TO THE EDITOR:

In our studies on the suitability of I^{131} tagged bile components (1) for liver function testing, we have evoked some provocative information that, although insufficient for definite statistical conclusions, may nevertheless be of interest to readers.

Our current series concerns I^{131} tagged cholic acid.[1] This has the advantage over our previous agent, I^{131} tagged bilirubin, of apparent greater stability of the I^{131} bond in passage through the liver parenchyma. It permits study of bile acid function, a procedure not readily accomplished by chemical means (2). This may give us an easy means to evaluate conditions such as dissociated jaundice, *i.e.*, an increase in the serum bile acids without clinical evidence of jaundice (3), as well as the more classical states.

Our procedure consisted of administration orally of one microcurie of I^{131} tagged unconjugated bilirubin after an overnight fast and previous preparation with five drops of Lugol's solution. The absorption of cholic acid occurs in the distal small intestine and is independent of dietary constituents (4). Blood for bilirubin determination was drawn immediately before administration of the test dose. Twenty-four-hour urine specimens were collected and percentage of urine recovery was determined.

We were able to do only 12 meaningful cases with our supply. Of seven normal cases the mean recovery was 27 per cent. Of the remaining cases with clinical evidence of liver disease the mean was 45 per cent, 24-hour urine recovery. We were able to demonstrate one case of dissociation in a patient with previous partial hepatectomy where the serum bilirubin was 0.5 per cent and the I^{131} cholic acid 24-hour urine recovery was 56 per cent.

We feel that these findings are very encouraging, and we plan to follow up with a definitive study as soon as possible.

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[1]Supplied by Volk Chemical Company.

TO THE EDITOR:

It is the purpose of this communication to suggest a further, yet simple means of contrast enhancement of the isotopic scintiscan: the use of a minifying lens as an aid in viewing the scan.

Since the advent of the first scanning device (1), major advances have increased the diagnostic quality of the scintiscan. Improved collimation and the use of background cut-off have led to greater discrimination between tissues containing different quantities of radioactivity. A variety of devices for contrast enhancement have accentuated the differences in density produced by small differences in count rate so that such differences can be distinguished visually. Recently, closed circuit television and magnetic tape recording have allowed recording

of all data with playback at an infinite variety of background cut-off and contrast enhancement combinations.

Despite these improvements, the inability of the eye to perceive very small differences in density continues to be a limiting factor in the interpretation of scans. Recently, it was demonstrated that variations in count rate which would otherwise pass unnoticed could be discerned when several colors were used in the scan so as to further exaggerate small differences in count rate (2). Thus, closed circuit color television has been added to the growing list of devices for contrast enhancement.

Insufficiently stressed in the search for improved contrast enhancement has been the process of minification. We have found that by viewing scintiscans[1] through a minifying lens, differences in densities are accentuated, and thus the detection of minor variations is increased.

The physiological principles explaining the virtues of the minifying lens as applied to the viewing of roentgenograms have been summarized by Tuddenham (3) "cone activity, and hence perception, depends upon the rate of change of illumination with distance across the retina." The identical principles apply to the viewing of scans. With the use of the minifying lens, the size of the retinal image is diminished, yet the original variations in density are preserved. Consequently, the rate of change of these light patterns with distance across the retina is increased. Small differences in density are more easily perceived, and heretofore, subliminal images may become apparent. These principles explain one reason that reproductions of scans in journals often show abnormalities to better advantage than the original recording. In the process of photographic reproduction, the scan is minified.

Minifying lenses may be obtained in a variety of strengths. We have found a lens of -7 diopters to be satisfactory.

The minifying lens is obviously not a substitute for careful instrumentation. It can not bring to the retina what is not recorded on the scintiscan. However, by accentuating retinal cone stimulation, the inexpensive minifying lens can increase perception of recorded abnormalities.

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[1]Predominantly Photoscans Produced on a Picker Magnascanner.