNITED STATES CARTRIDGE CO.

111 Broadway

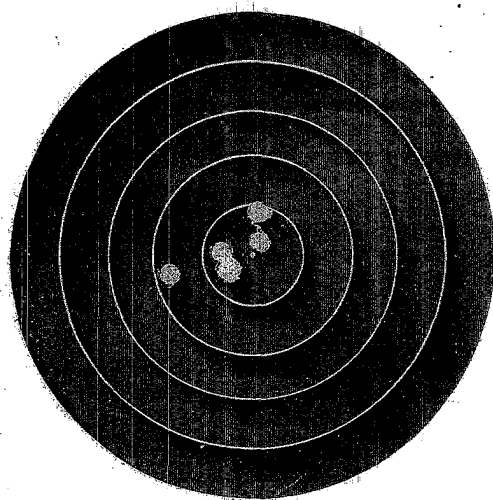
New York, N. Y.



.22 N.R.A.
Long Rifle Cartridges

FROM THE AMERICAN RIFLEMAN, ^{January 15, 1924} FEBRUARY 1, 1924

0000-NLI-000017204



A Clean Sweep to Date

THE 1924 program of the Metropolitan Rifle League calls for eight Re-Entry Matches on the Pope four-tenths inch ring target at 100 yards. Three of these matches have been held to date at the 47th Regiment Armory, Brooklyn, N. Y., and all three have been won by shooters using the US .22 N. R. A.

The first match of the series was won by Joseph Martin, of the Manhattan (N. Y.) Rifle Club who scored 24x25 on January 19. Mr. Martin's target is reproduced above. Pope barrel used.

The second match on January 6 and the third match on February 2 were won by John Wallace Gillies, of the Roosevelt (N. Y.) Rifle

Club. Mr. Gillies turned in a score of 22x25 on both occasions. Peterson barrel used.

This gives the US .22 N. R. A. a clean sweep to date.

It was this sure-shooting .22 which helped J. Hilborn, of the Seneca (N. Y.) Rifle Club, to register the highest score made during the 1923 Re-Entry Matches of the Metropolitan Rifle League. Mr. Hilborn shot a perfect score of 25x25 using a .22 Springfield.

Shooters find that the US .22 N. R. A. is accurate and uniform year after year. And don't forget that this famous .22 lengthens the life of your barrel because it is primed with a special mixture which is virtually non-fouling and non-erosive.

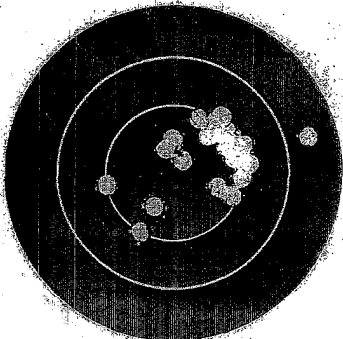
UNITED STATES CARTRIDGE CO.

111 Broadway

New York, N. Y.



.22 N.R.A.
Long Rifle Cartridges



**A "Double-Header"
in World's Records**

Two world's records were broken by members of the Springfield (Mass.) Revolver Club during the U.S. R.A. Pistol Matches, held at Springfield, Mass., on February 4, 6 and 7, 1924.

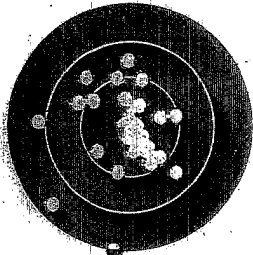
Dr. I. R. Calkins smashed his 1923 individual record score of 247 with the wonderful score of 248 x 250 — 2 points within a "possible". Also the team broke its 1923 record of 1202 with the score of 1203. The individual members of the team scored as follows: Dr. I. R. Calkins, 248; C. A. Price, 244; Dr. W. B. Russell, 242; P. F. Dolfen, 236; G. W. Rice, 233.

Composite targets of the new world's records are reproduced above. The targets shot last year are shown below.

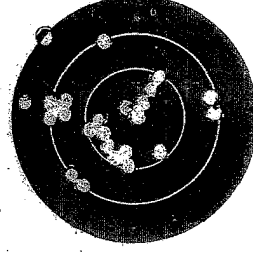
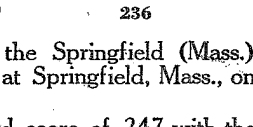
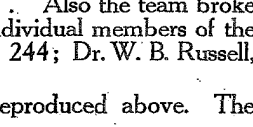
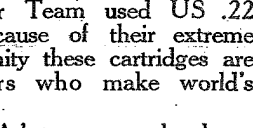
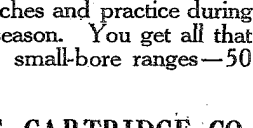
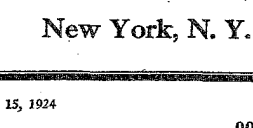
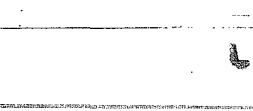
Throughout the matches the Springfield Revolver Team used US .22 N.R.A. cartridges in S&W 10-inch target pistols. Because of their extreme accuracy and uniformity these cartridges are selected by shooters who make world's records.

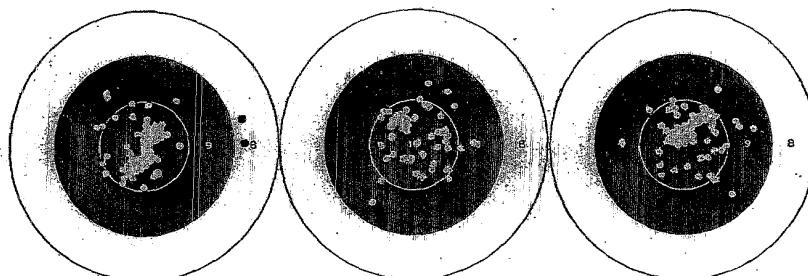
Add US .22 N.R.A.'s to your regular shooting equipment for matches and practice during the coming outdoor season. You get all that you "hold for", at all small-bore ranges — 50 feet or 200 yards.

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111 Broadway New York, N. Y.





Composite of five 10-shot targets, made by W. J. Coons in winning second place in Metropolitan Championship.

Composite of five 10-shot targets, made by J. W. Gillies in winning the Metropolitan Championship.

Composite of five 10-shot targets, made by Paul Landrock in winning third place in Metropolitan Championship.

A Wholesale Clean-Up

At the Metropolitan Rifle League Matches just concluded, the US .22 N. R. A. established a record of wins which will stand for many a day. This sure-shooting .22 literally "swept the boards," winning every one of the ten matches and forty out of the fifty prize-positions. Moreover, of the thirty-five possibles registered, twenty-six were made by shooters using the US .22 N. R. A.

CHAMPIONSHIP MATCH

100 Yds.—Standard N. R. A. Target

Won by J. W. Gillies, Manhattan and Roosevelt (N.Y.) Rifle Clubs, shooting a Peterson-Ballard rifle with Fecker Scope. Score 495 x 500.

First seven places and eighteen of the twenty-five prize-positions were won with the US .22 N. R. A.

The US .22 N. R. A. has won this match three years hand-running. 1923 Score: 494 x 500—L. J. Coors, Manhattan Rifle Club. 1922 Score: 493 x 500—E. B. Rice, Mahwah (N. J.) Rifle Club.

RE-ENTRY MATCHES

100 Yards—Pope Target (4/10" Ring)

Match	Winner	Club	Score
1.	Joseph Martin	Manhattan Rifle Club	24
2.	(tied)	J. W. Gillies, Manhattan and Roosevelt Rifle Clubs	22
	H. J. Mann	Fort Slocum, N. Y.	22
3.	J. W. Gillies	Roosevelt Rifle Club	22
4.	J. W. Gillies	Roosevelt Rifle Club	22
5.	George Demeter	Yonkers Rifle Club	25
6.	E. B. Rice	Mahwah (N. J.) Rifle Cl.	24
7.	Paul Landrock	Manhattan Rifle Club	25

HANDICAP MATCH

100 Yds.—Standard N. R. A. Target

Also won by J. W. Gillies. Handicap 6. Score 1000.

First six places and fourteen of the seventeen prize-positions won with the US .22 N. R. A.

In this match, Joseph Martin, Manhattan Rifle Club, the highest scratch man, shooting a Pope Barrel rifle with Fecker Scope, scored five "possibles" and five 99's, winning fourth place.

Indoor one-hundred-yard shooting is the "acid test" for accuracy. Look at the targets reproduced herewith. Is there any question of the extreme accuracy of the US .22 N. R. A.?

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US .22 N.R.A.
Long Rifle Cartridges

Possibles Made During Championship Match

1. J. W. Gillies (2)
2. L. T. Everett (2)
3. C. H. Johnson
4. Leo Manville
5. Paul Landrock
6. W. J. Coons

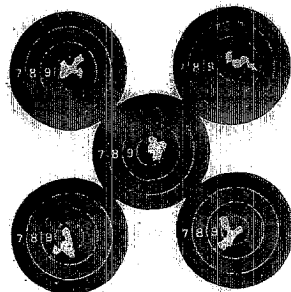
Possibles Made During Re-Entry Matches

7. George Demeter
 8. Paul Landrock
- The group shot by George Demeter is one of the smallest ever made at 100 yards. The actual group is no bigger than a dime.

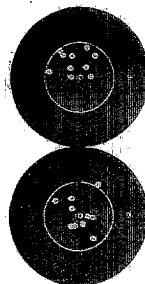
Possibles Made During Handicap Match

9. James Murray
10. Leo Manville
11. Marshall Murray
12. Paul Landrock (2)
13. J. W. Gillies (4)
14. Joseph Martin (5)

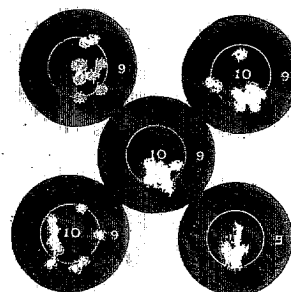
At 25 Yards

Five "possibles" shot by W. W. Embley,
Trenton (N. J.) Rifle
Club

At 100 Yards

Two "possibles" shot by "Jimmy"
Hilborn, Seneca (N. Y.)
Rifle Club

At 50 Yards

Five "possibles" shot by J. W. Gillies (upper
three), A. L. Smith (lower right),
W. Knight (lower left)

The All-Range .22

The idea prevailed at one time that a cartridge which did accurate work at long distances was not suitable for short-range shooting. The claim was made that a long-range cartridge did not stabilize itself or steady down until it had traveled beyond the usual short-range distances.

With the advent of the US .22 N.R.A., this idea was completely exploded. Because of its extremely accurate performance at short-range, mid-range as well as long-range, the US .22 N.R.A. has come to be known as the all-range .22. Look at the targets reproduced above. These were shot at the shorter distances.

Not only is the US .22 N.R.A. an all-range small-bore cartridge, but it is an all-arms cartridge. It shoots with unfailing accuracy in rifle, pistol or revolver—indoors or outdoors.

We have just issued a booklet, "The Answer is in the Bull's Eye", which contains some illuminating information about small-bore shooting. Write for your copy.

UNITED STATES CARTRIDGE COMPANY

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New York, N. Y.

US .22 N.R.A.
Long Rifle Cartridges



The Answer is in the Bull's-Eye

Is the .22 N. R. A. a short-range and a mid-range cartridge as well as a long-range cartridge? How does it perform indoors and outdoors? Does it show up well in machine-rest tests? Is it accurate in pistol and revolver work? What are its ballistics? What records does it hold?

These and many other questions about the U. S. .22 N. R. A. are answered in an interesting booklet just off the press. There is a copy for you. Just write for "The Answer is in the Bull's-Eye."

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US *.22 N.R.A.*
Long Rifle Cartridges

Olympic Small-Bore Team To Shoot US .22 N. R. A.



Its extreme accuracy and uniformity have gained for the US .22 N. R. A. another signal honor. This sure-shooting .22 is to be used by the rifle team that will represent the United States in the Olympic and International small-bore matches to be held in France.

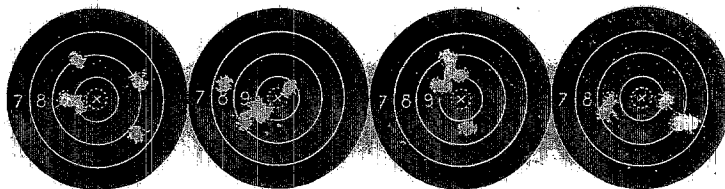
The honor of being chosen for the matches abroad was bestowed upon the US .22 N. R. A. because of its remarkable showing in the competitive tests conducted at the Springfield Arsenal. The US .22 N. R. A. excelled all makes in accuracy and uniformity. The range was fifty meters and every shot fired with the US .22 N. R. A. hit within a one-inch circle.

The US .22 N. R. A. welcomes competitive tests. Make such a test yourself. Prove to your own satisfaction that the US .22 N. R. A. will improve your scores whether you shoot at fifty feet, two hundred yards or any intermediate distance.

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Twenty shots, off-hand, twenty-five yards. Shot with the US .22 N. R. A. by Colonel C. E. Stodier, U. S. A., Director of Civilian Marksmanship and Captain of United States Small-Bore Rifle Team

Lengthening the Accuracy-Life of Your Rifle

MANY a rifle is "shot out" in less than five thousand rounds because of barrel rust and consequent pitting induced by the corrosive priming of cartridges. Such a priming leaves a deposit on the bore of a rifle. This deposit readily absorbs moisture which with air, in contact with steel, causes rust. Pitting of the rifling then results and the accuracy of the arm is destroyed.

All US Rim-Fire Cartridges, including .22 Shorts, .22 Longs and the famous .22 N. R. A.'s, are primed with a special non-fouling, non-corrosive priming—a priming that with ordinary care in cleaning makes rusting and pitting things of the past. By shooting US Rim-Fires, you can maintain the accuracy-life of your barrel indefinitely. We have in our possession a rifle through which a quarter million rounds have been fired, and the barrel is still smooth and accurate.

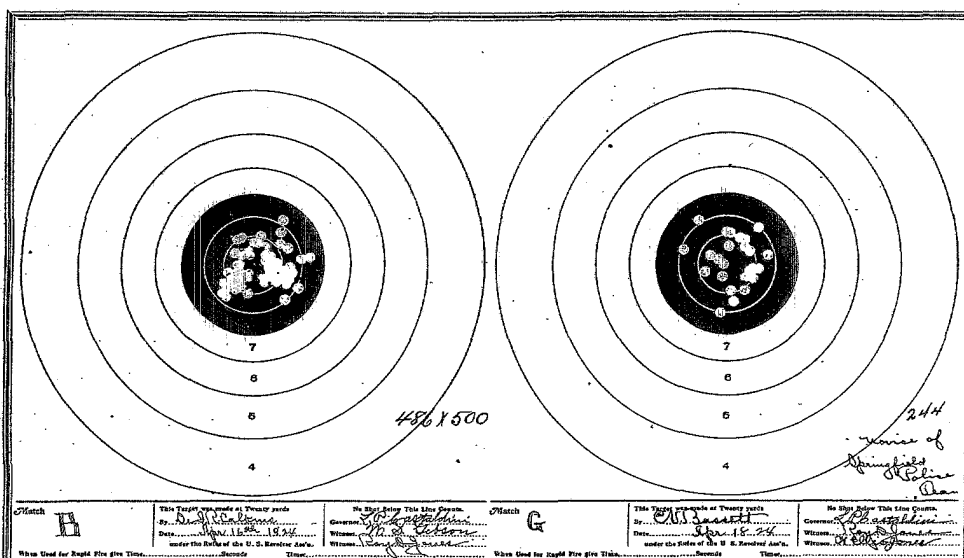
The next time you buy rim-fire ammunition for rifle, revolver or pistol, try US Cartridges—the kind with the perfected priming. You will be pleased with their accuracy, uniformity and cleanliness.

We have some very interesting exhibits showing the results of tests with our non-rusting, non-pitting priming. We shall be glad to send this information on request.

UNITED STATES CARTRIDGE COMPANY
111 Broadway New York, N. Y.



Ten shots, prone, at twenty-five yards. Also shot by Colonel Stodier. You can "squeeze 'em in close" with the US .22 N. R. A.



Another Pair of World's Records

During the recent championship matches of the United States Revolver Association, Dr. I. R. Calkins of the Springfield (Mass.) Revolver Club won the Class B Individual Championship by scoring 486 x 500. This score broke by three points the old indoor individual record for fifty shots and established a new world's record.

Another world's record was set during the same championship matches when C. V. Bassett, a member of the Springfield (Mass.) Police Department, won the Class G Novice Championship. Shooting in a championship match for the first time, Officer Bassett scored 244 x 250 which is within four points of the world's expert record for twenty-five shots.

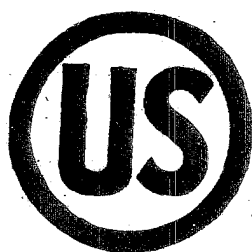
Both Dr. Calkins and Officer Bassett have been presented with world's record certificates signed by President Sayre of the United States Revolver Association.

Both men shot the US .22 N. R. A.

UNITED STATES CARTRIDGE CO.

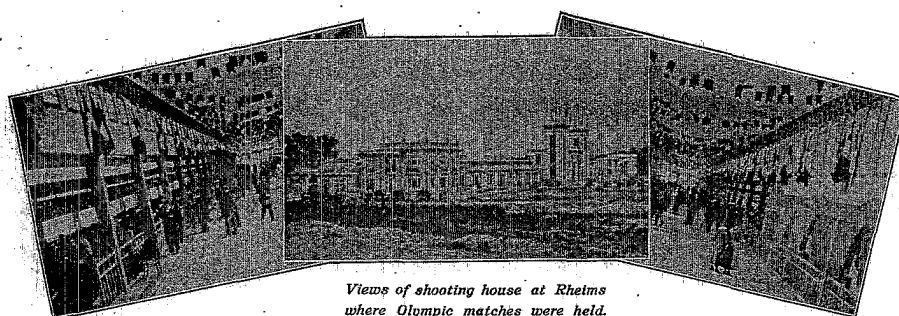
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.22 N.R.A.
Long Rifle Cartridges

Reprinted from the July 1 issue of "The American Rifleman." 1924



*Views of shooting house at Rheims
where Olympic matches were held.*

PISTOL MATCHES

Not only did the US .22 N. R. A. make a clean sweep of the small-bore rifle matches but this super-accurate .22 was used by the winners of the first six places in the Olympic rapid-fire pistol match.

In addition, Signor Aranz of Argentina, who used the US .22 N. R. A., was the winner of the individual pistol championship of the world with his score of 533, until it was reduced ten points on a claim that he had put one "bull" on the Swiss target. This changed the standing giving the US .22 N. R. A. second

and third places with scores of 527 by P. Van Asbrock of Belgium and M. Therman of Denmark, respectively.

Twenty scores of 500 or over were made in the foregoing pistol match. Ten of these scores were shot with the US .22 N. R. A.—as many as were made by all other makes combined.

The US .22 N. R. A. also scored heavily in the team pistol championship. Of the thirty-five pistol experts on the first seven five-man teams, twenty-five used this famous .22 ammunition exclusively.

A genuine clean-up of the Olympic small-bore rifle matches, topped off with a splendid showing in the pistol matches, places the US .22 N. R. A. still further in the lead as the world's champion .22 long-rifle cartridge. Both here and abroad it is the outstanding favorite of expert riflemen and pistol-shots.

The showing of the US .22 N. R. A. at the Olympics should help you to decide what ammunition to use at the coming national matches. Be among the leaders at Camp Perry by shooting the US .22 N. R. A.



UNITED STATES CARTRIDGE CO.

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New York, N. Y.

US .22 N.R.A. Makes Clean Sweep

of

Olympic Small-bore Rifle Championships

TO its already long list of important wins, the US .22 N.R.A. has added the Olympic miniature (.22 calibre) rifle championships—the highest honors of the 1924 shooting season. Competing against the ammunition of the world, this famous American-made .22 swept the boards; winning all three world's championship events and establishing one world's mark which will stand for many a day.

OLYMPIC SMALL-BORE CHAMPIONSHIP (.22 rifle—50 meters)

In this match, there were seventy competitors representing nineteen nations. It was won by Pierre Coquellin de Lisle of France, whose sensational score of 398 x 400 is a new world's record. Second place went to Private M. W. Dinwiddie, District of Columbia National Guard, with a score of 396 x 400 which stood as a world's mark almost to the end of the match when M. de Lisle registered two perfect one-hundreds and two ninety-nines.

M. de Lisle, the new world's champion, as well as Private Dinwiddie, shot the US .22 N.R.A. as did the next four men, giving the US .22 N.R.A. the first six places as follows:

1. M. de Lisle, France - - 398
2. M. W. Dinwiddie, U. S. A. 396
3. Hartman, Switzerland - - 394

4. Tseslof, Finland - - - 393
5. Knutsson, Sweden - - - 392
6. (Tied) Reich, Switzerland - - - 392

WOMAN'S CHAMPIONSHIP OF WORLD (.22 rifle—50 meters)

Mme. Catherneau of France is the new woman champion of the world. Shooting the US .22 N. R. A., she led all competitors by running up a score of 193 x 200.

RE-ENTRY MATCHES (.22 rifle—50 meters)

The first three places in these matches were won by shooters using the US .22 N. R. A. Scoring was on the basis of the greatest number of possibles of four shots each. The final ranking follows:

1. M.W. Dinwiddie, U.S.A. 87 possibles
2. J. B. Grier, U. S. A. 65 possibles
3. Mos Miard, France 50 possibles



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REPRINTED FROM THE AMERICAN RIFLEMAN,

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Champion of the World

When the foremost marksmen in all the world select the US .22 N.R.A. for the Olympic small-bore rifle and pistol matches and when not only the winners of these matches but each runner-up uses the US .22 N. R. A. as shown below

has not this sure-shooting .22 long rifle cartridge earned the title "Champion of the World?"

Olympic Small-Bore Championship

Won by Pierre Coquelin de Lisle, France	398x400	Fourth: Tseslof, Finland	393x400
Second: M. W. Dinwiddie, U. S. A.	396x400	Fifth: Knutsson, Sweden	392x400
Third: Hartmann, Switzerland	394x400	Sixth: Reich, Switzerland (Tied)	392x400

Lady Championship de Tir

Won by Mme. Cathernau, France	193 x 200
Second: Mme. Johnson, France	191 x 200

Series Illimètes (Re-Entry)

[Four shots on each target]

Won by M. W. Dinwiddie, U. S. A.	87 possibles
Second: J. B. Grier, U. S. A.	65 possibles
Third: Mos Miard, France	50 possibles

Olympic (Rapid Fire) Pistol Match

Won by Bailey,	U. S. M. C.	Fifth: Osinalde,	Argentina
Second: Carlburg,	Sweden	Sixth: Libern,	Norway
Third: Hamlins,	Finland	(tied) Sarlin,	Finland
Fourth: Amaya,	Argentina	Castelbajac,	France

US .22 N.R.A.
Long Rifle Cartridges

Two World's Records for US .22 N.R.A. At Eastern Small-Bore Matches

The cartridge which was used by the winners of all the Olympic Small-Bore Championships has added two more world's records to its credit. Both records were made during the Third Annual Eastern Small-Bore Championship Matches held recently at the Sea Girt (N. J.) Rifle Range.

Mr. J. M. Hilborn, of the Roosevelt Rifle Club, New York, N. Y., established one of the new marks during the Eastern Small-Bore Team Match when he scored 249 x 250 as follows:

50 yards	-	-	100-7V's
100 yards	-	-	99-3V's
200 yards	-	-	50-6V's

The other world's record was shot by Capt. G. L. Wotkyns, U. S. A., of the National Capitol Rifle Club, who made 35V's in shooting a perfect score of 225 x 225 during the Palma Small-Bore Team Match.

Shooters using the US .22 N.R.A. also registered the following impressive string of wins at the Eastern Small-Bore Matches:

Small-Bore Spencer Match

Won by J. M. Hilborn, Roosevelt Rifle Club - 99 x 100.

Eastern Small-Bore Team Match

Won by National Capitol Rifle Club. Half of team used the US .22 N.R.A.

Long-Range Individual Match

Won by L. C. Roujon, Arlington (N. J.) Rifle Club - 99 x 100.

50-Yard Re-Entry Match

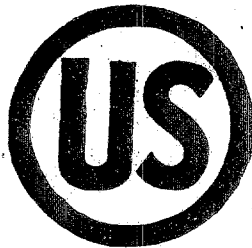
Won by Capt H. H. Leizear, National Capitol Rifle Club, 300x300 (23V's)

100-Yard Re-Entry Match

Won by Capt. H. H. Leizear, National Capitol Rifle Club, 300x300 (11V's)

200-Yard Re-Entry Match

J. W. Gillies, Roosevelt Rifle Club tied first place. Won aggregate with best 10 targets.



.22 N.R.A.
Long Rifle Cartridges



MARCUS W. DINWIDDIE

A Record-Smasher at 17

A seventeen-year-old American boy — none other than Private Marcus W. Dinwiddie of the District of Columbia National Guard — was one of the outstanding stars of the 1924 Olympic and International Matches.

Private Dinwiddie not only won the "Series Illimites" (unlimited re-entry) but finished second in the Olympic Small-Bore Championship.

In the "Series Illimites," young Dinwiddie scored 619 10's, 147 9's, five 8's and one 7. He fired 772 shots (193 4-shot strings) making 87 possibles.

Such a performance is nothing short of phenomenal when it is considered that the match was at 50 meters and on the international target with a two-inch 10-ring and with 7, 8, 9 and 10 in the black.

In the Olympic Small-Bore Championship, Private Dinwiddie shattered the world's record by scoring 396x400 only to lose at the last moment to M. Pierre Coquellin de Lisle of France, who scored 398x400.

Like M. de Lisle and all other Olympic winners, Private Dinwiddie used the US .22 N. R. A.

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.22 N.R.A.
Long Rifle Cartridges

"Demeter Got 'em All"

In these words some one at the Sea Girt Small-Bore Matches summed up the achievement of George Demeter of the Yonkers (N. Y.) Rifle Club when he equalled a world's record by registering a perfect score of 225 in the Dryden Match. The expression became the watchword of the Labor Day meeting. In admiration of his splendid shooting, Mr. Demeter was greeted all along the line with "Demeter Got 'em All!"

The Dryden Match consists of three fifteen-shot targets fired respectively at 150, 175 and 200 yards. Mr. Demeter used the US .22 N.R.A., demonstrating once again that this world-famous long-rifle cartridge shoots with unerring accuracy at all small-bore distances.

As further evidence of its sure-shooting qualities, it might be added that no less than three of the six individual, squadded, single-entry matches at the Sea Girt shoot were won by marksmen using the .22 N. R. A. "Demeter Got 'em All" in the Dryden Match, Walter Kelsey of the Roosevelt (N. Y.) Rifle Club won the Small-Bore Long-Range Match of twenty shots at 200 yards with a score of 99 x 100, and Paul G. Peter of the Bear Rock Rifle Club, New Tripoli, Pa., led with 98 x 100 in the N. R. A. Small-Bore Match of ten shots at 100 yards.

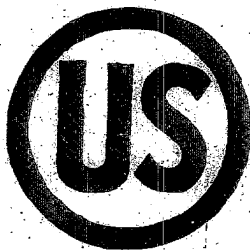
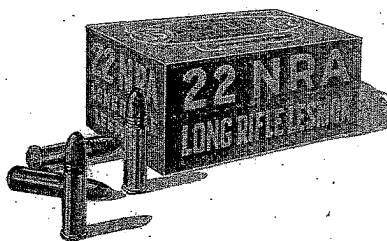
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New York, N. Y.



GEORGE DEMETER



.22 N.R.A.
Long Rifle Cartridges

Our Hats Are Off to Mr. McGarity

Sets World's Record; Hits Bull's Eye 120 Times

CAMP PERRY, Ohio, Wednesday.—R.
H. McGarity, Washington, D. C., civil-
ian, established a new world's record
late yesterday when he ran up a string
of 120 consecutive bull's eyes on the
200-yard small-bore range with a .22-
calibre rifle at prone position in re-entry
match.
The previous world's record is said to
have been thirty-six consecutive bull's
eyes.

Remarkable Shooting!

We pause in our series of great scores
made with our own US .22 N. R. A. to
pay tribute to Mr. McGarity and the
Remington ammunition he used.

UNITED STATES CARTRIDGE CO.

111 Broadway

New York, N. Y.

SMALL BORE WIMBLEDON MATCH

Slow Fire. 20 shots at 200 yards.

H. M. Van Sleen took second place. Score:
99 x 100 (14 V's).

SHORT RANGE TEAM MATCH

Teams of six men. 50, 100, 200 yards. 20 shots each range.

Won by Illinois Civilian Team, four men shooting
US .22 N. R. A. Score: 2323.

INTER-CLUB MID-RANGE MATCH

Teams of four men. 20 shots at 150 yards.

Won by National Capital Rifle Club, one man
using US .22 N.R.A. Score: 392. Second: Balboa
Rifle Club. (All US .22 N. R. A.) Score: 389.

TWO MAN TEAM MATCH

Slow Fire. 100 and 200 yards. 20 shots each range.

Won by C. H. Johnson and T. G. Lively. Score: 582.

SMALL BORE GRAND AGGREGATE

Total of scores in Wimbledon, Individual Short.

Range and N. R. A. National Individual
Matches. Three out of top four places
as follows:

2nd	H. M. Van Sleen	733
3rd	Gy. Sgt. O. M. Shriver	733
4th	L. M. Felt	731

**U. S. TROPHY**

Won by Gy. Sgt. O. M. Shriver, U. S. M. C.,
whose score of 396 in U. S. Trophy Match
broke record.

EAST AND WEST MATCH

Teams of eight men. 150, 175, 200 yards.

15 Shots Each Range

Won by West team. Of the four men
who shot US .22 N. R. A., three used
new Springfield .22 rifle. Lt. G. W.
Trichell and L. A. White were high
men with score of 222. Both used
US .22 N. R. A.

This impressive list of wins and high scores at Camp Perry is an eloquent
testimonial to the accuracy and uniformity of the US .22 N. R. A., but the
record would be incomplete without a reference to the showing made in the
pistol and revolver matches. In these matches, shooters using US ammunition won
first place in nearly every case where other than the Government make was allowed.

UNITED STATES CARTRIDGE CO.

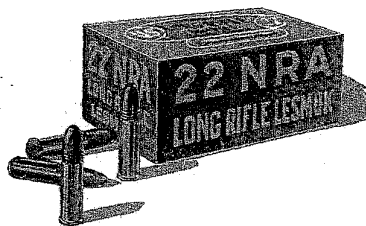
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New York, N. Y.



.22 N.R.A.
Long Rifle Cartridges

Dewar Course Record Broken Twice at Perry



TWICE within a week during the 1924 National Matches at Camp Perry, Gy. Sgt. O. M. Shriver, U. S. M. C., broke the world's record for the Dewar course (20 shots at 50 yards and 20 shots at 100 yards). He shot 396 x 400 in the U. S. Trophy Match bettering the old mark by one point. Then he added another point to the record by scoring 397 x 400 in the International Small Bore Team Match, in which he was high man.

As a result of Sgt. Shriver's record-breaking performance, the US .22 N.R.A. is credited with still another world's mark, for Shriver used this sure-shooting ammunition in both matches. In practically all of the national small-bore matches, shooters using the US .22 N. R. A. finished well up to the fore. The complete list of wins and high scores with the US .22 N. R. A. follows:

US TROPHY MATCH

Dewar Course—20 shots, 50 yards; 20 shots, 100 yards

Won by Gy. Sgt. O. M. Shriver, U. S. M. C., who broke world's record. Score: 396.

INTERNATIONAL SMALL BORE TEAM MATCH
Dewar Course: Teams, 20 men; 20 shots per man each range.

Won by United States team, eight men shooting US .22 N. R. A. Gy. Sgt. O. M. Shriver was high man, scoring 397 x 400 and again breaking world's record.

50 YARD ANY SIGHT MATCH

Limited Re-entry. 10 shots at 50 yards.

L. M. Felt, Chicago civilian, tied for first place with perfect score of 300 (aggregate best three targets).

100 YARD ANY SIGHT MATCH

Limited Re-entry. 10 Shots at 100 yards.

Aggregate Best Three Targets

Won by H. M. Van Sleen, North Carolina Civilian Team. Score: 299.

Aggregate Best Ten Targets

Four out of top five positions as follows:

2nd	H. M. Van Sleen	976
3rd	Capt. H. H. Leizear	974
4th	C. H. Johnson	973
5th	C. E. Nordhus	973

SMALL BORE SWISS MATCH

Unlimited Re-entry. Miss and out at 200 yards.

F. C. Kimmel took second place. 35 straight bull's-eyes.

Another Big List of Wins for US Ammunition



Shooters using US .22 N.R.A. long rifle cartridges not only won a large share of the prizes in the small bore rifle matches at Camp Perry, but in the pistol and revolver competitions US ammunition practically swept the boards. In nearly every pistol and revolver match where other than Government ammunition was used, first place as well as a majority of the other prize positions, as shown below, went to marksmen who shot either US .22 N. R. A.'s or US cartridges of larger caliber.

.22 Caliber Slow Fire Re-entry Match

SIX OF FIRST SEVEN PLACES

1st	Lieut. W. J. Whaling,	U. S. M. C.	472
2nd	Gy. Sgt. J. M. Thomas,	U. S. M. C.	470
4th	Gy. Sgt. H. M. Bailey,	U. S. M. C.	464
5th	Sgt. E. J. Neitke,	U. S. M. C.	463
6th	Corp. Warner Brown,	U. S. T. C.	457
7th	M. A. Zovadsky		445

Free Pistol Match (Any Ammunition)

1st	Lieut. S. R. Hinds,	U. S. Inf.	98
2nd	Lieut. W. J. Whaling,	U. S. M. C.	95
3rd	Sgt. Nolan Tillman,	U. S. M. C.	94

.38 or Larger Caliber Slow Fire Match

FIRST PLACE

Won by	Lieut. S. R. Hinds,	U. S. Inf.	176
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.22 Caliber Slow Fire Match

1st	Dr. J. L. Basty, Boston		187
2nd	Lieut. S. R. Hinds,	U. S. Inf.	186
3rd	Lieut. W. J. Whaling,	U. S. M. C.	182

.38 or Larger Caliber Slow Fire Re-entry Match

FIRST THREE PLACES

1st	Gy. Sgt. J. M. Thomas,	U. S. M. C.	455
2nd	Capt. Herman Thomas,	U. S. R. C.	454
3rd	Sgt. Bernard Betke,	U. S. M. C.	452

.22 Caliber Team Match

Won by	U. S. Marine Corp.		881
The U. S. Infantry Team, which won third place in this match, also used US .22 N. R. A.'s.			

The national matches at Camp Perry formed one of the two major shooting events of the year. The other big event was the international and Olympic matches in France. In both cases, shooters using US ammunition won many of the honors. Could anyone ask for a more convincing demonstration of the accuracy and uniformity of cartridges bearing the US trademark?

UNITED STATES CARTRIDGE CO.

111 Broadway

New York, N. Y.

Another Big List of Wins for US Ammunition



Shooters using US .22 N.R.A. long rifle cartridges not only won a large share of the prizes in the small bore rifle matches at Camp Perry, but in the pistol and revolver competitions US ammunition practically swept the boards. In nearly every pistol and revolver match where other than Government ammunition was used, first place as well as a majority of the other prize positions, as shown below, went to marksmen who shot either US .22 N. R. A.'s or US cartridges of larger caliber.

Six of First Seven Places

.22 CALIBER SLOW FIRE RE-ENTRY MATCH

1st	Lieut. W. J. Whaling,	U. S. M. C.	472
2nd	Gy. Sgt. J. M. Thomas,	U. S. M. C.	470
4th	Gy. Sgt. H. M. Bailey,	U. S. M. C.	464
5th	Sgt. E. J. Neitke,	U. S. M. C.	463
6th	Corp. Warner Brown,	U. S. T. C.	457
7th	M. A. Zovadsky		445

First Place

.38 OR LARGER CALIBER SLOW FIRE MATCH

Won by	Lieut. S. R. Hinds,	U. S. Inf.	176
--------	---------------------	------------	-----

.22 CALIBER TEAM MATCH

Won by	U. S. Marine Corps	881
The U. S. Infantry Team, which won third place in this match, also used US .22 N. R. A.'s.		

First Three Places

.38 OR LARGER CALIBER SLOW FIRE RE-ENTRY MATCH

1st	Gy. Sgt. J. M. Thomas,	U. S. M. C.	455
2nd	Capt. Herman Thomas,	U. S. R. C.	454
3rd	Sgt. Bernard Betke,	U. S. M. C.	452

.22 CALIBER SLOW FIRE MATCH

1st	Dr. J. L. Basty, Boston	187
2nd	Lieut. S. R. Hinds,	U. S. Inf. 186
3rd	Lieut. W. J. Whaling,	U. S. M. C. 182

FREE PISTOL MATCH

1st	Lieut. S. R. Hinds,	U. S. Inf.	98
2nd	Lieut. W. J. Whaling,	U. S. M. C.	95
3rd	Sgt. Nolan Tillman,	U. S. M. C.	94

The national matches at Camp Perry were one of the two major shooting events of the year. The other big event was the international and Olympic matches in France. In both cases, shooters using US ammunition won many of the honors. Could anyone ask for a more convincing demonstration of the accuracy and uniformity of cartridges bearing the US trademark?

UNITED STATES CARTRIDGE CO.

111 Broadway

New York, N. Y.

The Olympic Small-Bore Champion

M. Pierre Coquellin de Lisle, of France, is the proud possessor of the coveted title, "Olympic Small-Bore Champion." He earned this distinction at the 1924 Olympic matches by outshooting the leading marksmen of nineteen nations.

In winning the Olympic Small-Bore Championship, M. de Lisle established a new world's mark of 398x400. His first two targets were perfect 100's. Then he followed with two 99's.

To drop but two points in forty shots at fifty meters offhand is remarkable shooting. It is a fine testimonial to M. de Lisle's skill as a marksman and also to the extreme accuracy and uniformity of the ammunition used—US .22 N. R. A. long-rifle cartridges.

UNITED STATES CARTRIDGE CO.
111 Broadway New York, N. Y.

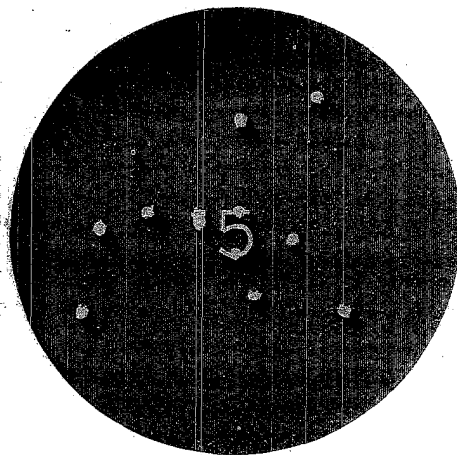
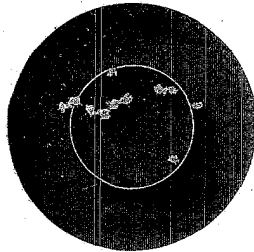
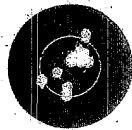


PIERRE COQUELLIN DE LISLE

US .22 N. R. A. long-rifle cartridges are loaded with Lesmok powder and can be had with either solid bullet for range use or hollow-point bullet for field use. The hollow-point style is unusually effective for all small game up to and including woodchucks.

US .22 N.R.A.
Long Rifle Cartridges

And more than half were V's



His rifle cracked thirty times—ten at 50 yards, ten at 100 yards, ten at 200 yards.

When scores were announced, Mr. Jerry M. Hilborn of the Roosevelt Club of New York found himself possessed of a world's record. At 50 yards, ten shots had pierced the ten ring, at 100 yards nine had done the same and the 200 yard target registered ten all in.

His score was 249. All he could have made was 250. *And more than half his shots dug into the V ring*—that charmed circle not every bullet enters.

This fine shooting occurred at the recent Sea Girt matches during the Eastern Small Bore Team match. And the cartridge used was the US .22 N. R. A.

The record of the US .22 N. R. A. shows that about the only place it feels at home is in the bull's-eye. Of unfailing uniformity, constant accuracy and as dependable at 50 feet as at 200 yards, the performance of this wonder cartridge has made it world-famous.

Specify US .22 N. R. A.'s

If you will specify US .22 N. R. A. when drawing .22 calibre ammunition from the N. R. A., you will get it. Thousands of dealers sell it. If yours doesn't, write us.

UNITED STATES CARTRIDGE COMPANY

111 Broadway

New York, N. Y.

For _____ Issue _____ Date _____ 19____

Proof from

OUTDOOR AMERICA
536 Lake Shore Drive CHICAGO, ILLINOIS

OWNED AND PUBLISHED BY THE ISAAC WALTON LEAGUE OF AMERICA

Defender of Woods, Waters and Wild Life

If changes are desired proof must be returned by _____ 19____

\$2000 worth of prizes!

Win a fine shotgun or a case of Climax shells



Shooters Prefer These Climax Loads

Powder	Dr.	Gr.	Shot (Ounces)	Shot Sizes
2 3/4	22		12 Gauge 2 3/4" Shell	Drop: 6, 8, 10 Drop: 4, 5, 6, 7, 8, 9, 10 Chilled: 6, 7 1/2, 8, 9
3	24		1 1/2	Chilled: 7 1/2
3 1/4	24		1 1/4	(Drop: 4, 5, 6 Chilled: 4, 5, 6, 7 1/2
3 1/2	26		1 1/4	Chilled: 2, 4, 5, 6, 7 1/2
3 3/4	28		1 1/4	
2 1/2	20		16 Gauge 2 1/2" Shell	(Drop: 6, 7, 8, 9, 10 Chilled: 6, 7 1/2, 8, 9
2 3/4	24		1	Chilled: 4, 5, 6, 7 1/2
2 3/4	18		20 Gauge 2 3/4" Shell	(Drop: 6, 7, 8, 9, 10 Chilled: 6, 7 1/2, 8, 9
2 3/4	20		1	Chilled: 2, 4, 5, 6, 7 1/2

*Furnished only in 2 3/4" shell.

Shooter has choice of powders as follows: Bulk powders (loaded in drums); Du Pont, Dead Shot, Hercules E. C. Schuch; Dense powders (loaded in grains) Ballistite, Infallible.

How these Preferred Climax Loads Meet All Shooting Needs

Turkey, Geese, Large Ducks

12 Gauge, 3 1/4 dr. (28 gr.) 1 1/4 oz.
Nos. 4, 5 and 6 Chilled
16 Gauge, 2 3/4 dr. 1 oz.
Nos. 4, 5, 6 and 7 1/2 Chilled
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
Nos. 4, 5, 6 and 7 1/2 Chilled

Rabbits, Squirrels, Doves

12 Gauge, 3 dr. (24 gr.) 1 1/2 oz.
Nos. 4, 6, 7, 7 1/2 and 8 Drop
12 Gauge, 3 dr. (24 gr.) 1 1/2 oz.
Nos. 6 and 8 Chilled
12 Gauge, 3 dr. (24 gr.) 1 oz.
Nos. 4, 6, 7 and 8 Drop
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz.
Nos. 6 and 8 Chilled
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
Nos. 6 and 8 Chilled
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
Nos. 6 and 8 Chilled

Quail, Snipe, Woodcock

Other Ducks, Grouse, Hawks and Crows

12 Gauge, 3 1/4 dr. (28 gr.) 1 1/4 oz.
Nos. 4 and 5 Drop
12 Gauge, 3 1/4 dr. (28 gr.) 1 1/4 oz.
Nos. 4, 6 and 7 1/2 Chilled
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz.
No. 6 Drop
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz.
Nos. 6 and 7 1/2 Chilled
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
No. 6 Drop
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
Nos. 6 and 7 1/2 Chilled
20 Gauge, 2 1/4 dr. (20 gr.) 1 oz.
Nos. 8 and 9 Drop
12 Gauge, 3 dr. (24 gr.) 1 1/2 oz.
Nos. 2 1/2, 8 and 9 Chilled
12 Gauge, 3 dr. (24 gr.) 1 oz.
Nos. 8 and 10 Drop
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz.
Nos. 8, 9 and 10 Drop
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz.
Nos. 8, 9 and 10 Chilled

Many times we have been asked by shooters to pick a list of loads which would meet best all shooting requirements. We find that shooters have already selected such a list themselves, for a particular number of our Climax loads are by far the most popular in point of sales. This preferred group of US Climax loads is listed at the left, together with a table showing how the group covers all shooting needs from big birds to the traps.

Having been chosen by shooters generally, these particular Climax loads are worthy of a name which makes them stand out as a selected, all-star, blue-ribbon group. We are seeking such a name, and are asking you, who helped to pick this group of Climax loads as leaders, to help us pick the name. Moreover, we are making it worth your while.

For the thirty-five most appropriate names submitted we shall award the prizes of shotguns and cases of shot-shells listed below.

The names you suggest should express that this is a group or family of shells, that these shells have merit, and that they have been selected by shooters themselves as the best loads for all shooting needs.

And here are some other pointers that may be helpful. Climax shot-shells chamber and eject easily. They are waterproof. They possess power in abundance. They pattern uniformly and give good penetration. They are wadded with Cork-Tex, insuring a smooth, soft load.

Go over the list of loads and the table carefully. Read the rules of the contest. Then put down every good name that you think of and send it in to us.

Rules of Contest in Detail

1. Name should express: (1) that this is a group or family of shells; (2) that this group or family has merit; (3) that this group or family is a preferred list, selected by shooters themselves.
2. Contest is open to all except employees of United States Cartridge Company.
3. Contestants may submit any number of names.
4. Each name must be on a separate sheet with your name and address below. Type or print to insure legibility.
5. All names must be mailed before midnight of Friday, August 1, 1924.
6. Prizes will be awarded for the thirty-five (35) best names in order of merit. Not more than one prize will be awarded to any one contestant. If two or more contestants submit same prize-winning name, each will receive full prize award.
7. Winners will be announced in October issues of sporting magazines or as soon thereafter as possible.

Prizes; Shotguns and Shells

Here is the list of prizes. The name you submit may win the shotgun of your dreams or a case of the shot-shells you prefer.

- 1st Prize: Parker Gun—straight, half, or full pistol grip. Winner has choice of double-barrel Model XE or single-barrel Model SIB with straight, half, or pistol grip or Monte Carlo stock.
- 2nd Prize: Fox Gun—straight, half, or full pistol grip. Winner has choice of double-barrel Model XE or single-barrel Model K.
- 3rd Prize: L. C. Smith Gun—straight, half, or full pistol grip. Winner has choice of double-barrel EAGLE Model or single-barrel SPECIALTY Model.
- 4th Prize: Ithaca Gun—Winner has choice of double-barrel Model No. 4 with full
- 12th to 15th Prizes: Lever Nitro Special Shotgun.
- 16th to 35th Prizes: Case of 500 Climax shot-shells of gauge and load to be selected by winners from list of preferred Climax loads.

Note: All guns are specially made. Both single and double-barrel types are equipped with automatic ejectors and rubber recoil pads. Double-barrel guns come in 12, 16 or 20 gauge with length of barrel optional according to manufacturers' specifications. Single-barrel guns come in 12-gauge only, but with choice of barrel length according to manufacturers' specifications.

Proof from

For _____ issue

Mailed _____ 1924.

Outdoor Life

OUTDOOR LIFE PUBLISHING CO.
1824 Curtis St., DENVER, COLO.If Changes or Corrections are
Desired Proof Must Be Re-
turned by _____

Date _____ 1924.

Proofs not returned with O.L.
or corrections; insertions
will be made as per order.2401 may
You picked these shells

—now help us name them!

An analysis of our records discloses that certain loads of our Climax grade far outstrip in sales any shells we sell. It appears that shooters, without any urging on our part, have singled out a particular list of loads as meeting best all shooting requirements. These loads therefore constitute a sort of all-star, blue-ribbon group—the popular choice of shooters everywhere—and it is only fitting that these favorites receive a name which makes them stand out from their fellows.

You, along with thousands of other shooters, have picked this group of Climax loads as leaders. You are now asked to help us name this group of shells and we are making it worth your while. For the thirty-five most appropriate names submitted, we will award the prizes of shotguns and shells listed below.

Here is the list of prizes. The name you submit may win the shotgun of your dreams or a case of the shot-shells you prefer.

Shotguns and Shells
are the Prizes

- 1st Prize: Parker Gun in shooting case complete with all accessories. Winner has choice of double-barrel Model BHE or single-barrel Model SB with straight, half, or pistol grip or Monte Carlo stock.
- 2nd Prize: Fox Gun—straight, half, or full pistol grip. Winner has choice of double-barrel Model XE or single-barrel Model K.
- 3rd Prize: L. C. Smith Gun—straight, half, or full pistol grip. Winner has choice of double-barrel EAGLE Model or single-barrel SPECIALTY Model.
- 4th Prize: Ithaca Gun—Winner has choice of double-barrel Model No. 4 with full pistol grip, or single-barrel Model No. 4 with straight or full pistol grip.
- 5th Prize: Baker Gun—Winner has choice of double-barrel or single-barrel PARAGON Model with straight, half, or full pistol grip.
- 6th and 7th Prizes: Savage Repeating Shotgun, Model 1921 D.
- 8th to 12th Prizes: Stevens Model 520 Repeating Shotgun.
- 12th to 15th Prizes: LeFever Nitro Special Shotgun.
- 16th to 35th Prizes: Case of 500 Climax shot-shells of gauge and load to be selected by winners from Climax Game Load List.

NOTE: All guns are specially made. Both single and double-barrel types are equipped with automatic ejectors and rubber recoil pads. Double-barrel guns come in 12, 16 or 20 gauge with length of barrel optional according to manufacturers' specifications. Single-barrel guns come in 12-gauge only, but with choice of barrel length according to manufacturers' specifications.

The Climax Loads
Which Shooters Prefer

Powder		Shot (Ounces)	Shot Sizes
Dr.	Gr.		
2 1/4	22	13 Gauge 2 3/4" Shell	Drop: 6, 8, 10 Chilled: 4, 5, 6, 7, 8, 10
3	24	12 Gauge	Drop: 4, 5, 6, 7, 7 1/2, 8, 9 Chilled: 6, 7 1/2, 8, 9
3	24	1 1/8	Chilled: 6, 7 1/2, 8, 9
3	24	1 1/4	Chilled: 4, 5, 6
3 1/2	26	1 1/8	Drop: 4, 5, 6 Chilled: 4, 5, 6, 7 1/2
3 1/2	28	1 1/4	Chilled: 4, 5, 6
2 1/2	20	16 Gauge 2 3/4" Shell	Drop: 6, 7, 8, 9, 10 Chilled: 6, 7 1/2, 8, 9
2 1/2	24	1 1/8	Chilled: 4, 5, 6, 7 1/2
2 1/2	18	20 Gauge 2 3/4" Shell	Drop: 6, 7, 8, 9, 10 Chilled: 6, 7 1/2, 8, 9
2 1/2	20	1 1/8	Chilled: 4, 5, 6, 7 1/2

*Furnished only in 2 3/4" shell.

Shooter has choice of powders as follows: Bulk powders (loaded in drums); Du Pont, Dead Shot, Hercules, E. C. Schulz; Dense powders (loaded in grains) Ballistite, Infalible.

Contest closes August 1st. But don't wait until the last minute to send in your suggestions. As soon as you think of a good name, put it down and mail it to

United States Cartridge Co.
Contest Department B
111 Broadway New York, N. Y.

Rules of Contest in
Detail

- Name should express: (1) that this is a group or family of shells; (2) that this group or family has merit; (3) that this group or family is a preferred list, selected by shooters themselves.
- Contest is open to all except employees of United States Cartridge Company.
- Contestants may submit any number of names.
- Each name must be on a separate sheet with your name and address below. Typewrite or print to insure legibility.
- All names must be mailed before midnight of Friday, August 1, 1924.
- Prizes will be awarded for the thirty-five (35) best names in order of merit. Not more than one prize will be awarded to any one contestant. If two or more contestants submit same prize-winning name, each will receive full prize award.
- Winners will be announced in October issue of this magazine or as soon thereafter as possible.

How the Preferred Climax Loads Meet All Shooting Needs

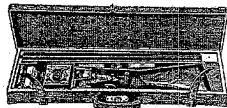
Turkey, Geese, Large Ducks	Other Ducks, Grouse, Hawks and Crows	Rabbits, Squirrels, Doves	Quail, Snipe Woodcock	Reed, Rail and Shore Birds
12 Gauge, 3 1/4 dr. (28 gr.) 1 1/4 oz. Nos. 2, 4, 5 and 6 Chilled	12 Gauge, 3 1/4 dr. (26 gr.) 1 1/4 oz. Nos. 4 and 6 Drop	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 4, 5, 7, 7 1/2 and 8 Drop	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 8 and 9 Drop	12 Gauge, 2 3/4 dr. (24 gr.) 1 oz. Nos. 6, 8 and 10 Drop
16 Gauge, 2 3/4 dr. (20 gr.) 1 oz. Nos. 4, 5, 6 and 7 1/2 Chilled	12 Gauge, 3 1/4 dr. (26 gr.) 1 1/4 oz. Nos. 4, 5 and 7 1/2 Chilled	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 6, 7 1/2 and 8 Chilled	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 7 1/2, 8 and 9 Chilled	16 Gauge, 2 3/4 dr. (20 gr.) 1 oz. Nos. 8, 9 and 10 Drop
20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 2, 4, 5, 6 and 7 1/2 Chilled	16 Gauge, 2 3/4 dr. (20 gr.) 1 oz. Nos. 6 and 7 1/2 Chilled	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 4, 5, 7 and 8 Drop	12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 8 and 10 Drop	20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 8, 9 and 10 Drop
	16 Gauge, 2 3/4 dr. (20 gr.) 1 oz. Nos. 6 and 7 1/2 Chilled	16 Gauge, 2 1/2 dr. (20 gr.) 3/4 oz. Nos. 6 and 8 Chilled	16 Gauge, 2 1/2 dr. (20 gr.) 3/4 oz. Nos. 7 1/2, 8 and 9 Chilled	
	20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 6 and 7 1/2 Chilled	20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 6, 7 and 8 Drop	20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 8, 9 and 10 Drop	
		20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 6 and 8 Chilled	20 Gauge, 2 1/4 dr. (16 gr.) 3/4 oz. Nos. 7 1/2, 8 and 9 Chilled	
				Trap Loads
				12 Gauge, 3 dr. (24 gr.) 1 1/8 oz. Nos. 7 1/2 Chilled

GEORGE BATTEN COMPANY, INC., ADVERTISING
383 MADISON AVENUE - NEW YORK



Your last chance to win!

Prize Name Contest



THE US Prize Name Contest closes at midnight of August 1. You have still a good chance to get in this contest to win the complete shooting kit, one of the handsome shotguns, or one of the cases of Climax Shells.

All you have to do to enter the contest is to submit a name for the list of US Climax loads which are preferred by hunters everywhere.



These Climax loads, according to our sales records, have long been the popular choice of shooters. Shooters have picked them because they meet best all shooting needs. Now we want a name that will make these loads stand out prominently as the group of popular loads that cover all shooting requirements.

Read the rules of the contest carefully. Then look over the list of the popular Climax loads, which is given below. Examine the shells themselves if you wish—any sporting goods dealer will show them to you. Start thinking about a name right away. As soon as you get a good one, send it in. It may win the shotgun of your dreams.

Prizes: Shotguns and Shells

Here is the list of prizes. The name you submit may win the shotgun or your dreams or a case of the shot-shells you prefer.

- 1st prize:** Parker Gun in shooting case complete with all accessories. Winner has choice of double-barrel Model BHE or single-barrel Model SB with straight, half, or pistol grip or Monte Carlo stock.
- 2nd Prize:** Fox Gun—straight, half, or full pistol grip. Winner has choice of double-barrel Model XE or single-barrel Model K.
- 3rd Prize:** L. C. Smith Gun—straight, half, or full pistol grip. Winner has choice of double-barrel EAGLE Model or single-barrel SPECIALTY Model.
- 4th Prize:** Ithaca Gun—Winner has choice of double-barrel Model No. 4 with full pistol grip, or single-barrel Model No. 4 with straight or full pistol grip.
- 5th Prize:** Baker Gun—Winner has choice of double-barrel or single-barrel PARAGON Model with half, straight, or full pistol grip.
- 6th and 7th Prizes:** Savage Repeating Shotgun, Model 1921 D.
- 8th to 11th Prizes:** Stevens Model 520 Repeating Shotgun.
- 12th to 15th Prizes:** Lefever Nitro Special Shotgun.
- 16th to 35th Prizes:** Case of 500 Climax shot-shells of gauge and load to be selected by winners from Climax Game Load List.

Note: All guns are specially made. Both single and double-barrel types are equipped with automatic ejectors and rubber recoil pads. Double-barrel guns come in 12, 16 or 20 gauge with length of barrel optional according to manufacturer's specifications. Single-barrel guns come in 12-gauge only, but with choice of barrel length according to manufacturer's specifications.

Rules of Contest in Detail

- Name should express: (1) that this is a group or family of shells; (2) that this group or family has merit; (3) that this group or family is a preferred list, selected by shooters themselves.
- Contest is open to all except employees of United States Cartridge Company.
- Contestants may submit any number of names.
- Each name must be on a separate sheet with your name and address below. Typewrite or print to insure legibility.
- All names must be mailed before midnight of Friday, August 1, 1924.
- Prizes will be awarded for the thirty-five (35) best names in order of merit. Not more than one prize will be awarded to any one contestant. If two or more contestants submit same prize-winning name, each will receive full prize award.
- Winners will be announced in October issue of this magazine or as soon thereafter as possible.

Your chances to win are as good as the next fellow's. But you must get all names in before August 1. Put on your thinking-cap and get in this contest now. Send all names to

United States Cartridge Co., Contest Dept. A
111 Broadway, New York, N. Y.

Shooters Prefer These Climax Loads

Powder	Dr.	Gr.	Shot (Ounces)	Shot Sizes
			12 Gauge 2 3/4" Shell	
2 3/4"	22	1		Drop: 6, 8, 10
3	24	1		Drop: 4, 5, 6, 7, 8, 10
3	24	1 1/2		Drop: 4, 5, 6, 7, 8, 9
3 1/2	24	1 1/2		Chilled: 6, 7 1/2, 8, 9
3 1/2	24	1 1/2		Chilled: 7 1/2
3 1/2	26	1 1/2		Drop: 4, 5, 6
3 1/2	28	1 1/2		Chilled: 4, 5, 6, 7 1/2
			16 Gauge 2 3/4" Shell	
2 3/4"	20	1		Drop: 6, 7, 8, 9, 10
*	24	1		Chilled: 6, 7 1/2, 8, 9
			20 Gauge 2 3/4" Shell	
2 3/4"	18	1		Drop: 6, 7, 8, 9, 10
2 3/4"	20	1		Chilled: 6, 7 1/2, 8, 9
				Chilled: 2, 4, 5, 6, 7 1/2

*Furnished only in 2 3/4" shell.

Shooter has choice of powders as follows: Bulk powders loaded in drums; Du Pont, Dead Shot, Hercules E. C., Schuler, Dense powders (loaded in grains) Ballistite, Infalible.

How these Preferred Climax Loads Meet All Shooting Needs

Turkey, Geese, Large Ducks	Other Ducks, Grouse, Hawks and Crows
12 Gauge, 2 3/4 dr. (28 gr.) 1 1/2 oz. Nos. 4, 5 and 6 Chilled	12 Gauge, 1 1/2 dr. (26 gr.) 1 1/2 oz. Nos. 4 and 6 Drop
16 Gauge, 2 1/2 dr. (24 gr.) 1 oz. Nos. 4, 5 and 7 1/2 Chilled	12 Gauge, 1 1/2 dr. (26 gr.) 1 1/2 oz. Nos. 4, 5 and 7 1/2 Chilled
20 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 2, 4, 5, 6 and 7 1/2 Chilled	16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. No. 6 Drop
	16 Gauge, 1 1/2 dr. (20 gr.) 1 oz. No. 6 Drop
	16 Gauge, 1 1/2 dr. (20 gr.) 1 oz. Nos. 6 and 7 1/2 Chilled
	20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. No. 6 Drop
	20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. Nos. 6 and 7 1/2 Chilled
Rabbits, Squirrels, Doves	Quail, Snipe, Woodcock
12 Gauge, 3 dr. (24 gr.) 1 1/2 oz. Nos. 4, 6, 7, 7 1/2 and 8 Drop	12 Gauge, 1 1/2 dr. (26 gr.) 1 1/2 oz. Nos. 8 and 9 Drop
12 Gauge, 3 dr. (24 gr.) 1 1/2 oz. Nos. 6, 7 1/2 and 8 Chilled	12 Gauge, 1 1/2 dr. (26 gr.) 1 1/2 oz. Nos. 7 1/2, 8 and 9 Chilled
12 Gauge, 3 dr. (24 gr.) 1 oz. Nos. 4, 6, 7 and 8 Drop	12 Gauge, 1 dr. (24 gr.) 1 oz. Nos. 8 and 10 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 6, 7 and 8 Drop	16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 8 and 10 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 6 and 8 Chilled	16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 8, 9 and 10 Drop
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. Nos. 6, 7 and 8 Drop	20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. Nos. 7 1/2, 8 and 9 Chilled
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. Nos. 6 and 8 Chilled	
Reed, Rail and Shore Birds	Trap Loads
12 Gauge, 2 3/4 dr. (22 gr.) 1 oz. Nos. 6, 8 and 10 Drop	12 Gauge, 5 dr. (24 gr.) 1 1/2 oz. No. 7 1/2 Chilled
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz. Nos. 8, 9 and 10 Drop	
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz. Nos. 8, 9 and 10 Drop	

"Climax Selexset Loads"

wins US Prize-Name Contest



50,000 names submitted for
selected group of shot-shells
that meet all shooting needs

THE first prize in the US Prize-Name Contest goes to Mr. Joe H. Boothe, General Agent, Southwestern Life Insurance Co., Sweetwater, Texas. The name submitted by Mr. Boothe—Climax Selexset Loads—was chosen as best expressing (1) that this is a group or family of shells, (2) that this group or family has merit, (3) that this group or family is a preferred list, selected by shooters themselves.

More than fifty thousand names were entered in the contest—an indication not only of the popularity of the contest but of the popularity of the Climax Selexset Loads. Shooters everywhere seem to agree that these loads are worthy of a special designation—a name that makes them stand out as a specially selected group.

The complete list of prize-winners is given below. To the winners, in true good sportsmanship, we extend our congratulations, and to all other contestants our sincere thanks for their interest in helping us pick a name for the group of Climax loads that are preferred by shooters generally.

1st Prize: Parker Gun in Shooting Case
Joe H. Boothe, General Agent,
Southwestern Life Insurance Co.,
Sweetwater, Texas.

2nd Prize: Fox Gun
E. C. Bacon,
505 1/2 Main St., Medina, N. Y.

3rd Prize: L. C. Smith Gun
P. J. Anthony,
2800 San Pedro St., Austin, Texas.

4th Prize: Ithaca Gun
R. F. Parkinson,
406 South Beveridge St.,
Carbondale, Ill.

5th Prize: Baker Gun
Frank L. Bailey,
17 Court St., Plymouth, Mass.

6th and 7th Prizes: Savage Repeating
Shotgun
F. A. Hoste, Byron, Calif.
J. R. Montgomery,
Baltusrol Way, Short Hills, N. J.

8th to 11th Prizes: Stevens Repeating
Shotgun
A. M. Schurder,
1006 Daisy Ave., Cleveland, Ohio.
H. H. Lindsay, Lake View, Iowa.
Elmer K. McConnell,
R. F. D. No. 2, Delhi, Ontario,
Canada.

12th to 15th Prizes: Lejover Shotgun
Dr. J. L. Corbett,
Palmer National Bank Bldg.,
Pekin, Ill.
H. B. Webster,
323 North Tingo St., Ithaca, N. Y.

Frank Kachelhoffer, Ackley, Ia.
Karl Brauch,
1216 No. 7th St., Sheboygan, Wis.

16th to 35th Prizes: Case of 500 Climax
Shells

J. F. Giddens,
Merchandise Ctr., N. C.
C. F. Newbler,
3229 Warrington St., Cleveland,
Ohio.

Pat Fugh,
202 No. Maple St., Albuquerque,
N. M.

A. L. Culpeper, Carlsbad, N. M.
Wm. N. Gridley, Caudor, N. Y.

C. J. Walsh,
Box 465, Conneaut, Ohio.

C. T. Simonsak,
5400 So. Hermitage Ave., Chicago,
Ill.

I. G. Jackson, Danville, Ky.
Dr. M. E. Triplett,
407 Mayle Bldg., Augusta, Kans.

Clyde M. Bennett,
122 Gross Court, Lansing, Mich.

M. E. Avanti,
Tennessee Colony, Tex.

Robert J. Crane,
70 Saratoga Ave., Yonkers, N. Y.

W. K. Rice, Blanton, Fla.

B. MacDonald,
1817 E. 3rd St., Duluth, Minn.

Frederick Ferrin,
Waverly, Nova Scotia, Canada.

Joseph Wright,
2106 Church St., Greenville, Texas.

G. W. Fuller, Albany, Oregon.

W. O. Kiser, Lexington, Ky.

W. L. Bempas, Duncan, Okla.

Palmer Ice, Fairmount, Ind.

Whether or not you won a prize in the contest, you can still win plenty of trophies both in the field and at the traps with the Climax Selexset Loads. The popular choice of shooters, these select loads chamber and eject easily; they are waterproof; they possess power in abundance; they pattern uniformly; and they give good penetration. Furthermore, they are wadded with Cork-Tex, insuring a smooth load.

Try backing your skill with the Climax Selexset Loads. You will find the right load for bird or trap in the table opposite.

UNITED STATES CARTRIDGE CO.
111 Broadway, New York, N. Y.

\$2000 worth of prizes!

Win a fine shotgun
or a case of Climax shells

Prize Name
Contest

Shooters Prefer These Climax Loads

Powder	Shot	Shot Sizes
Dr. Gr.	(Ounces)	
2 3/4	22	12 Gauge 2 3/4" Shell
3	24	Drop: 6, 8, 10
3	24	Drop: 4, 5, 6, 7, 8, 10
3 1/4	24	(Drop: 4, 5, 6, 7, 7 1/2, 8, 9)
3 1/4	26	(Chilled: 6, 7 1/2, 8, 9)
3 1/4	28	(Drop: 4, 5, 6)
3 1/4	28	(Chilled: 4, 5, 6, 7 1/2)
2 1/2	20	16 Gauge 2 1/2" Shell
2 1/2	24	Drop: 6, 7, 8, 9, 10
2 1/2	24	(Chilled: 6, 7 1/2, 8, 9)
2 1/4	18	20 Gauge 2 1/4" Shell
2 1/4	20	Drop: 6, 7, 8, 9, 10
2 1/4	20	(Chilled: 6, 7 1/2, 8, 9)

*Furnished only in 2 3/4" shell.

Shooter has choice of powders as follows: Bulk powders (loaded in drums); Du Pont, Dead Shot, Hercules E. C., Schultze; Dense powders (loaded in grains) Ballistite, Intallite.

How these Preferred Climax Loads Meet All Shooting Needs

Turkey, Geese, Large Ducks

12 Gauge, 3 1/2 dr. (28 gr.) 1 1/4 oz.
Nos. 2, 4, 5 and 6 Chilled
16 Gauge, 2 1/2 dr. 1 oz.
Nos. 4, 5, 6 and 7 1/2 Chilled
20 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 2, 4, 5, 6 and 7 1/2 Chilled

Rabbits, Squirrels, Doves

12 Gauge, 3 dr. (24 gr.) 1 1/4 oz.
Nos. 4, 6, 7, 7 1/2 and 8 Drop
12 Gauge, 3 dr. (24 gr.) 1 1/4 oz.
Nos. 6, 7 1/2 and 8 Chilled
12 Gauge, 3 dr. (24 gr.) 1 oz.
Nos. 4, 6, 7 and 8 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 6, 7 and 8 Drop
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 6, 7 and 8 Drop
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 6 and 8 Chilled

Reed, Rail and Shore Birds

12 Gauge, 2 1/2 dr. (22 gr.) 1 oz.
Nos. 6, 8 and 10 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 8, 9 and 10 Drop
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 8, 9 and 10 Drop

Other Ducks, Grouse, Hawks and Crows

12 Gauge, 3 1/2 dr. (28 gr.) 1 1/4 oz.
Nos. 4 and 6 Drop
12 Gauge, 3 1/2 dr. (28 gr.) 1 1/4 oz.
Nos. 4, 6 and 7 1/2 Chilled
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
No. 6 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 6 and 7 1/2 Chilled
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 6 and 7 1/2 Chilled

Quail, Snipe, Woodcock

12 Gauge, 3 dr. (24 gr.) 1 1/4 oz.
Nos. 8 and 10 Drop
12 Gauge, 3 dr. (24 gr.) 1 1/4 oz.
Nos. 7 1/2, 8 and 9 Chilled
12 Gauge, 3 dr. (24 gr.) 1 oz.
Nos. 3 and 10 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 8, 9 and 10 Drop
16 Gauge, 2 1/2 dr. (20 gr.) 1 oz.
Nos. 7 1/2, 8 and 9 Chilled
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 8, 9 and 10 Drop
20 Gauge, 2 1/2 dr. (18 gr.) 3/4 oz.
Nos. 7 1/2, 8 and 9 Chilled

Trap Loads

12 Gauge, 3 dr. (24 gr.) 1 1/4 oz.
No. 7 1/2 Chilled

Many times we have been asked by shooters to pick a list of loads which would meet best all shooting requirements. We find that shooters have already selected such a list themselves, for a particular number of our Climax loads are by far the most popular in point of sales. This preferred group of US Climax loads is listed at the left, together with a table showing how the group covers all shooting needs from big birds to the traps.

Having been chosen by shooters generally, these particular Climax loads are worthy of a name which makes them stand out as a selected, all-star, blue-ribbon group. We are seeking such a name, and are asking you, who helped to pick this group of Climax loads as leaders, to help us pick the name. Moreover, we are making it worth your while.

For the thirty-five most appropriate names submitted we shall award the prizes of shotguns and cases of shot-shells listed below.

The names you suggest should express that this is a group or family of shells, that these shells have merit, and that they have been selected by shooters themselves as the best loads for all shooting needs.

And here are some other pointers that may be helpful. Climax shot-shells chamber and eject easily. They are waterproof. They possess power in abundance. They pattern uniformly and give good penetration. They are wadded with Cork-Tex, insuring a smooth, soft load.

Go over the list of loads and the table carefully. Read the rules of the contest. Then put down every good name that you think of and send it in to us.

Rules of Contest in Detail

1. Name should express: (1) that this is a group or family of shells; (2) that this group or family has merit; (3) that this group or family is a preferred list, selected by shooters themselves.
2. Contest is open to all except employees of United States Cartridge Company.
3. Contestants may submit any number of names.
4. Each name must be on a separate sheet with your name and address below. Typewrite or print to insure legibility.
5. All names must be mailed before midnight of Friday, August 1, 1924.
6. Prizes will be awarded for the thirty-five (35) best names in order of merit. Not more than one prize will be awarded to any one contestant. If two or more contestants submit same prize-winning name, each will receive full prize award.
7. Winner will be announced in October issue of this magazine or as soon thereafter as possible.

Prizes; Shotguns and Shells

Here is the list of prizes. The name you submit may win the shotgun of your dreams or a case of the shot-shells you prefer.

1st Prize: Parker Gun in shooting case complete with all accessories. Winner has choice of double-barrel Model BHE or single-barrel Model SB with straight, half, or pistol grip or Monte Carlo stock.

2nd Prize: Fox Gun—straight, half, or full pistol grip. Winner has choice of double-barrel Model XE or single-barrel Model K.

3rd Prize: L. C. Smith Gun—straight, half, or full pistol grip. Winner has choice of double-barrel EAGLE Model or single-barrel SPECIALTY Model.

4th Prize: Ithaca Gun—Winner has choice of double-barrel Model No. 4 with full pistol grip, or single-barrel Model No. 4 with straight or full pistol grip.

5th Prize: Baker Gun—Winner has choice of double-barrel or single-barrel PAB-AGON Model with straight, half, or full pistol grip.

6th and 7th Prizes: Savage Repeating Shotgun, Model 1921 D.

8th to 11th Prizes: Stevens Model 520 Repeating Shotgun.

12th to 15th Prizes: Lever Nitro Special Shotgun.

16th to 35th Prizes: Case of 500 Climax shot-shells of gauge and load to be selected by winners from Climax Game Load List.

Note: All guns are specially made. Both single and double-barrel types are equipped with automatic ejectors and rubber recoil pads. Double-barrel guns come in 12, 16 or 20 gauge with length of barrel optional according to manufacturers' specifications. Single-barrel guns come in 12-gauge only, but with choice of barrel length according to manufacturers' specifications.

Send all names to

United States Cartridge Co.

Contest Department B

111 Broadway New York, N. Y.