

CLINICA DEL LAVORO "LUIGI DEVOTO"

DIRETTORE PROF. ENRICO C. VIGLIANI

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Prof. Robert A. Kehoe
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Dear Bob,

Thank you very much for your letter of November 1 and for the results of the analyses of lead in the samples we sent you. I am pleased to see that the values for urine and blood are in good agreement.

The results for food, however, show wide discrepancies. I agree that something must be or have been wrong in the analyses. With regard to this, I can add some data which may be of interest to you. The same samples of food and wine which were sent to you were also sent to Dr. K.W. Nelson and analyzed by the American Smelting and Refining Company's Department of Hygiene using the atomic absorption method. The following table shows the results obtained by you, Nelson and ourselves.

<u>Sample</u>	<u>Micrograms Pb per Kilogram</u>		
	<u>Clinica Lavoro Milano</u>	<u>Nelson ASARCO</u>	<u>Kehoe Kettering Lab.</u>
White flour	100	70	360
Maize flour	70	55	1000
Rice	70	50	400
Macaroni	80	70	210
Sugar	140	70	180
<u>Micrograms Pb per Litre</u>			
Wine	172	146	384

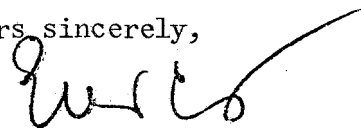
I think that at this point it would be desirable to have further experiments and controls carried out and I suggest that you send us and, if you wish, Nelson, too, samples of food and beverages, and blood and urine, too, if you like, so that we can analyse them for lead.

I shall be seeing Ken Nelson very shortly at the asbestos meeting in Antigua and I shall ask him to send some samples to you and to us. With Nelson we have already exchanged samples of blood and urine in addition to the samples referred to in the above table, and the results were in rather good agreement.

So I now look forward to receiving some samples from you. In the meantime, I am enclosing a short description of the analytical method we use.

Best regards to you and Mrs. Kehoe from Luisa and myself.

Yours sincerely,



Prof. Enrico C. Vigliani

Encl.

LEAD ANALYSIS ON SAMPLES OF ORGANIC MATERIAL AND FOOD

Mineralization

For liquid samples, 50 ml (for urine or beverages) or 10 ml (for blood) are put in a Kjeldahl flask and mineralized in a sand bath at about 200°C with concentrated HNO_3 .

For solid samples, 10 gr. of a homogeneous sample are taken and mineralized with HNO_3 as for liquids.

Extraction with dithizone and titration

Resolubilize calcination residues with diluted HCl, bring to boiling point and add hydroxylamine.

Pour the solution into a separating funnel; add citric acid and KCN, then alkalize with NH_3 (pH 9-10).

Extract the lead with chloroform-dithizone; eliminate excess dithizone by washing with an alkaline solution containing KCN.

The Pb-dithizone complex is treated with HCl 1%; the dithizone remaining in the chloroform phase is titrated with a lead solution of known concentration.