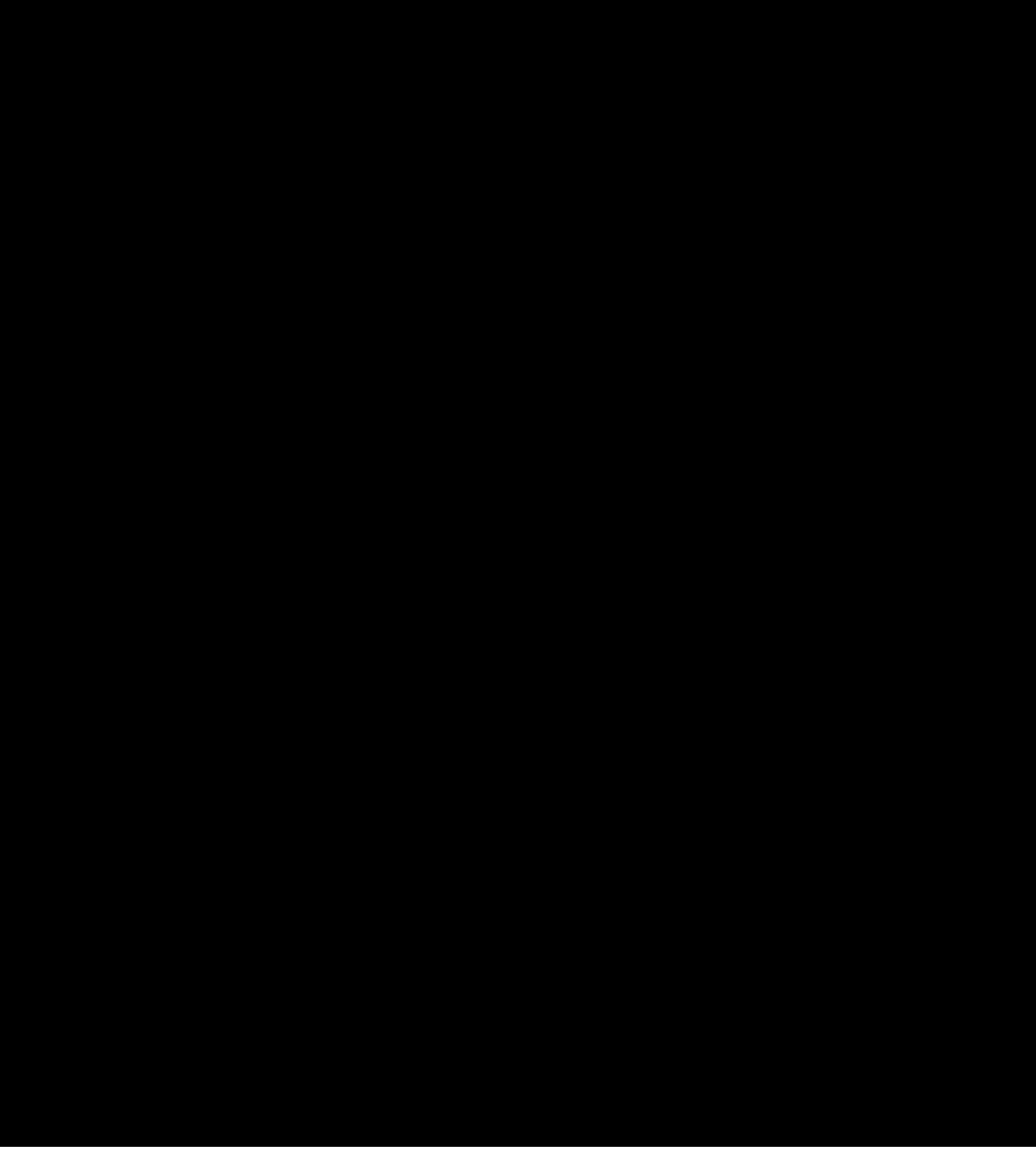




GREENWOOD

**MAGNIFICENT ARCHITECTURE
BLENDED WITH THE LEGENDS
AND CHARM OF THE ROMANTIC
OLD SOUTH**



CITED by the National Geographic Magazine as the finest example of classic-colonial architecture in Louisiana, Greenwood, the home of Mr. and Mrs. F. S. Percy, on U. S. Highway 61, in St. Francisville, Louisiana, preserves its classic beauty with pure white lead paint. Greenwood has been the subject of praise from artists and architects everywhere, and is conceded by them to be one of the purest of Greek Revival designs. The mansion is magnificent in its proportions, being 100 ft. square and completely surrounded by a lofty portico of massive columns.

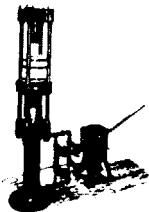
The story behind Greenwood is one of particular interest. Partly legendary, partly based on fact, it is the strange tale of an architectural battle between Judge W. C. Wade and Ruffin G. Barrow, scions of wealthy early Louisiana settlers. In 1835 these two men both fell in love with the same girl. As time went on, their rivalry became so intense that they were at the point of settling the matter by means of the dueling sword. Friends persuaded them to decide the affair not by fighting but by building two mansions, the most beautiful of which

would be the future home of the girl.

The men chose two nearby hills as sites for their mansions, each convinced that his home would have as its mistress the gracious southern belle. Armies of slaves worked for four years and then the homes were completed. The story does not tell which house the girl chose—if either—or whether in the meantime she had married some one else.

Although the two homes are almost identical, Greenwood is considered a better example of the Classic Revival because of its square proportions. The interior as well as the exterior of Greenwood is of great beauty, Italian marble mantels, hand carved moldings and solid silver doorknobs being a few of the many lavish details. Of a size and magnificence rarely attempted in modern home building, Greenwood is a fine example of how pure white lead, properly combined with linseed oil and gum spirits of turpentine, brings out the best in large homes as well as it does on the thousands of smaller homes protected by it. From this mansion down to the smallest cottage, pure white lead painted homes stay young and fresh.

A.W.W.A. Convention to be Held in Toronto, Canada, June 22-26



The model pipe press which will be exhibited by the L.I.A. at the 1941 A.W.W.A. convention

THE 1941 annual convention of the American Water Works Association will be held in Toronto, Canada, June 22-26, 1941, with headquarters and exhibits at the Royal York Hotel.

Every water works engineer should attend this year's convention if he is possibly able. Not only will there be interesting and useful discussion on general water-works practices, but the present defense program has brought forth many very important problems

the discussion of which at the coming convention will prove highly beneficial to engineers and to the defense effort.

Due to the great interest shown in the Lead Industries Association exhibit last year at Kansas City, the Association's 1941 exhibit will again feature the unique miniature pipe press. Those who attended last year's convention and were in the many groups which saw the press in operation will remember how neatly it duplicates the extrusion of lead pipe on regular presses. Those who missed the 1940 show will see just how lead pipe is actually made, an experience which will be new for many engineers although they may have used and specified tons of lead service pipe.

The model press operates on ex-

actly the same principle as the huge commercial presses. Hydraulic pressure forces lead, poured from a melting kettle and allowed to solidify, up through a die and around a core whose diameter is smaller than the die opening by the thickness of the pipe wall all around.

Engineers at the 1940 meeting watch the press make real lead pipe





No. 7

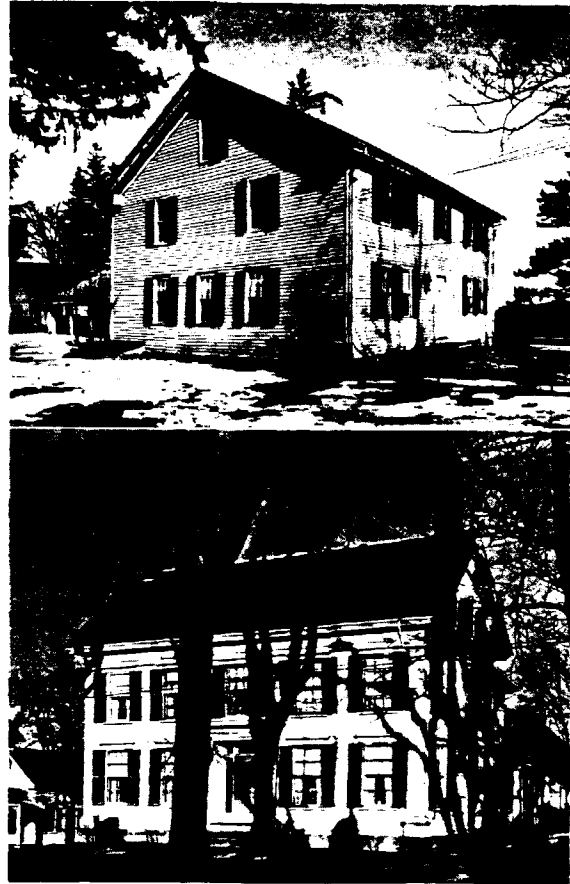
Famous Authors' Homes White Lead Painted

IN the July, 1940 issue of LEAD, the "Portfolio" contained three pictures of American Poets' homes. Equally important and interesting on the American scene are the homesteads of our American Authors. Three of these many literary shrines scattered throughout our country are reproduced here. Their individuality, as well as their life and charm, is being well protected and enhanced with pure white lead paint.

In this brief representation of American men-of-letters it is only possible to show by means of a few examples the setting in which a small part of our great American literature was created. In the genial culture of "Avalon" in Princeton, N. J., can be captured the atmosphere of informal hospitality pervading that mansion during the thirty years in which Henry Van Dyke lived and wrote there. A quaint Colonial home in Brunswick, Me., reflects the quiet strength that drove Harriet Beecher Stowe to write "Uncle Tom's Cabin." Alike in all of these homesteads, one feels that combination of grace and sturdiness which characterizes the immortal American authors.

"Avalon," the homestead of Henry Van Dyke in Princeton, N. J. A graceful colonial mansion dating from Revolutionary days. "Avalon" remains today in excellent condition, protected by white lead paint. The colonial yellow painted stucco body is set off by white wood trim and columns and green shutters. It was here during the thirty happiest years of his life that Van Dyke turned out many of his well-known writings

*At top right: "Arrowhead," the rambling country home of Herman Melville. Pure white lead paint enhances the simple attractiveness of this homestead in Pittsfield, Mass. At one time the old inn on the Lenox-Pittsfield road, it later became the sanctuary where Melville penned his robust, rollicking tale of the whalers, *Moby Dick**



The Colonial New England home of Harriet Beecher Stowe. It was in this century-old house in Brunswick, Maine that "Uncle Tom's Cabin" was written. The matched flush weatherboarding on the main portion of the house as well as the lapped clapboard on the rear has been protected from the rigorous Maine winters with pure white lead and oil, according to the present owner, Mrs. F. W. Appleton

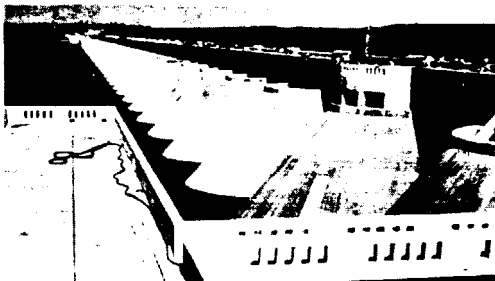


THIS IS NO. 7 OF A SERIES REPRESENTATIVE OF THE MANY AMERICAN LANDMARKS IN VARIOUS SECTIONS OF THE COUNTRY THAT ARE PRESERVED FOR THE FUTURE WITH PURE WHITE LEAD AND OIL PAINT. MANY OF THEM HAVE ALWAYS BEEN PROTECTED WITH THIS RELIABLE MATERIAL ACCORDING TO AVAILABLE RECORDS.

LEAD PLUMBING SERVES

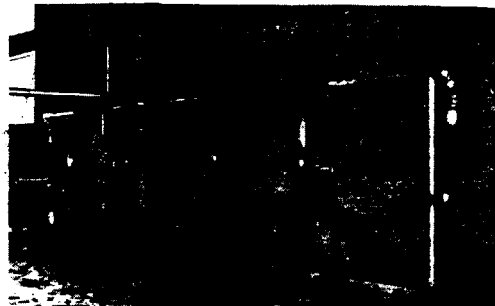
Everywhere

FOR EVERY CONDITION



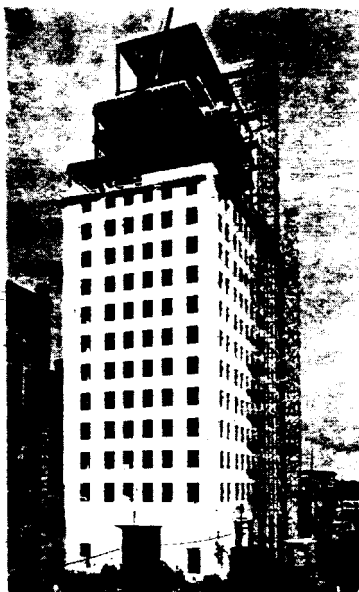
Lead waste and vent connections as well as 4-in. lead soil pipe in the power house of Grand River Dam, Disney, Okla. John Duncan Forsythe, Tulsa, Okla., architect

BOB WHITE



ONE fact stands out from an analysis of modern lead plumbing installations and that is that lead is applicable with the highest degree of efficiency in *all* types of construction, whether wood frame, steel and concrete, or otherwise. In each one lead has some attribute that is especially suited to the entire installation.

This is not merely installation theory, but a sound plumbing principle, based on years of experience under all installation conditions. The final proof, naturally, is that lead plumbing is being used in homes, office buildings, industrial plants, housing projects, and all kinds of structures, defense or otherwise. Everywhere only satisfaction is found with modern lead plumbing.



Lead's natural characteristics of durability, flexibility, corrosion-resistance and the efficiency of a lead plumbing system with bonded, leak-proof joints, smooth inner walls with minimum resistance to flow, and freedom from clogging are the reasons why no other type of plumbing can come up to lead's high standard of quality and service.

Moreover, modern workmanship and production methods have made lead plumbing a necessary economy in all construction, from luxurious buildings to the most meagre housing project with the slimmest budget. Numerous examples in low-cost housing projects have shown that lead can be installed at no greater, and even less, cost than other types of plumbing systems.

Center photo: Commercial National Bank Building, Shreveport, La., using lead and soil plumbing. McKim, Meade and White, New York City, architects, Samuel G. Wiener, Shreveport, associate architect. At right, lead wastes in one of a group of \$4,000 homes in Waterbury, Conn.

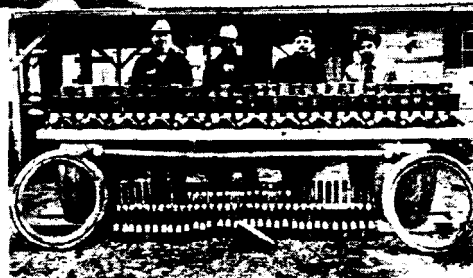


Lead and soil plumbing is used throughout the new Navy defense housing project at Orange, Texas. Roof flashings are 4lb. lead and all fixtures have lead connections. Brown-Lane Co., Beaumont, and Central Contracting Co., Dallas, Texas, general contractors



Left, the new Victoria Courts USHA project in San Antonio, uses over 80,000 lb. of lead bends, drum traps, and waste pipe. Phelps, Dewees and Simons, Atlee B. and Robert M. Ayres, Adams and Adams, and Marvin Echenroth, architects

STUDER PHOTO CO.





Painting Composition Materials

THE many requests received by this Association for specific information on the painting of composition materials indicates a definite need for paint to obtain maximum satisfaction from these materials.

Correctly formulated paint applied to cement-asbestos siding will overcome practically all of the difficulties experienced with this material. The most commonly observed of these defects is the tendency of this material to become dirty and dingy in a relatively short time after application. Dirt and soot becomes imbedded in the rough surface to such an extent that it is virtually impossible to remove it properly because of the depth of the surface pores. The resulting unsightly condition, which seriously detracts from the original attractiveness of the home, can be most easily combatted by painting the material before it becomes dirty, thereby preventing dirt collection by sealing the pores. This does not mean that cement-asbestos finish can not be painted after it is dirty and dingy; on the contrary, the only satisfactory method of restoring this material to its original color is by means of paint.

The High Water Absorption of Composition Cement Materials

Composition cement shingles and siding, due to their high porosity, absorb large quantities of water during rain storms. Experiments have shown that more than 3 gallons of water per 100 square feet of surface may be absorbed by this material. Badly mottled walls and excessive dampness will be seen on homes after unpainted asbestos finish has been subject to a driving rain. This moisture may reach such proportions that interior plaster and paint will be seriously affected. If a freeze should occur during one of these periods of satura-

tion, the expansion which takes place as the water turns to ice will frequently cause cracking and breaking of the siding. Coupled with moisture absorption is a tendency towards mildew under certain conditions. Particularly in the South where high humidities prevail, the moisture in the pores will encourage the growth of mildew until the whole side of the house may be badly mottled. Here again paint properly formulated and applied will effectively seal the surface pores against moisture and the many troubles which accompany it.

Advantages of Paint Styling

Perhaps the most important advantage of paint to the average home owner is its ability to color style the home to suit the owner's taste and pride. For this reason many people in the past have built of wood so that their homes could be periodically redecorated and re-styled with paint to meet their changing desires. Paint styling, however, is not limited to the man with the wood-built home. Practically every type of building material in existence may be painted successfully if the correct paint is properly applied. Pure white lead with a suitable vehicle, usually linseed oil, is an exceptionally versatile paint. Because it can be formulated correctly for the surface to be painted, white lead paint has proved to be highly successful in the protection and decoration of cement-asbestos siding as well as the other types of exterior finish that are frequently painted with this material.

How to Paint Asbestos Siding

In common with other cement combinations, asbestos siding, when newly installed, contains reactive alkalies which must be neutralized before the priming coat is applied. Consequently, the siding should be exposed to weather for several months before painting to permit neutralization by

the carbon dioxide in the air. If this waiting period is inconvenient, the destructive alkaline compounds can be artificially reduced with a surface wash composed of two pounds of zinc sulfate dissolved in one gallon of water.

Correct Paint Formulations

Experience indicates that the important consideration in painting cement-asbestos is to seal the surface adequately with the priming coat to prevent the spotting and early chalking of the top coats which results when the primer fails to saturate effectively the very porous surface. A priming coat to meet these conditions is easily produced by mixing 3 parts (by volume) soft paste white lead with 5 parts of a half-and-half mixture of raw linseed oil and lead mixing oil or lead reducing oil. When well brushed into the siding, this formula proves to be of consistency adequate to satisfy the exceptional porosity of asbestos siding yet has body enough to provide the basis for a durable finish. Finish coats are formulated the same as for allied materials. For a flat finish, two coats of 3 parts soft paste white lead and 4 parts lead mixing oil or lead reducing oil are applied, while a gloss coating is obtained by using a half-and-half mixture by volume of white lead and linseed oil. Drier is necessary only when raw oil is used.

Cement-asbestos shingles and siding and other composition building materials when painted with pure white lead and oil have all the advantages of white lead painted wood, namely: the surface stays clean and fresh because of the self-cleansing properties of white lead; moisture and the troubles that go with it are shed at the surface; and the home owner can either effectively renew the original beauty of his home or he can restyle it to new beauty with any color scheme that pleases his fancy.

Paint Engineering With White Lead



SHREWD application of engineering principles is one major reason why many development builders have been able to produce quality homes in quantity with minimum time and expense, and even maintain construction schedules through raw winter weather, rains, and other climatic conditions that prove stumbling blocks to other builders. Painting, too, can be engineered to overcome climatic conditions, a fact realized by alert builders like the W. H. Whyte Construction Co., builders of Radrock Estates, Fairlawn, N. J.

An organization with over 50 years experience, the Whyte Company is noted for the substantial quality of its work in residential and other construction. Although formerly devoted to moderately high-priced residences and commercial structures, the wealth of experience accumulated has proved invaluable in its development of smaller homes, Radrock Estates.

Over 75 homes have now been completed on this 50-acre tract, with 200 houses the present goal. Shop-built methods for structural parts of the home are the keynote of this engineered construction. It is not a spur-of-the-moment plan, but is based on well studied and tested experiments.

Facilities of the Whytes' large and well-equipped workshop are fully utilized and jigs are installed designed for the construction of 4 x 8 wall panels. Outside sheathing, as well as

the inside walls, are of plywood and the standard panel sections are built in the shop, complete with doors and windows installed and with exterior and interior trim applied. Dry-wall construction features all the homes.

In this way, construction has been engineered and planned to overcome winter and bad weather delay, and the results have fully proved the effectiveness of this system. In the same manner painting may be engineered. Pure white lead and oil is used throughout the development, giving the same type of benefits obtained by the shop-built construction. Regardless of temperature, the pigment-vehicle ratio of white lead can be easily adjusted to provide maximum efficiency (see *Strokes From The Paint Brush*, LEAD, January, 1941). Since one material is used, tinted to match the customer's choice in colors, purchasing and stocks are simplified. Regardless of the surface to be painted, white lead is equally efficient. Naturally, its beauty and durability are without question.

Maximum efficiency and utilization of materials at minimum cost under all conditions is the essence of good construction engineering. In the construction as well as the painting of Radrock Estates, this has been accomplished. W. L. Whyte, Jr. and H. D. Whyte, sons of W. L. Whyte, head of the firm, are in charge of construction. R. C. Hunter, of New York City, is the architect.

Some of the houses at Radrock Estates painted with white lead and oil in an "engineered" decorating and protection program

CYRIL LAMPLOUGH



H. E. JELTSCH



Lead Pipe and Valves Handle Salt Water in New California Aquarium



The Hancock Foundation Building, University of Southern California, uses lead pipe and valves for salt water lines

BECAUSE lead is so highly resistant to corrosion by salt water, it has been used throughout the new Hancock Foundation building, marine-life study building of the University of Southern California.

Salt water is stored in a 40,000-gal. tank in the ground and pumped through lead pipes controlled by lead angle valves to supply tanks in the pent house. From there it flows by gravity to the various aquarium tanks. Two lead plug stops control the flow to each group of tanks, and lead compression cocks are used for filling each tank. From the tanks the salt water is drained through lead pipe, lead back to the storage tank, filtered through gravity filters and used again.

For this installation 6 per cent antimonial lead was used. About 12 tons of pipe, ranging in size from $\frac{3}{4}$ in. to 2 in., were employed. Also used were 50 $1\frac{1}{2}$ -in. hard lead angle stops, 4 hard lead plug stops and 224 $\frac{1}{2}$ -in.

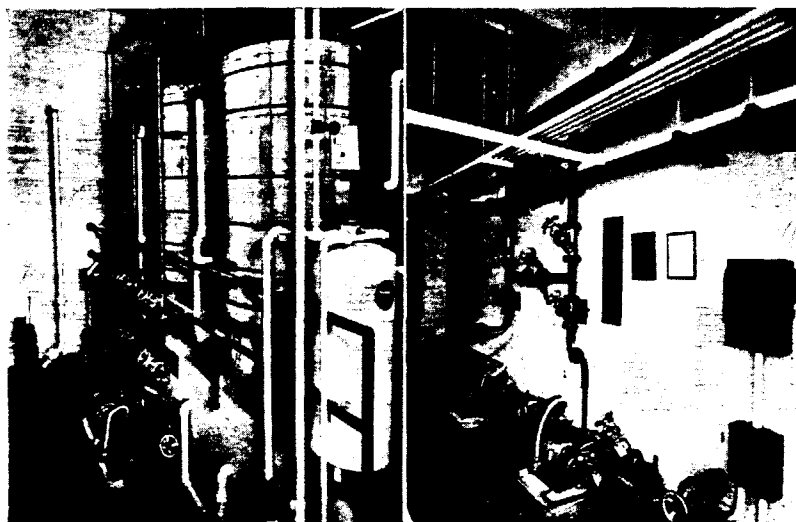
compression cocks. All joints not flanged were made by lead burning, so that nothing but corrosion-resistant lead would be exposed to the attack of the salt water. Flanged joints were made by burning the flanges to the lead pipe. Horizontal pipes are continuously supported by wood 2 x 4's, and vertical pipes are held on steel brackets under the flanges.



PHOTOS BY ARROW STUDIO

Industrial expansion from normal business increase, but especially due to the influence of the country's defense program has resulted in a substantial increase in the tonnage of lead sheet, pipe and fittings installed in plants handling corrosive chemicals. Nevertheless, although the greatest construction and engineering interest is naturally keyed to defense work, it should be remembered that the same corrosion-resistant properties of lead that make it invaluable for many industrial plants also make lead the ideal material for installations which, though they are not concerned with defense, are just as concerned with a corrosion problem.

Thus in civilian peace-time applications lead performs as efficiently as in vital war industries. Whether in the form of sheet, pipe, valves or other parts, as long as lead is used an installation will have excellent resis-

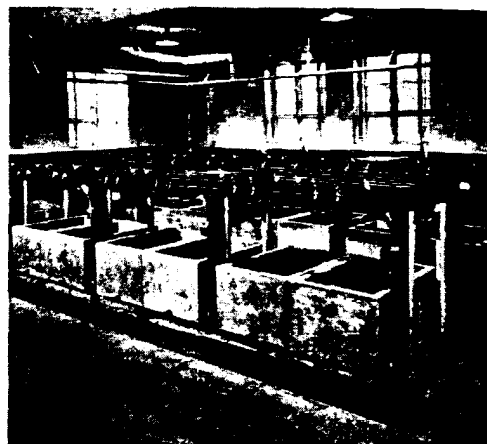


At far left, pumps, hard lead pipe and angle valves. Left, distributing pumps, hard lead valves and pipe in the filter room. Note brackets and horizontal supports

tance to corrosion by a wide variety of commonly used corrosives. Temperatures, solution concentration and other factors may have a bearing on the degree of efficiency in some cases and it is well to analyze each job, naturally, but where lead is properly used, satisfaction is the result.

C. Raimond Johnson was supervising architect and Samuel E. Lunden associate architect for the Hancock Foundation building. Ralph E. Phillips was mechanical engineer and all lead work was done by Johnston and Washer, plumbing contractors, of Los Angeles.

Hard lead waste lines for the concrete tanks in the Hancock Foundation Building aquarium. Below is a table of some common chemicals with which lead is used for its corrosion resistance



ARROW STUDIO

SOME COMMON CHEMICALS RESISTED BY LEAD

Aluminum Sulphate	Hydrofluoric Acid	Sodium Bisulphate	Sulphonations
Ammonia Vapor	Koch's Acid	Sodium Chloride	Sulphur Chloride
Ammonium Sulphate	Mixed Acids	Solution, or sea water	Sulphur Dioxide
Antimony Tri-Chloride	Nitration Mixture of H-Acid	Sodium Hydrosulphite	Sulphuric Acid
Bleach Liquors	Para-nitrophenol	Sodium Hyposulphite	Sulphurous Acid
Brown Acid Mother Liquor	Phosphoric Acid	Sodium Sulphate	Sulphuryl Chloride
Carbonate, Soluble	Phosphorous Chloride	Sodium Sulphide	Zinc Chloride
Chlorine Gas	Reductions	Sodium Sulphite	



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.

WHAT TO EXPECT FROM WHITE LEAD PAINT

An attractive 28-page booklet with charts, formulas, and mixing instructions covering some of the problems of painting and how white lead meets these problems.

PAINTING YOUR HOME by Dr. F. L. Browne, Senior Chemist, Forests Products Laboratory, Madison, Wisc.

A discussion of house painting reprinted from American Forests, May, 1939.

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.

SHEET LEAD INSTALLATION DETAILS

A detailed analysis of the principles and application of lead flashing and sheet lead work for small homes. Reprinted from Sheet Metal Worker, June, 1939.

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

PLUMBING CODES—AN ANALYSIS AND SURVEY—

Part II by Bob Dick

This paper, delivered at the annual meeting of the American Society of Sanitary Engineering in Wilmington, Del., in August, 1940, constitutes the most complete and up to date study of plumbing codes available. Everyone interested in plumbing codes should have a copy.

LASTING LEADWORK IN MODERN PLUMBING

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

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

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.

LEAD CHIMNEY CAPS

Notes on the installation and advantages of lead chimney-cap protection, reprinted from American Artisan, May, 1940.

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.