

Comments on the Report of Ralph G. Smith et al. from Wayne State University
Entitled "The Study of Lead Levels in Experimental Animals"

The work represented in this portion of the general experiment conducted under the general direction of Arthur Vorwald of Wayne State University was well done as would be expected. The comparison of the content of lead in the tissues of animals, rabbits and guinea pigs, in the group subjected for approximately four years to exposure to air containing, on the average, approximately 2.5 micrograms of lead (Pb) per cubic meter of air, with that of the tissues of corresponding types and numbers of animals subjected to the same experimental conditions, excepting that the air which they breathed had been cleansed of particulate material by effective filtration, demonstrated a significantly greater quantity of lead in certain bones of the test animals, both rabbits and guinea pigs.

This is the only fact, pertinent to lead, which has been revealed by the experiment. It is an important fact, which, in the mind of this reviewer has justified the expenditure of effort and money in carrying out the analyses. The actual quantity of the lead seemingly absorbed from the air and retained by the animals during their long period of experimental exposure was small, and was evident only in the skeletal tissue. That is to say that the lead content of the soft tissues of test and control animals alike, differed only insignificantly, individually and collectively, with due allowance for some variability.

In the discussion of the probable levels of the daily intake of lead by the experimental animals, the probable extent of their absorption of lead, and the relationships of these matters to their counterparts in the human organism, little contribution is made to our information, as the author is well aware. If the experiment had been designed with the objective of learning something about the rate of the accumulation of lead in the bodies of the animals, specifically in their bones, and in the more vascular bones in comparison with the dense bones, more could certainly have been learned, but no fault can

be found with the investigators on this score, since the analytical survey came about as an afterthought merely to add what could be gleaned thereby. It would have been useful, however, in view of the duration of the exposure to have learned whether something in the nature of a steady state in the level of the concentration of lead in the skeleton, was reached at some time before the experiment was terminated, and when this came about if it did occur. Serial analyses might well have revealed some interesting events in this connection.

The evidence derived from these data while lacking, in themselves, relevance to human behavior under comparable conditions, fits into the general physiological pattern of the response of man to respiratory exposure to lead in low levels of concentration in the air.

KE 0006930