Bakerspigel, A. Further observations on the vegetative nuclei of Neurospora crassa.

The use of HELLY fixative and a technique based upon one described by C. F. Robinow (Jour. Biophys. & Biochem. Cytol. 1961, 9: 879-892) confirmed again several of this writer's earlier observations on the vegetative nuclei in Neurospora crassa, i.e. (1) the absence of a visibly recognizable spindle in the dividing nuclei and (2) the behavior of the single nucleolus (Can. Jour. Microbiol. 1962, In Press) which can be observed to divide by constric-

tion. Thus, at the end of nuclear division, each of the sister nuclei receives what appears to be half of the original nucleolus.

Both of these observations are still at variance with those published by Somers et al. (Genetics, 45:801-810, 1960) who suggested (1) "the presence of a spindle" or the "image of a spindle" and (2) that new nucleoli are formed during telophase. It is also worth mentioning that with the Helly technique the writer has now observed the presence of a nuclear membrane. However, from the variously stained preparations studied with light microscopy, it is still difficult to determine whether this membrane remains intact throughout division or not.

It must be emphasized that the crux of the problem still rests upon the question of how the sets of sister chromosomes (formerly called chromosomal filaments by this writer) sort themselves out without the aid of a spindle. This is not only a problem in Neurospora but also in the vegetative mitoses of other fungi studied to date.