

MEDICAL DEPARTMENT

ANNUAL REPORT

1949

MAGNUS METAL DIVISION

AND

CINCINNATI BRANCH

NATIONAL LEAD CO.

CINCINNATI, OHIO

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This department in its second year of operation has found itself in a fairly settled pattern. In general the health of the men in both plants has improved over 1948. This department launched more fully into an educational program this year. The morale effect and the hygienic educational accomplishments are intangibles that defy accurate measurement. Various gratifying results present themselves to us in the course of a day's work indicating that the time spent with the individual workman may have been worthwhile. Improved dietary habits, care of badly neglected teeth, or better adjustment to work, are some of the rewards of such a program. From the standpoint of lessened lead absorption the improvements in the environmental conditions in the shops form the most important contribution.

An x-ray survey of both plants conducted by the local civic Anti-Tuberculosis League at our request received 100% cooperation. As in the 1948 survey an individual report of his chest findings was mailed to each man.

No cases of pneumoconiosis, such as silicosis, were uncovered. A few non-occupational disease conditions were found. The family physicians of these latter men were so advised. Each person's x-ray

film is filed with his record in this department.

In Table 1, a detailed account of the work performed by this department is tabulated. The lead content in blood and in urine of new employees of both plants is listed in Table 2. These are representative of normal levels of the average adult, and serve as a basis of comparison to the average lead absorptions in our workers illustrated in Table 3 and 4.

For the year 1950, it would be advisable to explore the various plans of health and hospitalization for all employees and their families. These measures introduced to employees by the industries are positive acts of welfare consideration, as well as means of halting the further spread of government into our lives.

## NATIONAL LEAD COMPANY -- CINCINNATI BRANCH

A new lunch room was added during the year. The locker rooms and the shower room were modernized. These improvements are good morale stimulants, and emphasize to the employees the management's interest in their health and well being. These facilities are used fairly generally.

The health of the workmen is good. Figure 1 and Table 3 indicate the low lead absorption with the exception of a few men in the metal house. The latter are the workmen who handle the drosses. There has been some difficulty in impressing a few of these men with the importance of dust control and the adequate fitting of respirators when used so that this equipment protects and not merely acts as an ornament for satisfying the supervision. An educational movie film on noxious dust control and protection was shown during the year by the safety committee to add emphasis to the individual instructions on this subject.

In September, it was recommended that one man be removed from further lead exposure for one month. He responded well.

There were two men who lost time during the year because of back injuries and one who sustained a hernia, which was surgically repaired. The back injury sufferers lost one week and 18 days respectively, and the man whose hernia was corrected returned to work in one month.

No lead-in-air analyses were carried out during the summer and fall. The press of other duties by the personnel who perform these tests caused this postponement. These tests may have been useful during a one week trial run of the blast furnace in November. It is advisable to perform and record lead-in-air tests periodically.

An excellent program of health and hospitalization is in effect among the office and salaried employees. It is recommended that a similar plan be considered for the hourly wage employees as well.

## MAGNUS METAL DIVISION

There has been considerable hygienic improvement in this plant during 1949 as compared with 1948. This is reflected in the mean urinary lead levels as shown in Figure 2. A major change in the ventilating system brought about an important reduction in air contamination in the foundry. In early March alternate windows were opened. The negative draft of the building was immediately relieved. The natural draft ventilation systems began to operate within the limits of their design.

Also, during 1949 the operations of the plant were reduced as compared with the previous year. For example, 2 and 3 Schwartz furnaces were operating where 6 usually were in use the previous year. These work reductions also had some effect in the improvement.

The mean lead content in the blood shows a continuing fall for the entire plant. (The normal unexposed adult has blood lead levels between 0.02 and 0.05 mg. per 100 gms. of blood. Also see Table 2 for comparison).

| WINTER          | SPRING         | SUMMER         | FALL           |
|-----------------|----------------|----------------|----------------|
| 0.156           | 0.111          | 0.095          | 0.079          |
| ( $\pm$ 0.0031) | ( $\pm$ 0.012) | ( $\pm$ 0.011) | ( $\pm$ 0.005) |

A study of the lead excretion in the urine, as tabulated in Table 4 and in Figure 2 show a tendency toward a stable level since spring. Mean urinary lead levels above 0.14 mg. per liter are potentially dangerous. Further control of fumes at their source is needed.

It is advisable to correlate lead-in-air studies which have been taken periodically with the analytical findings in the workmen.

Specific incidences continue to be disturbing. The scrap metal furnace (U.S. furnace) in the rear room is no better than it was a year ago. Because of the reduced load this year, it's operation has been relatively less frequent. This still leaves it a potentially first class producer of lead poisoning, as it has shown itself to be in the years past.

A report of the survey by the Ohio State Division of Industrial Hygiene was submitted in January. The data for this survey was collected in April and June, 1948. It presents a comprehensive hygienic engineering study, and its findings and conclusions correlate well with the medical and analytical data we submitted in our annual report for 1948.

Some of the recommendations made in each report have been carried out. Improved health and lowered lead levels of the men partially reflect these improvements. (Figure 2)

A few individuals were awarded low degrees of permanent partial disabilities for lead poisoning suffered in 1947 and 1948. It was felt that some of these awards were on dubious grounds.

The tendency to cling to age-old cliches as defenses for lead poisoning or excessive lead absorption in the workers might well be discarded. Such defenses as "the man is a drunkard", or "rotten with syphilis", etc., frequently serve only to antagonize workmen's compensation referees and boards, undermine worker morale and create distrust in the plant, and serve to blind management to existing unhealthy plant conditions that need correction. As foundries improve their working and health conditions, they can rightfully expect to attract a better type of workman. A positive approach has proven to be much more fruitful over the long term.

Medical control is fundamental in alerting for any unusual individual susceptibility or in uncovering unknown or unsuspected defects in environmental control.

A health and hospitalization group insurance program is recommended for consideration of all employees of this plant.

The lunch rooms, locker and bathing facilities are excellent. Safety equipment is adequate, widely used and maintained.

D. J. Lauer, M. D.  
Medical Director



TABLE I.

|                          | National Lead | Magnus Metal | Total |
|--------------------------|---------------|--------------|-------|
| Industrial injuries      | 226           | 282          | 508   |
| Retreatment              | 125           | 143          | 268   |
| Occupational disease     | 0             | 1            | 1     |
| Retreatment              | 0             | 2            | 2     |
| Non-industrial injuries  | 101           | 14           | 115   |
| Retreatment              | 33            | 6            | 39    |
| Non-occupational disease | 422           | 84           | 506   |
| Retreatment              | 173           | 29           | 202   |
| Total treatments         | 1080          | 561          | 1641  |
| Physical examinations    |               |              |       |
| Preplacement             | 14            | 4            | 18    |
| Periodic                 | 220           | 835          | 1055  |
| Rehire                   | 0             | 43           | 43    |
| Total examined           | 234           | 882          | 1116  |
| Laboratory tests         |               |              |       |
| Routine                  | 829           | 1732         | 2561  |
| Outside analysis         | 141           | 300          | 441   |
| X-ray                    | 104           | 80           | 184   |

KE 0014203

TABLE 2  
NEW EMPLOYEES  
BOTH PLANTS

1949

| NAME       | URINE PB.<br>Mg. /liter | BLOOD PB.<br>Mg. /100 gm. |
|------------|-------------------------|---------------------------|
| [REDACTED] | 0.075                   | 0.03                      |
| [REDACTED] | 0.045                   | 0.025                     |
| [REDACTED] | 0.065                   | 0.035                     |
| [REDACTED] | 0.06                    | 0.03                      |
| [REDACTED] | 0.02                    |                           |
| [REDACTED] | 0.06                    | 0.035                     |
| [REDACTED] | 0.085                   | 0.05                      |
| [REDACTED] | 0.07                    | 0.04                      |
| [REDACTED] | 0.045                   | 0.03                      |
| AVERAGE    | 0.058                   | 0.034                     |

\* Previous lead exposure known.

KE 0014204

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TABLE 3

MEAN AVERAGE URINARY LEAD LEVELS

NATIONAL LEAD BRANCH

1949

|              | WINTER                   | SPRING               | SUMMER                   |
|--------------|--------------------------|----------------------|--------------------------|
| ENTIRE PLANT | 0.158<br>( $\pm 0.013$ ) | 0.115<br>( 7 samp. ) | 0.151<br>( $\pm 0.012$ ) |
| METAL HOUSE  | 0.196                    | 0.115                | 0.167                    |
| PIPE HOUSE   | 0.125                    | None                 | *                        |

\* Not significant: Too few samples  
Numbers in ( ) are the probable error

KE 0014206

TABLE 1

MEAN URINARY LEAD LEVELS

MAGNUS METAL DIVISION

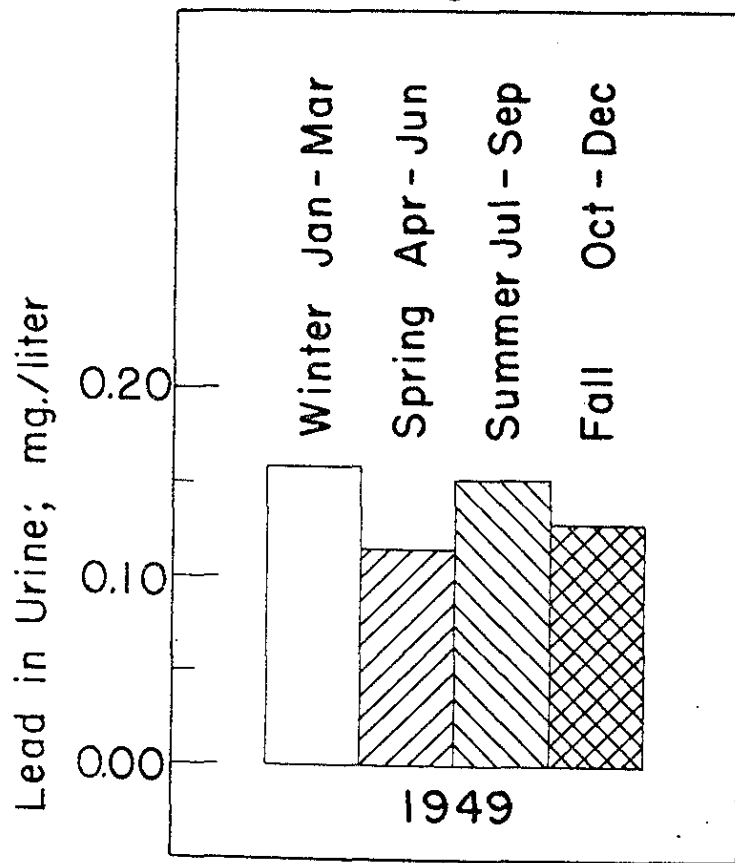
1949

|               | WINTER                  | SPRING                  | SUMMER                  | FALL                    |
|---------------|-------------------------|-------------------------|-------------------------|-------------------------|
| ENTIRE PLANT  | 0.237<br>( $\pm$ 0.011) | 0.181<br>( $\pm$ 0.011) | 0.184<br>( $\pm$ 0.013) | 0.169<br>( $\pm$ 0.017) |
| METAL POURERS | 0.323                   | 0.250                   | 0.201                   | 0.206                   |
| MOLDERS       | 0.225                   | 0.170                   | 0.107                   | *                       |
| SHAKE-OUT     | 0.271                   | 0.091                   | *                       | *                       |
| GRINDERS      | 0.275                   | *                       | *                       | *                       |
| REAR ROOM     | 0.263                   | 0.208                   | 0.220                   | 0.221                   |
| FRONT ROOM    | 0.137                   | 0.099                   | *                       | *                       |

\* Not significant: Too few samples

Numbers in ( ) are the probable error

Fig. 1



Mean Urinary Lead Levels  
National Lead Co.

Fig. 2

