CENTRAL 1714.

81 COLLINS ST.,
MELBOURNE, C.1.

31-10-44

Dear Professor Kehoe,

Little mixing is being done here now, so I am examining some of the men who have been handling the higher octane aviation spirit to see if they show any evidence of lead absorption;the few examined to date have not. Some of these men have also cleaned out tanks.

Recently we had our first cases of T.E.L.poisoning in this country. Our first information came not long before the inquest on the fatal case;Dr.Smith of the Public Health Department of New South Wales called on me and gave me the few details that he had at that time. Mr.Batchelor was at once informed and Mr.Pryke subsequently collected further information in Sydney. Unfortunately the first man was buried before any one apparently suspected the real cause of death. The histories are therefore not very good but I have pieced the stories together as follows.

At the Australian Motorists Petrol Co.Ltd. (A.M.P.) depot at White Bay,Sydney,an empty 1000000 gallon tank which had contained 80 octane petrol (ethylised) was left open for nearly a fortnight and blown out for a week with a power blower. Two men worked cleaning out the tank for about four hours on April 26th and for a short time - probably less than an hour - on April 27th. They worked without masks or other protection.

This failure to take protective measures is stated to be due to the many changes that have taken place in the superintendents on their staff in the last few years owing to war enlistments,etc. At some stage,the new superintendent had not been informed of the necessary precautions for this work. The A.M.P.CO. had been instructed by our representatives in this matter.

Case.I. [redacted]
Stated that when doing this work previously he had to come out of the tank for spells,though the only effects experienced were running at the nose and smarting of the eyes if a drop of the silt got near his eyes.

He attanded a"mission"in March 1944;since then he worried because he had"been too bad"and "will never get to Heaven".

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Until now he had not been a devout R.C.,but now "Ifind I cant be".His wife confirmed the fact that of late he had become more religiously minded-"very much so".

Prior to April 26th,he had taken a good time to go to sleep.

After working for a short time on April 27th in the tank,both men got petrol fumes and stopped work in the tank. Next day he worked for the last time,though not in the tank.

On April 26th,after the first day in the tank,he complained of anorexia and insomnia and that night of headache. He was generally off colour until May 3rd,when he began to vomit as soon as he took food,particularly solids. Nausea was present and vomiting continued until May IOth, then ceased until May 2Ist,although over this period he became progressively weaker.

He apparently attended as an out-patient at the Balmain Hospital on May I2th and 23rd. On the first date there was a query as to the presence of acetone in the urine. A report of a blood count is "R.B.Cs.49I0000per cmm. Hb.93%.Leucocytes 8ooo..No evidence of lead poisoning".

On May I4th,after a bath,he became unconscious for a few minutes and looked like a corpse".That evening generalised twitchings were noted even in his sle ep,though these had been present to a less degree before this.

Next day he was confused and kept getting out of bed. On May 2Ist,he began vomiting again. On May 23rd,he still complained of insomnia,vomiting of solid food and weakness.

Examination on this date showed Temmerature"normal (no figure given);P.72;B.P.I04/80.Tongue moist,very coated. Heart,lungs and abdomen-no abnormality detected. C.N.S. likewise,except for a patellar clonus of doubtful type.

These notes are from Dr.Back's report at the Balmain Hospital. Dr.Nelson's report states that the hospital notes also show "blood-caked nose;dry,sore,dirty tongue; loss of weight and a story of aching in the epigastrium for two weeks;no pain,and constipation for this period, lassitude,giddiness and cramps at night".

Apparently a few days later he was transferred to Mental Hospitals (Broughton Hall and Callen Park)where he

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"collapsed and recovered and finally collapsed and died."

An autopsy (by Dr.Sheldon) failed to reveal the cause of death. Apparently the brain was not examined.

At the inquest the Coroner returned a finding of "death due to exhaustion and acute mania".

The widow has just begun an action against A.M.P.Co. for £5000 compensation. I waited to hear if this was going to be done before writing you, since it appeared fairly certain this would be the next step after the inquest.

Case 2. [redacted]

Exposure the same as [redacted]

On April 26th and on waking on April 27th had headache. On April 28th, complained of nausea and epigastric pains.

Apparently no further notice was taken of his health until the question of lead poisoning as the cause of the death of [redacted] was raised.

On June 9th, he complained of pains across the lower chest and below the left nipple and in the right iliac fossa-worse with movement. Constipated (as always). Epistaxis (had suffered from this previously). Loss of 10 pounds in weight (now 218 pounds). Not sleeping as well as usual. Wakes about 1.30.a.m. and dozes subsequently, to wake with a headache.

On June 14th, blood examination showed "R.B.Cs. 5470000 per CMM.; Hb.95%; colour index 0.88; leucocytes 5500. Neutrophiles 61%, Eosinophiles 3%, Lymphocytes 30% and Monocytes 6%. No evidence of lead poisoning".

About this time the B.P. was 150/70. Lead in the urine was 0.37 milligrams per litre and on July 10th was 0.18 mgs. per litre.

Other investigations gave peculiar or varying results. Glucose tolerance test-on June 14th-

	Fasting			interval
Blood Sugar	0.176-0.230-0.242-0.218-0.178%			at half hourly
Urine Sugar.	Nil	1.0%	Nil.	

Here is a curve that ought to be typically diabetic with its high fasting level but it returns to the fasting level in two hours. There is apparently a very high renal leak point.

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The hippuric acid excretion is said to be 65% of the normal but no figures are given of what is accepted as normal.

Urea concentration tests on June 14th and 21st wary greatly in total excretion of urea over the 3 hour period.

June 14th.	Urea.	Volume.	
One hour after urea.	1.3%	228 ccs.	Total Urea equals
Two hours after urea.	1.6%	210 ccs.	8.22 Grams in
Three hours after urea.	1.9%	100 ccs.	three hours.
June 21st.			
One Hour after Urea.	1.6%	100 ccs.	Total urea equals
Two	1.75%	76 ccs.	4.56 Grams in
Three	1.85%	88 ccs.	three hours.

The urea excretion in three hours has fallen in a week from a very high figure to one below the normal and would indicate a considerable falling off in renal function in a short period.

Blood Urea on June 21st was 55 mgs.per 100 ccs.of blood.

I believe the urinary estimations for lead were done by reliable people.

So here were two men working under dangerous conditions without any precautions-one dies with the picture of encephalopathy such as T.E.L.produces and he at least had been exposed to this risk on other occasions;the other showed figures for the urinary excretion of lead which would seem to provide confirmation of this diagnosis.

As usual,the failure in precautions is at the end of the chain and here was due to rapid changes in personnel at the A.M.P.depot resulting from war conditions. Each Oil Company must once again be impressed with the necessity for making sure that every man newly appointed to any post connected with the handling of T.E.L. or the supervision of men handling it has been fully instructed in all the requisite safety measures. We cannot expect each company to inform us of every detail of their change of staff at all their depots. Ultimately the onus for the protection of their men must rest with the heads of each depot of each oil company.

The interesting cases you mentioned in your last letter were undoubtedly cases of botulism,though this was apparently never proved. The initial diagnosis of T.E.L. poisoning was perhaps not unreasonable seeing that the

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drinking water had been stored in drums containing ethylised petrol.

The war news is splendid. The Jap.navy ha s been badly mauled in the Philippines and it looks as if 1946 may see peace again.

My brother is over in U.S.A. at present en route to London. He flew over last week and I am just realising that he might have taken this note to San Francisco for me He will be in the States for three weeks,chiefly at Washington,and hopes to return here in January.

This should reach you long before Christmas but it carries with it best wishes for Christmas and the New Year and the hope that next year will see the end of this slaughter and that we will have the pleasure of welcoming you in person to these shores that have recently seen so many of your countrymen,to whom we owe so much.

Yours Sincerely,

Keith D. Fairley