Lead Industries Association, Inc.
292 Madison Avenue • New York, N. Y. 10017 • Telephone: (212) 679-6020

October 20, 1972

SUBJECT: PUBLICITY STATUS REPORT

TO THE MEMBERS OF THE LEAD INDUSTRIES ASSOCIATION, INC.

Attached is the Third Quarterly Report of our Publicity Projects. Accompanying the report is a series of photostats of items which have appeared since the previous report.

Sincerely,

Jerome F. Smith

JFS:lm
Enclosure

Jerome F. Smith
Secretary & Manager

October 1972

LEAD INDUSTRIES ASSOCIATION
TRADE PUBLICITY PROGRAM
EXTENDED SECOND QUARTER REPORT
June - September 1972

Highlights of current publicity projects discussing lead applications.....in ARCHITECTURE:

* Features on lead sound barriers at....

  John Hancock Building, Chicago; Tufts New England Medical Center, Boston; and Baldwin-Wallace College, Berea, Ohio. Featured in July issue of BUILDING OPERATING MANAGEMENT. Publication also featured a cover-mention of lead and an editorial, "Controlling Sound With Lead" to introduce the three case histories discussing lead.

  The Thomas J. Lahey Elementary School, Greenlawn, N.Y., published in BETTER SCHOOLS and SOUND & VIBRATION. as two-page features.

  A luxury apartment complex in East Hampton, N.Y., published as a feature article in AMERICAN METAL MARKET/METALWORKING NEWS and JOURNAL OF HOMEBUILDING.

  The Sayville, N.Y., School Administration, published as a two-page feature in AMERICAN CITY.

  The Bellport, N.Y., High School, published as a two-page feature in SCHOOL MANAGEMENT.

* Features on lead roofs at....

  Baldwin-Wallace College, Berea, Ohio, published as a two-page feature in COLLEGE MANAGEMENT.

  Kimball Art Museum, Fort Worth, Tex., published as a two-page feature in BUILDING DESIGN & CONSTRUCTION and a three-column feature in ARCHITECTURAL RECORD.

* Features on Lead Calking installed at:

  The First National Bank of Chicago - published as a feature article in MINING RECORD.

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Tufts-New England Medical Center - published as a feature in BUILDINGS.

* Features on Lead Calking...

  At Chicago First National Bank, published as a feature in MINING RECORD.

* Features on Sound Attenuation....

  At Tufts-New England Medical Center, published as a feature in BUILDINGS.

The following articles discussed the use of lead-sheathed cable....

* A feature article on the use of a newly-developed vibratory plow to bury lead-sheathed cable on Staten Island was published in AMERICAN METAL MARKET and PUBLIC UTILITIES.

* A feature discussing the use of lead-sheathed cable to increase communications channels to the West Coast was published in SCIENCE DIGEST, AMERICAN METAL MARKET and COMMUNICATIONS NEWS.

* The use of lead-sheathed cable installed at a major steel mill was published as a feature in ELECTRIFIED INDUSTRY.

The following articles discuss lead applications in BATTERIES....

* Battery Power Eliminates $200 Thousand Repair Bill, Provides Standby Power For Anaconda Copper Smelter - published in May issue of BATTERY MAN.

* Use of Battery-Powered Electric Trucks at Lucky Stores, Inc., San Leandro, Calif. - published in MODERN MATERIALS HANDLING.

* In-Plant Electrics Get New Sales Edge - published as a feature article in ELECTRIC VEHICLE NEWS.

The following articles discussed the use of lead in DESIGN....

* A feature article on the use of lead to control the sound of machinery noise was published in AUTOMATIC MACHINERY.

* A special five-page article discussing the use of lead for a variety of sound-control applications was published in SOUND & VIBRATION.

* A one-page feature on the use of lead to control sound was published in DELAWARE VALLEY INDUSTRY.

* A feature discussing the use of sheet lead to line chemical tanks at the Southwire Co., Carrollton.

The following literature availablility announcements were published:

* Facts About Lead Glazes for Art Potters and Hobbyists - published in 9 magazines.

* 1971 Annual Review of the U.S.Lead Industry - published in 7 newspapers and 4 magazines.

* Availability of Vol. 35, No. 1-2, 1972 issue of LEAD Magazine - published in 3 newspapers.

* Why You Should Specify Electric Battery Powered Lift Vehicles - published in 9 magazines.

* Lead - A Major Factor in New Machinery Noise Suppression - published in 3 magazines.

* Availability of two-page reprint:"In-Plant Electrics Get New Sales Edge" - published in 4 magazines.

The following announcements of Lead Industry Association, Inc. personnel changes were published:

* Appointment of D. Broward Craig as President & Chairman of Lead Industries Association, Inc. - published in 24 magazines.

* Appointment of Philip E. Robinson as Executive Vice President of Lead Industries Association, Inc. - published in 2 magazines, 2 newspapers.

* Appointment of Jerome F. Smith as Secretary and Manager, Lead Industries Association, Inc. - published in 4 magazines and 2 newspapers.

In addition, feature articles discussing the Joint Lead Industries Association, Inc. and Zinc Institute Meeting in Montreal, Canada on April 5-7, 1972, were published in three magazines.

Watch for publication of the following recently distributed feature articles:

* New Battery-Powered "Cherry Picker" Now In Production.

* Electric Battery-Powered Fork Lift Truck Replaces Propane-Fueled Vehicle To Solve Corrosion and Environmental Problems In North Carolina Knitting Mill.

* Sheet Lead Sound Barrier Contained In New Building Construction Panel Solves Noise Problems At Two Canadian Gas Distribution Plants.

* Lead To Quiet Roar Of Three New Water-Jet Propelled San Francisco Bay Ferries.

...and for publiciation of the following articles which are being readied for distribution:

* New Lead-Clad Steel Product Developed In England For Wide Variety of Architecture and Construction Uses.

* Construction of World Trade Center Resulting In Record Uses of Sheet Lead For Landscaping Planter Linings, Base Flashing Around Buildings, To Waterproof A Gigantic Fountain, And To Waterproof Exterior Stairways.

* Lead Featured In Newly Developed Machinery Noise Control Panel Enclosure System.

* Chrome Paint To Play Major Role In New Nationwide Highway Pavement Marking Program.

Summary of Publicity Activities

Feature Articles published.....20

News articles published (including literature and personnel announcements)....70

Feature Articles completed..... 9

Feature Articles in preparation..... 6

News Releases completed.....12

Editorial request responses..... 8

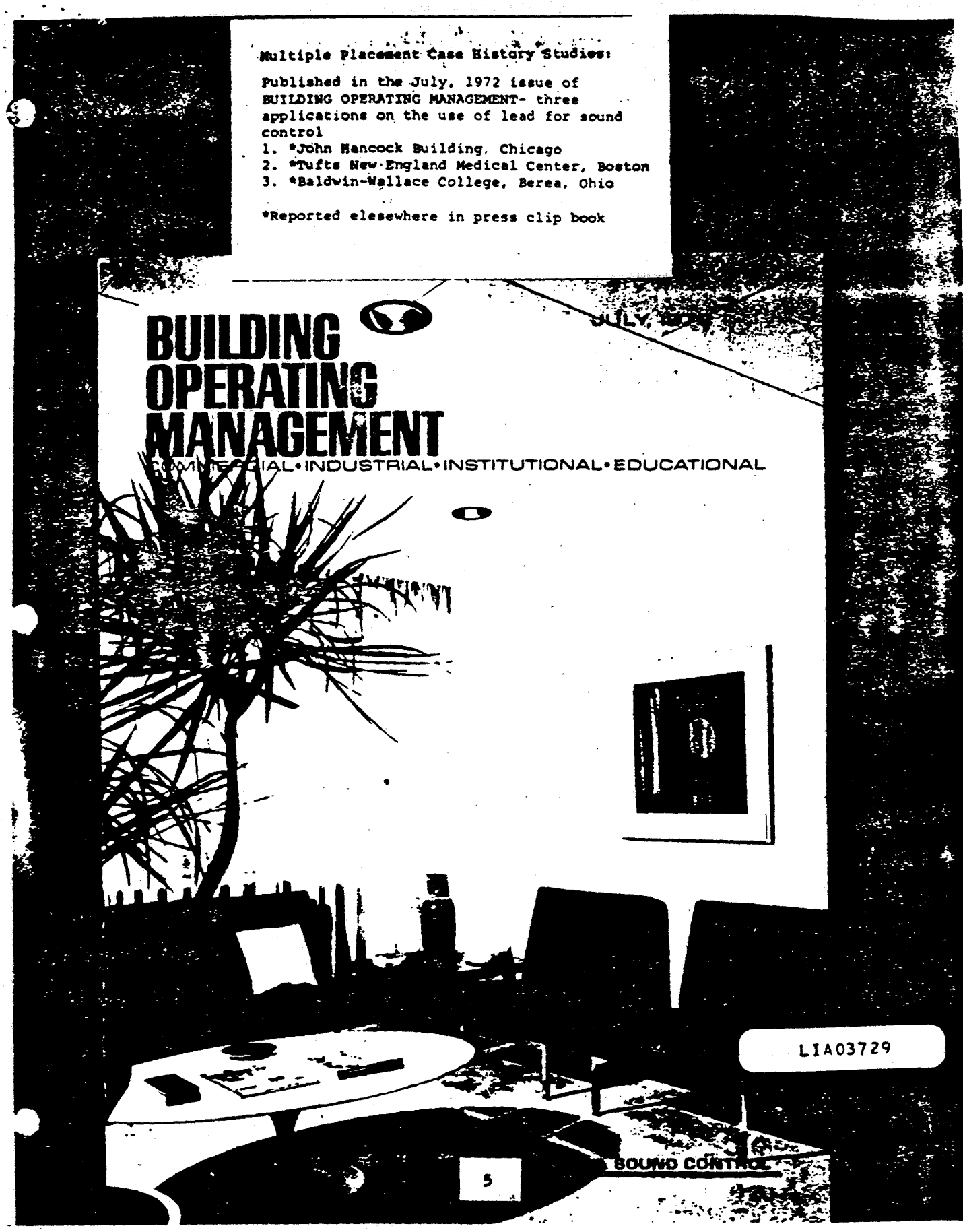
NOTE: Some of the feature articles illustrated on the following pages are reported for the first time while others were reported in the January-June, 1972 publicity report. Feature articles that have been previously reported as appearing in other publications are indicated by the word "continued" at the bottom of the identification cards which describe each publicity placement.

Multiple Placement Case History Studies:

Published in the July, 1972 issue of BUILDING OPERATING MANAGEMENT- three applications on the use of lead for sound control

1. *John Hancock Building, Chicago
2. *Tufts New England Medical Center, Boston
3. *Baldwin-Wallace College, Berea, Ohio

*Reported elesewhere in press clip book



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74-20 BUILDING OPERATING MANAGEMENT
JUL 1972

BOM Staff Article

Controlling Sound with Lead

■ Lead is probably one of the oldest and most common sound attenuation materials in use today, and is still popular for many applications. In general, it has two basic areas of application in sound control—as a barrier used to block sound paths, and as a damping material for structures and surfaces to reduce transmission of vibration and radiation of airborne sound. Within each of these areas, there are many variations and specialized uses of lead and mixtures of lead and other materials.

Perhaps the primary reasons for its continuing popularity is its extreme versatility and simplicity — even for the uninitiated. It can be cut with a common scissors, molded and shaped to any contour, and is unaffected by solvents, coolants, cutting oils and other materials used in industry. It can readily be laminated to other materials such as wood and steel, and is often mixed with other materials such as epoxy and plastic to produce an effective sound absorbent with a broad range of properties.

For example, lead powder mixed with various plastics and epoxies forms a compound that can be troweled onto resonating machinery guards and shrouds to form a thick sound absorbent that retains flexibility and resiliency. It can be sprayed, bonded or coated onto or into metal parts and machinery to reduce and contain sound at its source.

Lead powder in vinyl with a fabric backing is commonly used as a curtain or shroud to enclose noisy operations and processes. Used as an isolation pad under equipment and even structural components in buildings, lead is unsurpassed as a noise insulator. However, lead as a sound control is perhaps most widely respected in building construction applications such as those described briefly on the following pages. □

Information for case studies courtesy of Lead Industries Association, Inc., New York, NY.

BUILDING OPERATING MANAGEMENT-July, 1972
special issue on Sound Control-
Case History on John Hancock Building,Chicago

case study

The John Hancock Bldg.—Chicago, IL

• The John Hancock building, Chicago, IL, combines living quarters and office *plus* retail stores, restaurants and parking garages in one structure. Two primary noise problems were evident to the designers of the building—the building would generate high noise level because of machinery and equipment needed for all the functions the building serves, and wall construction between apartments had to be flexible to allow for building movement. This meant a problem of sound leakage from one apartment to the next.

The solution to the machinery area noise problem was solved by nailing firring strips to the inside wall (standard concrete block) of each equipment room and filling the space between strips with acoustical wool. Gypsum board was then nailed over the strips and 2½-lb. per square foot sheet lead (5/128" thick) was placed over the wall board. Edges of the sheet lead were folded into lock seams and sealed with duct tape. A second course of

gypsum board was then installed to finish the walls.

Two factors had to be taken into account in the design of the sound barriers between apartments: the movement of the building in the wind, and the narrow width of the mullions where the inside walls joined the perimeter walls. Two pieces of ⅝" gypsum board were used on either side of 3⅝" metal studs. The void between the gypsum boards was filled with acoustical wool. These walls were carried to within 28" of the perimeter walls where the wall was narrowed to 1⅞" to match the width of the mullion. A channel 2" deep and ⅞" wide was attached to the mullion and floor and overhead spandrel. Gypsum, ⅝" thick, was fitted inside the channel allowing a ¼" air space. Two sheets of 2½" lead were screwed on the sides of the channel and draped up over the spandrel. Where joints occurred in the sheet lead, closure was made by making flat lock seams and sealing them with duct tape. The wall was finished off on each side with ½" thick gypsum board, and all joints around the perimeter of the stub wall were caulked to provide an air tight seal. •

Left: Sheet lead was used on the walls of machinery rooms to reduce the noise generated by equipment to acceptable sound levels. *Right*: The mullion closures 1⅞" thick sections that connect the dry walls with the mullions are sound conditioned by the use of 2½ lb per sq. ft. (5/128"-thick sheet lead on each side of the closure. The closure ties the narrow mullion to the 4⅞"-thick dry wall construction

BUILDING OPERATING MANAGEMENT-July, 1971
special issue on Sound Control-
Case Histories on:
Tufts New England Medical Center, Boston
Baldwin-Wallace College, Berea, Ohio

case study

Tufts — Medical Center Boston, MA

• The Tufts-New England Medical Center covers most of a 13 acre site, and consists of a "teaching" hospital complete with patients' rooms, examination rooms, nurses' stations, supply rooms, shopping arcades, motel and a theater. The buildings occupy air space of Boston's busy Washington St., which caused a problem for the architects and designers. In addition to street traffic, a subway line with a new public transit station located within the complex would cause serious sound and vibration problems in the building.

Two types of lead anti-vibration pads were used to isolate the building from the vibration problem. Main bearing pads, ranging in size from 18"x18" to 5'x2' and 2" thick were used to completely isolate the poured concrete bearing columns from the foundation.

This photo clearly shows the rebar welded to the steel base plate. It is believed this is the first time this technique has been used.

A construction innovation here was to weld a rebar to the steel bearing plate to prevent short circuit of the pads. A second type of pad was used to isolate the walls of the structure from the foundation. These pads are 8½" wide and 4' long, and like the larger column pads, are also 2" thick. Pads used along the side of the isolation trough are 1" thick.

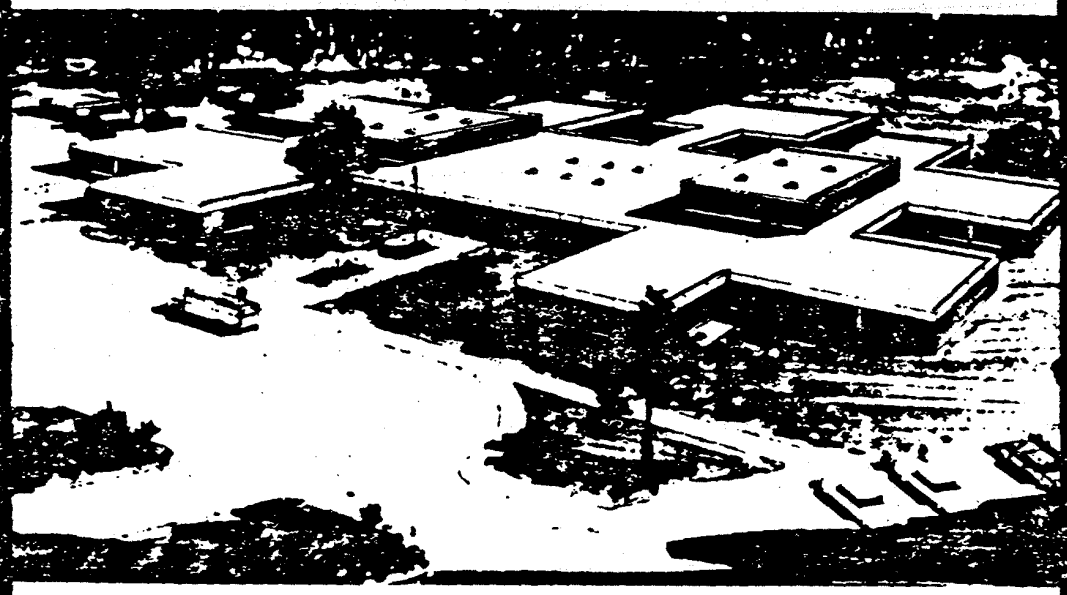
The lead anti-vibration pads are "sandwich" constructed, with 8-lb. (⅛" thick) sheet lead as an envelope. The envelope is filled with a layer of ½" asbestos roll fire felt, 12 gauge steel stiffening sheet, ½" felt, 12 gauge steel and a third layer of felt. •

case study

Baldwin-Wallace College — Berea, OH

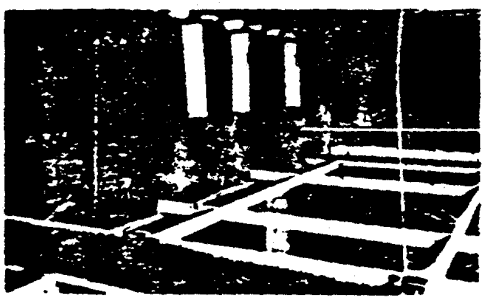
• Baldwin-Wallace College, Berea, OH, had a potential problem in their new Art-and Drama Center . . . It is located on a major air corridor for jet planes. To keep the low-flying jets from upstaging the performers, architects covered the roof with 3/64" thick lead (with 4 to 6 percent antimony to give the lead sheeting greater hardness) sheeting. Underlayment of the roof consists of 15-lb. building felt over a wood deck. The felt is covered with ¾" rigid insulation, ¾" plywood, 30-lb. building felt, rosin paper and the sheet lead. 16,000 square feet of sheet lead, weighing 40 tons, were used to do the job. •

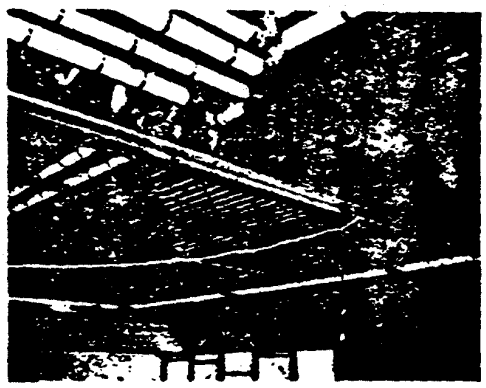
LEAD KEEPS CLASSROOMS QUIET



ABOVE: The Thomas J. Lahey Elementary School in Greentown, New York, will, at maximum capacity, accommodate about 1,200 pupils. Quiet in the classrooms is assured by the use of sheet lead plenum barriers between classrooms. In addition, an audiometric room shielded with lead as a sound barrier will assure accurate testing of hearing. BELOW: The entire interior walls of the audiometric room were covered with sheet lead to assure that no extraneous noise would penetrate and affect the validity of the tests.

OPPOSITE PAGE: (top) Sheet lead shields the opening between the movable partition rail and the ceiling "I" beam to prevent the transmission of sound between classrooms. Accoustical wool was used to seal the gap between the "I" beam and the corrugated steel above. (center) The use of sheet lead made it easy to accommodate the penetration of piping above the ceiling between classrooms. (bottom) Sheet lead was used over the entrances into classrooms to permit the intrusion of pipes, conduits and ductwork. The use of sheet lead made the installation of the sound barrier easier to do.





THE GROWTH of our nation has necessitated the building of new schools designed often with multiple-use flexibility to compensate for lack of funds. These schools require noise control systems to avoid cross-feed of distracting sounds between classrooms.

Privacy and quiet are essential to school environments, and the newly-constructed Thomas J. Lahey School in Greenlawn, N.Y. is exemplary of fine planning displayed to meet this need.

Designed by Coco & Smith, of Hauppauge, the one-story building features clusters of classrooms surrounding a central core, comprised of administrative offices, gymnasium, and a combination auditorium/cafeteria. This concept serves to lend privacy to classrooms and teaching areas.

Of especial benefit to teachers and students has been the use of lead as a sound barrier. In the area between the drop ceiling and roof, the space between the partition track and ceiling I-beam was sealed with one-pound, 1/64-inch-thick lead, wrapped around one- by three-inch wood strips which, in turn, were wedged in place against the lower flange of an I-beam. The lower portion of the sheet lead was sealed into the partition track and secured with 3/16-inch wood wedges. Sheet lead joints were overlapped and taped. To penetrate pipes, conduits, and such, the lead sheet was slit and sealed with tape.

The material also was used above the entrances to classrooms and to completely soundproof an audiometric testing room used for pupil hearing prior to enrollment. This was done by covering all walls with one-pound sheet lead, held in place, again, with one- by three-inch batten strips, on 12-inch centers. The walls then were finished with an acoustical board with sound-absorbing glass fiber behind the board.

According to Gilbert L. Phillips Jr., president of Gilbert L. Phillips, Inc., acoustical contractors, and advocate of lead as a sound barrier, "When you consider the low installation costs and the high performance level of lead, you can then understand why we consistently recommend its use in critical areas . . . lead is inexpensive, predictable, and efficient."

This material was adapted from *Lead Magazine*, Vol. 34, No. 3-4, 1971.

lead and zinc market

Townhouse Noise Snag Solved By Lead Sheet Sound Barrier

NEW YORK — Suppose you spent considerable time, effort and money to build a group of architecturally impressive townhouse apartments, installed a fireplace in each apartment, furnished it in excellent taste, landscaped the surrounding grounds in keeping with the quiet, country-like setting of the area, and then discovered that you couldn't keep the apartments occupied because tenants complained of excessive noise.

That was precisely the problem faced by a Manhattan economist when he built the first of three apartment buildings he owns in the popular resort area of East Hampton, Long Island, N.Y.

Known as Hampton Mews, the buildings each contained a row of eight connected two-story units. Each unit contains two apartments — a floor-through apartment at ground level; and a second-story duplex apartment that is reached via an outside stairway between each apartment unit.

The noise problems were encountered when tenants began occupying the first apartment building at Hampton Mews were being caused by a number of factors, none of which were thought to result in sound attenuation deficiencies when the first unit was built.

Sheet Lead

Lead Industries Association, Inc. (LIA), with a vested interest in noise control products utilizing lead, says that in that case lead again came to the rescue via installation of sheet lead over the entire second-story floor side of each partment except for two rooms.

According to LIA, much of the problem resulted from the fact that the wood structural system used to build the apartment complex and the materials used for the floor of the second-story duplex caused the creation of a drumhead that stretched across the entire second floor area. The drumhead effect magnified the slightest sound.

The building owner reported that primarily because of the noise problems, five of the first 16 tenants in the building moved during the first year it was occupied.

To correct the sound attenuation problems, the owner retained the services of a firm specializing in acoustical consulting.

It turned out to be just what the doctor ordered. A prescription was given for three pounds per square foot (three-sixty-fourth-inch thick) sheet lead.

Installation of the sheet lead sound barrier was so simple says LIA, that it was accomplished by a member of the Hampton Mews maintenance staff. The only equipment required was a hoist, which was used to lift some of the lead rolls to the second floor, and a cutting tool.

After the lead sheet barrier was installed, the flooring achieved a Sound Transmission Class rating of 39, a five decibel increase in sound transmission loss. According to the acoustical experts, this is considered to be a substantial improvement in sound loss. At this level, loud noise is barely audible.

Owner-builder Sidney Rolfe stated: "Lead literally saved the building. Lead was the most economical and quickest solution to the problem and there have been no noise complaints from any apartment in the building." (He also said that the cost of installing the lead was quickly amortized by the fully rented apartments in the building.)

SHEET LEAD — Partial view of front of apartment units in one of three apartment buildings at Hampton Mews (top photo). Each unit consists of floor-through garden apartment and second-story duplex apartment. Bottom photo shows rear view of apartment units, with access to duplexes, and arrangement of living room windows in all apartments. The units were subject to high noise levels, but sheet lead solved that.

Feature Article:

Sheet Lead Solves Sound Control Problems
For Long Island Apartment Building Complex

Appeared in: NAHB Journal of Homebuilding

Acoustical Barrier. This layer of sheet lead, put on under flooring or under carpeting, declared to be effective sound deterrent between upstairs and downstairs dwelling units. Lead is 3/64" thick, 3 lbs. psf, easily installed with cutting tool. Lead Manufacturers Association. Circle No. 103.

JUNE 1972
A Buttenheim Publication

The American City

Magazine of municipal management and engineering

Noise-proof your office space

Most of the sheet-lead plenum barriers were installed prior to the erection of the partitions.

This school construction points to a sound-muffling trend applicable in many municipal administrative buildings.

When you build your new municipal building, you can supply partitions that will give visual privacy for administrators and department heads. But have you thought about audio-privacy? Office machines get bigger and noiser. If an executive is expected to concentrate and arrive at viable decisions, his office partitions should have a sound-transmission class (STC) of at least 40.

When architect Frederick E. Allardt, Jr., designed the School Administration Building for Syville, N.Y., quiet offices were part of the planning. With the help of acoustical consultants, he specified sheet-lead plenum barriers for the demountable partitions in the office areas. The sheets are 1/64th-inch thick.

A bulletin, "Sheet Lead Plenum Barriers," issued by Lead Industries Assn., Inc., 292 Madison Ave., New York, N.Y., gives technical information on the use of these sound-muffling barriers. ◀◀

Feature Article:
Lead Solves Sound Control Problems For Sayville, L.I., N.Y. School Administration Building--Con't (second feature article placement)

15

77-7C SCHOOL MANAGEMENT
pg. 43,500
JUN 1972

Seal quiet into your school—the case for lead

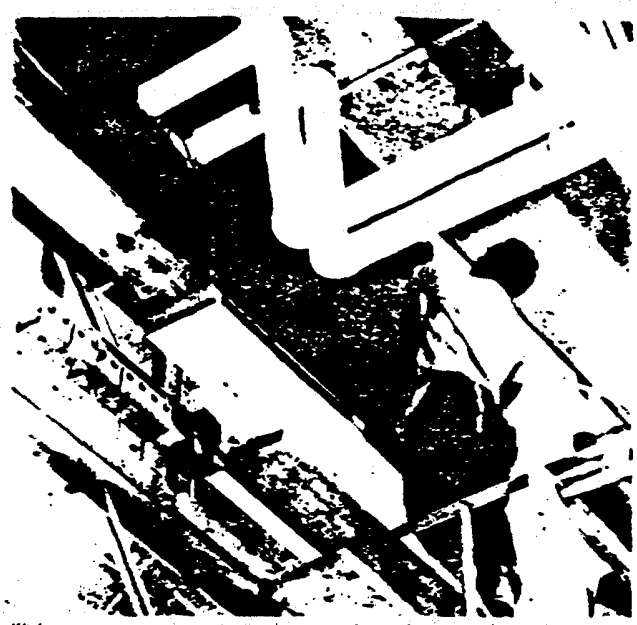
The educator's switch from conventional, static classrooms to highly flexible teaching units that can be expanded for large groups and contracted into smaller units when more individual instruction is desired is evident in the design of new schools. This multiple-use concept involves a switch in design from the masonry wall to one that is made up of a ceiling slab and a flexible folding partition that can be opened or closed depending upon the needs of the area.

Much of this new type of design is being employed on eastern Long Island where school building is undergoing a boom. A current project at Bellport, N.Y., incorporates both old and new design viewpoints. The structure in question, a junior high school, is being enlarged. Both the original building and the additions were designed by the architectural firm of Frederick A. Allardt, Jr. of Brookhaven, N.Y. The older section of the school has masonry partitions while the new section makes liberal use of folding partitions.

The new Bellport school addition comprises two main areas an auditorium at one side of the existing building, a gymnasium and classroom complex at the opposite side. Both additions conform in outward appearance to the older section of the school. In the interior, however, a total of 14 folding partitions are employed, one in the gymnasium, one in the auditorium and 12 in classrooms.

To preserve classroom quiet, the folding partitions have a sound transmission class of 40. As the folding partitions extend only as high as the hung ceilings, the space between each partition-channel and the ceiling slab has to be sealed against the passage of sound traveling through the ceiling, over the top of the partition and into the next classroom. The acoustical contractor, Gilbert L. Phillips, Jr., determined that the best way to block this flanking path was by the use of sheet lead plenums. The lead plenums have a high performance level yet low installation cost.

The huge gymnasium is designed so that it can be divided into two activity areas by the use of soundproof, wood, folding doors with cores of acoustical wood. The joints between the folding panels are well gasketed and the panels have sweeps at the bottom. This prevents the passage of sound both between the panels and below them when the partition is closed. The entire motor operated partition assembly is hung in a channel that is supported by a ceiling girder. A plenum barrier of 1/64" thick sheet lead is used to seal the space between the top of the channel and the ceiling to prevent noise from traveling over the top of the closed partition. The channel box is then completed by nailing wall board over the surface of the sheet lead. Similar construction is used on another partition in the new auditorium.



Workman covering sheet lead plenum that extends from ceiling to top of door channel

Channel for folding door runs across auditorium and makes it possible to divide room

In each of the dividable classroom clusters, three flexible vinyl partitions are employed to close the area off into smaller units. Here again sheet lead is used to block the flanking paths.

According to Mr. Phillips, the use of sheet lead speeds construction because it is easy to install, even around piping and other necessary penetrations. At such points, the sheet lead is merely split to fit it around an intruding member and then folded back around the penetration and sealed wit
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Feature Article:
Sheet Lead Solves Sound Control Problems for Bellport, N.Y., Jr. High School
.....Continued (Second Feature Article placement)

Feature Article:

Lead Roof Solves Jet Aircraft Noise Promblems For New Culture Center at Baldwin-Wallace College, Berea, Ohio

COLLEGE MANAGEMENT
GREENWICH, CONN.
MONTHLY 50,000

JUL 1972

Noise of jet aircraft blotted out by sheet lead roof

Baldwin-Wallace College, Berea, Ohio, a co-educational school with an enrollment of about 3,000 students, has a new Art and Drama Center that could have had a serious "noise pollution" problem. The architect and acoustical consultant attacked the potential problem by using a sheet lead roof as a sound barrier.

The idea that lead roofs are used only on monumental buildings is no longer valid. Today, sheet lead is used not only for its aesthetic qualities and its traditional purpose of providing an extremely durable roofing material but for a new and equally important reason—to block the intrusion of sound. Such is the case at Baldwin-Wallace College.

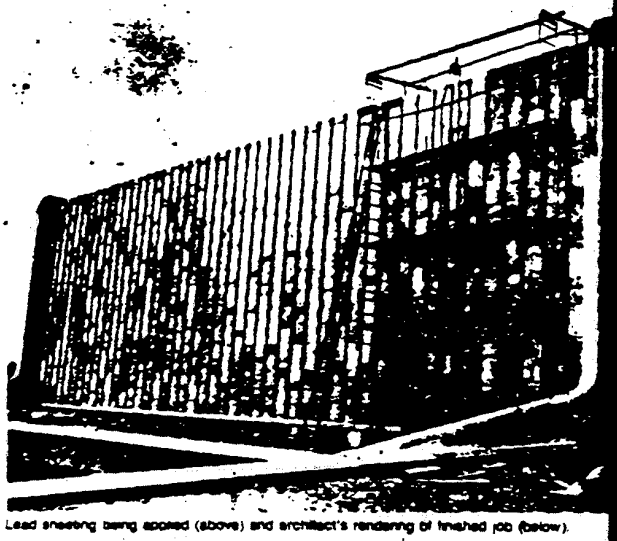
Designed by the architectural firm of Heine-Crider-Williamson, Inc., the new campus cultural center was best located adjacent to the school's football stadium where both facilities could share a 1,000-car paved parking lot. The center includes a theatre seating 550 people and an experimental theatre seating between 250 to 300 depending upon the arrangement of its flexible interior. But the logical location for the center happened to be a site directly under a major air corridor used by jet planes at the nearby Cleveland Hopkins Airport. To keep the roar of low flying jets off stage, Bolt, Beranek & Newman, New York acoustical engineers, were retained as consultants. Their recommendations for sound attenuation included brick cavity walls and a roof of sheet lead.

The proscenium theatre in the center has a fly loft which gives the building its characteristic appearance. The loft rises high above the structure with its roof sloping up almost vertically from the rest of the building. This roof, upon which the jet engine noise falls, and the roof of the main theatre are covered with 3-lb per square foot (3/64" thick) antimonial sheet lead. The lead is alloyed with between four percent and six percent antimony to give the sheets greater hardness.

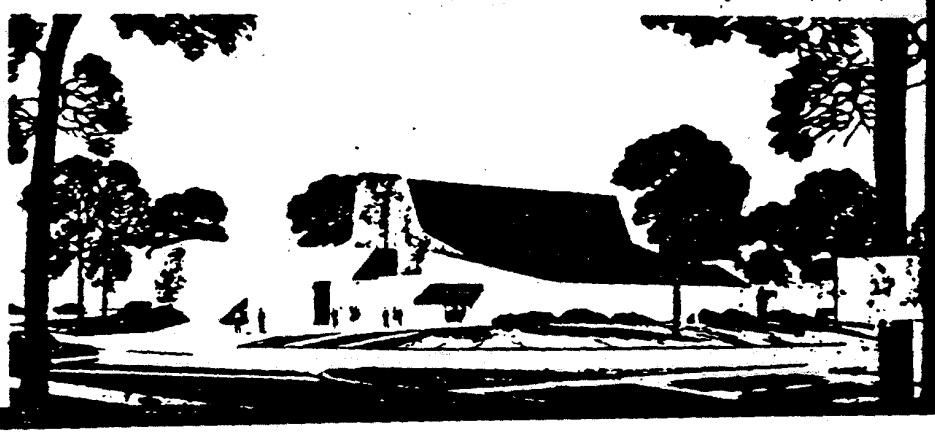
The underlay for the roof consists of 15-lb. building felt laid over a wood deck. The felt is covered with ¾" rigid insulation, ¾" plywood, 30-lb building felt, rosin paper and then the sheet lead. The lead is secured to battens with 16-oz. copper cleats. Edges of sheets are joined with loose locks and filled with a non-hard-ening calking compound to prevent the possibility of moisture entering the joints. The entire installation conforms to specifications recommended by the Lead Industries Association, Inc. According to the Korner Roofing & Sheet Metal Co., material supplier to the center, 16,000 square feet of sheet lead were used on the center's roof.

The sheet lead is doing its intended job. Even when a low jet roars overhead, no noise penetrates to the interior of the theatre to interrupt a performance. A stage whisper in the main theatre can be heard distinctly in the rear row of the house.

For more information about insulation against noise with sheet lead, circle number 101 on the reader service card.



Lead sheeting being applied (above) and architect's rendering of finished job (below).



surface is a 1½-in. layer of insulation, two thicknesses of ¾-in. plywood, and 30-lb roofing felt. The sheets of calcium lead, 3/64-in. thick and weighing 3 psf, are installed on top of the roofing felt.

Sheets are placed in horizontal [illegible] two courses above [illegible] on this point, the [illegible] ortically.

11-6 BUILDING DESIGN & CONSTRUCTION
MO. $2.000

ARCHITECTURAL FORUM. JUNE '72

JUL 1972

PRODU
REVIE

Lead covers roof with eye appeal

The vaulted roof of a museum posed a potentially difficult finishing problem, but the architect and subcontractor combined to design and apply an appealing roof finish

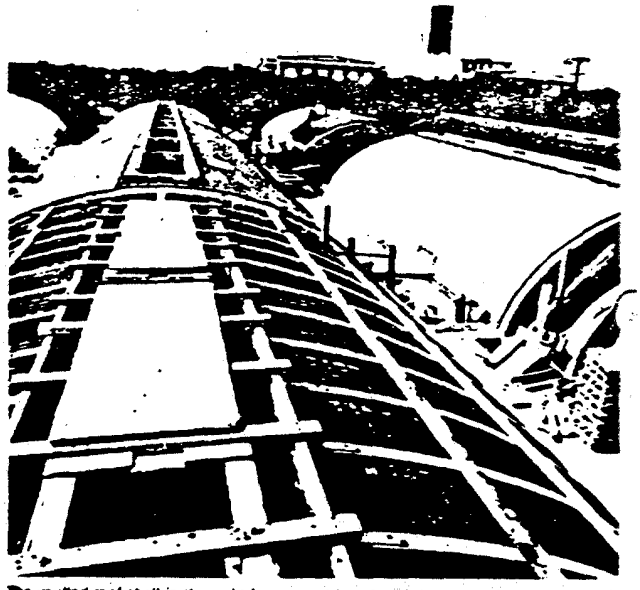
Sheets of calcium lead alloy are being used in a difficult roofing application in Fort Worth, Texas. The lead sheets are finishing the multi-curved roof of the Kimbell Art Museum which is due to open in October.

The $8.5 million museum, designed by architect Louis I. Kahn, features 16 cycloidal, post-tensioned, reinforced concrete shells. Use of the cycloidal shapes by structural engineer August E. Komendant provides column-free interior spaces.

Three 104-ft long shells are laid end-to-end to roof the length of the building. Across the width of the museum at its ends, six 23-ft wide shells are placed side by side, separated by 7-ft wide reinforced concrete channel sections. Five of these shells cover interior areas, the sixth creates an exterior portico.

In the center section of the building, three shells cover interior areas, and one shell creates an entrance portico. The omission of two shells provides an entrance court centered on the west elevation.

The roof is covered completely with calcium lead sheets, except between the shells where the 7-ft wide flat channels are finished with built-up roofing. Atop the concrete vault



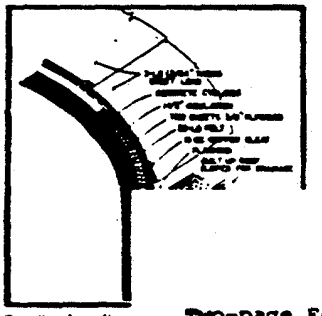
The vaulted roof shell in the right foreground has the lead sheet roofing completed. In the background, workmen are installing the calcium lead alloy on another vault.

LEAD INNOVATIONS

Architect Louis Kahn used lead in a new and different way on the roof of the Kimbell Art Museum in Ft. Worth, Texas (p. 56). The building, which encloses 100,000 sq. ft. of usable floor space, is designed as a series of cycloid vaults that eliminate the need for interior pillars. The vaults are supported by 91-ft. post-tensioned beams. The museum is made of warm-toned concrete, travertine marble, lead and wood, with the lead chosen for its pewter-like appearance and its performance as a waterproofing membrane.

Only the cycloids of the museum roof are lead-covered; the

flat areas between them are of built-up roof construction; the vaults themselves are of reinforced concrete. A 1½-in. layer of insulation, held in place by a wood frame, separates the concrete from two thicknesses of ¾-in. plywood, over which sheets of 30-lb. roofing felt are



Details of roofing Kimbell Art Muse

position to align e adjoining panel

Two-page Feature in BUILDING DESIGN and CONSTRUCTION magazine discussing lead roof for Kimbell Art Museum, Fort Worth, Tex. (second major placement for article)

(Continued)

54-11 THE MINING
RECORD
WKLY. 5,300

JUL 5 · 1972

CLIPPED BY BACON'S

Lead Wool Safely Anchors Bank Balcony Railing

CHICAGO—The First National Bank of Chicago has added another architectural landmark to this Illinois city with the construction of its pace-setting new 60-story headquarters building. The novel and graceful up-swept sided structure is the main feature of the city's new First National complex which is scheduled for completion in 1971.

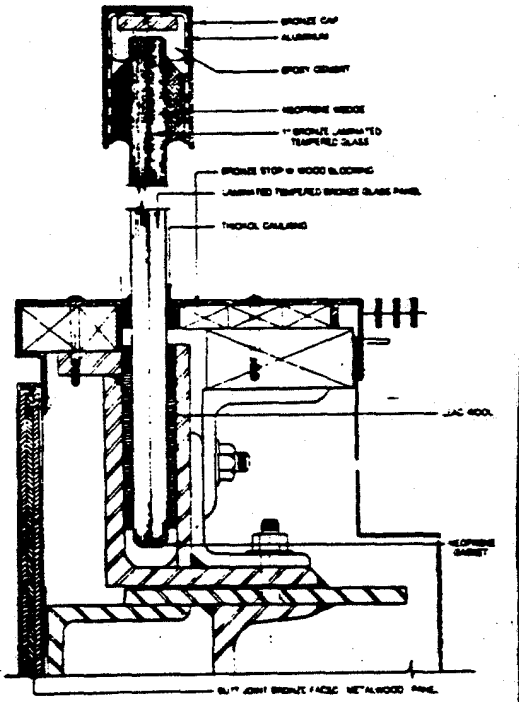
The First National's new headquarters is the tallest bank building in the world, and tied for sixth place among the world's tallest structures. At 850 feet, it ties with the RCA building in New York City.

Inside the bank building and readily apparent to anyone doing business on the extensive main banking floor, is a glass railing around the entire perimeter of the bank quarters on the second floor above. The Solarbronze glass railing adds to the feeling of openness and spaciousness that characterize the interior design of the bank.

Critical to the railing design, of course, is an anchoring system that insures complete safety. Architects for the building, C.F. Murphy & Associates and the Perkins & Will Partnership, were unwilling to rely on standard setting wedges to do the necessary job. They relied instead on lead wool caulking, a foolproof material that has stood up under the most rigorous testing for a wide variety of caulking installations.

In all, 15,000 pounds of lead wool, a loose, ropelike strand made up of fine threads of lead metal, were used to caulk the First National railing to a depth of six inches in its setting channel. The lead wool application is an unusual one, much as the size of the glass railing is in itself unusual.

Under the tremendous pressure generated beneath the point of the caulking iron, the tiny filaments of lead wool actually "cold weld" or fuse into a single piece of lead. This lead "anchor" forms a tight and impervious seal that will insure the stability of the glass railing at the First National.



Sectional drawing shows the details of the anchoring system for the First National's glass railing.

Feature Article:
Lead Wool Used to Anchor Glass Railing
For First National Bank of Chicago

(Con't)

(Second Feature Article placement)

AMERICAN METAL MARKET
NEW YORK, N. Y.
D. 15,500
JUL 17 1972

Vibratory Plow For Line Burial

CONSOLIDATED Edison Com-

lead and zinc market

Con Ed Installs 2 Miles Of Cable Coated in Lead

NEW YORK — Consolidated Edison Co. has just completed the burial of two miles of lead-sheathed high-voltage feeder lines under the B&O Railroad right-of-way running from Arlington to the Travis section of Staten Island, in New York City.

Lead Industries Association, with a vested interest in such projects, says Con Ed has achieved what is believed to be a new record time for the burial of feeder lines. It took just two days for the utility to install the 2.3-inch diameter lines five feet deep.

According to LIA, Con Edison was able to complete the job, which included laying two 33,000-volt feeders in six cable lines, by utilizing a recently-developed vibratory plow technique.

It promises, says LIA, to help solve two of the electrical industry's major problems: keeping local environmental groups and municipal governments happy by burying electrical transmission lines underground in order to avoid the use of aerial transmission towers and lines; and accomplishing underground transmission line burial in the quickest, most economical manner possible and with minimum inconvenience to the public.

Record Burial

It is estimated that the job would have taken two months using conventional trenching techniques.

Designed and built by the contracting firm of Henkels & McCoy, Blue Bell, Pa., the vibratory plow used on the Con Edison project is unlike conventional trenching equipment.

It features an adjustable, vertically mounted cutting tooth that is hydraulically operated at such speeds that it literally vibrates through earth and rock at what was heretofore impossible speeds.

Under ideal conditions, the vibratory plow in one operation can rip, lay cables, and leave only a slightly disturbed surface at the rate of 100 feet per minute, it is reported.

Con Edison learned of the vibratory plow's potential after it had achieved outstanding results in other installations in New York and Pennsylvania. To test the technique, Con Edison used it in the fall of 1971 on Staten Island to install two 5,000-foot circuits of three-wire 33kv, 750 MCM aluminum ethylene-propylene lead-sheathed cable.

Longest Section

This latest Staten Island line traversed all types of terrain, made several creek crossings, and went under several highways. Tradition cable-laying methods were used for the creek crossings and under-highway sections. The longest single section was 4,500 feet.

A limited amount of backfilling, clean-up and reshaping of the railroad embankment was required. Operations after the two-day cable installation along the 12,-200 foot right-of-way included

LEAD SHEATHED CABLES — Three lead sheathed cables are plowed-in as the vibratory plow mounted on a rail car moves along a railroad right-of-way between Con Edison's Fresh Kill substation and the Travis section of Staten Island.

project began.

Like the cable installed in the 5000-foot test, the two-mile installation utilized two circuits of three-wire, 33kv, 750 MCM aluminum ethylene-propylene cable. The cable for both installations was sheathed in 7/64" thick lead.

Lead's Advantages

According to Con Edison's Staten Island Division general manager, lead's corrosion resistance, reliability and safety advantages were the reasons lead-sheathed cable was selected.

For example, he noted that lead's corrosion resistance is important

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installing power lines underground

mounted cutting tooth that is hydraulically operated at such speeds that it literally vibrates through earth and rock. Under ideal conditions, the designer says, the vibratory plow in one operation can rip, lay cables, and leave only a slightly disturbed surface at the rate of 100 feet per minute.

In the Con Edison operation, a rip pass, to insure that no major obstructions would be encountered during installation, was the first installation step. The pass, completed in half a day, was made at an average rate of speed of 10 miles per hour.

The line traversed all types of terrain, made several creek crossings, and went under several highways. Traditional cable laying methods were used for the creek crossings and under-highway sections.

Feature Article:

New Vibratory Plow Used to Bury Two Miles of Lead-Sheathed Cable in Record Time

foamed plastic then was placed over the cable, and the small rock and available soil was then backfilled into the trench. Excess rock was used to provide beds for access roads, erosion dams, and similar projects.

When the cable was carried along the side of hills, rock from the trenching was backfilled into the depres-

Feature Article:

Lead-Sheathed Coaxial Cable Increases Communication Channels to West Coast

Featured in: Communications News
American Metal Market
Science Digest New York, N.Y.

Lead-Sheathed Coaxial Cable Increa Communication Channels to West C

Just about 200 years ago the hardy American pioneer, Daniel Boone, set out to explore the virgin forests of the area we now know as Kentucky. Several years later Boone blazed the historic Wilderness Trail, established the town of Boonesboro, and opened these exciting lands to future waves of pioneers. Today, a group of modern pioneers is blazing a new trail from coast-to-coast. This trail is a communications pathway that will ultimately stretch from Boston, Massachusetts to Oakland, California, when completed late in 1974.

The communications pathway is a coaxial cable. From Brigham City, Utah, westward, it is made up of 22 tubes. The older cable, used eastward, has 20 tubes. Feasibility tests conducted by Bell laboratories show that the 22-tube cable eventually will have the capability of simultaneously transmitting either 90,000 two-way phone conversations, more than 300 picturephone channels, high-speed digital data, color TV signals, or a combination of these services. At the present time the cable is being pushed through rugged western terrain. It is scheduled to carry

be end of November 1974.

Electric

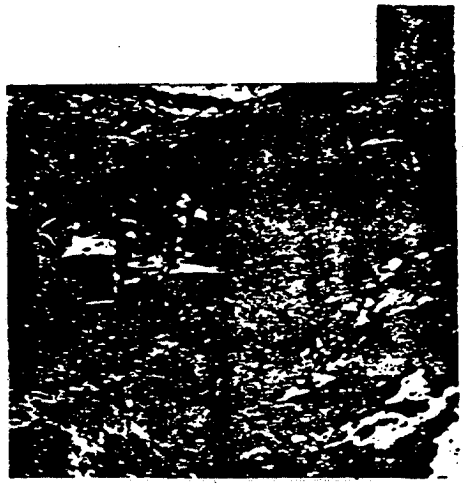
t the Baltimore Works of
und is called "Coax 22" be-
s which have solid copper
conductors are separated

from the tubes by insulating disks set at about 1-inch intervals. These 22 coaxial tubes are then stranded in two layers around a core made up of wire pairs on a machine that is about the size of a football field.

Cable Protected Against All Hazards

To provide the cable with maximum protection from man-made hazards, ranging from an atomic explosion to cutting by the blade of a plow, job specifications call for the cable to be buried to a depth of 4 feet through all types of rock and soil. Since such a procedure makes the cable almost inaccessible for maintenance, every precaution is taken to assure maximum reliability. For this reason, "Coax 22" is covered with a lead sheath and a protective outer polyethylene jacket. The lead sheath is extruded around the cable core to a thickness of 7/64th of an inch and weighs 4.7 pounds per foot. Nominal outside diameter of "Coax 22" is three inches. In places where the cable is intended for underwater service it is further protected by a steel wire armor to give it additional tensile strength. The lead sheath can be extruded in almost endless lengths but the cable reel's maximum capacity in this case is 1,750 feet ... limited by the strander for the paired cable core.

In actuality, the cable runs vary in length to eliminate the possibility of reflected signals. The cable reels are shipped from Western Electric's Baltimore Works to reel yards located along the cable route. Each reel is identified for a predetermined laying sequence.



This specially rigged crawler tractor is laying two copper wires in the cable trench a minimum of 18 inches apart and a bulldozer covers the trench. The copper wires protect the lead sheathed cable against damage from lightning.

Western Leg Currently Being Completed

AT&T's Long Line Department is supervising the cable-laying job through the West in cooperation with Pacific Telephone & Telegraph Company, Nevada Bell Telephone Company, and Mountain Bell Telephone Company. The last segment of the cable, when completed, will be Denver to the San Francisco Bay area. The cable length between the two communities is approximately 1,400 miles.

The cable route runs through southern Wyoming, northern Utah, and Nevada, and into California just above Red Bluff, and then through Dunnigan to Oakland. Approximately 60 percent to 75 percent of the route is through public lands.

Because of the high cost per mile of the cable and its installation, the shortest possible route that would best serve the area which it traversed was selected. This alignment took the cable through rugged mountain country, lush farmlands, heavily timbered areas, beneath rail lines and roads, and across streams and rivers.

All Types of Terrain Encountered

Each type of terrain presented the cable-laying crews with its own set of problems. In pushing through the mountains, rock removal was the largest single difficulty encountered. At some points a limiting factor in rock removal was the restriction to 50 feet in width of right-of-way through which the crews were working. Therefore, the blasting operations were confined to merely fracturing the rock and not removal from the trench as is customary, in order to protect adjacent lands. The loose rock was then excavated by a trenching machine or a backhoe, depending on the size of the loosened pieces of rock.

Backfilling on the cable also required a new procedure. Previously, when Bell System cable was laid in a rock trench, dirt was trucked to the site and placed under and on top of the cable. If the cable were not imbedded in soil, the rock backfill might cause cable damage that would necessitate a repair splice. On the western segment of the cable, Long Lines engineers used a new filling technique through rocky areas. The cable itself was sandwiched between blocks of rigid foamed polyethylene. The foamed material was in two pieces with a groove cut into each half to accept the cable. Before installing the cable, a bottom piece was placed in the trench. The cable was then placed in the recess in the foam. The top layer of the

lead and zinc market

Coaxial Cable pletion Linking Bost Coast

NEW YORK — Last leg of a transcontin
Oakland, Calif. — is nearing completion on t
When placed in service late in 1973, the ca
LIA has a vested interest in the cable,
buried four feet underground for over 3,000 r

The cable eventually will have the capability of transmitting either 90,000 two-way phone conversations, more than 300 picture channels, high-speed digital data, color TV signals, or a combination of these services.

Called "Coax 22," the Western Electric Co.-made cable is

covered protecti jacket. extruded a thickn of an in per foot. The

spongy that special field mats had to be used under the machinery to provide a portable travel route and to keep the vehicles from sinking into the ground.

The high water table in this area provided an added headache for crews. In making excavations for manholes, before the earth could be removed, the hole filled up with water. Pumps and cofferdams were used to hold the water back long enough for the manholes to be put into place and covered.

All cutting and clearing, through

Industry

Lead sheathed cable to expand communications services

A transcontinental coaxial cable sheathed with extruded lead (above right) is nearing completion on the west coast. Made up of 22 tubes (above left), it is capable of simultaneously transmitting 90,000 two-way phone conversations, more than 300 picturephone channels, high speed digital data and color TV signals.

replace existing toll system routes, such as microwave systems, but will expand servi to users of telephone facilities.

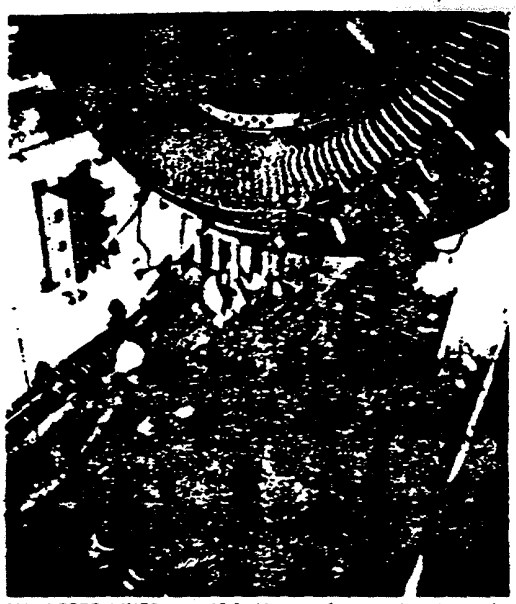
22

Feature Article:

Lead-Sheathed, Paper-Insulated Electrical Cable Installed at Steel Mill

History Proves A Future Of Trouble-Free Duty

...from underground power distribution system



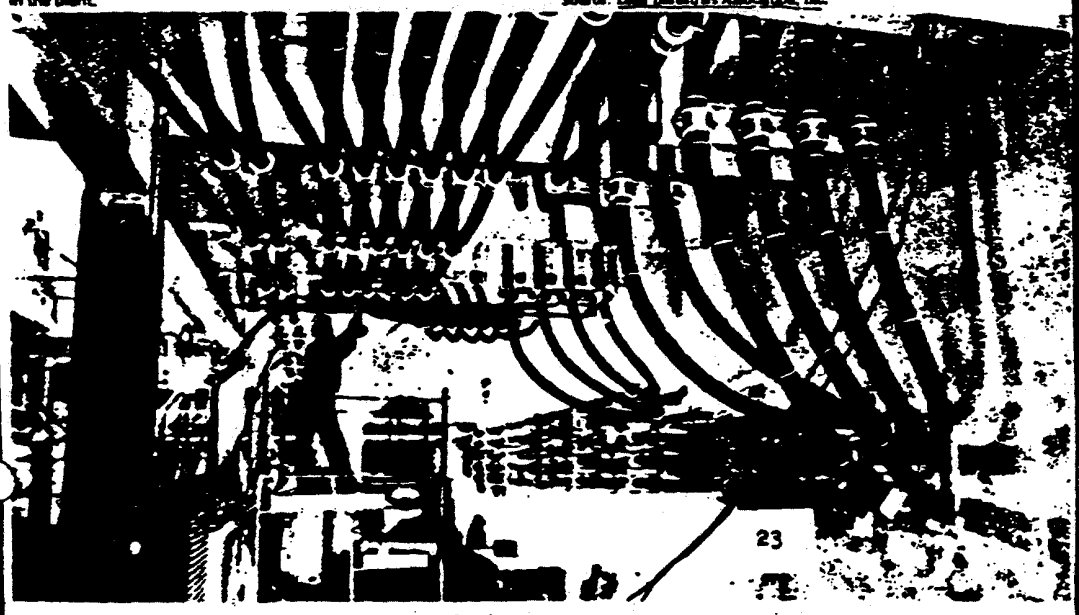
MAIN FEED LINES carry 13.8-kV power from a substation to the motor switches. Cables are 15 kV, 500 MCM, compact-sector paper-insulated and are protected with a lead sheath. All this cable is neoprene jacketed to control ground current corrosion often found near high powered electric motors and cables.

FOUR CABLES are connected to the termination beneath one of the mill's drive motors. The soft, flexible and corrosion-resistant cable has proven itself in more than 20 years of operation elsewhere in the plant.

LONG, TROUBLE-FREE SERVICE is assured for one of the nation's larger steel rolling mills as a result of installing over nine miles of paper-insulated, lead-sheathed cable. The mill has been using this type of cable for its underground distribution system for over 20 years. The addition of a six-stand, cold reduction mill at the facility made necessary an extensive revamping of the electric power distribution system. Existing cables were re-routed and replaced to provide power for existing facilities. New ducts were constructed to carry the power cable to existing equipment and to the new mill.

Six cables carry 13.8 kV power from a primary transformer to the switchgear of one of the motors located about 1100 feet away. Four 100-foot cables serve the motor. The second motor is served the same way except it is about 175 feet from the switchgear. Exposed cables within the building are wrapped with arc proofing tape to minimize any possible fire hazard.

Source: Lead Industries Association, Inc.



THE INTERNATIONAL JOURNAL FOR

"B" BATTERY Starting, Lighting, Ignition & Generating Systems

JUNE 1972

BATTERY POWER ELIMINATES $200,000 REPAIR BILL

Standby power protects Anaconda smelting operation

reprinted from LEAD Magazine Lead Industries Assn., Inc

As a plant manager, what would you do if you were advised that a 20-second power failure could result in a $200,000 repair bill? Obviously, insure your plant with a standby power system. That is what was done at Anaconda's copper smelter in Anaconda, Montana, where a giant 250-cell lead-acid battery automatically "cuts in" in the event of a power failure. If it didn't, after 20 seconds, the melted charge of copper bearing materials would flow into the tuyeres (the tubes through which air is blasted into the furnace) and solidify. It is reliably estimated that $200,000 would be needed to get the converters back into operation.

During normal smelting operations compressors force air into the matte through the tuyeres. In the event of a power failure, the compressors would shut down, eliminating the positive air pressure in the tuyeres. The tuyeres must be elevated above the surface of the mattes within 20 seconds or they would be filled and solidification would take place.

Normally, the rectifier changes 2300-v AC power to 520-v DC power to run the 100-hp DC motors needed to elevate the tuyeres. A lead acid storage battery supplies emergency power in case of a main power failure. The battery is in parallel with the rectifier and the load and picks up the load automatically in the event of a power failure.

This giant 400 hp 200 amp DC motor turns one of the Anaconda converters

The emergency power battery at Anaconda is housed in its own building. Cells are arranged in banks of 4 rows

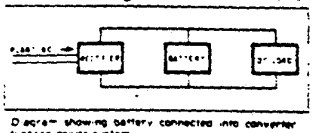


Diagram showing battery connected into converter furnace power system

each, the rows being connected in series. Cells are inspected weekly. During every fourth week the battery is given an equalizing charge to make certain all cells are fully charged.

The battery serves another purpose beyond its principal one. It continues to supply power to the motors should power from the rectifier be disrupted. During a recent 12-hour breakdown resulting from a yard accident, the battery operated the converter motors as well as the motors of two anode casting furnaces. Loss of power to these motors would also have entailed costly repairs.

Typical Feature Article Reprinted From
Vol. 34, No., 3-4 issue of LEAD MAGAZINE

Vol. 1 No. 2

May 1972
(Published Quarterly)

Electric Vehicle News

The Magazine Committed To Better Transportation

Hand-operated vehicles are moving small parts over s tances, and where facto space is at a premium.

In-plant electrics get new sales edge

A growing realization by industrial health experts, management, and unions that plant air quality must be controlled for employee safety and well-being has stacked the equipment deck in favor of electric in-plant freight and personnel carriers.

Today's tight economic picture coupled with important new technological developments in electrics have proven these vehicles to be superior in many ways to those with internal combustion (I-C) engines. Factors such as equipment life expectancy, operating costs, and maintenance all favor electrics. But the factor of eye-smarting, lung-irritating exhaust fumes from I-C engines now is causing a demand for corrective action at the state and local level. Electrics provide that cure.

In the past year or so, there have been a number of incidents that point up worker demands for improvement in plant conditions caused by I-C engines:

At London's Heathrow airport, ground-support employees suddenly staged a work stoppage early last year demanding corrective steps to clear the air in baggage rooms where I-C tractors deliver their baggage trains.

Cargo handlers below decks in freight and passenger vessels in US ports have demanded and won regulations, through their unions, that only electric fork trucks be used in these areas.

A major auto-parts manufacturer in Ohio initiated a "crash" program 18 months ago to replace I-C fork trucks with electrics after an employee committee made demands.

Health officials have long known what many others have been slow to accept. Carbon monoxide is an insidious menance that gives no forewarning and produces effects that are not always quickly detected. Health authorities concur that the physiological effects of prolonged, excessive CO exposure pose a real health problem and a serious safety problem. Just a sampling of the effects: asphyxia, shortness of breath, dizziness, mental confusion, and impairment of both vision and hearing.

A study performed in the Delaware Valley in 1970 (EW, Oct. 1, 1971, p. 98) showed emissions to the atmosphere by 15,000 gas-powered vehicles to contain 106.8 tons per day of CO; 19.8 tons per day of unburned hydrocarbons; and 5.1 tons per day of nitrous oxides. The study showed clearly that if CO is brought under control, the other elements become relatively minor.

A mass of information has been gathered and documented by the Michigan State Health Dept. on in-plant industrial vehicles. Irving H. Davis, regional chief in the Division of Occupational Health, collected information that led to the establishment of an allowable level of CO. In a typical enclosed industry, such as auto assembly, appliance manufacturing, parts fabrication, and manufacture of numerous consumer products, it is set at 50 ppm. This is the threshold limit value adopted by the American Conference of Governmental Industrial Hygienists, and specified in the Federal Occupational Safety & Health Act of 1970.

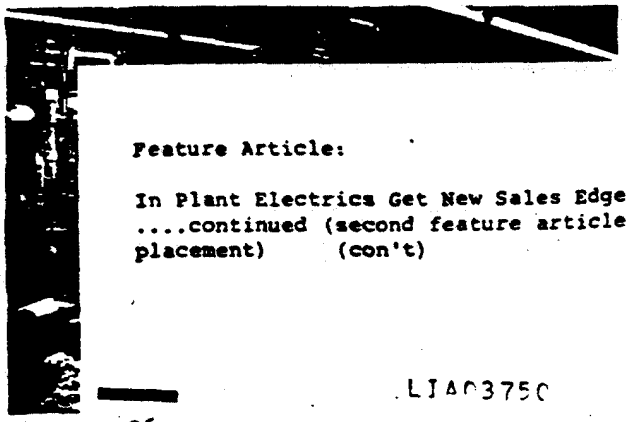
Davis's field investigations (EW, Dec. 15, 1971, p. 86) led to the following conclusions: In an enclosed fabrication plant using a fleet of six

gasoline or propane lift t additional ventilation of 2C would be required to stay v 50 ppm limit. Hardware t this additional air, consistir units, ductwork, fans, an would approximate $13 $2,166 per truck, without sideration for maintenar erating costs for the sys calculated at $300/year tricity and $1,000/year to r air temperature from outc a total of $1,300/year. truck.

This field investigation vealed that propane, co popular belief, may emit CO as the gasoline-fueled or even more. Heretofore, that propane is less poll been accepted—with the preventive maintenance glected. Also, the catalyt installed on many I-C u fect more complete c were found to be totally i in 85% of the vehicles tes Michigan Health Dept. I cluded that electrics are logical means of compli CO-level regulations w quate and costly ventil tems are provided.

A check with other st departments found total with the principles esta Michigan. Elliott Maso sible for field investigati New Jersey occupati program endorses the heartily. Sadamoto Iwas of occupational and radiological health in Hawaii, and a strong foe of CO for more than 25 years, says without reservation that electric ve- tities. So, clearly, safe performance is based entirely upon having an excess of oxygen; without it, underground air could rapidly reach a CO

by Connel Baker, Jr.
Technical Service Engineer,
Lead Industries Assn., Inc.
292 Madison Avenue,
New York, N.Y. 10017



Feature Article:

In Plant Electrics Get New Sales Edge
....continued (second feature article placement) (con't)

Work
introd

NOISE CONTROL . . . is 90db possible?

PART 2

Acoustic Materials

FOR PURPOSE of discussion here, noise can be defined as unwanted sound waves transmitted to ear through air from an object vibrating within the audible range of 20 to 20,000 times per second. The speed of sound is fixed at 1100 feet per second, but just as in water, waves in air may vary in height *(amplitude)* and in crest-to-crest distance *(pitch)*. If two waves are in phase, that is, if their crests and troughs exactly coincide, amplitude is doubled. On the other hand they can nullify each other if they are precisely out of phase. When a great number of vibrating wave sources exist, as is almost always the case in a machine shop, an infinite variety of partial-phase combinations can be expected.

It must be kept in mind that all matter is in continual vibration at the molecular level, and that each material has a natural resonancy rate once it has been set in motion. This rate in limp, dense material, is much lower than in a stiff metal such as steel or bronze. Therefore, when vibration passes from a stiff medium to a limp one, wave length is decreased.

This greatly oversimplified description of a complex subject forms a basis for use of acoustic materials in noise control.

To understand what is involved, think of a vibrating machine member as a tuning fork, sending out sound waves of predetermined pitch at an intensity governed by force of the blow which set it vibrating. If the fork's stiff prongs are touched with fingers, the vibrations are slowed to the resonancy rate of human flesh.

Much the same situation exists when a machine is placed on "vibration damping" mounts. Since energy cannot be destroyed, vibrations still exist, but they have been converted to inaudible wave length before being loosed in air. Thus, damping mounts help reduce noise to the extent that potential sound waves travel in their direction. But even under best conditions some machine sounds escape directly to atmosphere where they amplify or nullify as the case may be until eventually traveling into material which resonates below the audible range.

Most authorities agree that after everything possible has been done to minimize noise at the source, the remainder of the room-decibel reduction must be accomplished through the use of "sound deadening" materials on walls, ceilings, and around machines.

Architecture becomes important at this point. Low ceilings, particularly if curved, create a bandshell effect which reflects sound. In such cases, acoustic paneling overhead and on nearby walls may be a help. But here a problem arises: Most acoustic tiling is oil-absorbent. In order to prolong the useful life of the paneling and avoid a fire hazard, it may be necessary to install oil mist collectors. And collectors of sufficient capacity to completely eliminate oil mist and smoke may in themselves be a source of noise.

Virtually every metals maker is striving to come up with a material which is impermeable by fluids, yet has good vibration damping properties. For example, a copper alloy now under development shows promise. To date however, the front-runners appear to be the plastics and lead industries which have teamed to produce a variety of laminates that, among other triumphs, have tamed engine noise on high speed trains and jet aircraft.

Average noise levels for metalworking equipment as reported by Lead Industries Association, are shown in Table 2. These levels can be reduced, the Association finds, by applying sheet lead, or leaded laminates, to doors, covers and other noise-exit areas of a machine. In most cases, it says, sheet lead in ½-pound per square foot weight *(1/128-inch thickness)* should be used for normal noise reduction purposes. Such a material can be cut with shears, shaped by hand, and applied with adhesive to the inside of machine shrouds and guards. A sizable patch of lead often is enough. Rarely is it necessary to completely cover the inside area.

TABLE 2 →

Article resulting from:

Editorial Request from AUTOMATIC MACHINING

Materials for Noise and Vibration Control

Daniel R. McAuliffe, Korfund Dynamics Corp., Westbury, N. Y.
T. D. Agne, Lead Industries Association, New York, New York
Joseph I. Hammond, The Soundcoat Co., New York, N. Y.

Four types of materials are available for dealing with noise and vibration control problems. Two or more of

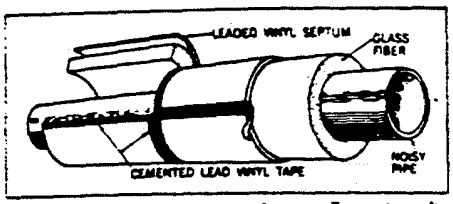


Figure 10—A composite treatment for controlling noise radiation from piping and valves. The glass fiber layer provides thermal insulation, piping vibration damping, and resilient support of the sound barrier material.

Figure 11—Shell Chemical Co. utilized 48,000 sq. ft. of Acoustilead over a 1½ in. glass fiber layer, sealed with duct tape and jacketed with aluminum sheet for piping noise control. The sheet lead sound barrier material weighs 1 lb./sq. ft. (1/16 in. thick) and the 4 ft. × 25 ft. sheets were provided in standard rolls. (Courtesy of Asarco).

a 2-in. layer of glass fiber which served as both thermal and vibration insulation. This was topped with a covering of leaded vinyl. To secure both materials to the duct, 1/16-in. square by 3-in long studs were welded to the duct surface. These studs penetrated both the glass fiber and the leaded vinyl. Copper flanges were slipped over the studs and bent over to hold the material to the studs. In addition, staples were used at the seams and ½-in. steel bands were strapped around the insulated duct at regular intervals and at stress areas such as joints and bends.

An additional example is Shell Chemical Company's new olefins facility at its Houston plant. Acoustilead†† sheet lead material was used to control noise resulting from the flow of high velocity process gas, high pressure steam, and fuel gas through some 5,000 feet of welded carbon and low alloy steel pipe, ranging in diameter from 6 to 36 in. A 1½ in. thickness of 7½ lb./cu. ft. glass fiber was applied over the piping and then covered with Acoustilead. Joints were overlapped two inches and sealed with duct tape. The whole assembly was then covered with an aluminum jacket to protect the malleable lead sheet sound barrier. Several control valves were also covered in this manner. A part of the installation is shown in Figure 11.

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Figure 5—Typical die-cut pieces of GP-3 Damping Sheet, a pre-cured vibration damping material with pressure sensitive adhesive backing that can be fitted to the internal surface of machinery enclosure panels. (Courtesy of The Soundcoat Company, Inc.)

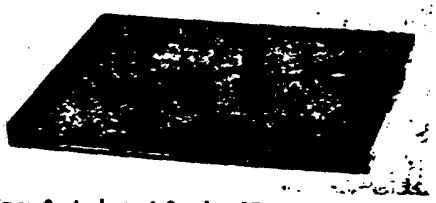

Figure 6—A sheet of Soundcoat-LP composite sound barrier/sound absorption material. The thin foam layer resiliently supports a sheet lead system to obtain ideal "limp mass" performance. The thick acoustical foam layer is directly exposed to the sound source for sound absorption benefits. (Courtesy of The Soundcoat Company, Inc.)

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A typical three-layer product is shown in Figure 6. Sound barrier septum weights of either ½ or 1 lb./sq. ft. and various sound absorption layer thicknesses are available in these combinations. The materials are easily die-cut, readily shaped or molded to fit contours, and conveniently held in place with adhesives. Material combinations that include a high-performance vibration damping layer are also available.

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Noise and vibration control treatments may involve the source, the path or the receiver. In any case, one or more of the four basic materials may be used. The following examples illustrate typical applications of noise/vibration/shock control materials.

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Results of Special Editorial Request:

Delaware Valley Industry

41-11 DELAWARE VALLEY INDUSTRY
CIRC. 27,000
APR 1972
CLIPPED BY BACONS

QUIET.....!

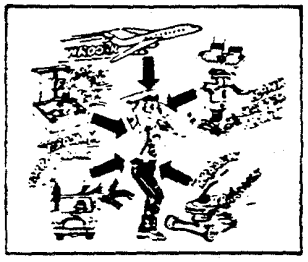
QUIET! A word you use frequently? Something you desperately want more of? In any event, the absence of "quiet" is obvious. Think about it. When was the last time you slept through an entire night without being awakened by a screaming siren, a neighbor's stereo, or the unmelodious honking of car horns? Or, for that matter, walked down a city street without being thoroughly jarred by the vibrations of a jack hammer?

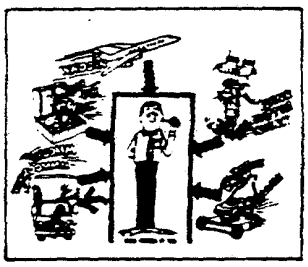
Noise pollution is a very real problem. But of all the pollution problems, there seems to be less controversy and concern over it. In addition to the psychological effects of noise (irritability being only one of them), lengthy exposure to intense noise produces a hearing loss that can be permanent. It's almost impossible to totally eliminate noise – those unwanted and unintelligible sounds that bombard us daily – but noise levels can and must be effectively reduced.

Noise is nothing new. And the reasons for noise – speed and convenience – have been around since the first squeaky wheel. But we are living in an increasingly noisy world, and the greater the noise, the greater the effects it has on people. Over the past 20 years, the loudest noises to which the public has been exposed has increased some 20 decibels. If this rate continues for another 20 years, it will become lethal. Between 6 and 16 million people are going deaf from occupational noise. Noise induced hearing loss is considered the number one, non-fatal hazard in industry today.

Noise pollution also affects the housewife, student, businessman, secretary and even the vacationer. To the human ear, noise exposure becomes painful at 130 decibels – 90 decibels is unsafe. A ringing alarm clock goes off at 80 decibels, a vacuum cleaner at 69 decibels, heavy traffic hits the ear at 92, a home lawn mower at 98, rock 'n roll music shatters the ear at 115, and a jet plane taking off pierces the atmosphere at 150 decibels. There's virtually no way to escape noise in everyday life, but if we are to survive with much of our sanity and health intact, something has to be done about controlling noise pollution.

Either a temporary or permanent loss of hearing is only one of the effects of noise pollution. Authorities say that excess noise is a growing cause of rapid heartbeat, mental illness, family strife, suicide and murder among other things.





Sound Barriers of Lead – Is noise pollution the final straw that will bring society to its knees? Not if noise pollution is recognized as the very real problem it is. Industry has recognized the problem and is attempting to silence those machines and tools that make noise – and lead, one of man's oldest materials, is an effective sound barrier. The answer to noise pollution? Become aware.

Blood pressure goes up with excessive noise. Noise hinders recuperation from acute illness or surgery by interfering with much needed rest. And, excessive or extreme noise cuts down on the efficiency of workers.

During the past few years, the demand for noise control in manufacturing and industry has increased greatly. The American worker is the prime victim of noise pollution, and most of the new regulations are aimed particularly at industries where there is a possibility of hearing damage. Various efforts are being made to eliminate noise producers, but many of these machines will not be able to meet the new regulations without major modifications. Another problem is that machinery already in use in factories cannot simply be discarded.

The most logical solution to controlling noise pollution is to contain the noise within the machine itself, or within the area by an acoustical barrier. One of man's oldest materials – lead – has proven to be an effective sound barrier. The versatility of lead for noise control has resulted in the development of a wide range of materials for acoustical purposes. The simplest of these materials is lead sheet, which comes in a variety of thicknesses and can be used to close openings, add weight to a wall, and reduce vibrations when laminated. Lead, combined with various other materials is working as an effective sound barrier in homes, hotels, machine shops and other locations where noise is a problem.

Lead is being effectively used as a sound barrier in a number of situations. Jet airplanes, both private and commercial, use lead as a sound proofing barrier for the protection of the passengers. Many pleasure marine crafts are sound insulated with lead. In schools where the size of the classroom can be changed by moving a partition, sheet lead is used for noise insulation. And, many apartment and office buildings use lead combined with other materials as a means of controlling noise.

Controlling noise pollution means more than supplying the materials. According to the Lead Industries Association, much of the solution to noise pollution lies in supplying engineering data, typical applications and suggested uses. Literature with techniques and performance data is

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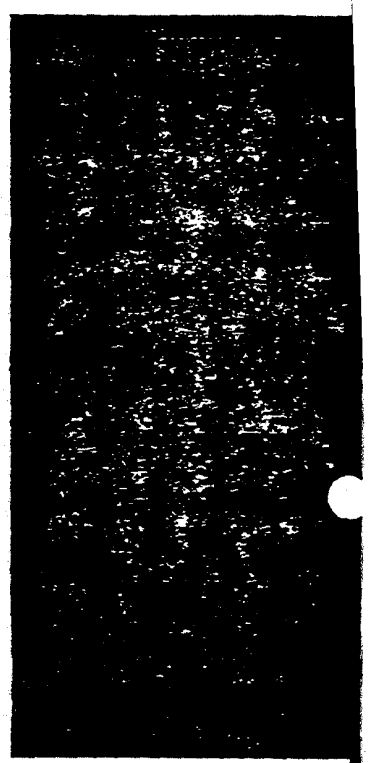

QUIET . . . !

(Continued from page 25)

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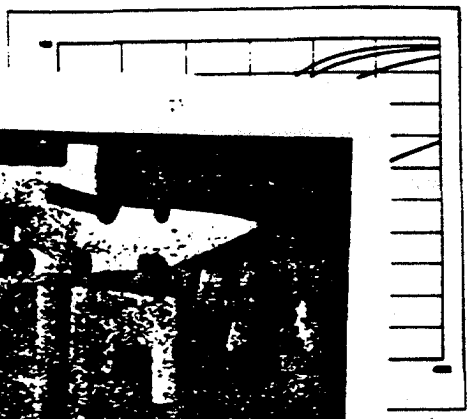
If noise is equated with progress and the future with noise, is noise pollution the final straw on top of air and water pollution that will bring society to its knees? Not if the public becomes aware of noise pollution and recognizes it as the very real problem it is. While industry develops ways to "silence" the machinery and tools we've become accustomed to, the public can also help to eliminate noise pollution. By recognizing that there really is a problem . . . by virtually making noise visible, you will be able to find that "quiet" you've been looking for. ▲

LIAC3754

Materials for Noise and Vibration Control

Daniel R. McAuliffe, Korfund Dynamics Corp., Westbury, N. Y.
T. D. Agne, Lead Industries Association, New York, New York
Joseph I. Hammond, The Soundcoat Co., New York, N. Y.

Four types of materials are available for dealing with noise and vibration control problems. Two or more of [illegible] in a single com-



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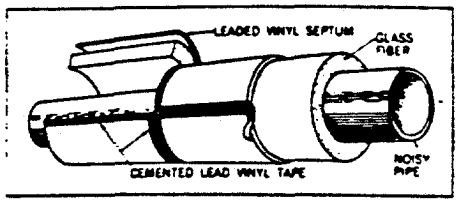

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Figure 5—Typical die-cut pieces of GP-8 Damping Sheet, a pre-cured vibration damping material with pressure sensitive adhesive backing that can be fitted to the internal surface of machinery enclosure panels. (Courtesy of The Soundcoat Company, Inc.)

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Results of Special Editorial Request:

Delaware Valley Industry

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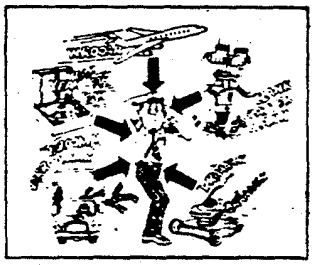

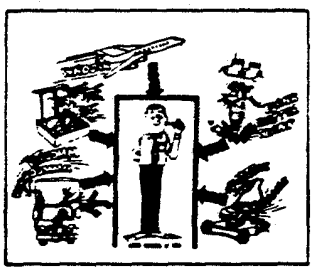

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QUIET . . . !

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CONSUMER BULLETIN
WASHINGTON, N. J.
MONTHLY 100,000

JUN 1972

tips to consumers

LEAD IN POTTERY

A useful leaflet published by Lead Industries Association, Inc., called "Facts about Lead Glazes for Art Potters and Hobbyists," suggests that one of the ways of avoiding the risk of poisoning from lead-content glazes is the following.

"If the art potter is concerned about the safety of his products, or if he is at all uncertain of his ability to control their end use, then he should make any such items useless for foods and beverages by the simple expedient of drilling one or more holes up the sides or in their bottoms. Pitchers, mugs, vases, or other potential beverage containers can thus be rendered unfit for use [with food or liquids]. No one will drink or pour out of a 'dribbler'."

SCHOOL SHOP
ANN ARBOR, MICH.
MONTHLY 36,000

MAY 1972

Facts About Lead Glazes, a 12-page brochure, deals with ceramic glaze, control of lead release, fritted glazes, and health and safety in glazing. The booklet contains a list of references, and a method for determining amounts of lead in pottery items. It is available by writing to the Lead Industries Association, Inc., 292 Madison Ave., New York, NY 10017.

71-26 PURCHASING MAGAZINE
E.O.W. 70,000

MAY 9 1972 CLIPPED BY BACONS

LEAD GLAZES used in ceramics are detailed in a 14-page booklet spotlighting health and safety measures to be maintained when using lead glazes and control of lead release from glazes. An appendix gives the procedure for determining the concentration of lead and cadmium which can be extracted from a fired glaze. Lead Industries Association, Inc.
Circle 475

41-1028 NATIONAL SAFETY NEWS
MO. 49,900

JUL 1972 CLIPPED BY BACONS

Ceramics

Facts About Lead Glazes for Art Potters and Hobbyists. 1971. Lead Industries Association, Inc., 292 Madison Ave., New York 10017. 12 pp.

Chemicals

Recommendations for Terminal

84-19 WORKBENCH
E.O.W. 350,000

AUG 1972 CLIPPED BY BACONS

For the Shop Files

PRECUT FURNITURE CATALOG
Giles and Kendall
Box 188, Dept. WN
Huntsville, Ala. 35804
Free on request

SHARPENING EQUIPMENT

52-AF CONSUMERS DIGEST MAGAZINE
E.O.W. 150,000

OCT 1972 CLIPPED BY BACONS

FACTS ABOUT LEAD GLAZES. Facts about the nature of lead bearing glazes used in ceramics and their proper use, for art potters and bobbyists is available in a free booklet from the *Lead Industries Ass'n., 292 Madison Ave., New York, N.Y., 10017.* Booklet is divided into four basic sections: facts about lead bearing glazes, control of lead release from glazes, fritted glazes and health and safety measures to be used when using leaded glazes. Appendix provide procedure for determining concentration of lead and cadmium which can be extracted from a fired glaze. Write for booklet M-21. "Facts About Lead Glazes for Art Potters and Hobbyists."

FACTS ABOUT LEAD GLAZES FOR CERAMIC WARE
Lead Industries Assoc., Inc.
292 Madison Avenue
New York, N.Y. 10002
Free on request

"EVEREADY" BATTERY DATA BOOK
Battery Engineering Dept.
Union Carbide Corp.
Consumer Products Division
270 Park Ave.
New York, N.Y. 10017
Price $1.25

WESTERN RED CEDAR SHINGLE AND SHAKE PANELS
Shakertown Corporation
4416 Lee Road
Cleveland, Ohio 44128
Free on request

77-73 SCHOOL SHOP
MO. 34,000

MAY 1972 CLIPPED BY BACONS

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PURCHASING
NEW YORK, N. Y.
E. O. WEEK 37,000

MAY 9 1972

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Circle 475

AMERICAN ARTIST
NEW YORK, N. Y.
MONTHLY 57,000

APR 1972

Lead Glaze Factbook

Facts About Lead Glazes for Art Potters and Hobbyists has recently been published by Lead Industries Assn., Inc., 292 Madison Ave., New York, N.Y. 10017. The 14-page booklet contains important information on lead bearing glazes, controls of lead release

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NEWS RELEASE: Facts About Lead Glazes
Con't

Appeared in:

Consumer Bulletin, Washington N.J.
American Artist New York, N.Y.
School Shop, Ann Arbor Mich.
84-19 Workbench
Purchasing New York, N.Y.
71-26 Purchasing Magazine
77-73 School Shop
41-1028 National Safety News

LIAC3757

AMERICAN METAL MARKET/
METALWORKING NEWS

US Lead in '71 Reviewed

NEW YORK — Lead Industries Association, Inc., has just published and released for distribution its "1971 Annual Review of the U.S. Lead Industry."

The 22-page report, available free from the association, provides in-depth data on the production and consumption of lead in the U.S.

Charts and graphs provide a breakdown for lead consumption by products from 1967 through 1971. Also discussed are details concerning various markets for lead, a report on the secondary production of lead, a short-range outlook for lead consumption, and research projects being developed by the International Lead Zinc Research Organization (ILZRO).

Also covered in the 1971 Annual Review are consumption and production of lead in the United Kingdom, India, Japan, Australia and the developing countries.

Tables at the end of the report summarize world lead statistics on mine production, refined lead production, refinery stock figures and refined lead consumption.

KELLOGG, IDAHO
NEWS WARDNER
D. 875

AUG 11 1972

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Free copies of the U.S. Lead Industry Annual Review, 1971 can be obtained from:
Lead Industries Assn., Inc.
292 Madison Ave.
New York, N.Y. 10017

61-1 AMERICAN
PAINT JOURNAL
WKLY. 6,700

SEP 4 1972

CLIPPED BY BACONS

Zinc-Lead Supply Report

The Lead Industries Association, Inc., and the Zinc Institute, Inc., have announced the availability of a 25-page report on the supply and demand of lead and zinc in the Free World for the period 1972-75. The report discusses the production and consumption of lead in the United States and summarizes similar data for the Free World. Charts and graphs are used to illustrate lead usage in major U.S. markets such as batteries, gasoline, alloys, pipe and sheet, pigments and chemicals, cable and miscellaneous products. Production and consumption figures also are listed for Europe, Japan, Free World and other countries. Detailed information on specific markets for zinc products is included. A free copy of the report, titled: "1972-1975 Lead and Zinc Free World Supply and Demand" may be obtained from the Zinc Institute, Inc., 292 Madison Ave., New York, N.Y. 10017.

KELLOGG, IDAHO
NEWS
D. 4,500

AUG 9 1972

Lead Industry Review is Out

The Lead Industries Association, Inc., has announced publication of the 1971 Annual Review of the U.S. Lead Industry.

The 22-page report, available free from the Association, provides in-depth data on the production and consumption of lead in the United States. Charts and graphs in the report provide a breakdown for lead consumption by products from 1967 thru 1971. Also discussed are details concerning various markets for lead, a report on the secondary production of lead, a short range outlook for lead consumption and research projects being developed by the International Lead Zinc Research Organization, Inc. (ILZRO).

Also discussed in the 1971 Annual Review of the U.S. Lead Industry are consumption and production of lead in the United Kingdom, India, Japan, Australia, and the developing countries. Tables at the end of the report summarize world lead statistics on mine production, refinery stock figures and refined lead consumption.

Free copies of the U.S. Lead Industry Annual Review, 1971 can be obtained from:
Lead Industries Assn., Inc.
292 Madison Ave.
New York, N.Y. 10017

AUTOMOTIVE NEWS
DETROIT, MICH.
W. 44,000

AUG 7 1972

Report on Lead

NEW YORK. — The 1971 Annual Review of the U. S. Lead Industry, a 22-page report, is available free from the Lead Industry Assn., 292 Madison Ave., New York, N. Y. 10022.

WALLACE, IDAHO
MINER
W. 3,674

AUG 3 1972

Lead Industry Review For '71 Now Available

The Lead Industries Association, Inc., has announced publication of the 1971 annual review of the U.S. Lead Industry.

The 22-page report, available free from the association, provides in-depth data on the production and consumption of lead in the United States. Charts and graphs in the report provide a breakdown for lead consumption by products from 1967 through 1971. Also discussed are details concerning various markets for lead, a report on the secondary production of lead, a short range outlook for lead consumption, and research projects being developed by the International Lead Zinc Research Organization, Inc. (ILZRO).

Also discussed in the 1971 annual review of the U.S. Lead Industry are consumption and production of lead in the United Kingdom, India, Japan, Australia and the developing countries. Tables at the end of the report summarize world lead statistics on mine production, refined lead production, refinery stock figures and refined lead consumption.

Free copies of the U.S. Lead Industry Annual Review, 1971 can be obtained from: Lead Industries Association, Inc., 292 Madison Avenue, New York, N.Y. 10017.

61-1 AMERICAN
PAINT JOURNAL
WKLY. 6,700

AUG 14 1972

CLIPPED BY BACONS

Lead Industry Publications Now Available

New York, Aug. 10 — The Lead Industries Association, Inc., has announced the publication of the "1971 Annual Review of the U.S. Lead Industry," a 22-page, in-depth report of production and consumption in the U.S., the United Kingdom, India, Japan, Australia and other developing countries.

Markets, secondary production, and short range outlooks for lead consumption are included, as well as reports on research projects by the International Lead Zinc Research Organization.

Also available from the association are the first two issues of LEAD magazine. The magazine includes a report on the testing of organolead paints and the role of the lead industry in the environment.

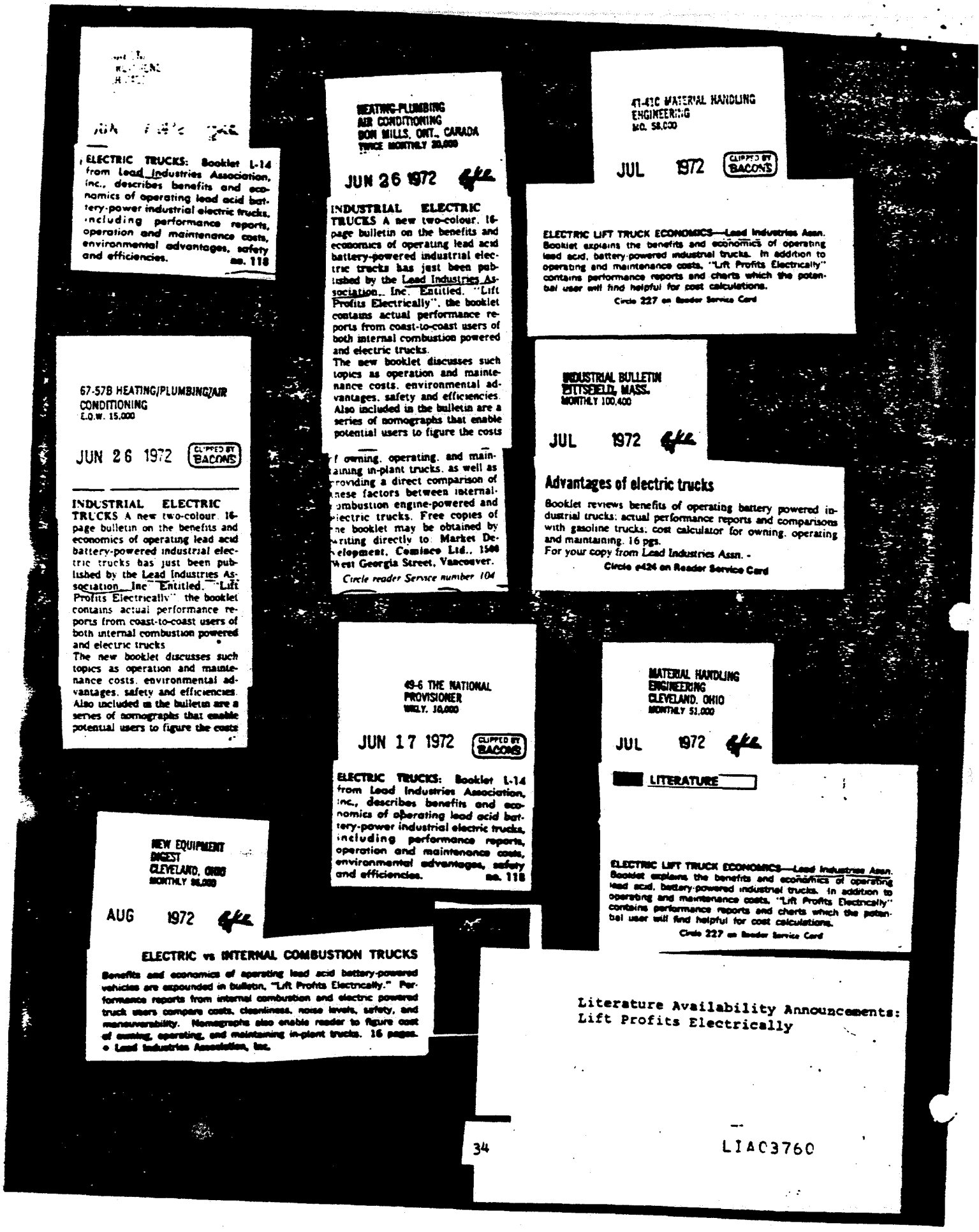
The Review and the magazine are available free from the Association, 292 Madison Ave., New York, N.Y. 10017.

LITERATURE AVAILABILITY ANNOUNCEMENT:
1971 Annual Review of the U.S. Lead Industry

Published in:

American Paint Journal
American Metal Market
Kellogg, Idaho News
Automotive News
American Paint Journal
Wallace, Idaho Miner
Kellogg, Idaho News Wardner

LIA03758



ELECTRIC TRUCKS: Booklet L-14 from Lead Industries Association, Inc., describes benefits and economics of operating lead acid battery-power industrial electric trucks, including performance reports, operation and maintenance costs, environmental advantages, safety and efficiencies. no. 118

67-57B HEATING/PLUMBING/AIR CONDITIONING
E.O.W. 15,000

JUN 26 1972 CLIPPED BY BACONS

INDUSTRIAL ELECTRIC TRUCKS A new two-colour 16-page bulletin on the benefits and economics of operating lead acid battery-powered industrial electric trucks has just been published by the Lead Industries Association, Inc. Entitled, "Lift Profits Electrically" the booklet contains actual performance reports from coast-to-coast users of both internal combustion powered and electric trucks.
The new booklet discusses such topics as operation and maintenance costs, environmental advantages, safety and efficiencies. Also included in the bulletin are a series of nomographs that enable potential users to figure the costs

HEATING-PLUMBING AIR CONDITIONING
IRON MILLS, ONT., CANADA
TWICE MONTHLY 20,000

JUN 26 1972

INDUSTRIAL ELECTRIC TRUCKS A new two-colour, 16-page bulletin on the benefits and economics of operating lead acid battery-powered industrial electric trucks has just been published by the Lead Industries Association, Inc. Entitled, "Lift Profits Electrically", the booklet contains actual performance reports from coast-to-coast users of both internal combustion powered and electric trucks.
The new booklet discusses such topics as operation and maintenance costs, environmental advantages, safety and efficiencies. Also included in the bulletin are a series of nomographs that enable potential users to figure the costs

f owning, operating, and maintaining in-plant trucks, as well as providing a direct comparison of these factors between internal-combustion engine-powered and electric trucks. Free copies of the booklet may be obtained by writing directly to: Market Development, Comineo Ltd., 1500 West Georgia Street, Vancouver.

Circle reader Service number 104

41-41C MATERIAL HANDLING ENGINEERING
M.O. 58,000

JUL 1972 CLIPPED BY BACONS

ELECTRIC LIFT TRUCK ECONOMICS—Lead Industries Assn. Booklet explains the benefits and economics of operating lead acid, battery-powered industrial trucks. In addition to operating and maintenance costs, "Lift Profits Electrically" contains performance reports and charts which the potential user will find helpful for cost calculations.

Circle 227 on Reader Service Card

INDUSTRIAL BULLETIN
PITTSFIELD, MASS.
MONTHLY 100,400

JUL 1972

Advantages of electric trucks

Booklet reviews benefits of operating battery powered industrial trucks; actual performance reports and comparisons with gasoline trucks; cost calculator for owning, operating and maintaining. 16 pgs.
For your copy from Lead Industries Assn. -

Circle e424 on Reader Service Card

49-6 THE NATIONAL PROVISIONER
WKLY. 36,000

JUN 17 1972 CLIPPED BY BACONS

ELECTRIC TRUCKS: Booklet L-14 from Lead Industries Association, Inc., describes benefits and economics of operating lead acid battery-power industrial electric trucks, including performance reports, operation and maintenance costs, environmental advantages, safety and efficiencies. no. 118

MATERIAL HANDLING ENGINEERING
CLEVELAND, OHIO
MONTHLY 51,000

JUL 1972

[redacted] LITERATURE

ELECTRIC LIFT TRUCK ECONOMICS—Lead Industries Assn. Booklet explains the benefits and economics of operating lead acid, battery-powered industrial trucks. In addition to operating and maintenance costs, "Lift Profits Electrically" contains performance reports and charts which the potential user will find helpful for cost calculations.

Circle 227 on Reader Service Card

NEW EQUIPMENT DIGEST
CLEVELAND, OHIO
MONTHLY 96,000

AUG 1972

ELECTRIC vs INTERNAL COMBUSTION TRUCKS

Benefits and economics of operating lead acid battery-powered vehicles are expounded in bulletin, "Lift Profits Electrically." Performance reports from internal combustion and electric powered truck users compare costs, cleanliness, noise levels, safety, and maneuverability. Nomographs also enable reader to figure cost of owning, operating, and maintaining in-plant trucks. 16 pages. • Lead Industries Association, Inc.

Literature Availability Announcements:
Lift Profits Electrically

LIAC3760

41-43B MICHIGAN PLANT & EQUIPMENT
MO. 10,500

JUN 1972

CLIPPED BY BACONS

Carbon Monoxide Investigation

Two-page reprint of an article deals with the establishment of limits of carbon monoxide concentrations for in-plant atmospheres by various public

permissible levels when using either gasoline or propane-powered, internal-combustion industrial trucks. Lead Industries Association, Inc., 292 Madison Ave., New York, N.Y. 10017.

ELECTRICAL WORLD
NEW YORK, N. Y.
W. [illegible]

JUN 15 1972

Carbon monoxide investigation. The *Lead Industries Assn*, New York, N.Y., has released a 100-page reprint of an article dealing with the establishment of limits of carbon monoxide concentrations for in-plant atmospheres by various public health agencies. The article covers the results of in-plant CO investigations made by the state health departments of Michigan, New Jersey, Hawaii, and others. Permissible in-plant CO levels for enclosed areas are discussed, and cost estimates are given for ventilation systems required to maintain permissible levels when using either gasoline-or propane-powered internal-combustion industrial trucks.

AMERICAN METAL MARKET
NEW YORK, N. Y.
D. 15,500

MAY 22 1972

Reprint Offered In Lead Group Pollution Data

NEW YORK — Lead Industries Association, Inc., has just released a two-page reprint of an article dealing with the establishment of limits of carbon monoxide concentrations for in-plant atmospheres by various public health agencies.

The article covers the results of in-plant investigations made by the state health departments of Michigan, New Jersey, Hawaii and others.

Permissible in-plant carbon monoxide levels for enclosed areas are discussed and cost estimates are given for ventilation systems required to maintain permissible levels when using either gasoline or propane-powered, internal-combustion industrial trucks. Extra ventilating equipment is not required when using lead-acid battery-powered trucks on in-plant service.

Copies of the reprint, "In-Plant Electrics Get New Sales Edge," may be obtained by writing to Lead Industries Association, Inc., 292 Madison Avenue, New York N.Y. 10017.

AMERICAN METAL MARKET
NEW YORK, N. Y.
D. 15,500

MAY 16 1972

Lead Group Posts Data On Pollution

NEW YORK — Lead Industries Association, Inc., has just released a two-page reprint of an article dealing with the establishment of limits of carbon monoxide concentrations for in-plant atmospheres by various public health agencies.

The article covers the results of in-plant investigations made by the state health departments of Michigan, New Jersey, Hawaii and others.

Permissible in-plant carbon monoxide levels for enclosed areas are discussed and cost estimates are given for ventilation systems required to maintain permissible levels when using either gasoline or propane-powered, internal-combustion industrial trucks.

Extra ventilating equipment is not required when using lead-acid battery-powered trucks on in-plant service.

Copies of the reprint, "In-Plant Electrics Get New Sales Edge," may be obtained by writing to Lead Industries Association, Inc., 292 Madison Avenue, New York, N.Y. 10017.

41-55C NORTHERN CALIFORNIA INDUSTRIAL & BUSINESS NEWS
E.O.W. 25,000

JUN 5 1972

CLIPPED BY BACONS

955.

The Lead Industries Association, Inc. has just released a two-page reprint of an article dealing with the establishment of limits of carbon monoxide concentrations for in-plant atmospheres by various public health agencies. The article covers the results of CO in-plant investigations made by the state health departments of Michigan, New Jersey, Hawaii and others. Copies of the reprint, "In-plant electrics get new sales edge" may be obtained by writing to Lead Industries Association, Inc. 292 Madison Avenue, New York, N.Y. 10017.

Reprint Article:
In-Plant Electrics Get New Sales Edge

36

LIA03762

41-41C MATERIAL HANDLING ENGINEERING
MO. 58,000

JUN 1972 CLIPPED BY BACON'S

Craig heads Lead Industries

D Broward Craig has been elected president and chairman of the Lead Industries Association, Inc. Mr. Craig is executive vice president, St Joe Minerals Corp., New York City.

Craig

Three vice presidents have also been elected. They are T. M. Smylie, vice president, Ethyl Corp.; John J. Rittenhouse, president, C & D Batteries, Division of Eltra Corp; and J. G. McCullough, president, Amax Lead & Zinc Div., American Metal Climax.

R. J. O'Hara of Amax Lead & Zinc Div., American Metal Climax, was reelected treasurer.

Permanent staff officers elected were P. E. Robinson, executive vice president; Jerome F. Smith, secretary; and Dorothy L. Moore, assistant treasurer.

54-4 ENGINEERING & MINING JOURNAL
MO. 22,000

JUN 1972 CLIPPED BY BACON'S

The Lead Industries Association has elected the following board of directors: R. O. Braendle (Petroleum Chemical Div., Du Pont); D. Broward Craig (St. Joe Minerals); H. T. Fargey (Cominco); R. A. Gardiner, Jr. (Gardiner Metal Co.); Paul C. Henshaw (Homestake Lead of Missouri); Lawrence M. Hermes (Dresser Minerals); Robert A. Kenkel (Federated Metals); R. J. Kenny (ESB Inc.); H. A. Krueger (Ozark Lead); J. C. MacLean (Cominco American); J. G. McCullough (Amax Lead and Zinc); Frank Osborn (Broken Hill Associated Smelters); L. J. Randall (Hecla); T. M. Smylie (Ethyl Corp.); Simon D. Strauss (Asarco); Reuben Viener (Hyman Viener & Sons); Roger D. Walker (Eagle-Picher); and Henry J. Whitson (NL Industries).

61-7 PAINT & VARNISH PRODUCTION
MO. 6,500

JUN 1972 CLIPPED BY BACON'S

LIA Elects Board

The Lead Industries Association, Inc., New York, N.Y., elected a new board of directors at its 44th Annual Meeting. Members of the board are as follows: R.O. Braendle (Du Pont), D. Broward Craig (St. Joe Minerals), H. T. Fargey (Cominco), R. A. Gardiner, Jr. (Gardiner Metal), Paul C. Henshaw (Homestake Lead), Lawrence M. Hermes (Dresser Industries), Robert A. Kenkel (American Smelting & Refining), R. J. Kenny (ESB), H. A. Krueger (Ozark Lead), J. C. MacLean (Cominco American), J. G. McCullough (American Metal Climax), Frank Osborn (Broken Hill Associated Smelters), L. J. Randall (Hecla Mining), T. M. Smylie (The Ethyl Corp.), Simon D. Strauss (American Smelting & Refining), Reuben Viener (Hyman Viener & Sons), Roger D. Walker (Eagle-Picher Industries), and Henry J. Watson (NL Industries).

ENGINEERING AND MINING JOURNAL
NEW YORK, N. Y.
MONTHLY 23,000

MAY 1972

Craig

...ecutive vice presi... Corp., has been ...chairman of the ...tion, Inc. for the ...following officers ...d by LIA, vice ...le (vice president, ..., E. Robinson, and Jerome F.

51-2 AMERICAN METAL MARKET
DLY. EX. SUN., SAT. AND HOLIDAYS 15,000

APR 14 1972 CLIPPED BY BACON'S

Lead Industries Group Elect Craig

NEW YORK — At the closing session of its annual meeting in Montreal on April 7, the board of director of Lead Industries Association, Inc., elected D. Browmard Craig president and chairman for the forthcoming year.

Craig is executive vice-president of St. Joe Minerals Corp.

Election of three vice-presidents was also announced. They are: T.M. Smylie, vice-president of The Ethyl Corp.; John J. Rittenhouse, president of C&D Batteries Division of Eltra Corp.; and J.G. McCullough, president of Amax Lead & Zinc Division of American Metal Climax, Inc.

R.J. O'Hara, of Amax Lead & Zinc, was re-elected treasurer.

Permanent staff officers elected at the meeting were: Philip E. Robinson, executive vice-president; Jerome F. Smith, secretary; and Miss Dorothy L. Moore, assistant treasurer.

The day before, LIA elected its new board of directors. Members of the board are as follows:

R.O. Braendle, E.I. Duont de Nemours & Co.; D. Browmard Caraig, St. Joe Minerals; H.T. Fargey, Cominco, Ltd.; R.A. Gardiner, Jr., Gardiner Metal Co.; Paul C. Henshaw, Homestake Lead Co. of Missouri; Lawrence M. Hermes, Dresser Industries, Inc.

Also, Robert A. Kenkel, Federated Metals Division of American Smelting & Refining Co.; R.J. Kenney, ESB Incorporated; H.A. Krueger, Ozark Lead Co.; J.C. MacLean, Cominco American, Inc.; J.G.

D. BROWARD CRAIG

MINING EQUIPMENT NEWS
KNOXVILLE, TENN.
MONTHLY 8,000

MAY 1972

D. Broward Craig was elected president and chairman for the coming year at the closing session of its annual meeting held in Montreal on April 7 of the Board of Directors of Lead Industries Association, Inc. He is executive vice president of St. Joe Minerals Corporation. The election of three Vice Presidents was also announced. They included T. M. Smylie, vice president of The Ethyl Corporation; John J. Rittenhouse, president of C&D Batteries, Division of Eltra Corporation; J. G. McCullough, president of Amax Lead & Zinc Division, American Metal Climax, Inc., was re-elected treasurer. Permanent staff officers elected at this meeting were P. E. Robinson,

MINING EQUIPMENT NEWS
KNOXVILLE, TENN.
MONTHLY 8,000

MAY 1972

Lead Industries elects new directors

Montreal, Quebec — At its 44th Annual Meeting held at the Queen Elizabeth Hotel in Montreal April 6th, the Lead Industries Association, Inc., elected a new Board of Directors. Members of the Board are as follows: R. O. Braendle, Petroleum Chemical Division, E. I. du Pont de Nemours & Co.; D. Broward Craig, St. Joe Minerals Corporation; H. T. Fargey, Cominco Ltd.; R. A. Gardiner, Jr., Gardiner Metal Company; Paul C. Henshaw, Homestake Lead Company of Missouri; Lawrence M. Hermes, Dresser Minerals Division, Dresser Industries, Inc.; Robert A. Kenkel, Federated Metals Division, American Smelting & Refining Co.; R. J. Kenny, ESB Incorporated; H. A. Krueger, Ozark Lead Company; J. C. MacLean, Cominco American Incorporated; J. G. McCullough, Amax Lead & Zinc Division, American Metal Climax, Inc.; Frank Osborn, Broken Hill Associated Smelters, Proprietary Ltd.; L. J. Randall, Hecla Mining Company; T. M. Smylie, The Ethyl Corporation; Simon D. Strauss, American Smelting & Refining Co.; Reuben Viener, Hyman Viener & Sons; Roger D. Walker, Chemicals & Metals Division, Eagle-Picher Industries, Inc., and Henry J. Whitson, Pigments & Chemicals Division.

LIA Staff Appointment Notice:
Appointment of D. Broward Craig
as President and Chairman,
LIA Appeared in 25 Publications.

37

LIA03763

4-19 BATTERY MAN
MO. 8,000

JUN 1972 CLIPPED BY BACON'S

LEAD INDUSTRIES ASSOCIATION, INC. →

At the Annual Meeting, the board of directors of Lead Industries Assn., Inc. elected D. Broward Craig president and chairman for the forthcoming year. Craig is executive vice-president of St. Joe Minerals Corp. The election of three vice-presidents was also announced: T. M Smylie, vice-president of The Ethyl Corporation; John J. Rittenhouse, president of C&D Batteries, Division of Eltra Corporation; and J. G. McCullough, president of Amax Lead & Zinc Division, American Metal Climax, Inc.

54-20 THE CANADIAN MINING & METALLURGICAL BULLETIN
MO. 8,000

MAY 1972 CLIPPED BY BACON'S

Lead Industries Association Ex

AT THE CLOSING SESSION of its Annual Meeting held in Montreal on Friday, April 7, 1972, the board of directors of the Lead Industries Association, Inc. elected D. BROWARD CRAIG as president and chairman for the forthcoming year. Mr. Craig is executive vice-president, St. Joe Minerals Corporation.

D. B. CRAIG

The election of three vice-presidents was also announced. They included T. M. Smylie, vice-president of The Ethyl Corporation; John J. Rittenhouse, president of C&D Batteries, Division of Eltra Corporation; and J. G. McCullough, president of Amax Lead & Zinc Division, American Metal Climax, Inc. R. J. O'Hara of Amax Lead & Zinc Division, American Metal Climax, Inc., was re-elected treasurer.

Permanent staff officers elected at this meeting were P. E. Robinson, executive vice-president; Jerome F. Smith, secretary; and Dorothy L. Moore, assistant treasurer.

AMERICAN CERAMIC SOCIETY BULLETIN
COLUMBUS, OHIO
MONTHLY 8,300

JUN 1972

Lead Association Elects

At the closing session of its annual meeting in Montreal April 7, the board of directors of Lead Industries Association, Inc. elected D. Broward Craig, of St. Joe Minerals Corp., as president and chairman for the forthcoming year.

Three vice presidents were elected: T. M. Smylie, the Ethyl Corp.; John J. Rittenhouse, C&D Batteries, Division of Eltra Corp.; and J. G. McCullough, Amax Lead & Zinc Division, American Metal Climax, Inc. R. J. O'Hara of the Amax Lead & Zinc Division was re-elected treasurer.

Permanent staff officers elected at the meeting were P. E. Robinson, executive vice president; Jerome F. Smith, secretary; and Dorothy L. Moore, assistant treasurer. Mr. Smith is a member of [illegible]

54-19 CANADIAN MINING JOURNAL
MO. 6,400 (CIRC.)

MAY 1972 CLIPPED BY BACON'S

BD. Broward Craig has been elected president and chairman for the forthcoming year of Lead Industries Association, Inc. Craig is executive vice president, St. Joe Minerals Corp. Other elections included T. M. Smylie, John J. Rittenhouse and J. G. McCullough as vice presidents.

D. B. Craig

54-8 MINING ENGINEERING
MO. 15,500

JUN 1972 CLIPPED BY BACON'S

D. Broward Craig, executive vice president, St. Joe Minerals Corp., was elected president and chairman of the Lead Industries Association, Inc. for the coming year.

D. B. CRAIG

B. A. KENNEDY

54-7 MINING CONGRESS JOURNAL
MO. 17,500

JUN 1972 CLIPPED BY BACON'S

D. Broward Craig, executive vice president of St. Joe Minerals Corp., was recently elected president and chairman of the Lead Industries Association, Inc. Elected CRAIG as vice presidents were T. M. Smylie, vice president of the Ethyl Corp.; John J. Rittenhouse, president of C&D Batteries;

51-29 PRECISION METAL
MO. 32,000

JUN 1972 CLIPPED BY BACON'S

Officers elected by LIA

At the closing session of its annual meeting held in Montreal April 7, 1972, the Board of Directors of Lead Industries Association, Inc., elected D. Broward Craig president and chairman for the forthcoming year.

The election of three vice presidents was also announced. They included T. M. Smylie, John J. Rittenhouse, and J. G. McCullough. R. J. O'Hara was re-elected Treasurer.

12-1 AMERICAN CERAMIC SOCIETY BULLETIN
MO. 10,800

JUN 1972 CLIPPED BY BACON'S

Lead Association Elects

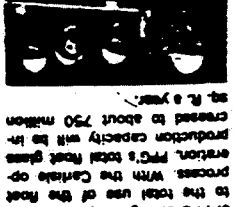
At the closing session of its annual meeting in Montreal April 7, the board of directors of Lead Industries Association, Inc. elected D. Broward Craig, of St. Joe Minerals Corp., as president and chairman for the forthcoming year.

Three vice presidents were elected: T. M. Smylie, the Ethyl Corp.; John J. Rittenhouse, C&D Batteries, Division of Eltra Corp.; and J. G. McCullough, Amax Lead & Zinc Division, American

Newsmakers

MAY, 1972

[illegible] Hagemann, PPG [illegible] Lights the gas burner [illegible] at the firm's Crestline, Pa. [illegible] floor glass plant with a ceremonial torch presented by Mr. and Mrs. John Anderson [middle] while James C. Memy [r.], Crestline [illegible] plant manager observes the ceremonies.

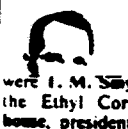


[illegible] mistakes are fed automatically into the furnace and melted into a molten mass which will reach a temperature of 2800°. Manufacturer reported the [illegible] finishing is significant because it marks the transition of PPG during the past decade to the total use of the float process. With the Crestline operation, PPG's total float glass production capacity will be increased to about 750 million sq. ft. a year.

Hagem[illegible] gold m[illegible] At the A[illegible] Flower an[illegible] at McCo[illegible] was awar[illegible] Materials. H[illegible] for the [illegible] exhibit of [illegible] The pi[illegible] Wall garde[illegible] name pl[illegible] ney des[illegible] two of th[illegible] settings [illegible] sories by [illegible] In the [illegible] Helen Sebastian [illegible] a plastic [illegible] wheel. H[illegible] worked [illegible] modeling [illegible] arts.

nt Notice:
Appointment of D. Broward Craig as President and Chairman, LIA Appeared in 25 Publications. Con't

JUN 1972



D. Broward Craig, executive vice president of St. Joe Minerals Corp., were T. M. Smylie, vice president of the Ethyl Corp.; John J. Rittenhouse, president of C&D Batteries;

54-4 ENGINEERING & MINING JOURNAL
MO. 22,000

MAY 1972

THIS MONTH IN MINING

Chaotic zinc market, lead-zinc supply-demand in spotlight at ZI-LIA meeting

PHASE II PRICE CONTROLS had the US zinc market in a confused state when the annual joint meeting of the Zinc Institute and Lead Industries Association convened in Montreal, April 5-7. Nobody involved was particularly happy about the situation.

Buyers wore a worried look in facing a tight supply situation that might or might not be continued for some time. Some domestic zinc producers had stopped selling because the US Government had not approved their request for an industry-wide price increase from 17¢ to 18¢ per lb. And zinc importers complained that the imposition of the US import surcharge on zinc and the adjustment of international currency exchange rates had cut into their profits and made the US not a particularly attractive market.

Adding to the confusion was the fact that it was impossible to determine how much of the immediate zinc shortage should be attributed to the withdrawal of some US producers from the market and how much to the permanent shutdown over the past two years of smelters accounting for about 40% of US zinc metal output.

Most projections for the US economy call for a continued business upturn through the rest of 1972. And it is possible that even the return of all producers to the market—once the Government has the price situation straightened out—would not completely satisfy the demand for zinc from US buyers, according to certain well-informed industry sources.

Asked if heavy demand for zinc should be taken at face value, one sales executive replied, "Nothing is 100% sure in this business, but when you hear that General Motors is looking for 13 carloads of zinc and is having trouble finding it, talk of tight supply gains a certain credibility."

Zinc supply outlook

The immediate problems of zinc supply were placed in long-term perspective in "Zinc—A view of 1975," a paper presented in Montreal by K. C. Hendrick, executive vice president for Normada Sales Corp., Ltd. Hendrick's projections indicate that metal production will fall short of consumption in Free World markets by 100,000 to 200,000 tons annually through 1975, and that US government stockpile releases and net imports from some of the Socialist countries will be needed to make up the difference.

Hendrick projects a total increase in Free World zinc consumption of 843,000 tons to 5.25 million tons between 1971 and 1975. This represents an annual growth rate of 4.5%, which compares closely with the rate of 4.75% for 1960 through 1971.

Looking ahead for increased mine production to supply this growth in demand, Hendrick said a total increase of between 800,000 and 900,000 tons of new mine capacity is expected to come onstream between 1971 and 1975. "Most of the growth will come from mines whose names are familiar," Hendrick said. "Mattabi, Ruttan Lake, Brunswick, and Heath Steele in Canada, Tara in Ireland, Prieska in South Africa, Beltana and Woodlawn in Australia, and San Vicente, Huanzala, and Gran Bretana in Peru."

For zinc metal production, Hendrick foresees a net total growth of only 500,000 tons from 1971 to 1975. This projection is based on the assumption that new plants will be built or expanded in Holland, Italy, Ireland, and Japan, and that in the US, closure of Anaconda's Great Falls, Mont., electrolytic plant and remaining horizontal retort plants will be partially offset by 135,000 tons of new electrolytic capacity.

By 1976, the electrolytic process will represent 70% of total installed zinc capacity, compared with about 50% over the last 10 years, Hendrick said. Both economic reasons and demand for high purity metal are responsible for this shift to electrolytic processing.

Lead supply-demand

Prospects for world lead supply and demand were discussed at the Montreal meeting by Richard D. Mushlitz of American Smelting & Refining Co. For the period 1971 to 1975, Mushlitz foresees an annual growth rate of 2.5% for lead production from a base of 3.5 million short tons, and an annual growth rate of 2.0% for lead consumption from a base of 3.6 million tons.

Growth in lead consumption over the next few years will be slowed, Mushlitz said, by a dropoff of lead usage in gasoline in the US. If Environmental Protection Agency standards are met, this trend will result in a US consumption of 225,000 tons of lead in tetraethyl lead in 1975, against a consumption of 260,000 lb in 1971.

On the plus side, an annual US growth rate of 25,000 tpy is projected for lead in lead acid batteries, starting from a 1970 base of 570,000 tpy.

Among the mines that will add to world lead production during the next four years, Mushlitz mentioned Trepca in Yugoslavia, St. Joe Minerals' Brushy Creek Mine in Missouri, the Rosebery mine in Australia, the Zelidja mine in Morocco, the Mattabi mine in Canada, and the Huanzala and Madrigal mines in Peru.

These gains will be partially offset by shutdowns of the US and Lark mines of US Smelting, Refining & Mining in Utah, and St. Joe's Riverminnes complex in Missouri, Mushlitz said.

Lead smelting and refining projects for the next few years are at the present limited to the AMMI ISF at Protovesme, Italy, rated ultimately at 45,000 tpy at full operation in 1973, and the Government-operated ISF at Titov Veles, Yugoslavia, rated at 33,000 tpy and also due onstream in 1973.

Mushlitz noted that the US government has plans to dispose of 575,000 tons of lead from its strategic stockpile. The disposal is to take place gradually through US primary producers when producer stocks touch a "trigger point," this point being one-tenth of the previous year's delivery maintained for a three-month period. Mushlitz said producer stocks were currently at that point and had been for the required period, so that stockpile releases should soon be forthcoming.

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Montreal Canada
Lead Industries Association, Inc.
and Zinc Institute