December 5, 1960

John E. Boysen
Colonel, USAF, MC
Chief, Professional Services Division
Headquarters, Air Materiel Command
United States Air Force
Wright Patterson Air Force Base
Ohio

Reference: MCDP

Dear John:

I am glad to give you the information requested in your letter of November 28th.

The report relayed to you about the Laurel Pottery's Ceramastone dinner ware (that is, a specific item of their manufacture, consisting of a yellow-colored product with a mat finish, hardly to be called a true glaze - is entirely correct (except as indicated below). We have examined several examples of this ware in Cincinnati, and it is not safe for regular or unrestricted or uncontrolled use, since the surface material, containing lead chromate, no doubt, is readily attacked by dilute acids. Several items, so tested, yielded quantities of lead of the order of 10 to 25 milligrams, after one 30 minute extraction with 5 per cent acetic acid.

Our attention was called to this unusual situation as the result of a thorough investigation of two cases of lead poisoning. The two persons were not connected with The Kettering Laboratory. The young woman is a technician in the Department of Internal Medicine, and the young man, her husband, is a medical student. The duration of their excessive intake of lead can be estimated precisely, because of the dates of their wedding, their honeymoon trip, and their return to a new apartment, when the exposure began. It was about one month, during which this couple had their meals at home and used only these dishes. Their food was composed mainly of fresh vegetables, fruits and salads supplied by the wife's family. On this account, the exposure to lead from this source (there was no other abnormal source) was practically at its maximum. The man absorbed more lead than the woman, as befitted his greater size and appetite, but both became ill at about the same time - only a few days of difference - and both recovered without unusual incident. The young woman's symptoms persisted a bit longer - she had an anemia and her weakness and inanition were more striking - and she was treated with disodium calcium EDTA with favorable results. The man recovered spontaneously. Both were quite ill, however, for a time with colic.

I am somewhat surprised at the skeptism which I have encountered in several circles about the possibility of absorbing a sufficient quantity of lead from such a source as this to give rise to lead poisoning. Something

of the order of 5 milligrams of lead per day, or perhaps a little less, would be sufficient to induce this result, according to well controlled experiments which we conducted some time ago. It is true that persons are unlikely to be subjected to such an intake of lead regularly over a period of a month, except under occupational conditions, but, as I have pointed out elsewhere, the absorption of lead from the human alimentary tract, while relatively poor (as compared with many other mineral elements) is not negligible, something like 12 to 15 per cent of that ingested being capable of absorption. One should recall the frequency with which lead poisoning occurs in childhood, in consequence of the ingestion of relatively insoluble compounds and preparations of lead. In any case the facts were as I have described them, without a scintilla of doubt.

In my experience, table ware is very unlikely to be a source of danger, generally. This is, in fact, the first cases of this type I have ever seen. The reason is that lead glazes when used, are the result of firing lead and siliceous materials at a sufficiently high temperature to produce lead silicate. Such glazes are attacked but little by ordinary acid-containing food, and therefore, create little risk. The experienced craftsmen in this industry, and, in modern times, the technical people so employed, are familiar with the problem. There are prescribed tests to apply to determine the likelihood of risk. The surprising thing in this situation is that the Laurel people apparently had no knowledge of these matters. This, I take to mean that they had no competent technical advice.

I should say that the Air Force need be but little concerned about this problem. If it has ware of this brand and type, it should dispose of it summarily. If it has other items of such ware that are open to the suspicion of well informed technical people, tests should be carried out to establish the facts, and these items should be dealt with accordingly.

It should purchase articles of this type on a specification, with respect to the glaze.

As for this situation, it is being handled properly and satisfactorily by the California State Health Department. The U.S. Public Health Service, and the State and Territorial Health Officers have been informed, and I have no doubt that all necessary steps will be taken to protect the public, without frightening people out of their senses.

If I can be of any further help to you in this, do not hesitate to let me know.

With best personal regards.

Sincerely yours,

Robert A. Kehoe, M. D.

RAK: ss

HEADQUARTERS
AIR MATERIEL COMMAND
UNITED STATES AIR FORCE
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

REPLY TO ATTN OF: MCDP

28 November 1960

SUBJECT:

TO: Dr. Robert A. Kehoe
The Kettering Laboratory
Eden and Bethesda Avenues
Cincinnati 19, Ohio

Dear Dr. Kehoe

In a recent letter from Major Robert L. Peterson, Chief of the Regional Environmental Health Laboratory at McClellan AFB, I received the following comments:

> "There is one other problem. It concerns an inquiry we got from Bill Fluck, recently, regarding the lead content in the glaze of Ceramastone dinner ware manufactured by the Laurel Pottery Manufacturing Co., Stockton, California. It seems that the State of California, Department of Public Health has requested that this particular item be withdrawn from sale, as tests indicate that these dishes are a health hazard when acids or acid foods are repeatedly eaten from them or when food is stored in them and then consumed.
>
> "The State Health people indicate that this dinner ware has caused two well-authenticated adult lead intoxication cases due to routine use of this ware. I hear the rumble that the two authenticated cases occurred in one of Kettering Laboratory's secretaries and her newly acquired husband. From the very limited amount of information we can get from the State regarding these dishes, it seems nearly inconceivable that personnel could contract clinical lead poisoning from using the dishes. I can see that they can get an elevated blood lead, but it is hard for me to imagine that they could absorb enough lead through the GI tract from acid soluble pigment in the glaze on the dishes to cause lead poisoning."

Last Friday afternoon, I spoke to Dr. Lee Miller who informed me that the information concerning two "authenticated cases"

had occurred, and that you had personally investigated the circumstances surrounding this incident. If it is possible, I would like to have as much information as you consider advisable. I would also like to know whether this particular pottery is still considered a hazard. Are there any other products which may also be involved? Would you consider it advisable for the Air Force to put out any warnings or prohibitions against the sale of these products?

Thank you very much. I appreciate your assistance in this matter.

Best personal regards,

Sincerely

JOHN E. BOYSEN
Colonel, USAF, MC
Chief, Professional
Services Division

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