environmental hazards for us all. The common theme is that the patient’s metabolic and genetic variability determine the impact of a given molecule in such hereditary disorders as phenylketonuria, glycogen storage disease, and Tay-Sachs disease. As our understanding of life has expanded, the connection of poisoning has undergone substantial changes.

ETIOLOGY. New analytical techniques can promptly and completely identify poisons and have uncovered the causes of such diverse entities as the sibonic syndrome (methyl mercury), an outbreak of paralyzing affection more than 4000 years ago from the Quechua Indians of South America, and methyl mercury, the “gray syndrome” in premature infants (caused by chlordane and dieldrin) as well as by antiestrogens, and an epidemic of angiosarcoma of the liver in fishermen (caused by vinyl chloride). Nevertheless, many unknowns remain and justifiably concern medical students of the future, and of the environment. Unfortunately, the combination of more “sophisticated” laboratory techniques and a panel far more devoted to Rachel Carson’s Silent Spring than to Duford’s “better living through chemistry” and an increasingly literate public has produced sometimes alarming consequences, plus a very anxious and concerned public and profession. Many more diseases are now identifiable as causing human disease, especially after chronic or repetitive exposure. In some cases, poisoning is a consequence of workplace exposure. In others, the disease results from using preservatives or non-prescription medicines or as an adverse effect of medical procedures such as hemodialysis. Once poisoned, such poisoning results from attempts at suicide or homicide.

Over the past few decades, increased awareness of the health consequences of industrial substances, more stringent federal and state regulations, and four laws have resulted in a healthier work environment. Occupational health work force is employed by small industries that may not have implementable protective programs.

Knowledge of the subtle consequences of chronic, low-level trace element exposure is still grossly inadequate. For example, lead at low levels is toxic, but the consequences of increased body load burdens in the absence of the element itself is unknown. The toxicological implications of this and its clinical significance, if any, is not well understood.

The interrelationship of trace elements are also poorly understood. For example, copper may interfere and not only copper but also zinc, lead, zinc, arsenic, gold, silver, cadmium, and mercury; in these workers, proximate or other acute illnesses may result from two or more metals acting in concert. In other words, many metals may act indirectly by inducing deficiency or toxicity of another trace element.

EDAD. In the past, lead poisoning was ascribed to pica (abnormal ingestion) among children living in dilapidated houses with peeling layers of lead-based paints. In the past two decades, however, lead poisoning has been related to pica related to less use of lead in paint and leaded gasoline. Several other factors, such as race, have contributed to traffic density patterns, with leaded gasoline the major culprit.

It is estimated that more than 800,000 American workers have potentially been lead-exposed, 2000 of whom have shown lead poisoning. Lead and other metal smelter workers or miners, welders, storage battery people, and pottery workers are particularly heavily exposed. In addition, manufacturers, manufacturing, shipping, paint manufacturers, and printing industries are also at substantial risk, as are house painters who repair old houses.

Lead-soldered cups and cans and lead-glazed pottery can release lead into the diet; diabetic cats and dogs consume lead from the gastrointestinal tract; and leaded gasoline is used in activities that require lead-examined children. The heart problem of lead-affected children has been a major reason for ongoing lead screening programs. The scientific community is sharply divided on the diagnostic value of any specific test.

Table 7.2-1: A POSITIVE SCREENING TESTS INDICATING UNDEAD LEAD ABORADOPHON

<table>
<thead>
<tr>
<th>Test</th>
<th>Lead</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole-blood lead</td>
<td>10 µg/dl</td>
<td>Adult</td>
</tr>
<tr>
<td>Whole-blood erythrocyte lead</td>
<td>25 µg/dl</td>
<td>Adult</td>
</tr>
<tr>
<td>Whole-blood erythrocyte lead</td>
<td>50 µg/dl</td>
<td>Child</td>
</tr>
</tbody>
</table>

**This value is unattained.**

or injection of elemental mercury or mercury-containing compounds. In the past, mercury was administered medicinally as a component of cathartics, tincture powders, and antimonials. Ti- tol, bromides, and heavy metals were prescribed in therapeutic medicine.

CLINICAL MANIFESTATIONS AND TREATMENT. The biological effects, tissue distribution, and toxicity of mercury depend on the form in which they are ingested. Further, mercury is a very toxic substance.

METALLIC MERCURY. Elemental mercury is a liquid at environmental temperatures and vapors with a short half-life, as well as gentle handling. Mercury is the last true metallic liquid that has been widely used in science and medicine. Mercury provides patients with high doses of mercury, and protection of the patient, not the environment, becomes a priority.

CLINICAL MANIFESTATIONS AND TREATMENT. The biological effects, tissue distribution, and toxicity of mercury depend on the form in which they are ingested. Further, mercury is a very toxic substance.

**Metabolic mercury.** Mercury is a liquid at environmental temperatures and vapors with a short half-life, as well as gentle handling. Mercury is the last true metallic liquid that has been widely used in science and medicine. Mercury provides patients with high doses of mercury, and protection of the patient, not the environment, becomes a priority.

**CLINICAL MANIFESTATIONS AND TREATMENT.** The biological effects, tissue distribution, and toxicity of mercury depend on the form in which they are ingested. Further, mercury is a very toxic substance.