in the output formatting capabilities of commercial imaging systems.

We advocate that results analogous to those of Chang and Blau be obtained in other visual modalities. Included in these should be reflection viewing (nontransparency film), television, and cathode-ray tube displays. It will be of interest to see if a Fechner relationship between human perception and the stimulus presented to the observer can be demonstrated in these cases as well.

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Reply

We recognized that our attempt to measure observer response to the gray scale used in scanning was an experiment in psycophysics. Many empirical and semiempirical relationships have been proposed for describing the results of sensory experiments of this type following Weber's original observation in 1846 that the increment of stimulus for a barely perceivable difference in response was proportional to the magnitude of the stimulus itself. These include the logarithmic and power functions cited by Williams, Loken, and Frick as well as other formulations.

We considered presenting our data in one of these forms but decided that for many readers of the *Journal of Nuclear Medicine* the elegance of fitting the data with power functions, etc., would be at the expense of obscuring the basic observation. The point we wished to stress was that at the dark end of the gray scale large changes are required for easy visibility. For this purpose our simple plot of film density against perceptibility seemed most useful. A more detailed analysis of the experiment is available (*1*).

In any case Williams, Loken, and Frick have chosen the wrong parameter for testing the applicability of the Fechner Law. The stimulus in this case is the quantity of light passing through the film and reaching the eye. However, transmission is not a linear function of optical density, and the logarithmic relationship given by the Fechner Law would not hold for optical density directly.

One of our observations was that there is a remarkable similarity between subjects in their performance in the experiment. Williams, Loken, and Frick attribute this to the "underlying psycophysical relationship." This is, of course, true for the general shape of the curve. The similarity in absolute level of response is striking, however, and remains to be explained. All of the mathematical relationships used to fit the data from psycophysical experiments refer to the performance of *individual* subjects. The nature of the "underlying psycophysical relationship" (be it linear, log, power function, etc.) has no bearing on comparisons *between* subjects. The importance of the observation that response varied little from subject to subject is that it is possible to select one common gray scale that will suit most people.

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REFERENCE

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New I-123 Nuclear Decay Data

As a continuing commitment of the Atomic Industrial Forum Research Associate Program supervised and administered by the National Bureau of Standards, we would propose the following decay data for I-123:

In June 1975, the Atomic Industrial Forum-National Bureau of Standards AIF-NBS group assayed I-123 for the first time and reassayed the radionuclide in December 1977. A decay scheme for I-123 was issued in March 1976 by the Nuclear Data Group of the Oak Ridge National Laboratories as part of the Evaluated Nuclear Structure Data File ENSDF program as a result of a request by the Joint AIF-NBS Program.

The seven contributing AIF members feel this accepted decay data for I-123 will assist in the effort to establish a consistent system of radioactive measurements for the radiopharmaceutical industry.

The values adopted by the Nuclear Data Project and by the contributing member companies, are shown in Table 1 (p 1213).

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