The third row of the code card is allocated to the physician for interpretation and medical diagnosis using the Systematized Nomenclature of Pathology code (SNOP). Four groups, each containing 4 or 5 digits, are available for the topography of the patient's illness, the referral diagnosis, the study diagnosis, and the discharge diagnosis. The number of blocks provided in the third row offer the physician many possibilities for designing a system to meet his own particular needs or interests.

The fourth row of the code card is reserved for additional data such as location of the patient, medication that might influence test finds, teaching file information, etc.

The study and a copy of the physician's report are filed in an x-ray folder using the 6th and 7th digits of the social security number marked in color code on the folder's edge. A summary of the diagnostic and therapeutic procedures performed on the individual is listed on the face of the x-ray folder in chronological order.

The information is next transferred from the code card onto an 80-column computer card that is punched according to column numbering on the code card. The cards are sorted, monthly and yearly, with a card sorter, first by patient names in alphabetical order, then by chemical form of the tracer, next by study, and finally by nuclide. The readout then provides a monthly or yearly listing of patients examined, procedures performed, nuclides and compounds used along with referral diagnosis and test results as well as referring service.

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THE ARGUMENT FOR MINIFICATION

Barber (*1*) has correctly drawn attention to the fact that the benefits many workers appear to have derived from the "minification" of photoscans (*2–5*) cannot be attributed to an increase in count density which could offset an increase in scan speed as has sometimes been suggested. One can go further and say that if a display is modulated solely by the ratemeter output, then it is dependent only upon the counting rate and ratemeter time constant and is independent of changes in count density resulting from scan speed variations.

The statistical quality of a photoscan display depends upon the total of the integration which takes place in the ratemeter in the film, due to overlapping light spots, and in the eye of the observer. Since the latter is increased by reducing the size of the scan image, minification can, in fact, produce a real improvement in the observed display statistics. However, if the combination of ratemeter time constant and light-spot size and frequency is already such as to provide maximum integration for the desired resolution, then increasing this further by reducing the image size will result in some loss of resolution of the smaller features. This loss will not always be immediately apparent, as an observer will tend to be influenced by the improved definition of the larger features. The same result could, in any case, be achieved by other means such as a coarser resolution collimator or a longer viewing distance.

There are other physiological reasons why minification may improve a photoscan display. Tuddenham (*6*) has considered that there is a minimum density gradient on the retina of the eye below which no demarcation between adjacent areas is discernible. That this is true of the photoscan type of display may be demonstrated by scanning a phantom which provides a slow change in counting rate with the moving detector position. Since minification increases all the density gradients on the retina, it is to be expected that by its use some features which were not seen on the larger display may become discernible.

DePalma and Lowry (*7*) have measured the modulation transfer function for the human eye and found that there is a maximum response when the spatial frequency on the retina is about 10 cycles per millimeter and that there is a fairly rapid decline in visual acuity either side of this frequency. Using DePalma and Lowry's experimental results, Morgan (*8*) produced a plot of the relationship between the object diameter required for optimum perception and the viewing distance.

At a typical viewing distance of 1 meter, this diameter is about 3 mm. Since all the features that one can expect to observe in a scan are larger than this, it follows that minification should improve the perceptibility of all relevant features. Furthermore, this argument applies to colorscan as well as photoscan displays.

The foregoing discussion does not provide grounds for the general use of minified displays since similar results are achieved by viewing full-size displays from a greater distance. However, for areas much in excess of the normal large film size 17 in. $\times$ 14 in., such as total skeletal scans, it becomes impracticable

to produce full-size displays. In such cases it is comforting to know that there are substantial reasons for believing that minification need not lead to degradation of the information.

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PLASMA RENIN ASSAY

In 1971, we (*1*) compared the Schwarz-Mann kit with a bioassay for the estimation of renin activity. The regression coefficient of the Schwarz-Mann assay with the bioassay of 121 samples of plasma incubated at pH 5.5 was found to be 2.8 (95% confidence limits: 1.6 to 4.1). As we (*1*) and Cohen, et al (*2*) have shown, at pH 5.5 the yield of angiotension is threefold greater than at pH 7 or more. If Rao Chervu, et al (*3*) Schwarz-Mann assay results are corrected to pH 5.5 and for a 3 hr incubation, their regression coefficient would be $0.23 \times 3 \times 3 = 2.1$; similar to our own figure of 2.8. Clearly, the Schwarz-Mann kit is measuring a considerable proportion of non-pressor (in the rat) peptids in incubated plasma in addition to angiotensin. Consequently, it is surprising that Rao Chervu, et al (*3*) found such a good correlation between the kit and the bioassay. We found a correlation coefficient of only 0.69 when the two methods were compared on 121 samples of incubated plasma.

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PANCREATIC SCINTIGRAPHY—GI TRACT VISUALIZATION

We read with great interest the paper from Hachette, et al (*J Nucl Med* 13: 51–57, 1972) and the letter from Black (*J Nucl Med* 14: 246, 1973) about the use of ^{99m}Tc-pertechnetate in pancreatic scintigraphic studies for localization. According to Black there is a certain value in visualizing the upper GI tract with oral ^{99m}Tc in order to obtain correct identification of the pancreas head.

On the other hand, it is a well-known fact that both the stomach and the bowel show specific uptake of ^{75}Se-selenomethionine (Bühring H., Schneider C.: Das normale Pankreas im Scintigraphischen Bild, *Deutscher Röntgenkongress*, 1966. Oeser H., Teil A., eds, Stuttgart, Thieme Verlag, 1967, pp 158–161).

Moreover, it is well known although rarely mentioned, that in cases of diffuse pancreatic disease the concentration of ^{75}Se is low in the organ, whereas the activity of the GI tract is increased. The presence of elements of the GI tract with ^{75}Se uptake can seriously disturb the pancreas image in case of superposition, especially by covering a possible inhomogeneity in the head or in the body or hiding hypoactive zones in the tail.

In order to eliminate the GI tract image, we use the same principle of subtraction as for the liver. Technetium-99m-pertechnetate is administered for stomach-duodenum-jejunum visualization without specific uptake in the pancreas or liver during the study. One or 2 mCi of ^{99m}Tc are given orally. The patient is in the supine position under the gamma-camera, and a first picture is registered immediately in the ^{99m}Tc photopeak (120,000–150,000 counts in 1–2 min). Then 3.5 μCi/kg of ^{75}Se-selenomethionine are given intravenously immediately and the