

chose the double-row  $5 \times 8$ -in. card which stores up to  $2 \times 10^{26}$  bits of information. Our print shop modified the card by adding information which aids in storage and retrieval.

The cards are indexed by notching with a hand punch and sorted with knitting-like rods. We index under these categories: studies, pertinent data, case interest, technique, etiology, pathology, x-ray correlation, and nuclear manifestations. Such categories may be expanded and others may be initiated as needed.

With our rapidly increasing number of patients and examinations, we find that this mode of random filing and selective retrieval of specific data, diagnostic signs, diagnoses, technical data, etc., is ideal, short of using a computer. The system is simple, accurate, inexpensive, and affords the capability of a large amount of data storage.

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### RADIOISOTOPE RED-CELL SURVIVAL STUDIES

An Expert Panel on the Application of Radioisotopes in Hematology of the International Committee for Standardization in Hematology has published recommended methods for red-cell survival studies using radioisotopes (1,2). These documents include standard techniques using  $^{51}\text{Cr}$  and radioactive di-isopropylphosphorofluoridate (DFP). The recommendations include proposals for presentation and analysis of the data and a table of elution correction factors for use when the red-cell survival study has been carried out with  $^{51}\text{Cr}$ . The panel has recommended that the use of a single index of  $T_{50}\text{Cr}$  ( $T_{1/2}\text{Cr}$ ) should be discontinued and in all cases the mean cell life should be deduced. The docu-

ment also contains recommendations concerning the use of radioisotope-labeled red cells in compatibility testing.

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#### REFERENCES

1. Expert Panel on the Application of Radioisotopes in Hematology: Recommended methods for radioisotope red cell survival studies. *Brit J Haemat* 21: 241, 1971
2. Expert Panel on the Application of Radioisotopes in Hematology: Recommended methods for radioisotope red cell survival studies. *Blood* 38: 378-386, 1971

### DOT COUNTING IN SCINTIGRAPHY

In their letter on dot counting in scintigraphy, Lying-Tunell and Söderborg (1) rightly comment that if a low dot factor is chosen, information will be lost because of the deadtime of the dot printer. With high dot factors, the pulses from the detector tend to become derandomized, and less information is lost.

Although a calibration procedure may be carried out as suggested by Lying-Tunell and Söderborg, it should not be necessary if the dot printer is preceded by a queueing circuit or digital derandomizer as described by Kemplay and Vernon (2) and Smith and Love (3). In this instance, the object of the circuit would be to accept the random or partially derandomized pulses from the dot factor unit and convert them to a fixed but discontinuous repetition frequency  $f$  where  $1/f$  is greater than  $t$ , the resolution time of the dot printer. A circuit of this type has been used with an experimental scanner at the Royal Postgraduate Medical School of London when it

was necessary during quantitative radioisotope studies to ensure that for any dot factor, every dot was recorded and similarly the position of each dot recorded for data analysis purposes (4).

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2. KEMPLAY JR, VERNON P: An efficient method of using an audio magnetic tape recorder for storing random pulses. *J Sci Instru* 44: 566-568, 1967
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4. KEMPLAY JR: A digital data logging technique for medical radioisotope scanners. *Phys Med Biol* 13: 413-420, 1968