*Environmental Health Perspectives*
*Vol. 10, pp. 259–260, 1975*

# Heavy Metals in the Environment II: Overview

## by Bruce A. Fowler*

The second Research Triangle Conference on Heavy Metals in the Environment was held to further highlight the many diverse aspects of trace metal research currently being conducted by area scientists. The meeting also provided a means for focusing the common interests of these investigators into a more formal organization called the Environmental Metals Group.

The biological effects of toxic trace metals in both marine and agricultural ecosystems as well as aspects of metal analysis, biochemistry, and toxicology were examined in the first phase of the conference.

Presentations concerning cycling of trace metals in estuaries and their accumulation in fish detailed the movement of these elements in the marine food chain. An active discussion followed papers dealing with factors which modify the usefulness of museum fish specimens as indicators of trace metal pollution. Reports of ultrastructural changes and alterations of behavior in shellfish exposed to low concentrations of mercury and cadmium closed out the first morning session.

The impact of toxic trace metals on plants in the agricultural ecosystem was discussed in relation to the uptake of these metals by different plants and the influence of metals on the species distribution of plants grown in soils containing high metal levels. Induction of low molecular weight metal binding proteins in chicks was examined in relation to zinc and cadmium transport in these animals. Studies concerning the influence of molybdenum on the absorption and metabolism of sulfate in ruminants was evaluated in relation to competitive molybdenum–sulfate biochemical interactions.

Research papers on trace metal analysis, biochemistry, and toxicology were presented on the second day of the conference. Improved methods for analysis of arsenic by atomic absorption spectrophotometry and organic arsenicals by gas chromatography were evaluated with respect to problems inherent in these techniques. Several papers were given concerning the recent characterization and inducibility of a low molecular weight copper-binding protein with properties distinct from cadmium metallothionein. The subcellular distribution of lead in the brain and transport of lead across the blood-brain barrier were examined in relation to lead encephalopthy. These presentations were followed by reports detailing the effects of lead and tetraethyllead on experimental animal behavior patterns. Presentations which discussed the *in vitro* effects of toxic trace metals on macrophages and the interaction between nickel and influenza infections in the lung rounded out the research sessions.

Discussion and ratification of bylaws for a Research Triangle-based organization called the Environmental Metals Group (EMG) followed the formal research presentations. Impetus for formation of the EMG arose as a direct result of the first

* National Institute of Environmental Health Sciences, Research Triangle Park, N.C. 27709.

Research Triangle conference held last year. A steering committee composed of representatives from local academic and research institutions drafted and approved bylaws for ratification by area scientists attending the second conference. The EMG will hopefully act as a catalyst to maximize communication and cooperation among scientists in the Research Triangle and elsewhere who are interested in trace metals as environmental toxicants. It is to be hoped that through the EMG trace metal research may take its rightful place as an important area in the field of environmental health science.

Next year, the Research Triangle Conference on Heavy Metals in the Environment will be under the sponsorship of the EMG in cooperation with local scientific institutions. Attendance and presentations by interested scientists from other areas of this country and the world will be invited.