

methodology, and correct application of this information to the patient's case is of utmost importance.

S. N. ALBERT  
Greater Southeast Community Hospital  
Washington, D.C.

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THE AUTHOR'S REPLY

The study on red cell and plasma volumes in normal adults specifically avoided "amusing mathematical exercises" in establishing normal values. The mean values presented are of actual volume measurements recorded in the literature. Predictive equations such as those listed in Table 6 (1) (and also, incidentally, used by Hidalgo et al) were not used except in a few instances to help in curve-fitting.

Of course, direct measurement of both red cell and plasma volumes is preferable to the use of the so-called  $F_{cell}$  ratio, but collection of sufficient data points was essential for the type of analysis used. Wherever possible, when there were enough directly measured values,  $F_{cell}$  measurements were not included. Because of obvious difficulties in collecting large numbers of normal values, the data were not my own. All this is clearly stated in the paper. As Dr. Albert admits, complete mixing and equilibration can be expected at 15 min in normal people. If he feels the situation may be different in certain patients, he can try to verify equilibration by additional measurements.

There is more to such data, particularly concerning red cell volume, than guiding replacement therapy. If Dr. Albert finds existing tables of mean normal values a "good guide," I do not see why he should reject additional information about the normal range. I cannot see much value in one without the other. I do agree that normal ranges must always be used with judgment and in context and not as an infrangible law. Nevertheless, I thought, and continue to hope, that my observations of actual mean values and a more or less constant relative standard deviation could be helpful in interpreting clinical volume measurements.

PETER J. HURLEY  
Auckland Hospital  
Auckland, New Zealand

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ANATOMIC LANDMARKS ON SCINTIPHOTOS

Raikar and Ganatra (1) have reported a method of putting anatomic landmarks onto scintiphotos using the facilities of a Nuclear Data Med II system. Having used this technique for some time, we have now developed a method based on software written for a Med II that offers a considerable improvement in simplicity and versatility over the method described by Raikar and Ganatra.

In use and effect our method is similar to the anatomic marker facility on the Nuclear Enterprises Scinticamera V. A small active source (10 mCi of  $^{241}\text{Am}$ ), shielded to the patient, is positioned over the anatomic landmark. Operation of a "Mark" button causes a single dot of high intensity to be placed on the image currently being displayed by the com-

puter at a position corresponding to the center of the source. After any number of marks have been placed, operation of a second button "End Mark" terminates the program.

The program is a simple one. Data from the scintillation camera (Nuclear Data Radicamera) are registered in the list mode of acquisition. The addresses stored in this manner are separated into X and Y components and the arithmetic means of the components are calculated. These means are recombined to form an address that is effectively the centroid of the activity in the small source. The contents of this address are changed to 4K giving a bright spot on the image. The number of counts registered from natural background and patient ac-