

COMPREHENSIVE LABORATORY STUDIES OF WORKERS
IN LEAD SMELTING AND REFINING

by

W. C. Cooper, M.D., I.R. Tabershaw, M.D., and K.W. Nelson, M.S.

Summary

In late 1970 examinations were performed on 310 employees of a lead smelter and refinery which was about to cease operation at the end of 1970. Mean age of 303 male employees was 45.5 years. Average length of service was 16.3 years.

Blood and same-day urine samples were collected for determination of lead by an atomic absorption method. Blood samples were also analyzed by Technicon Autoanalyzer for calcium, inorganic phosphorus, glucose, urea nitrogen, uric acid, cholesterol, total protein, albumin, total bilirubin, alkaline phosphatase, lactic dehydrogenase (LDH), and transaminase (SFOT). Subjects were not fasting.

The mean of lead determinations on 308 blood samples was 65.1 $\mu\text{g}/100\text{g}$; the median was 63 $\mu\text{g}/100\text{g}$. Thirty-seven per cent of the samples had concentrations of 70 $\mu\text{g}/100\text{g}$ or higher. Of 309 urine lead determinations (corrected to a specific gravity of 1.018), 32% were at or above 150 $\mu\text{g}/\text{liter}$ and 17% were 200 $\mu\text{g}/\text{liter}$ or higher. It should be noted that controls of lead exposures were made more difficult during the last months of operations by the inevitable deterioration of usual procedures and equipment.

Compared with control groups of chemical workers and asbestos insulation workers, the lead workers had lower overall average hemoglobin, red blood cell count, and hematocrit. Of the 12 individuals with blood leads above 100 $\mu\text{g}/100\text{g}$., seven had RBC's below 4.6 million.

The most interesting biochemical finding was the unusual prevalence of hypophosphatemia. Also, there were more than the expected number of elevated blood urea nitrogen levels, although none was in a level associated with renal failure.

Although the abnormalities found, other than the few instances of marked anemia, would not be regarded as of serious clinical significance to individual workers, they are of great interest. It is strongly recommended that biochemical surveys be carried out in other populations with similar experience.

May 15, 1972

EL PASO HERALD POST EDITORIAL

Settlement of the City-State million dollar air pollution suit against American Smelting and Refining Company appears to be on a fair and equitable basis.

ASARCO, under terms of the agreement, will pay \$80,500 in fines, plus court costs, will pick up the tab for medical expenses of youngsters found to have high level lead content in their blood, will install new anti-pollution equipment (much of which it had installed or ordered prior to the suit), will continue to monitor plant emissions, and will curtail production more sharply than heretofore under certain atmospheric conditions.

The actions required of ASARCO under the settlement are constructive, but we cannot shake off the feeling that all of them could have been achieved without court action. ASARCO, despite remarks to the contrary, has been a good corporate citizen of El Paso. Long ago it became aware of its part in the pollution of El Paso air, and moved to correct it. It has spent millions of dollars to that end and was prepared to spend more. It has done much more than many other polluters in the area to solve its problems, and has given ample evidence of its good faith long before the suit was instituted.

The suit has added a relatively few thousands of dollars to the City and the State tills, but has given El Paso perhaps a million dollars worth of bad publicity, with television shows picturing the City as lost in smog, and newspaper headlines in other states dubbing El Paso the nation's worst-polluted city -- which it isn't.

Had this bad publicity been necessary to whip ASARCO into line, it would have been worthwhile. But we've got a sneaking feeling it wasn't necessary at all.

May 15, 1972

EL PASO TIMES EDITORIAL

A two year old pollution suit against American Smelting and Refining Company has been settled with a judgement for punitive damages totaling \$80,500, court costs of \$19,500 and the implementation of pollution control devices, which when combined with existing systems, will total \$20 million.

The suit was filed by the City of El Paso and the Texas Air Control Board.

The judgement ended a 10-week trial.

Also ASARCO and the City jointly will monitor their systems to test ambient air, soil and house dust samples over the next two years. The ASARCO plant also will curtail its copper production to 65 per cent of capacity during the winter months and hold heavy metal emissions to a safe level at all times.

The Times made no comment on ASARCO and the suit against it during the trial.

But we think ASARCO and its officials always have been "fine corporate citiznes." We quote Mayor Bert Williams on that. We think that an industry which came to El Paso and built a plant many miles from the center of town, many years ago, has been unnecessarily attacked merely because it was in public view and the City and the TACB had no knowledge of how to proceed against fumes from cars, emissions from other industrial plants and the air pollution which blows over from Juarez. Or a weather inversion, for that matter.

We do regard ASARCO as a "fine corporate citizen." We think it was a spite move on the part of the City and TACB and that the resultant publicity has hurt our City. People in other areas envision El Paso as a city where clouds of danger-laden smoke blanket the downtown area, little children are dying and citizens in Kern Place and Coronado wear gas masks to escape the deadly fumes.

It just isn't so. But the damage has been done now.

"Everything in that judgement was agreed to by ASARCO," said William R. Kelly, ASARCO Plant Manager. He also called it "just and equitable." We appreciate his attitude.

But we hope that the City and TACB are just as "gung ho" in going after other pollution sources in El Paso. If they aren't, wouldn't it be fair to wonder -- why not?