Not the beginnings of an oil refinery, but of a low-rental housing project in Nashville, Tenn., where lead bends, lead drum traps and lead stubs will accommodate structural variations that occur.

Lead Fittings For Mass Produced Housing

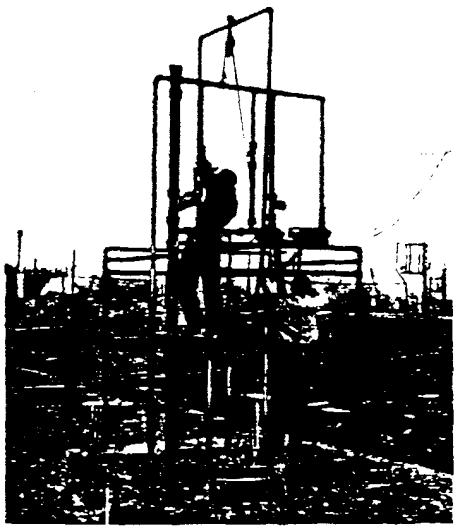
HOUSES without plumbing are, it is to be hoped, a thing of the past, but residents of Nashville, Tenn. were recently subjected to the spectacle of plumbing without houses, when they saw long rows of roughed-in plumbing, two stories high, standing like leafless trees. Actually, they were witnessing an early stage in the construction of the 480-unit Sam Levey Housing Project. Efficiency dictated the construction sequence and flexible lead bends and lead traps together with lead stubs for lavatory connections were chosen to allow for the structural variations to be expected when the enclosing procedure commenced.

Modern low cost housing demands smooth assembly-line construction techniques if the housing is to remain low cost without sacrificing quality. The adaptability of lead fittings to shop preassembly and their flexibility when installed, so that minor dimensional discrepancies are easily compensated for, give to performance-proven lead fittings the properties most desired for mass production purposes. Typical examples of lead's use in efficiency plus quality, low cost installations are this Nashville project and another recent project in Pueblo, Colo.

At the Sam Levey Housing all of the lead work was prefabricated in the shop on the job site, allowing for steady output in all weather. Then two-man crews went down the line rapidly installing the lead fittings in the construction industry version of the automobile assembly line. A special point of interest on this job is the galvanized box which was built around each drum trap at the line of preassembly to provide easy access after the concrete floor was poured. The flexibility of the lead trap easily

Preassembled lead fittings were always ready at the Sam Levey Housing project, because they could be prepared in the shop, rain or shine.

The rig used in erecting the roughing-in for the Nashville housing. The lead bend is almost calked in; the lead drum trap is next.



At Pueblo, Colo., a journeyman plumber starts one of the single all-lead units for the Sangre de Christo Housing Project.

accommodates any strain caused by the concrete when hardened. The E. I. Tuck Plumbing and Heating Co. of Nashville were the contractors.

In Pueblo lead fittings were similarly employed for the Sangre de Christo Federal Housing Project. The standard roughing-in here was a single unit prepared in advance on which were wiped drum trap for the bath, a vent, wastes for sink and lavatory, and a bend, all of lead. Taken to the dwelling, the roughing-in was slipped into place with any minor adjustments to fit variation a simple matter. Thus one standard unit, foolproof and sure to give long, dependable service was the complete answer for the plumbing on the two hundred and twenty-four unit project. The all-lead plumbing was installed by the Park Hill Plumbing and Heating Co. of Pueblo.

In the foreground are the completed all-lead plumbing units for the Pueblo project. The smooth bending lead avoids numerous joints and special fittings and compensates for dimensional discrepancies in the construction.

Stadia Withstand Sun, Sleet And Feet With Red Lead Protection

FOOTBALL fans who follow the fortunes of the Northwestern Wildcats are probably not too concerned with the severe test to which the combination of their heavy traffic on Fall Saturdays and constant exposure to all kinds of weather subjects the steel bleachers of Dyche Stadium at Evanston, Illinois. The problem was carefully considered, however, when the Stadium was built in 1948 and the excellent condition of the stadium today attests the wise choice made for protecting the steel portions against corrosion.

A red lead base primer was selected for the initial coat. Before its application the entire surface of the steel structure was grit blasted. The welds were not smoothed. The red lead primer coat was then applied at a rate of about 300 sq. ft. per gal. After this the structure was given an intermediate coat of an alkyd-resin vehicle paint. Before this coat had dried a well graded sand was sprinkled evenly over the surface until the paint film was barely visible. The coat was allowed to dry thoroughly. Then a top coat of the same alkyd-resin vehicle paint was applied which covered the grains of sand. This left the surface just rough enough so that the contour of each grain of sand could be distinguished, yet each grain was covered with a film of top coat paint at least 0.001 in. thick. Each of the top coats was applied at a rate of about 200 sq. ft. per gal. When a survey of the stadium was made after four years the steel structure was found to be in near perfect condition. In not over a half dozen places had there been a complete breakdown of the primer coat. On about 30% of the step edges the top coat had been worn away but the red lead primer coat was still functioning and no rusting was observed. Overall it was estimated the condition was 99% perfect. Spot coating of the few rust spots mentioned and of the step edges should enable the stadium to continue to give excellent service for at least four more years despite the exposure to snow, rain, excessive ultra-violet light, and the tread of spectator feet which is its lot.

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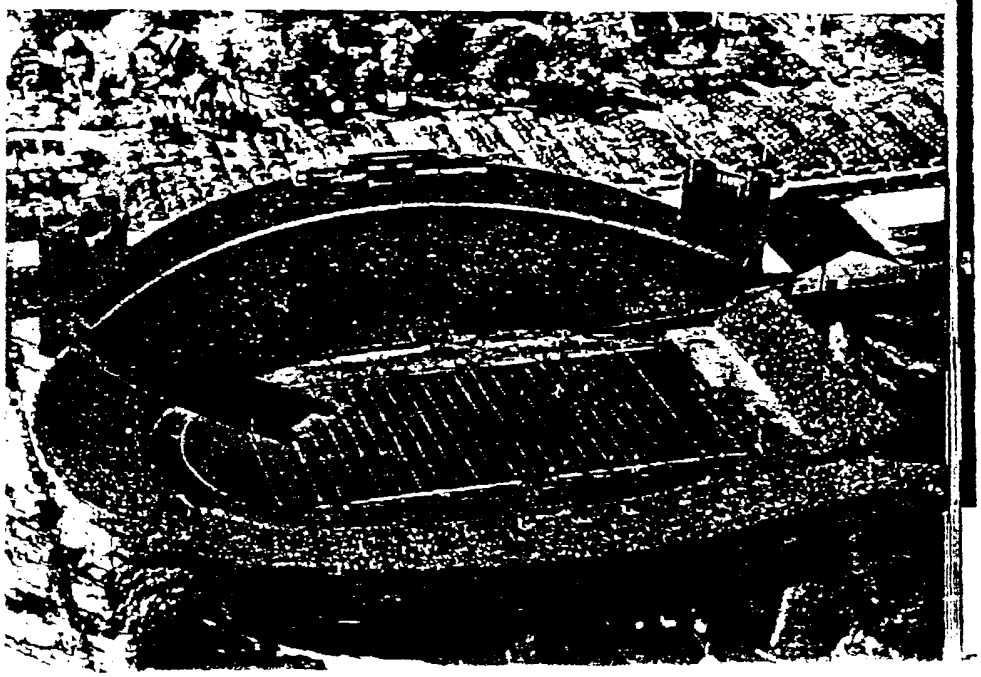
Dyche Stadium of Northwestern University at Evanston, Illinois, where a red lead primer coat protects the steel bleachers against the extremes of weather conditions and the tramping feet of rabid rooters.

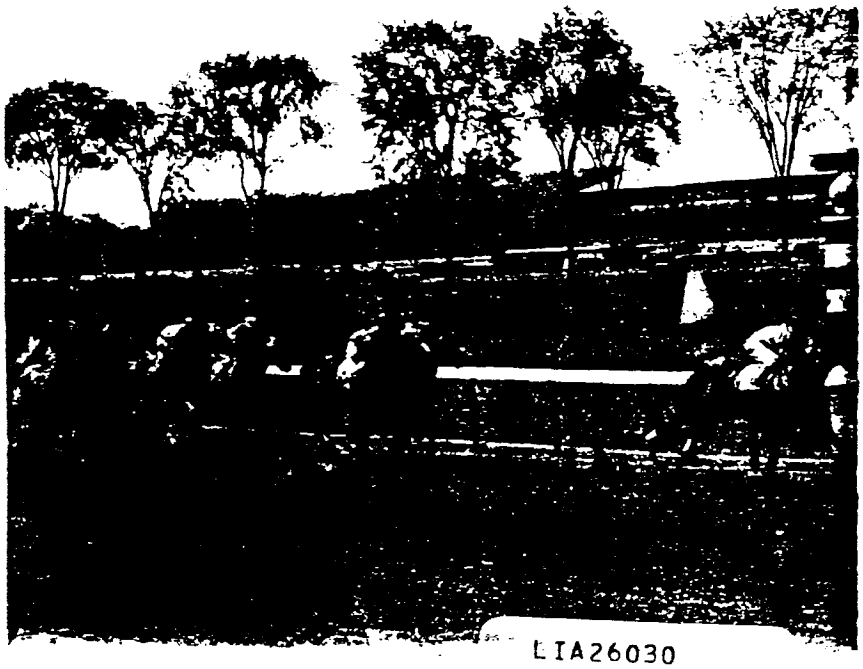


Warm-up bats, like the one Billy Cox of the Brooklyn Dodgers is shown swinging along with his favorite stick, are weighted with sixteen to twenty ounces of lead, poured into a hole drilled in the barrel of the bat.

The surf caster uses a lead sinker to get the distance he wants and hold the bottom. Lead sinkers come in a wide variety of types and sizes for every kind of fishing from pier-end to mountain stream. There is also lead-cored fishing line for fly-fishing without a sinker.

Will the horse in front still maintain his margin at the finish line? Thin sheets of lead may tell the story. The difference, if any, between the weight of the jockey plus equipment and the impost assigned a race horse is made up by slipping lead weights into a pad that fits under the saddle. At right, along with the lead weights, are types of pads into which the weights are put.

Duck or deer, pheasant or quail, whatever the huntsmen's pleasure, lead shot is the ammunition that bring home the game.



LIA26030

LEAD IN SPORTS

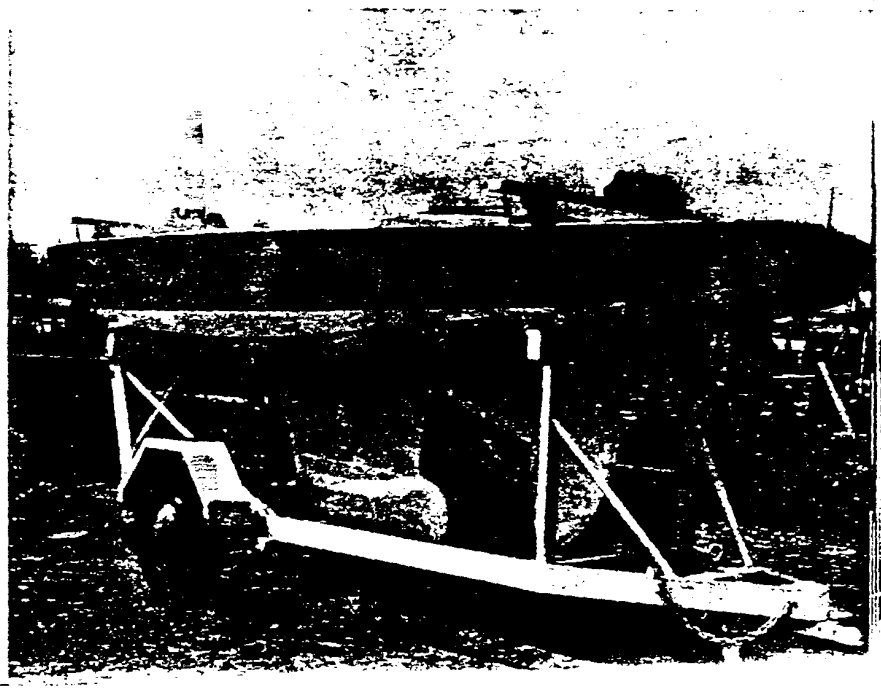
The important place of lead in the economy is constantly evident in the batteries of our cars, in the tetraethyl lead in the gasoline that makes the cars go, in plumbing, in red-leaded steel construction. Other uses are less obtrusive, though not less important, like the lead sheathing for telephone cables. There is a field where lead is both unobtrusive and, economically speaking, unimportant. But to the personal enjoyment of the baseball fan, or the golfer, or the fisherman, his game, where lead also plays its part, is far from unimportant.

Lead weights attached to the belt of this spearfisherman help him overcome buoyancy and meet the fish on more equal if hostile terms.

...ace," the pro drills into the neophyte golfer, when he ...s him form. Certain clubs, like the driver and brassie, ...emselves balanced by weighting with lead. The pro here is Jimmy Thomson.

A. G. Spalding & Bros.

The stability of sailing craft, from that of star class like the boat below, to ocean going vessel like that shown on the cover, is often maintained with a lead filled keel.



LTA26031

Some of the shapes in which the phenolic resin marblette is cast, and from which may be made screw-driver handles, ma-long pieces, clock cases, bracelets, or what would you like?

Marblette, A Phenolic Resin Cast In Lead Molds

LITERALLY the material of 1,001 uses, the cast phenolic resin known as marblette might show up on a given day in the handle of your hairbrush, in the trim of your furniture, in the buttons on your wife's coat or in her costume jewelry, in the handle of the knife you use to carve the roast beef, and, at the end of the day, in a pair of dice or chessmen, depending on your sport. And these would only be scratching the surface of the uses of this colorful, versatile material, which can be freely exploited because of easy and economical manufacture. Not the least factor making for economical production is the initial step, where the resin is cast in basic shapes in lead molds which are remelted and used over and over again.

The Marblette Corporation of Long Island City, N. Y., the pioneer and leading manufacturer, whose name has now become the generic term of this resin, puts a million pounds of lead a week into the mold-making step for their share of the marblette business which is something like 75 per cent. New lead to replace dross loss is required by them to the extent of 120,000 lb. a year. The company does not usually produce finished forms, but the rods, sheets, tubes, cylinders and special shapes from which other manufacturers make the final product.

At Marblette, the steel mandrils, in appropriate shapes for forming the molds, are made by an outside source. The mandrils are made to form a mold of conveniently handled size that is actually a cluster of identically shaped molds. The mandril is dipped into a pot of molten lead. When withdrawn, the lead mold clinging to it is cooled by dipping it in water, then knocked from the mandril by pounding on wooden posts. Until they are ready for the casting of the marblette, the molds are kept pre-heated in ovens. This step prevents oxidation and also bubbling when the liquid

Steps in making marblette: Top left, lead molds clinging to steel mandrils are pulled from the melting pot. Top right, liquid marblette is poured into the preheated lead molds. Bottom left, four to six days in this oven at 140° to 180° F. are required to cure the marblette. Bottom right, one of the many shapes is knocked from the lead molds by mallet blows.

LIA26032

resin is poured into the molds.

Liquid marblette is made by cooking phenol and formaldehyde in the presence of a catalyst, and with desired coloring added, in steam jacketed vacuum kettles. The liquid is drawn from the kettles in small quantities, mottled if that effect is wanted, and poured into the preheated lead molds. Then the molds are placed in ovens where the resin polymerizes or cures for four to six days at temperatures of 140° to 180° F. Once hardened the marblette is knocked from the molds by a sharp mallet blow, or, in some cases, a special gun, which indents the lead and forces out the rod, tube, sheet or special shape, ready to be shipped to the manufacturer for final finishing. The lead molds then go back into the melting pot, ready to go through the process again.

The marblette shapes come from the lead molds smoothly surfaced and accurately formed. For whatever steps may be necessary before it becomes an end product, marblette has machining characteristics very similar to hard wood, brass and ivory. It is non-inflammable and resistant to oils and common acids. But, from a style viewpoint, perhaps the most outstanding feature of marblette is that it may be colored in every shade of the spectrum, and in any of those colors be translucent, opaque, transparent, or mottled. There is good reason for its widely-varied applications.

White Lead Paints For Beauty And Durability

WHITE lead in oil, standard choice of the contractor who performed the work, was used for the recent painting of the house in Wilton, Connecticut, which is here pictured. Depended on by early American builders for the protection of their houses, many of which to this day are regularly painted with the same dependable material, white lead, alone or in mixed pigment house paints, maintains the high place it has held since paint was first used.

For this New England house the painting was done in two coats. The ideal tintability of white lead was taken advantage of in tinting the paint used for the shingles with a half pint of lamp black for every hundred pounds of lead. Straight white was used on the trim for a delicate, pleasing contrast. The painting contractor on the job was Bryon Scott of Wilton.

The outstanding performance of white lead paints is due to several important characteristics. White lead stabilizes paint films by neutralizing the acidic compounds formed in the paint during vehicle decomposition and inherent in the surrounding environment. The plasticizing action of white lead soaps prevents cracking and subsequent scaling of house paint films. Paint films are strengthened physically by lead soaps, so that film toughness and distensibility are increased. And, finally, because of the improved water resistance of paints containing white lead pigments the tendency of the films to emulsify, swell, blister and disintegrate is sharply reduced.

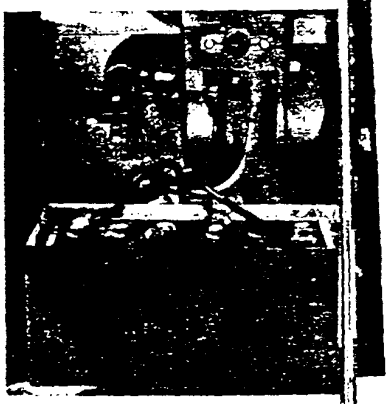
Besides these, white lead provides such good paint properties, both weathering and non-weathering, as controlled oil penetration, controlled drying, improved brushability, ability to withstand faulty handling and misapplication and, in proper combination with zinc oxide in multiple pigment paints, mildew resistance.

To these reactive properties, then, are owed the beauty and durability of white lead painted homes and other structures.

The white lead this painter has just applied to the Connecticut house will retain its appearance for years to come.

Spray Coating With Metallic Lead

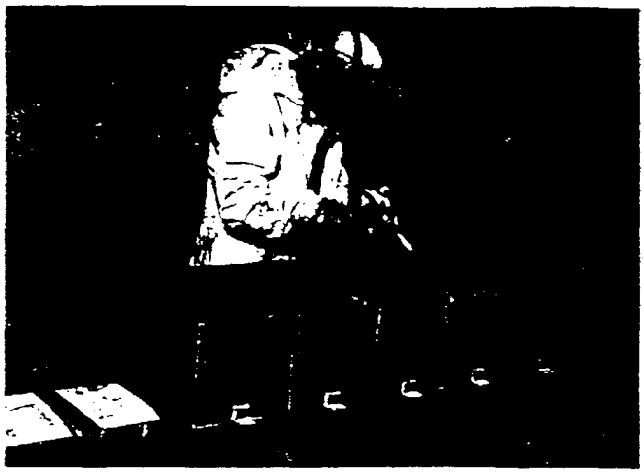
METALLIZING or the spraying of metals, much as paint is sprayed, has gained considerable recognition as a means of improving the corrosion resistance of the less expensive but readily corroded metals. Among applications where sprayed lead is used to particular advantage is wherever sulphuric acid exposure is involved because of lead's unexcelled resistance to attack by that acid. There are many other instances where this method of utilizing lead's corrosion resistance can serve practically and economi-



Battery boxes like this, spray coated with lead to protect against sulphuric acid electrolyte, are used by the Schlumberger Oil Well Surveyors.

cally, though, because of its porous nature, metallized or sprayed lead cannot effectively serve as a substitute for sheet lead or bonded lead.

A typical application of metallized lead is in the spray coating of battery boxes. Battery boxes must be strong enough to support the weight of lead-acid batteries and, therefore, are usually made of steel. But because of the sulphuric acid electrolyte in such batteries, the steel battery box would be severely corroded in a short time. This costly problem has been solved by Schlumberger Oil Well Surveyors, who are using a battery box, as well as hold-down clamps, coated with approximately 0.03 to 0.05 inches of sprayed lead. The illustrations show the boxes and clamps in the process of being sprayed and a completed unit as installed. Lead wire fed into the spraying machine is melted and atomized in one step by an oxy-acetylene flame.



Spray coating battery boxes with lead at the F. W. Gartner Co., in Houston, Texas. The system affords ample protection against corrosion at economical cost.

The F. W. Gartner Company, Metco contractor of Houston, Texas, who did the metallizing, report that they have coated some two hundred units of this type in the past and that the system has more than provided adequate protection from corrosion by battery acids at a cost which has made the process economically attractive.

Some other instances where sprayed lead has proven useful are in coating chemical plant flue ducts, flue boxes for industrial furnaces and the insides of metal smoke stacks.

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