

June 20, 1931

Dr. Charles F. McKhann,  
Children's Hospital,  
300 Longwood Ave.,  
Boston, Mass.

Dear Mac:

I am very glad to send you the information which we have on the lead excretion of normal children. It is a little difficult for me to say just how much the excretion should be in excess of the figures which we have found for normals in order to be regarded as significant. However, I am going to take the liberty of disagreeing flatly with the implied opinion expressed in your description of these as cases of latent lead poisoning. I am sure that there is no such thing. Our studies of the last two years indicate beyond the shadow of any doubt whatever that lead is never inert in the body except in the central nervous system. It is excreted steadily and regularly with some ups and downs, but over any considerable period of time the excretion of lead varies with the quantity found in the tissues. It is not at any time inert in the bones no matter what the diet is, so far as we are able to make out. As a consequence of this I am not only skeptical about deleading measures, but I am flatly opposed to them. Not only will your patients excrete their lead under normal conditions if you give them a chance, but they will do it fairly safely. What is more to the point, they will do it within a period of three months, almost regardless of the quantity in them, provided exposure is brought to an end. Therefore, unless you induce an acidosis or a severe illness which will, so to speak, demobilize the lead, you may regard the high lead content of the tissues or a high excretion of lead as indicative of a recent and perhaps present exposure. The chances for exposure are so very much greater than any I have previously thought of, that I am now quite certain that most of the lead which we are finding continually in our own excreta and in that of children is a consequence of a day to day exposure to some quantity of lead. In fact, we have worked this out to such an extent that I can now say flatly that no matter what an individual's diet may be in our community, he ingests from  $1/4$  to  $3/4$  of a milligram of lead daily, this varying somewhat with what the individual chooses

to eat. However, he cannot avoid the ingestion of lead even if he eats only meat, bread, and potatoes. I should be skeptical about this except for a very large number of observations on the lead content of normal foods over a period of a number of months. Thus I have come to the conclusion that the intelligent thing to do is to investigate the conditions which lead to exposure, to eliminate them completely, and then to leave the patients essentially alone except for treatment. The rationale of deleading is based on purely analytical findings as regards lead excretion, findings which at the present time I am inclined to believe have been quantitatively in error and as such are misleading.

Please pardon my dissertation on the subject, but I had a feeling you would be interested. I would certainly like to show you some work which we have done in following a series of normal subjects as well as leaded subjects, continually over a period of six months to a year. We know pretty well now the variations in the lead excretion up and down for this entire period of time. We know pretty well the factors which produce variation. You will be interested in knowing that the most important single variable is the lead content of the food taken in daily. In fact, this variable is so huge that I am at present questioning whether there are any other factors of great importance practically. There are, as you know, other factors, but I believe they are mostly of scientific interest rather than of practical importance.

I realize that it will take a great deal more than this sketchy comment to convince you of the truth of what I am saying, but I shall be supplied with the necessary ammunition, I believe, when I see you again.

With very kindest regards to yourself and your family.

Sincerely,

RAK:EJ

KE 0012510

## URINE

## FAECES

| <u>Name</u> | <u>Lead Found<br/>Mgs.</u> | <u>Lead Mgs./<br/>Liter</u> | <u>Lead Found<br/>Mgs.</u> | <u>Lead Mgs./<br/>Gm. Ash</u> |
|-------------|----------------------------|-----------------------------|----------------------------|-------------------------------|
| [REDACTED]  | 0.15                       | 0.10+                       | 0.24                       | 0.05-                         |
| [REDACTED]  | 0.18                       | 0.11                        | 0.26                       | 0.03+                         |
| [REDACTED]  | 0.20                       | 0.18+                       | 0.37                       | 0.07-                         |
| [REDACTED]  | 0.11                       | 0.13-                       | 2.22                       | 0.31-                         |
| [REDACTED]  | 0.14                       | 0.09-                       | 0.05                       | 0.005                         |
| [REDACTED]  | 0.06                       | 0.07+                       | 0.62                       | 0.14+                         |
| [REDACTED]  | 0.10                       | 0.04-                       | 0.43                       | 0.14+                         |
| [REDACTED]  | 0.23                       | 0.08-                       | 0.10                       | 0.03+                         |
| [REDACTED]  | 0.18                       | 0.07-                       | 0.10                       | 0.01+                         |
| [REDACTED]  | 0.05                       | 0.03+                       | 0.39                       | 0.04+                         |
| [REDACTED]  | 0.18                       | 0.09+                       | 0.21                       | 0.05-                         |
| [REDACTED]  | 0.11                       | 0.09+                       | 0.27                       | 0.03-                         |
| [REDACTED]  | 0.13                       | 0.12-                       | 0.70                       | 0.11-                         |
| [REDACTED]  | 0.13                       | 0.07+                       | 0.53                       | 0.06+                         |
| [REDACTED]  | 0.11                       | 0.08-                       | 0.10                       | 0.13+                         |
| [REDACTED]  | 0.04                       | 0.02-                       | 1.57                       | 0.19+                         |
| [REDACTED]  | 0.08                       | 0.06-                       | 0.27                       | 0.09+                         |
| [REDACTED]  | 0.11                       | 0.39+                       | 0.23                       | 0.15+                         |
| [REDACTED]  | 0.23                       | 0.11+                       | 0.23                       | 0.03+                         |
| [REDACTED]  | 0.09                       | 0.10                        | 0.90                       | 0.11+                         |
| [REDACTED]  | 0.17                       | 0.07-                       | 0.30                       | 0.06+                         |
| [REDACTED]  | 0.10                       | 0.06+                       | 0.14                       | 0.07-                         |
| [REDACTED]  | 0.13                       | 0.07-                       | 0.38                       | 0.10-                         |
| [REDACTED]  | 0.12                       | 0.07-                       | 0.14                       | 0.01-                         |

KE 0012511

N13165.01

name

URINE

FAECES

Lead Found  
Mgs.

Lead Mgs./  
Liter

Lead Found  
Mgs.

Lead Mgs./  
Gm. Ash

[REDACTED]  
0.09

0.07+

0.41

0.11-

[REDACTED]  
0.20

0.12+

0.60

0.11

[REDACTED]  
0.37

0.07+

0.29

0.11+

[REDACTED]  
Nil

Nil

0.42

0.08-

[REDACTED]  
0.24

0.11-

0.45

0.05+

[REDACTED]  
0.29

0.09+

1.28

0.15-

[REDACTED]  
0.17

0.17+

0.17

0.03+

[REDACTED]  
0.13

0.14+

0.28

0.07-

[REDACTED]  
0.20

0.08+

0.61

0.08+

[REDACTED]  
0.17

0.05+

0.41

0.06+

[REDACTED]  
0.22

0.08-

[REDACTED]  
0.24

0.08+

0.09

0.03-

[REDACTED]  
0.03

0.04+

0.24

0.06-

KE 0012512

Analysis of Breast Milk for Lead

|            | <u>Volume c.c.</u> | <u>Lead Found Mgs.</u> |
|------------|--------------------|------------------------|
| Case No. 1 | 2031               | .05                    |
| No. 2      | 1936               | .10                    |
| No. 3      | 2806               | .09                    |
| No. 4      | 1280               | .04                    |
| No. 5      | 2858               | Nil                    |

N13165.02

KE 0012513