

LEAD

*Published by
Lead Industries
Association*

VOLUME THIRTEEN

MAY, 1943

NUMBER THREE



Placing lengths of hard lead alloy on O'Donnell Heights F.P.H.A. project in Baltimore.

Lead Industries Association New York, N. Y.

Housing for War Workers in Baltimore Has Permanent Flashings of Lead Alloy

ARCHITECTS and builders in searching for a durable metallic material for use in flashings and gravel stops are turning to hardened lead in place of other metals which have become difficult or impossible to obtain. The use of lead for this purpose should not be called a substitution. It is rather an expansion of the use of an old and tried material of high quality and proved durability which has been used continuously for roofing purposes longer than has any other metal.

Permanent construction now under way or contemplated need not be subjected to the hazards of makeshift flashing. Hard lead sheets in weights commonly recommended for this purpose are freely available and the use or sale of lead for flashings is not prohibited by any government order as are most metals.

Two large permanent housing projects under the direction of the Federal Public Housing Authority, now under construction in Baltimore, Md., are making extensive use of lead alloy to achieve permanent flashing jobs. Somerset Court, a three-story, 420-unit project in the heart of the city will have through wall flashings, cap flashings and gravel stops as well as scuttles and entrance hood roofs of

this durable material. In addition, sumps, fabricated of lead alloy sheet, make possible the elimination of expensive and hard-to-get cast iron connections to rain water leaders.

O'Donnell Heights housing project on the southeastern edge of the city of Baltimore is also using lead alloy for gravel stops. Both of these projects were developed by the Housing Authority of the City of Baltimore which has a number of excellent housing achievements to its credit. The architect of Somerset Court is D. K. Este Fisher Jr.; of O'Donnell Heights, James R. Edmunds, both of Baltimore. The United Roofing and Waterproofing Co. of Brooklyn, N. Y., is doing the roofing and sheet metal work on both jobs.

Many of the architectural monuments of Europe have roofs and flashings of lead which have endured for many decades under conditions fully as severe as any exposures which will be encountered today. In fact lead is generally recognized as possessing superior durability in localities where unusually corrosive atmospheric conditions exist.

Sound practice on old work where soft lead was used required a heavy thickness of metal to compensate for the relatively low strength of the ma-



Lead alloy gravel stops, not exceeding 8 ft. in length, formed on the break, stacked ready for installation.

terial. Today, thanks to increased strength due to the addition of small amounts of alloying materials, it is possible to use hard lead in sheets of much lighter weight although they are still of greater thickness than would be used in some other metals.

This extra thickness increases the initial advantage provided by the corrosion resistant characteristics of the metal itself by providing a greater body of metal to resist destructive atmospheric conditions. The low cost per pound of lead allows this extra security to be provided with little, if any, price differential. Lead alloy sheets work easily with simple tools. Mechanics find them easy to handle and quickly adapt themselves to this friendly metal.

View showing gravel stop, sump, stack flashing, thru-wall flashing and cap flashing around chimney, all of hard lead.



Gravel stop installed, showing lap joint allowing for expansion and part of top felt mopped in place.





No. 19

Charming Interiors in Historic Mansion

MUCH of the action of the Revolutionary War occurred in New Jersey. Very nearly in the center of a large number of historic points lies South Bound Brook. Here in 1778-79 Baron von Steuben lived while he was assisting General Washington to organize and train the American forces which were then quartered at Morristown, a few miles to the north.

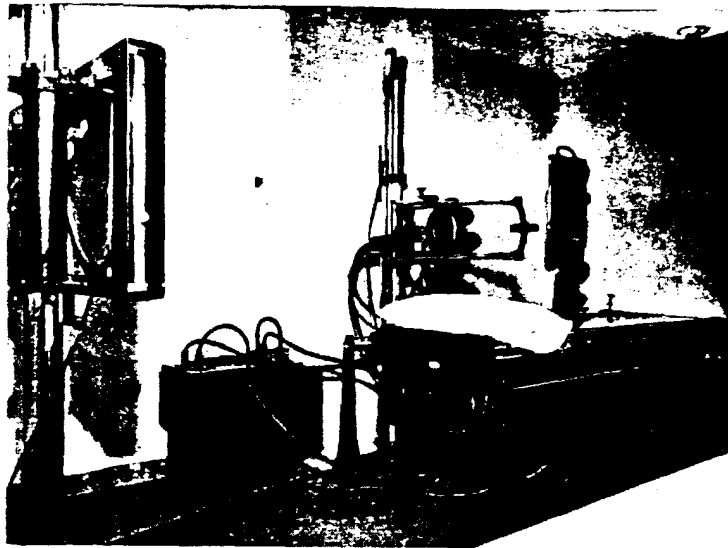
The house which Baron von Steuben occupied stands today, one of the best preserved examples of Colonial architecture in America. The exterior of stone and white-lead painted clapboards and shingles has been pictured in a previous issue. The interiors presented here show the simple dignity and comfortable atmosphere achieved by the craftsmen designers with plain painted plaster walls and wood paneling and ceilings.

The furnishings used by the present owners are of the period of Baron von Steuben's occupancy just as the white lead paint now used on the interiors is the same durable material that was the standby of the builders and painters of the early days of America.

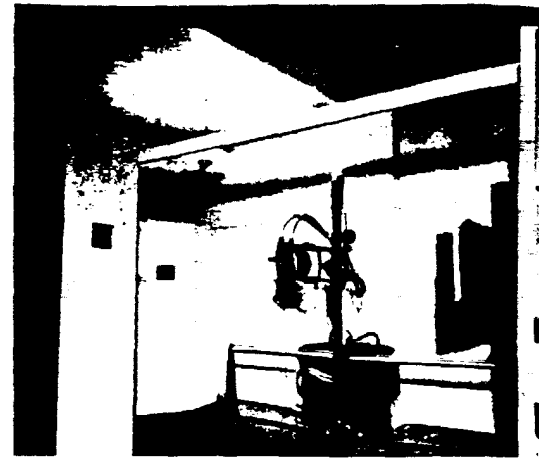
Many of the finest houses of Colonial days were painted inside and out with pure white lead. The thrifty Dutch housewife and the Colonial Dame both found white lead painted walls and woodwork durable and economical as well as beautiful and easy to clean.

White lead-painted interiors of the Baron von Steuben headquarters, South Bound Brook, New Jersey.

PHOTOS BY RODNEY MCCAY MORGAN.



Powerful X-Ray equipment in the dispensary in the Pentagon Building. The walls, floor and ceiling of this room were sheathed with thick sheet lead before the finish materials were applied.

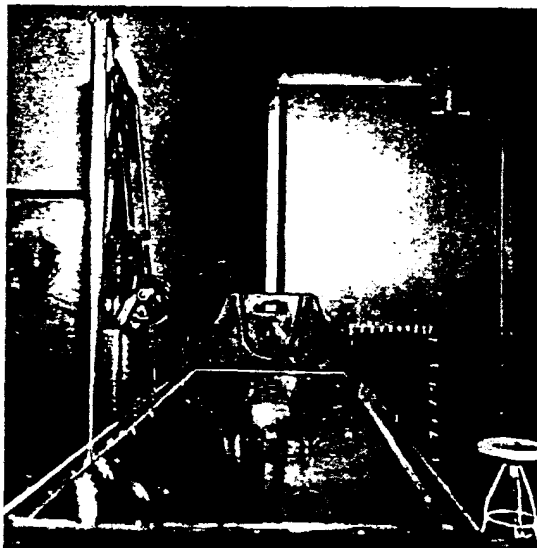


X-Ray room in civilian personnel medical department. Wall panels and screen are of lead covered plywood.

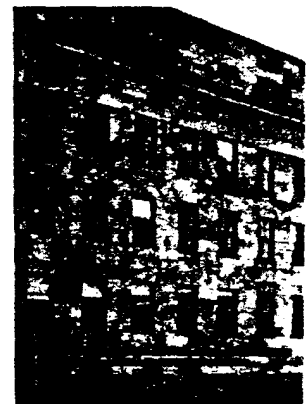


Another view of the dispensary showing the lead-shielded doors, lead louvers and lead lined film transfer doors to dark room.

Fluoroscapy room adjoining dispensary X-Ray room is also completely lined with lead.



Corrosion resistance of lead protects stone from unsightly metal stains at expansion joints.



The River Facade of the Pentagon Building and

Lead Used for Many Purposes in War Department Building

NEARLY everyone who has any interest in the construction industry today knows of the great Pentagon Building, housing the War Department just outside of Washington. Its great size and orderly complexity have been presented in the publications of the building industry and the countless details of construction and equipment will provide interesting study for architects and engineers as they are released.

Because of many difficulties of supply, great care was exercised by the designers in selecting proper materials for ordinary as well as specialized services. As a result of this care and because it was available lead was put to a number of uses to which its special characteristics make it par-

ticularly adapted. Corrosion-resistant lead flashings and coping permanent weather protection for the roofs. Lead gutters circle the building behind the parapet to the rain water. Lead provides protection from staining at the joints in the stone exterior cornices. Lead sheets under standing columns on the river side waterproof the supporting structure and provide cushioning for the columns.

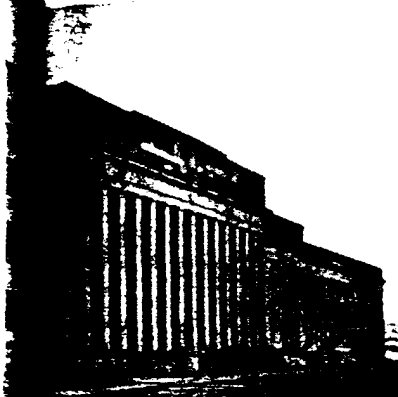
Inside the structure, where it houses enough people to fill a small city, lead is acting in less prosaic roles. In the X-ray room, in almost every room, it is sheathed in lead to protect the rays to useful work. The me-



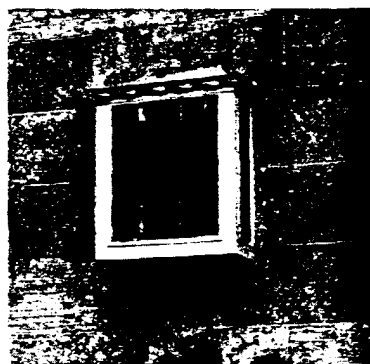
Some of the lead covered high voltage power cables carrying current to the Pentagon Building.



Lead flashing and coping on roof of Pentagon Building. Note that joint is loose locked to allow for expansion.



*in Arlington, Va.. G. E. Bergstrom
Architects.*



The taxi control window on the south facade has a graceful roof of non-staining, durable lead.



Lead sheathed telephone cables starting here circle the building just under the roof.

to Mammoth Pentagon Building in Arlington, Va.

res. civilian personnel also has X-Ray equipment which is surrounded with lead shielding. In both of these rooms, the observation windows behind which the operators work are of thick leaded glass.

One of the unusual uses to which lead is put in the Pentagon Building is the piping for photographic developing solutions. In the V-Mail department a continuous printing machine requires that solutions be kept at a constant level. Developing and fixing chemicals are mixed with water in an automatic room and flow by gravity to automatic regulators which keep the solution at the proper depth. The corrosion resistance and easy bends of lead pipe insure constant operation under low head.

Literally miles of lead covered cable reach to all parts of the building. Tiny telephone cables not much bigger than a pencil and giant power cables which carry electric current from the transformers in the nearby power house are protected from moisture by a sheath of lead. Even the control circuits which keep watch over the performance of the power circuits have their own lead sheathed cables from station to station.

The Pentagon Building is the largest office building in the world. In planning and construction it presented many new problems. The architects and builders have drawn upon their experience and knowledge and chosen lead for uses both old and new to which it is well adapted.

Supported on a steel frame, lead pipes carry developing solutions to photographic printing machine in V-Mail department dark room.



Lead Name Plates Now Being Made by Etching

In a recent issue we noted the use of cast antimonial lead for name and instruction plates to be used on machinery. These plates have been widely accepted and used not only as substitutes for similar plates made of scarce materials but also as regular applications, especially where high resistance to corrosion is desirable. Further research has resulted in the development of etched plates of similar material which widen this field of application of lead still further.

The etched lead nameplates are made from sheet lead and can be made in any desired thickness. Plates ranging from 1/32 to 1/16 in. thick are in use. They can be easily bent if necessary to conform to an irregular surface. In appearance this type of plate is very similar to any other etched plate except for color. The etched areas are filled with enamel flush with the surface making a smooth finish which will remain clean

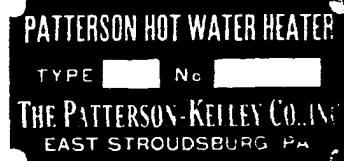
and legible. Serial numbers and other data are easily stamped into the metal before or after the plate is applied.

The corrosion resistant characteristics of lead are well known and some readers will doubtless be surprised to learn that it is adaptable to an etching process. However, reference to any standard chemical handbook will recall that, while lead is remarkably resistant to most mordants, it can be

"I believe we should continue strongly to emphasize the policy of exerting continuous pressure to conserve and limit our use of critical metals and to develop substitutes for them."

Donald M. Nelson

Lead is the only common metal available in significant quantities to take the place of critical materials. Lead, its alloys and compounds are being widely used for their normal applications and have already been adapted to many new civilian and military uses. We will be glad to cooperate in the adaptation of lead to additional new uses.



Etched name plate of antimonial lead for use on domestic equipment. This plate is comparatively heavy, .065 in. thick. Photo about one-third actual size.

etched with nitric acid which is commonly used for the same purpose on other metals. Due to the homogeneous structure of lead the action of the acid on the metal is quite uniform which results in a smooth surface over the etched area.

Etched lead plates are now being made by several manufacturers. They are being used on electrical equipment for civilian use and have been submitted to the Army and Navy for approval for use on equipment to be furnished to the services.

Portable Lighting Equipment Efficiently Served by Lead Storage Batteries

At last there is an answer to the question, "Why don't they make portable electric lamps with easily recharged batteries?" The answer is, "They do." It is no longer necessary for regular users of portable lights

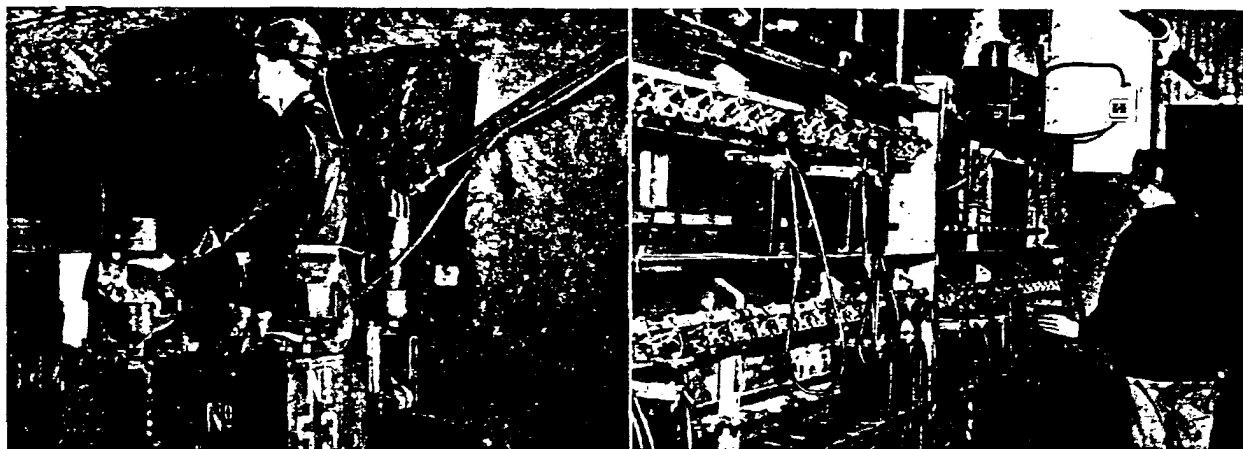
to depend for power upon dry cells which have to be replaced periodically whether they are used or not. Rechargeable lead-acid storage batteries small enough and light enough to be easily carried and yet sufficiently

powerful and rugged to furnish brilliant illumination for long periods of time are now available.

These batteries are being produced in several types suitable for heavy duty emergency lights, miners' cap

Battery operated mine lamp in use. Note battery slung on belt around miner's waist.

Cap lamp and battery being placed on charging rack at end of shift will be fully charged when next put into use.



TRADE NAMES AND NAMES OF MANUFACTURERS OF ARTICLES DESCRIBED IN LEAD ARE OMITTED IN ACCORDANCE WITH LEAD INDUSTRIES ASSOCIATION POLICY. SUCH NAMES AND FURTHER DETAILS WHEN AVAILABLE, WILL BE GLADLY PROVIDED ON REQUEST

lamps and even ordinary flashlights. They offer the user the great advantage of maximum power and capacity each time the light is put into service. Lights which are used regularly are placed on charge at the end of each period of use and after a few hours are ready to go back into service. Lamps used intermittently require only periodic testing and recharging to keep them at top capacity.

Charging equipment is simple and inexpensive. Single units can be recharged through dry plate rectifiers similar to the "trickle chargers" once used on radio batteries. Groups of units in regular use such as miner's lamps are kept at top efficiency on



Portable heavy duty light powered by lead-acid storage battery.

charging racks which serve as storage space for the lights between working periods. Charging racks can be served by mercury tube or other heavy duty rectifier or by generator.

The development of the lead-acid battery for portable use is of particular interest at this time. The ever present threat of emergencies due to war make the provision of dependable portable lighting equipment imperative. The lead-acid storage battery which has proved its dependability is ready to take over this new duty. It has been made compact and safe. It is made of non-critical materials and it requires a minimum of attention to keep it operating efficiently.

You're money ahead when you paint with
White Lead
STROKES from the PAINT BRUSH

MUCH as we hate to think of it, sometimes paint has to be removed. It is false economy to apply new paint to a rough unsightly surface caused by cracking and scaling of the old paint. Even if the remaining paint continues to adhere to the base material the bright new coat will not hide, but will only accentuate the shabby condition of the old work and result in disappointment. Only by complete removal of the material which has failed and repainting as on new wood can a satisfactory result be obtained.

This is one of the principal economies resulting from the use of pure white lead paint. After years of service it is still the perfect base for repainting. There is no necessity for removing old white lead paint because its surface remains smooth and unbroken. It continues to cling tightly to its base and it will support many properly spaced repaintings.

To remove old paint it must first be softened and then scraped off with a knife. There are two commonly used means of softening paint for removal, the quickest and most thorough being

fire. This is a hazardous operation and should be done only by an experienced workman and with great care. It is wise to check insurance before starting to burn off paint and to provide special protection if the owner's regular policy has a voiding clause contingent on the use of the flame method of paint removal.

The usual method of application of fire for softening paint is by means of the gasoline blow torch. In using the torch the flame should be kept on the surface only long enough to cause the paint to blister and crawl. The torch should then be moved forward and the paint removed quickly and thoroughly while it is still hot. The flame should be directed onto the flat face of each board so as to reach the edges by spreading only, since corners and edges are easily charred and ignited. Mitre cuts are especially vulnerable because the sharp angle leaves a very thin edge. Quick skillful scraping of the bottom edge of each siding board along with the face of the board next below will avoid the necessity of a second pass with the torch.

For mouldings and delicate trim the

torch should not be used. For this type of work there are several kinds of liquid paint removers. Probably the most satisfactory is a jelly-like material which is applied heavily with a brush and allowed to stand until the paint is thoroughly softened by chemical action.

The paint should then be scraped off quickly and thoroughly before the solvent has time to dry. Paint once softened and then allowed to dry hardens and is very difficult to remove. For mouldings and similar work, shaped scrapers of hardwood, prepared before applying the remover should be used to avoid damaging delicate edges with the steel knife.

Once the old paint is removed the work should be sandpapered and treated as a new job. If the cause of the failure of the old paint was water entering through leaks or condensation this condition should be remedied. If the cause was poor paint the property owner has had an expensive lesson in the false economy of buying cheap material and he will be wise if he repaints with pure white lead paint.

Approved Hard Lead Floor Flanges Identified by



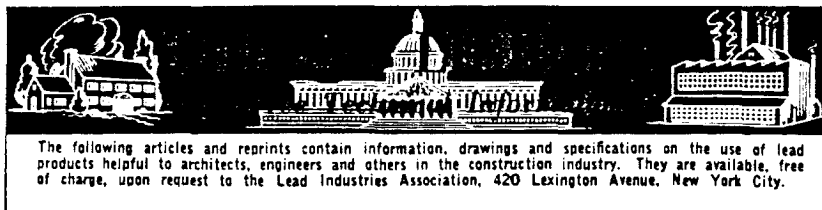
THE Lead Industries Association has adopted a standard specification for the manufacture of the new hard lead closet floor flanges, illustrated in our November, 1942 issue. Manufacturers are being licensed to use the familiar Lead Industries' Seal of Approval on their flanges meeting this specification. Important provisions of the specification are that the thickness of the outer rim of the flange must be 3/8 in. and the total weight of the flange must not be less than 1 lb. 9 oz. The composition of the metal is closely controlled by the specification. To be sure of getting flanges that will adequately meet requirements for quality, those bearing

the Seal of Approval should be specified and purchased. Hard lead flanges bearing the Seal of Approval are now on the market and their purchase or use is not restricted. They are being tested and approved by the plumbing inspection departments of an increasing number of cities where their use will enable plumbers to continue to make safe sanitary installations in spite of shortages of flanges of other materials.

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Hard lead closet floor flange bearing the Lead Industries' Seal of Approval indicating it is made to Lead Industries Association Standards.



The following articles and reprints contain information, drawings and specifications on the use of lead products helpful to architects, engineers and others in the construction industry. They are available, free of charge, upon request to the Lead Industries Association, 420 Lexington Avenue, New York City.

PROPERTY PROTECTION WITH WHITE LEAD PAINT

A 28 page booklet on the protective value, durability and beauty of pure white lead paint with quantity estimating tables, formulas and mixing and tinting instructions for exterior and interior use.

BRUSH UP ON YOUR PAINTING

A practical article on the selection and application of paint reprinted from House Beautiful, June, 1941.

HOW LUMBER AND PAINT KEEP YOUR HOME ALWAYS IN STYLE

A brief digest of the advantages of painted lumber homes with color-styling suggestions and other interesting information.

SOME PAINTING PROBLEMS AND THE ANSWERS

By Dr. F. L. Browne, Senior Chemist, Forests Products Laboratory, Madison, Wisc.

Reprinted from the National Real Estate Journal, Sept., 1939.

STAMFORD'S DOUBLE LIFETIME HOME

A complete analysis of hard lead flashing, white lead paint, lead plumbing, plywood and red cedar Certigrade shingle details and installation methods. Reprinted from the American Builder, July, 1939.

STOP DEMON RUST

Leaflet giving concise, simple instructions in the use of the rust preventing qualities of Red Lead Paint in protecting farm machinery.

DON'T GAMBLE WITH PAINT

An instructive article on the selection of paint for farm use reprinted from the March 1942 issue of Country Gentleman.

WHITE LEAD PAINT FOR DEFENSE HOUSING

Reprint from Bulletin of the Producers' Council including specifications and graphic mixing instructions for exterior and interior White Lead Paint.

LASTING LEADWORK IN MODERN PLUMBING

By T. N. Thompson, Technical Editor, Plumbing and Heating Journal.

Reprinted from Plumbing and Heating Journal, Feb., 1939.

COMMERCIAL STANDARDS:

Calking Lead, CS94-41
Lead Pipe, CS95-41
Lead Traps and Bends, CS96-41

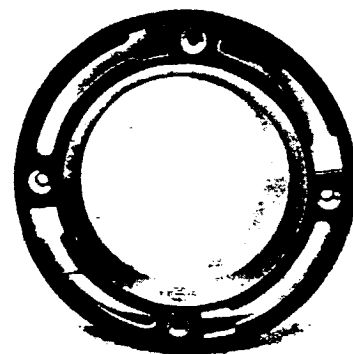
Official publications by the Government Printing Office of the above Commercial Standards as promulgated by the U. S. Department of Commerce through the National Bureau of Standards, effective June 25, 1941.

NEW SIMPLIFIED STANDARD FOR LEAD TRAPS AND BENDS

File size leaflet with new standards for lead traps and bends as well as existing standards for lead pipe and calking lead, and other informative data.

LEAD PLUMBING FOR DEFENSE HOUSING

Reprint from Bulletin of the Producers' Council including information on the Emergency Plumbing Standards and the Defense Housing Critical List.



American Water Works Association Meeting

VISITORS attending the annual meeting of the American Water Works Association at Cleveland, Ohio, June 15th to 18th, will find it worthwhile to visit the Lead Industries Association booth No. 21. Information will be available on the allowable use of fittings and solder to take full advantage of the adequate supply of lead which is freely available for use in service pipe and other water works purposes.

**BUY
WAR BONDS
AND STAMPS
EVERY PAYDAY**

UPON REQUEST, THE LEAD INDUSTRIES ASSOCIATION WILL BE GLAD TO MAIL "LEAD" REGULARLY, FREE OF CHARGE, TO THOSE INTERESTED, AND WILL COOPERATE WITHOUT OBLIGATION IN THE SOLUTION OF YOUR LEAD PROBLEMS