

PRIVILEGED COMMUNICATION

MEMORANDUM FOR THE RECORD

DATE January 25, 1994

TO: HSC/PA (Larry Farlow)

SUBJECT: "Thyroid Activity in Men Exposed to Cold" (TR 57-36, Arctic
Aeromedical Laboratory, Ladd AFB, Alaska)

- 1) On 24 Jan 94, I was given a stack of reports regarding USAF studies of Native Americans ("Indians" and "Eskimos"). The studies had been designed in part to ascertain whether or not there were metabolic differences among and between Alaskan natives and caucasian soldiers and airmen called upon to serve in Alaska. The only report which dealt with ionizing radiation was the one titled "Thyroid Activity in Men Exposed to Cold." The remaining reports dealt with such topics as anthropological issues and parasitic diseases.
- 2) In the Thyroid study, coastal and inland Eskimos and coastal and inland Athapascan Indians as well as "outdoor" Army soldiers and "indoor" Air Force technicians were studied. In the draft report I saw, every subject's name was listed. Later, in a telephone conversation with Maj M. Snedecor, I found that the names were listed in the final, unclassified, report.
- 3) Tracer quantities of ¹³¹I ranging in activity from 9 to 65 microcuries were administered to each subject. Thyroid uptake, urinary and salivary elimination, total plasma and protein-bound ¹³¹I were measured. A total of 200 tracer experiments were made in 19 Caucasians, 84 Eskimos and 17 Indians. Follow-up lasted as long as 168 hours following administration of the ¹³¹I. Although it was not mentioned in the report, the half-life of ¹³¹I (time it takes for 1/2 of a radioactive isotope to decay) is 8 days, so whatever isotope remained in the bodies of the subjects became non-radioactive relatively quickly.
- 4) Since I am not an expert on thyroid metabolism, I telephoned Dr Glenn Dalrymple, head of Nuclear Medicine, University of Nebraska Medical School. His telephone number is (402) 559-5280, and he will be happy to answer specific questions anyone might have on this topic. His information on ¹³¹I and its biological effects was reassuring, and I will summarize it here.
- 5) ¹³¹I is not very carcinogenic due to the energies of its beta and gamma radiations. Ingested ¹³¹I concentrates in the thyroid gland, but the rest of the body receives a relatively negligible radiation dose from the isotope. If we need someone to calculate doses based on the millicuries received by the Thyroid study subjects, Dr Dalrymple's department has computer programs which they could use to help us in this regard.
- 6) Several subjects received more than one administration of ¹³¹I, and two lactating female subjects received ¹³¹I and were monitored. If a follow-on of this study is instituted, the doses to these individuals and the relevant offspring of the lactating female subjects should be assessed first. Nonetheless, the biological elimination and radioactive decay of ¹³¹I are so rapid that the microcurie amounts received by these individuals should have had no adverse effects on the health of the subjects. According to Dr Aloke Chatterjee of the Lawrence Berkeley Laboratory (who is compiling all human experimental radiation data for that organization), even when millicurie levels of ¹³¹I are ingested, there should be no cause for alarm.

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