

The critical position of the control rod for the two cases was:

UC <sub>2</sub>	critical position	107.70 inhours
Lot #81	" "	110.36 inhours
or $(\Delta ih)_{14} = -2.66$ inhours		

Since our previously determined calibrations were made for Lots of 16 eggs, and also since the 14 carbide eggs were arranged in the stringer in such a way that their effect should be  $\frac{14}{16}$  of a complete stringer, we have

$$(\Delta ih)_{16} = \frac{16}{14} (-2.66) = -3.04 \text{ inhours}$$

Calculating the thermal utilization (CP-372) of the cell containing UC<sub>2</sub> one obtains

$$f = .850$$

which corresponds to that of a cell of similar size containing U metal having a weight of 2400 grams. From the weight correction curve (CP-641) we obtain

$$(\Delta ih)_{\text{weight}} = -2.90 \text{ inhours}$$

and, therefore, the total change in critical position of the control rod due to UC<sub>2</sub> compared to a metal cell having an equal thermal utilization is

$$\Delta ih = -3.04 - 2.90 = -5.94 \text{ inhours}$$

From our previous calibration

$$\frac{\Delta k}{\Delta ih} = 0.5\% \text{ per inhour}$$

we get for the carbide:

$$\Delta k = -0.5 \times 5.94 = -3.0\% \text{ compared to U metal.}$$

### Safety Rods

During the past month Safety Rod #3 has been put into operation (G. Monk). This rod, designed by Mr. Fermi, makes use of a magnetic clutch in its operations. The construction is extremely simple and its operation has proved to be very reliable. The rod can be removed from the pile in about 7 secs., making it very useful for certain types of measurements. The magnetic clutch feature also makes it adaptable for other uses.

### Other Experiments in Progress

Measurements have been made (G. Monk & V. Stasler) on the fine structure of the neutron density through a cell. The results are not yet completely calculated, and will be reported in the monthly report for June.