

APPENDIX B.

RECENT CASES OF INDUSTRIAL LEAD POISONING.

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In the six years 1931 to 1936 there were 14 cases of lead poisoning notified in the whole of New Zealand. In the period of two years three months from 1st January, 1937, to 31st March, 1939, there were 13 cases notified for the whole country, and of these, 10 occurred in the Wellington industrial area. The industries in which these cases occurred were :—

(a) Paint-manufacturing industry	2 cases.
(b) Motor-body industry	6 cases.
(c) Electric storage battery industry	2 cases.
Total	10 cases.

PAINT-MANUFACTURING INDUSTRY.

The two cases connected with paint-manufacture were similar to others that have occurred from time to time, and were due to carelessness in the handling of lead carbonate, or undue susceptibility to the metal. This type of case is familiar to every one interested in industrial hygiene and need not be further commented on.

MOTOR-BODY INDUSTRY.

The introduction of the all-steel motor-car body of streamlined type has introduced a new hazard into the motor industry. After the sheets of pressed steel have been joined together to form the bodies all irregularities in the surface, along the lines of junction, are filled in with a soft solder which contains 70 per cent. of lead, and this is later smoothed down by hand filing and finished off with an electrically-driven buffing-wheel covered with abrasive. The first process produces fairly coarse metallic lead dust, and the second a much finer metallic dust which has a tendency to scatter owing to the high speeds at which the buffing-wheels revolve.

In February, 1937, a visit was paid to a new and well-planned motor-assembly plant, and this process was seen for the first time. Its dangerous potentialities were recognized, and the management was advised as to the precautions necessary. The motor-car bodies are handled on a moving line, and at one point on the line pass into an enclosure formed by heavy canvas curtains, and it is inside this that the buffing-wheels are used. The curtains prevent the dust from scattering, and, being relatively heavy, it quickly settles. Each man working inside the curtained enclosure is provided with a respirator, or with a positive pressure helmet fitted with an air-line. Overalls also are worn. This factory was well lighted and ventilated, and at the request of the Department adequate wash-hand basins with hot and cold water were installed, and soap, nail-brushes and paper towels supplied. The facilities provided and the precautions taken appear to have been successful, and up to the present no case of lead poisoning is known to have occurred here. One supposed case of lead poisoning was notified, but fuller investigation, including examination of the blood, failed to confirm the diagnosis.

A second motor-assembly plant where the same class of work was carried on was less well equipped, and supplied three cases of lead poisoning early in 1938. This factory was older than the one first mentioned and its production had greatly outgrown that for which the buildings were originally designed. The body-assembling shop was found to be very crowded, and it was in fact difficult to move about in it without coming into actual contact with motor-car bodies in various stages of completeness. The lighting was poor and ventilation was bad. The same type of curtained enclosure was provided, but the curtains were too short and served a nominal purpose only. Respirators, and, at one time, positive pressure helmets were provided, but the men being dissatisfied with the general conditions in the factory had given up using the helmets and were careless in using the respirators. The lavatory accommodation was inadequate and inconveniently placed, and the men were in the habit of neglecting the washing of their hands and even the removal of their overalls, which became covered with fine metallic lead dust, and at the dinner hour proceeded straight from their work to the canteen.

An additional hazard also had been introduced in that nearly all the employees brought bottles of milk and other food into the workshop and indulged in frequent "snacks" during working-hours. At the time of the first visit numerous half-empty bottles of milk were seen scattered about on the work benches, and many of them were uncovered and the surface of the milk was seen to be well sprinkled with dust. Under the general conditions prevailing it was surprising that more cases of lead poisoning had not occurred.

To remove the risks the following measures were taken :—

- (1) The ventilation of the shop was greatly improved by the installation at considerable cost of a system of mechanical ventilation. Large extraction ducts were provided with several large intakes at a low level along each side of the shop, and powerful extraction was provided by two large fans ;
- (2) Additional ablution basins were provided in a convenient position close at hand, and were supplied with hot and cold water, soap, nail-brushes and towels ;
- (3) An improved light type of overall helmet with air-supply was introduced ;
- (4) The taking of food, and especially milk, into the workshop was forbidden ;
- (5) Adequate curtains were provided for the enclosure where the buffing-wheels were used ; and
- (6) All employees in this department were given a talk explaining the manner in which lead could be absorbed, and the precautions they should themselves take in order to guard against it.