

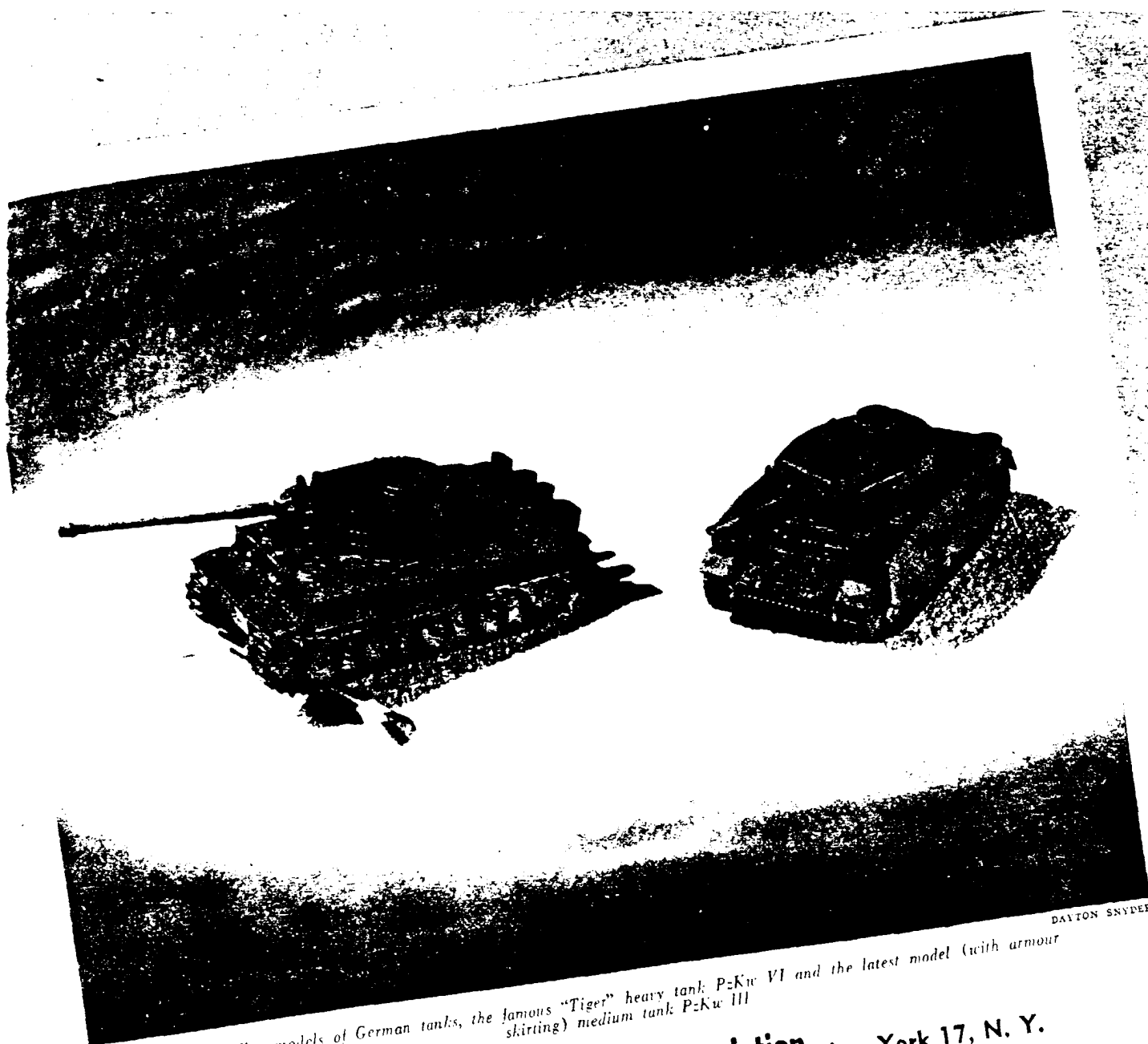
LEAD

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DALTON SNYDER

Lead alloy models of German tanks, the famous "Tiger" heavy tank PzKw VI and the latest model (with armour skirting) medium tank PzKw III

Association New York 17, N. Y.

Lead Alloy Scale Models Used In Training U. S. Army Fliers

SINCE combativeness seems to be a deeply inherent trait of mankind, little boys have always gloried in toys representing the habiliments of warfare. Strangely enough lead has for many years been associated with such toys and literature abounds with references to lead soldiers and the boys, and also men, who played with them. As a matter of fact, collecting lead soldiers in the carefully copied uniforms of actual historical military organizations is a well-organized hobby both in this country and abroad.

However, the lead soldier of history and literature was only a toy or at best an historical document. In the present war the modern lead counterpart of the lead soldier's cannon and limber is one of the important training devices of a comparatively new branch of the Army Air Forces, the Training Aids Division. Miniature models of the many en-

but also the details of our own as well as the enemy's machines. He needs to be able to refresh his memory constantly by observing examples of equipment which he may have to destroy or protect. He can best be helped by models which can be viewed from any angle, small enough to be a part of the equipment of even an advanced base but which are exactly to scale, complete in detail and rugged enough to stand considerable rough handling.

Such models are now being used by the Army. They are made of a special lead alloy. Of very small scale, 1 in. equals 9 ft., they reproduce with remarkable fidelity details as small as gasoline filler caps and even rivet heads. The turrets are moveable and the wheels of armored cars turn, but though small enough to be held in the palm of the hand, the lead alloy is sturdy enough to stand up under constant handling.

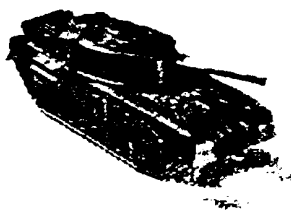


The General Sherman M-4 tank. The scale of the lead models is such that when held in the hand they appear approximately as the real tank would when in gunshot range

The models shown on this page and on the cover were made by the Comet Manufacturing Co. of Long Island City, New York, whose peacetime products were lead soldiers, toys and hobbyists' supplies. The makers believe that, when peace returns and the restrictions of security and the demands of the Army can be relaxed, the demand for models of this sort will preclude any problem of plant reconversion for them.

Perhaps one day the G. I. Joe will take his place in the ranks of lead soldiers on the shelves of collectors. Whether he does or not, his beloved tanks and armored cars authentically documented in lead alloy, which have actually seen military service, will be collector's items eagerly sought by hobbyists and historians.

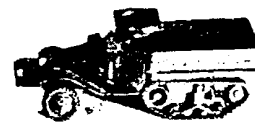
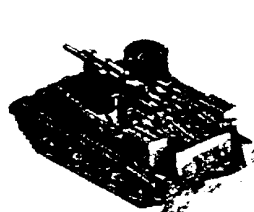
Lead Alloy models of a 105 mm. gun motor carriage M7, a 3 in. gun motor carriage and a half track personnel carrier M3A-1. Note the clear sharp details and the deep undercuts



Lead Alloy models of two of the latest Allied vehicles. The speedy U. S. M-18 tank destroyer, left, and the British "Churchill" Mk VII, right

gines of warfare, both our own and our enemies', provide examples from which our military airmen can learn to recognize and differentiate between friend and foe.

The lives of our own men or the fate of a battle may depend upon a gunner's split second decisions whether to shoot or not. Every man must be thoroughly familiar with not only the mass and silhouette



Many Maritime Uses of Lead

Prove Ships Are Not Built of Steel Alone

ONE of America's most amazing achievements of the war has been its huge shipbuilding and shipping program. Many lead products have contributed to this fine record. Some, like red lead and white lead paint, are familiar to almost everyone because they are readily visible, but a number of others are known only to those who build the ships because they are hidden away.

Alabama Dry Dock and Shipbuilding Co., Mobile, Ala., is one of the large yards that has launched many a ship of several different types for the United States Maritime Commission during the war. Its new construction facilities are now, however, devoted exclusively to the building of large tankers so vitally needed to carry on modern mechanized warfare across the seas.

The ships produced at this yard, like many others, are primed with red lead paint to protect the steel from the severe corrosive conditions encountered at sea.

Storage batteries of the lead-acid type are vital to ship operation providing sure power for radio and many other electrical requirements. These batteries have grids of antimonial lead pasted with lead oxides as the active ingredient on the plates.

Lead lined box for storage batteries. Many of the cables used on shipboard have lead sheaths under the braided wire armour



Battery rooms and boxes are lined with sheet lead with lead welded seams to protect against possible spillage of acid from the batteries. Lead is ideal for this purpose because of its high resistance to attack by sulfuric acid (lead equipment is widely used in the production of this acid) and because of its flexibility.

Sheet lead linings are also used in the floors of ship refrigerator rooms.



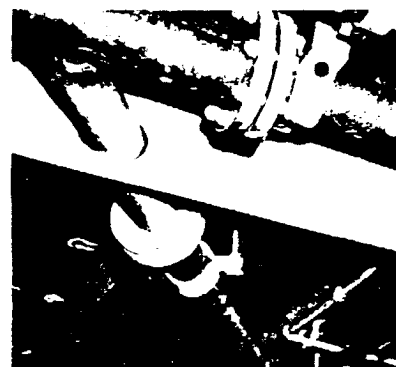
U. S. MARITIME COMMISSION PHOTO
One of the giant new T2-SE-A1 tankers about to be launched



Lead floor in refrigerator room of a tanker under construction

Here it is a moisture-proofing medium protecting the insulation and ship structure from condensation and other moisture found in refrigerator rooms.

Another interesting use of sheet lead in the construction of these



Lead lining of pipe hangers and lead grommets in pierced structural members protect against vibration and flexure

ships is as a lining for pipe line hangers. Modern ships are mazes of piping systems. These are subject to damage by the constant flexing and vibration of the ship structure at sea. Each hanger is lined with sheet lead to form a lead bearing surface between pipe and hanger. The soft and flexible, yet durable, lead thus protects the pipe from damage and breakage at these points. Similarly where pipes pass through steel beams or other structural members, the openings in the beams are completely lined with sheet lead to protect the pipes from mechanical injury.

It is not possible to mention in a short space all the ways in which lead is contributing to the shipbuilding program, but those mentioned will serve to give an idea of lead's contribution. They serve to show that ships are not entirely of steel which must itself be coated with protective paint such as red lead.

Chicago Housing Projects Serviced With Enduring Lead Water Pipe

THE city of Chicago has for many years required that all water service lines of 2-in. diameter and smaller be of lead. This requirement has been strictly maintained throughout the war emergency period and as a result the many war housing projects for thousands of workers which have been built within the jurisdiction of the Chicago Water Department are not likely to be subject to the troublesome and expensive nuisance of water service repairs and replacements.

Chicago long ago recognized that lead is not only the pipe material most resistant to corrosion but also that lead pipe has thicker walls than other kinds of service pipe and that lead pipe is flexible and therefore easy to lay. It retains its flexibility

throughout its life and is not easily broken by settling or other ground movements.

One of the incidental advantages of lead service pipe which was helpful in a Chicago project located at 63rd and Laramie Streets was its adaptability to installation in long single lengths. The illustration shows two service pipes in a single wide trench. Each line from the corporation stop to the cut off valve, well out of sight in the foreground, is a single piece including the gooseneck at the main. Even had there been an

obstruction such as a rock or a tree root the lead pipe could easily have been bent around it and no fittings would have been necessary. There are no couplings to be made up, no elbows to cause friction or to leak.

Four hundred units in this project are using over 26,000 lb. of 1-in. lead pipe. Another permanent project now under construction in Chicago is using 11½-in. and 2-in. lead service lines to multiple dwelling buildings to house 230 families. All residents of these projects can depend upon receiving full volume water supplies at full pressure for many years through the lead pipe which does not corrode and which has no elbows or sharp bends to create friction losses.

Courts Hold Jurisdiction of Plumbing Code Not Confined Within City Limits

THE right of a city to enforce its plumbing ordinances on building projects outside of the city limits but which are served by the city's water supply and sewer systems has been upheld by the courts of Texas. This decision is of great significance to architects, real estate operators and builders as well as to all agencies charged with the protection of the public health.

The case involved was a 184-unit war housing project privately financed under a F.H.A. insured loan. Although F.H.A. construction standards require compliance with

all building and sanitation ordinances, this project, being outside the city limits, included certain details which violated the city code. However compliance with the Port Arthur code is required of all plumbing installations connected to the city's water and sewer systems whether the property on which they are located is within the city limits or not.

Plumbing Inspector C. O. Sims accordingly denied permission to make connections to the city water and sewage system unless changes were made which would bring the

Long one piece lead water services installed on Chicago permanent housing project



Plumbing Inspector Simms, left, plumbing contractor Richardson, center, with journeymen plumbers looking over lead fittings to be installed in housing project outside of city limits in compliance with Port Arthur plumbing code



plumbing into compliance with the code. These changes included the installation of lead drum traps and certain lead connections in place of other materials which were being used.

The builders sought an injunction restraining the city from withholding water and sewer services which was denied first by the Circuit Court and again by the Court of Civil Appeals. When taken to the State Supreme Court the case was refused consideration "for want of merit".

As a result of the decisions of the courts the builders were obliged to remove materials not in compliance with the Port Arthur plumbing code and replace them with required materials. Subsequent projects have installed their plumbing in accordance with the code and have been permitted to make connection with the city's utilities.

Thus has been established the fact that a city has the right to protect the sanitary conditions of its water

and sewer system by refusing to accept connections to plumbing installations which do not comply with the city's plumbing code.

This decision can have far reaching importance coming as it does when the whole country is expecting to experience a residential building boom as soon as men and materials are available. Many communities will grow faster than their official boundaries will be extended and only by means of properly written and enforced plumbing codes can the sanitation and the health of the entire community be protected.

A service to the entire country has been done by Mr. Sims, Bill N. Taylor, Port Arthur's city manager, and the City Commission who backed him up, and City Attorney Jack Voyles who defended their position. Credit should also be given to the foresighted writers of Port Arthur's Code who provided the legal means for these men to use in preventing the use of substandard material.

Federal Specifications for Lead Pipe, Bends and Traps

Federal Specification WW-P-325 for Pipe, Bends and Traps; Lead (for) Plumbing and Water Distribution has been issued and became effective Nov. 15, 1944.

This new document, Part 5 of Section IV of the Federal Standards Stock Catalog, follows closely the substance of the Commercial Standards of the Department of Commerce and the Standards of the Lead Industries Association for these products. In addition it describes methods of inspection and testing as well as packaging and marking requirements for general application and for individual government departments. Also included are general notes on commercial designations and specification practices and suggestions pertaining to the specification of special sizes, types or weights.

This document is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., price 5 cents. The Lead Industries Association will supply individual copies free of charge upon request.

Pure White Lead Paint Stencil Decoration Practical Wall Treatment for Public Rooms

ONE of the most versatile mediums of wall decoration available to the painter is the all over stencil. The possibilities of this medium are limited only by the ability and inventiveness of the workman and the application is not difficult although, like any other worth while craft, it requires skill and careful workmanship. Stenciled walls executed in pure white lead paint made with lead mixing oil or lead reducing oil have a pleasing sheen, not flat, not glossy, which presents a surface that is slow to gather dirt and can be repeatedly cleaned by washing with mild soap and water solution.

The all over stencil is an especially effective type of decoration for the walls of certain types of public and semi-public rooms where it is desirable to create a more interesting wall treatment than plain colors but where a perishable material like wall paper would be difficult or expensive to keep clean and attractive.

An excellent example of this type

of wall treatment is found in the ante-room to the school board meeting room in Springfield, Mass. Here

a design in dull red and green superimposed on a buff background provides a most interesting wall treatment and helps to furnish what might otherwise seem a bare uninteresting room.

This design was created and exe-

Effective use of stencil design executed in pure white lead paint provides decorative finish easily kept clean



cuted by Mr. G. Marceaux, foreman in charge of painting crews doing the maintenance work on the city owned buildings of the City of Springfield. The design shows evidence of a knowledge of authentic precedent and a thoughtful application of early American furniture motifs to wall decoration. Mr. Marceaux also executed the marbelizing of the door trim, cornice and base in the room.

The board room itself is also a very interesting room with murals representing the landscape around Springfield at the time of the first settlements. The rather elaborate woodwork of this room was made by the students of the Springfield trade school. It is painted dazzling white with pure white lead paint, which has been found by the maintenance department of the city to be economical in first cost as well as durable and easy to keep clean and shining.



Board room, Springfield, Mass., school department. Washability of the pure white lead paint is an important factor in maintaining spotless white woodwork.

Lead Joints in Cast Iron Water Mains Successfully Calked With Air Hammer

THE lead calked joint as a means of joining cast iron pipe sections has, along with a few other construction practices, remained a completely satisfactory method over a long period of time. Procedure of making such joints has changed little if any in more than a century as is

shown by the ancient examples occasionally dug up when changes in pipelines become necessary.

However the progressive waterworks engineer is always on the lookout for means to expedite installations and reduce construction costs and for this purpose the use of pneumatic calking hammers has often been suggested. The idea has usually been rejected on the theory that mechanical calking would be difficult to control and so would result in overcalking and breakage.

That such fears are exaggerated has been shown by the experience of the Bureau of Water of the City of Allentown, Pa., where, since 1935, all new water mains have been joined with poured lead joints calked with pneumatic hammers. In the period since 1935 until the present date thirty miles of watermains have been laid in 4, 6, 8 and 12-in. sizes with no breakages of hub or spigot due to overcalking. In addition, out of the 15,000 joints in these lines, only

18 have required additional calking because of leakage.

Branch lines to several housing projects in the vicinity of Allentown in sizes down to 3-in. and 2-in. have also been calked with the air hammer without injury. Mr. Walter Horn, construction engineer of the Allentown Bureau of Water, states, "In a recent city wide leak survey no joint leaks or cracked pipes were discovered on mains laid since 1935."

The water works now owned by the city of Allentown was established in 1829 and it has grown and developed along with the city which it serves. It now has 175 miles of cast iron water mains all calked with lead. Some of the original century old lead calked mains are still in use. All house services are of lead pipe and many of them, still active, are also very old.

But the long record of service of the old hand calked lead joints has not caused the Allentown water works engineering staff to ignore the savings and other advantages available through the adoption of mechanical performance of the tedious and painstaking labor of calking. Many other water departments will, no doubt, wish to enjoy the advantages of the speed and efficiency provided by the pneumatic calking hammer.



Calking a 4-in. water main with an ordinary air hammer using special calking tools

A Portfolio of American Landmarks

No. 28

Three Centuries in Danvers, Massachusetts

HERE are three houses each recalling stirring times in their town of Danvers, Mass. First the Judge Samuel Holton house, built in 1670 was standing when Salem Village, which was located within the present limits of Danvers, was the center of the witchcraft prosecutions of 1692.

The Col. Jeramiah Page house was the scene of the charming story of how Madam Page discharged her social obligations without violating a pledge not to serve tea under her roof by having a tea party on top of the house.

The Jesse Tapley house, built about 1830, marks the early days of manufacturing in Danvers. Originally planned as a shoe factory it was completed as a residence for its owner and his bride.

Witchcraft has long since ceased to plague Salem Village, no unjust tax on tea now encourages bizarre stunts in the name of patriotism, but the hard New England thrift that made Danvers a prosperous manufacturing center still decrees that these houses shall have the sure but economical protection that is provided by pure white lead paint. Their present owners find that this same dependable paint which has withstood all kinds of weather for many years on hundreds of early American houses is still the top quality paint for protection and beauty.



The Judge Samuel Holton house, built in 1670, now owned by the Isreal Putnam Chapter, D.A.R. Pure white lead paint ties main house and later additions into one harmonious mass



The Col. Jeramiah Page house, built about 1754, is still kept trim and white enough with pure white lead paint for tea parties on the roof if they should be necessary



The Jesse Tapley house, built about 1830, shows little evidence of having been begun as a shoe factory. Pure white lead paint helps the attractive entrances to impart a homelike atmosphere

PHOTOS BY DANTON SNYDER

THIS IS NO. 28 OF A SERIES REPRESENTATIVE OF THE MANY AMERICAN LANDMARKS IN VARIOUS SECTIONS OF THE COUNTRY THAT ARE PRESERVED FOR THE FUTURE WITH PURE WHITE LEAD AND OIL PAINT. MANY OF THEM HAVE ALWAYS BEEN PROTECTED WITH THIS RELIABLE MATERIAL ACCORDING TO AVAILABLE RECORDS.

WAR BONDS

Are Still Your
Responsibility

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Georgia Doctor Makes Ingenious Use of Lead in Treating Convalescent Fracture

LEAD weights turn up in all sorts of surprising locations from piano keys to airplane control surfaces but the use of a lead weight to help overcome the effects of a broken bone is an unusual application.

Herman Parramore, Jr., of Valdosta, Ga., unfortunately broke his arm at the elbow recently and, as so often happens, inactivity of the muscles during knitting of the bone caused the boy difficulty in straightening his arm after it had healed. In order to hasten full use of this member, his doctor fixed up a wristlet, as shown in the accompanying photograph, carrying a lead weight so that each time the arm was flexed the



Herman Parramore of Valdosta, Ga., wearing a lead weighted wristlet to help straighten an injured elbow



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 17, N. Y.

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.

RED LEAD FOR STRUCTURAL WORK

By Dr. L. L. Carrick, Director, Red Lead Research, Lead Industries Association

A discussion of the rust inhibitive qualities of red lead paint and the best means of making use of those qualities for the protection of structural metal. Reprinted from *Engineering News Record*, April 6, 1943.

*LEAD CARRIES ITS WEIGHT

By Fred P. Peters

An interesting resume of many of the long established uses of lead plus information on a number of recently developed adaptations of the properties of lead to special purposes. Reprinted from *Scientific American*, June, 1944.

SOME PAINTING PROBLEMS AND THE ANSWERS

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

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. Certified 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.

FEDERAL SPECIFICATION WW-P-325

For Pipe, Bends and Traps, LEAD.
Part 5 of Section IV of the Federal Standard Stock Catalog, official publication by the Government Printing Office.

LEAD EQUIPMENT USED IN INDUSTRY

By F. E. Wormser, Secretary of Lead Industries Association

A summary of the uses of lead in the production and handling of corrosive chemicals. Reprinted from "Metal Progress" to be included in the next edition of *American Society of Metals Handbook*.

SUMMARY OF NOTES ON LEAD ROOFING

A brief description of the uses of lead for roofing and flashing purposes and the proper practices of its application. Reprinted from *Sheet Metal Worker*.

NEW LEAD COATING PROCESS ELIMINATES USE OF ZINC ALLOYS

By W. Yenkmann, Engineer, Western Electric Co.

A description of a successful hot dip lead coating process with complete instructions for changing over from hot dip galvanizing using the same equipment. Reprinted from *Product Engineering*, May, 1934.

COMMERCIAL STANDARDS

Calking Lead, C594-41
Lead Pipe, C595-41
Lead Traps and Bends, C596-41

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.

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.

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.

LEAD X-RAY SHIELDING

Graphic chart based on recommendations of the International Commission on X-Ray and Radium Protection giving thicknesses of lead for respective voltages in millimetres, inches and pounds per square foot.

lead weight would give it a little impetus, thereby helping to stretch the muscle to its former usefulness.

The same characteristic of great weight in small bulk that makes lead a desirable material for balancing airplane control surfaces was the reason for choosing lead to weight this special wristlet. At best such a device is uncomfortable to wear but weighted with lead it is less bulky than if it were loaded with a less dense material.

This is a clever adaptation of simple materials commonly at hand to help Herman over that difficult period when the bone is healed but the arm just is not quite well yet and feels as if it would never be straightened out again.



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

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