

- 1093 Methemoglobinemia Caused by Spinach Containing Nitrites: Preliminary Report.
A. Sinios. *Munch.med.Wochschr.* 106, 1180 (June 26, 1964).

A gray, livid color was observed in three infants, 3 and 4 months of age, from one to two hours after they had been fed spinach. Until then the infants had been well. The livid coloration was accompanied by tachycardia. The blood was chocolate brown, and a spectroscopic examination revealed methemoglobin. Large amounts of nitrite were detected in left-overs of the spinach fed to two of the infants, and the spinach found in gastric washings of the third infant contained some nitrite. Feedings with the same spinach puree had caused no symptoms on the day before. The spinach had been stored at room temperature. The author reasons that the nitrite must have derived from the multiplication of nitrite-forming bacteria in a spinach puree which contained nitrates, so that the nitrate was converted into nitrite. Studies have been started which suggest that this explanation is correct. The great sensitivity of young infants to toxins forming methemoglobin has been proved earlier by methemoglobinemia developing in infants whose formulas had been prepared with well waters containing nitrates.

-- J. Am. Med. Assn. References & Reveiws

- 1094 Investigation of SO₂ Effects on Rubber Trees as a Means of Forestalling Injury to Malayan Plantations from Refinery Emissions. Eileen Brennan, Ida A. Leone, and R.H. Daines.
J. Air Poll. Control Assn. 14, 229-233 (June, 1964).

Four-hour fumigations of dry rubber trees under conditions simulating the climate of Malaya did not produce injury until the concentration of 0.78 SO₂ ppm was reached. Fifteen-minute exposures of the trees failed to cause injury until the concentration of 75 to 100 ppm SO₂ was reached. When rubber plants having wet leaves were fumigated for a 4-hour period, slight injury was produced at 0.40 ppm SO₂. Total sulfur determinations of composite dry leaves showed no significant increase over than in untreated checks until the concentration of 0.70 ppm SO₂ was reached. Trees which were fumigated wet showed a significant increase in total sulfur content over dry check trees even at the lowest SO₂ concentration of 0.13 ppm. Old leaves consistently had a higher total sulfur content than did younger leaves. In young leaves a considerable part of the absorbed sulfur (up to 30%) could be washed off the surface, whereas old leaves or composite samples failed to show any decrease in sulfur content on washing. This might be used as a criterion for exposure of foliage to atmospheric SO₂. A 3 week fumigation at 0.30 ppm SO₂, the maximum concentration predicted by Esso engineers in the Port Dickson area, failed to produce any injury symptoms. A total sulfur content of the foliage sufficient to cause injury when accumulated at a rapid rate failed to injure when accumulated over a 3 week period. Respiration studies failed to indicate the possibility of hidden injury occurring during this prolonged fumigation. Rubber trees respond similarly to other woody species to the presence of SO₂, being injured at much higher concentrations than were most of the herbaceous species tested.

-- Authors' summary

- 1095 Arsenic Induced Carcinoma of the Skin and Lung. G.C. Hill.
Penna. Med. J. 67, 35-38 (Sept. 1964).

It has been known for more than 75 years that inorganic arsenic in its trivalent form is a potent carcinogenic agent. Since Hutchinson (Brit. Med. J. 2, 1280 (1887)) reported the association of arsenical keratoses with carcinoma of the skin, there have been many cases reported of arsenical keratoses. Subsequently, relationship to multiple cancers of the skin was more significant and keratoses became important as evidences of early malignancies. Exposure to arsenic is not only associated with an increased incidence of multiple cutaneous carcinomas, but with increased frequency of carcinomas of internal organs as well. The present case of a 47-year-old male is presented as an example of a patient in whom dermatitis herpetiformis was treated with oral Fowler's solution and in whom subsequently developed the typical arsenical dermatoses, Bowen's disease of the skin, cutaneous squamous cell carcinoma, and carcinoma of the lung. The long-latent interval of carcinogenic action of arsenicals was manifested in this case by appearance of cutaneous carcinoma approximately 20 years after known ingestion of arsenic in the form of Fowler's solution. A long-latent period, however, is not necessary for all patients, as according to Rosset, many patients with psoriasis have been taking Fowler's solution for over 30 years, while some cases have demonstrated malignancy after a short period

of therapy and after ingesting varying amounts of the drug. Arsenic induced carcinoma of the skin and internal organs continues to occur despite almost a century-old knowledge of the neoplastic inducing properties of arsenic. This is probably one of the few malignancies which can be almost completely prevented, yet, exposure in the form of medically prescribed drugs, multiple occupational uses, and the ever increasing content of arsenic in American cigarettes continues.

- 1096 Serum Aspartate and Alanine Transaminase Levels in Workers Exposed to Lead.
H.A. Waldron. *J. Clin Pathol.* 17, 149 (March, 1964).

Serum aspartate and alanine transaminase levels were studied in a group of 46 workers exposed to lead. In none of them did the level of either enzyme vary from the values found in a group of 50 healthy persons with no industrial exposure to lead. No correlation was found between levels as aspartate transaminase or alanine transaminase and blood lead concentrations.
-- Public Health Eng. Absts.

- 1097 Exposure to Aromatic Hydrocarbons in a Coke Oven By-Product Plant. E.B. Hay, III.
Am. Ind. Hyg. Assn. J. 25, 386-391 (July-August, 1964).

This paper presents a study of aromatic hydrocarbon (benzene, toluene, and xylene) exposure in a coke oven by-product plant of an integrated steel mill. Three commercial aromatic hydrocarbon detector kits were used concurrently and evaluated for field use. The accuracy of each detector was determined by a comparison with results obtained by collecting the air-borne aromatic hydrocarbons in a silica gel absorption apparatus and subsequent laboratory analysis. The ratio of inorganic to total sulfate in the urine was utilized as a biological index of exposure, and the results were compared with time weighted average concentrations to which the individuals were exposed. The study showed no excessive aromatic hydrocarbon exposure to employees in this plant.
-- Author's abst.

- 1098 Methane Diisocyanate: A Respiratory Hazard? E.O. Longley.
Arch. Environmental Health 8, 898 (June, 1964).

As the search of the literature disclosed no references to the development of respiratory symptoms following exposure to methane diisocyanate (MDI), the author reports an incident which may indicate the need for caution when using this material. MDI was applied as a rigid foam insulation to the inside of a railway carriage standing inside the main doors of a carriage workshop. The team applying the MDI wore full protective clothing and air supply respirators. A gentle breeze carried mist from the overspray into the interior of the workshop. Despite the fact that 12 employees working in the workshop moved to points 60-120 feet from the spraying area, all of these employees developed symptoms, the onset of which varied from an hour to several hours after exposure. Of the 12 men, 7 developed asthmatic breathing, 11 experienced retrosternal soreness, 12 noticed a constriction of the chest, 10 had a cough which in most cases was paroxysmal and in a few cases, persisted for 7-10 days. Two men noticed a pain behind the eyes, one was "depressed" for 24 hours, 2 suffered headache, 2 had nasal discharge, and one had insomnia on the evening of exposure. The men wearing respirators while spraying were unaffected. The occurrence of symptoms in the 12 men, following immediately upon exposure to the mist from MDI would suggest that toxic levels of MDI can be expected when a spraying technique is employed.

- 1099 Respiratory Exposure of Volunteers to Parathion. W.V. Hartwell, et al.
Arch. Environmental Health 8, 820-825 (June, 1964).

Although toxicants generally are believed to be more dangerous when ingested or inhaled, most reports assessing the hazards from occupational exposure to parathion suggest that the majority of occupational accidents are due principally to dermal exposure. Previous observations of the authors indicated that some individuals could sustain massive discrete dermal exposure to parathion without clinical evidence of poisoning or significant depression of