E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
OLD HICKORY PLANT
DAVIDSON COUNTY, TENN.

RAYON DEPARTMENT
RAYON DIVISION

Old Hickory, Tennessee
February 13, 1947

Dr. Robert Keho
% Kettering Laboratories
University of Cincinnati
Cincinnati, Ohio

Dear Dr. Keho:

At the suggestion of Dr. Tarrant, of our Medical Section in Wilmington, Delaware, I would like to submit a problem of lead intoxication to you for your suggestions and advice.

Admittedly, our experience with lead intoxication here has been very meager, which is also the case in this entire section, as lead poisoning in Nashville and vicinity is rare.

I am enclosing a copy of a letter I recently wrote to our Dr. Gehrmann, which I believe will cover briefly the important points in the individual's history. Also, enclosed are copies of examinations we had made by a very good internist in Nashville, and tabulations of lead analyses done in our local laboratory here. After reviewing this case, I would appreciate your advising me as to the proper steps to take with this individual and also, in a general manner, the best procedure to follow in any subsequent cases we may run into.

As this is an acute problem, I would appreciate an answer at your earliest possible convenience.

Very truly yours,

R. P. Mellon, M.D.
MEDICAL DEPARTMENT

RPM:FMF
Att.

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Y

Old Hickory, Tennessee
January 29, 1947

"A I R M A I L"

DR. G. H. GEHRMANN
DIRECTOR
MEDICAL DIVISION
SERVICE DEPARTMENT
WILMINGTON

Subject: ROY GREENER - AGE 54

The above employee has been employed by us as a leadburner off and on since 1933. The date of his first recorded examination is September 5, 1933. His adjusted service date is November 24, 1943. He has always been given regular periodic leadburner examinations and up until the present illness he has had no objective or subjective symptoms of leading. His R.B.C. count is usually between 4,000,000 and 4,500,000; Hg. between 80 and 90.

In July, 1945, Mr. Greener, on routine monthly leadburner examination, complained of some rather vague symptoms of gastric distress, malaise with easy tiring and some diarrhea. A spot check of his urine for lead showed .055 mg. per 100 cc.; Hg., 90; R.B.C., 4,700,000; analysis, negative; BP, 106/62. A recheck later in July showed lead, 0.120 mg. per 1000 cc. His general condition somewhat improved subjectively. Hg., 90; R.B.C., 4,350,000; no stipple cells; analysis, negative; BP, 104/62.

During August, Mr. Greener seemed about the same but his urine lead increased, and about the first of September he was removed from all exposure to lead and calcium therapy begun. Examination at this time showed BP, 124/80; Hg., 90; R.B.C., 4,350,000; three stipple cells (the only ones ever found). He continued to improve. The weakness and colic gradually became less, although did not entirely disappear until about June, 1946. After about six or eight weeks of calcium he was deleaded slowly with ammonium chloride. His urine lead was reduced to within normal limits and he was put back to doing lead work in the Shops the last of July or first of August, 1946.

Mr. Greener seemed to be doing nicely for awhile but began to complain more of subjective symptoms in October - BP, 104/70; Hg., 80; R.B.C., 3,500,000. November examination - complaints about the same; BP, 130/74; Hg., 76; R.B.C., 3,450,000. At this time it seemed that his symptoms were influenced by the nature and place he was asked to work rather than by the concentration of lead fumes. However, in order to be as fair and as thorough as possible, we requested Dr. W. R. Cate to re-examine the employee (See his report of March, 1946). A copy of his examination is enclosed. However, a subsequent check of Mr. Greener's urine shows him to be passing an abnormal amount of lead. (All specimens of urine except the first spot check were 24 hour specimens.)

We are taking this man out of all exposure to lead and will follow up on his condition to determine his urinary lead output.

As our experience with lead poisoning has been practically nil at this plant, please advise us as to what the routine procedure is at other plants in such cases. It appears to us that this man recovered from his initial attack but has developed a susceptibility to lead. Would it be advisable to prohibit his handling lead in the future on this plant? We would appreciate your suggestions and opinions on this case at your earliest convenience.

/s/ R. P. MILLER, M.D.
MEDICAL SUPERVISOR

RPM:FMF
Encl.

X-ray Reports:

The esophagus, stomach and duodenum are negative. The small bowel is negative.

There are marked hypertrophic changes between the second and third lumbar vertebrae.

There is a large amount of gas over the left kidney. However, there are no gross abnormalities seen in the urinary tract. Both kidneys are normal in size. There is no evidence of calcification. There is prompt excretion of the media. There are no gross abnormal changes seen except for a kink in the ureter at the ureteropelvic junction. There is no dilatation above or below this kink. The bladder shadow is normal. The entire colon is negative.

Sincerely,

/s/ William R. Cate, M.D.

C O P Y

WILLIAM R. CATE, M.D.
Doctors Building
Nashville 3, Tennessee

March 22, 1946

Dr. R. P. Miller
DuPont Rayon
Old Hickory, Tenn.

Dear Doctor Miller:

Mr. Roy Greener was in today and I am sure that there is very little we can add to your knowledge of his case. He gives a very clear cut history of lead colic, in August, 1945. This was verified by the urine studies made at intervals at the plant. At this time he complains of progressive insomnia nervousness, tremulousness, dizziness with swaying while walking, difficulty in thinking clearly, vague headaches with jerking of the muscles of the eyelids. For the past two weeks he has noticed progressive weakness in both wrists with paresthesia in the left forearm.

The general physical examination was negative. Blood pressure 124/82. All superficial and deep reflexes are bilaterally equal and active. Repeated testing by two observers indicated some weakness in the extensor muscles in both wrists without the typical wrist drop. No changes were noted in the ankles.

Laboratory reports enclosed.

It is my opinion that Mr. Greener still shows signs of chronic lead poisoning, the lead being fixed and not available for elimination by the kidneys.

It would be best at this time to mobilize the lead by using either amonium chloride or potassium iodide in order to check any further extension of the wrist drop. His general condition is much improved over last summer and Mr. Greener himself states that he is slowly but gradually getting better. It may be that he will recover completely without further medication. On the other hand the wrist weakness has developed in the past few weeks and may progress further unless checked by appropriate treatment at this time.

Sincerely,

/s/ WILLIAM R. CATE, M.D.

VE 01931

N 24976.03

LABORATORY REPORTS

Greener, Roy

March 22, 1946

Hb: 84% (14.28)
R.B.C. 4,720,000
W.B.C. 8,800

Smear: no stippling found.

Hematocrit:
McVol: 112
McHb: 30
McHbC. 25

Sed Rate: 6 mm q 1hr.

Blood Sugar: 99 mg.

SlT-amber
Acid-1.022
Albumin-ft.trace
Sugar-ftest.trace
Occ.Blood-neg
7-8 RBC pfhp
Occ.pus clump

Polys 61%
Lymphs 28%
Large Lymphs 8
Eosinophils 3
(100 cells counted)

Gastric Analysis

Time	Free HCL	Total HCL
Fasting	3	26
15 Min.	12	18
30 Min.	23	28

OLD HICKORY LABORATORY REPORTS

Date	Total Volume	Total Lead	Lead per 1000 cc.
February 10, 1947	1025 ml.	0.06 mg Pb	0.06 mg.
February 3, 1947	1030 "	0.11 "	0.11 "
January 27, 1947	1100 "	0.22 "	0.20 "
June 24, 1946	1265 "	0.05 "	0.04 "
May 20, 1946	785 "	0.067 "	0.085 "
April 22, 1946	940 "	0.09 "	0.10 "
December 17, 1945	1290 "	0.084 "	0.065 "
November 19, 1945	1581 "	0.055-0.047	0.035-0.030
October 29, 1945	960 "	0.084 "	0.088 "
October 8, 1945	1270 "	0.15 "	0.12 "
August 27, 1945	1580 "	0.28 "	0.18 "
July 30, 1945	1120 "	0.134-0.134	0.120-0.120
July 24, 1945		mg. Pb per 100 ml.	0.055