

Observations on Animals

KETTERING LABORATORY
UNIVERSITY OF CINCINNATI-OHIO

Lead; MC10;28; 5

20; 43;

REPRINT:

Great Britain: The West of Scotland Agricultural College.
Report on the work of the College for the year ended 30th
September 1956. 76 pp. Stirling; Jamieson and Munroe, Ltd.

A case of Pb poisoning in cattle from chewing Pb-coated
electric cable was reported. (Vet. Bull. 28, No. 3:957, 1958).

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Observations on Animals:

Air-Pollution

KETTERING LABORATORY
UNIVERSITY OF CINCINNATI-OHIO

Lead; MC10;JY29X;

20;21;33;31;43;7;

KMAO;TKTU;

5; 6;

REPRINT:

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Günther, H.: Fütterungsversuche mit Flugstaub einer
Metallhütte an Pferden und einem Schaf. (The effect of ingested
flue dust from a foundry on horses and a sheep.) Inaug.
Dissertation, Hannover, 1954, 47 pp.

Symptoms of poisoning were observed in domestic animals
grazing in an area of 5 km. radius around a German metal foundry. Analysis
of the flue dust of the 4 plants of the foundry gave the following % data:
Zn 53.5, 5.21, 54.0, 23.4; Pb 5.2, 44.8, 7.8, 16.9; S 5.2, 8.2, 5.4, 12.5;
Cl₂ 0.8, 5.6, 0.2, -; Cd -, -, 1.7, 2.2; As 0.07, 0.2, 0.4, 0.5; Fe traces,
-, -, -; F -, -, -, 0.05. The animals ingesting the vegetation and in-
haling the flue dust while grazing, showed characteristic symptoms of chronic
and acute Pb intoxication. They became emaciated rapidly and developed cachexia,
paralysis and stiffness of the joints; milk production decreased. The foundry
granted a compensation for dead animals when a Pb content of at least 0.2 mg.
Pb/100 g. liver substance had been proved. Findings on 3 affected colts
grazing near the foundry were reported in detail. Two of them had a leuco-
cytosis. The Pb content in their livers, per 100 g., was 0.37, 0.23 and 0.39
mg., the Cu content 3.4, 1.0 and 1.9 mg. In experiments carried out by the
Veterinary School in Hannover, a colt and a sheep were fed hay grown around the
foundry (containing 60-65 mg. Pb/kg.) and flue dust collected from the Pb foundry

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Günther, H.:

(44.8% Pb) with their ration. The colt received 5 g. of this dust 3 times/day for 22 da. and 20 g./da. for another 7 da. It became unable to swallow, the mucous membranes showed an icteric discoloration, leucocytes increased greatly. The liver contained 1.52 mg. Pb/100 g. The sheep was given 2 g. flue dust per day for 11 da.; the daily dose was then increased to 4, 12 and 24 g. and when its appetite decreased sharply, reduced again to 4 and 2 g. The liver substance was found to contain 0.14 mg. Pb/100 g. A feeding experiment with flue dust, Plant No. 4, was carried out by the author on a normal, 6 mo. old colt not previously exposed. The daily dose of flue dust administered with the ration and in the later stages by tube through the nose, was 3 g. for 8 da., followed by 5 g. for 13 da., 8 g. for 26 da., 10 g. for 12 da., 15 g. for 6 da., 20 g. for 9 da., 30 g. for 48 da.; then after a 15 days' interruption, 10 g. for 31 da. and 30 g. for 29 da., when the colt was sacrificed. A total of 3270 g. flue dust was thus ingested. The appetite began to decrease at the 10 g. dose; the gait became stiff, the animal appeared very sick. The leucocyte number increased and fluctuated, the Pb content in the blood was 0.466 mg./100 cc. in the highly acute stage and 0.200 mg./100 cc. shortly before death. Autopsy revealed no macroscopic changes. Microscopically, the liver contained some fine intracellular yellow-brown pigment and the kidneys were slightly necrosed. Analysis of tissues and fluids yielded mg. Pb/100 cc., 0.200 in the blood, 0.055 in the spinal fluid; Pb/100 g., 2.770 in the liver; 0.670 in the kidneys; 0.06% F in the rib bones (ash). The author suggests that the harmful effects caused by

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Kettering Laboratory University of Cincinnati-Ohio																												
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the flue dust were due not only to Pb and F but also to several other components of the flue dust. - See also Fluorine bibliography, Section VII.																												
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