300 A°, while the central measured 430 A°. The two clear zones flanking the central element were approximately 400 A° crosswise. Therefore, in frontal view, the diameter of the complex was about 1830 A°. In the cross-sections of the complex, these elements were also discernible.

With some of the clear electron micrographs it was possible to identify two fibrils, 100 A° across, within the central element of the complex. These fibrils were parallel with the central element. However, the transverse fibrils reported in several organisms were not revealed in my micrographs.

In addition, cytoplasmic invaginations into the nucleus were frequently observed. With the same procedures, these invaginations were never found in either haploid or diploid maize. Whether this is due to genetical control is unclear.

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1. Identification of the genotype of cultivar Ionia as to the Rf genes.

Dr. J. R. Edwardson, University of Florida, has kindly provided the senior author with a seed sample of the cultivars Moldavian (cytoplasmic male sterile) and Ionia (the maintainer), which he had obtained from the Soviet Union. He has identified the cytoplasm of the former to be S-type, although it is called M-type in the Soviet Union (Edwardson, personal communication). At the same time, he identified the genotype of both lines as $\underline{rf_3}\,\underline{rf_3}$, but he has not examined them for $\underline{Rf_1}$ and $\underline{Rf_2}$.

To identify the genotype of these materials, Ionia was crossed as the male to Minn A158T and R273N* female parents. The genotypes of both lines had been identified as follows:

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*These genetic lines have been provided by Dr. D. N. Duvick, Pioneer HiBred Corn Co., for which we are grateful.

Minn A158T (T) $\underline{rf_1}\underline{rf_1}\underline{Rf_2}\underline{Rf_2}\underline{rf_3}\underline{rf_3}$

R273N (N) $\underline{Rf_1}\underline{Rf_1}\underline{rf_2}\underline{rf_2}$

Fifty F_1 kernels each of the crosses Minn A158T x Ionia and R273N x Ionia were planted on the experimental field of the Faculty of Agriculture, University of Cantho. Of these, 42 and 48 germinated, respectively, and were grown during the dry season of 1971. Anthers were examined for male fertility or sterility in 42 and 46 individuals, respectively.

All of the anthers of the F_1 hybrids involving Minn 158T were small in size, slender in shape, brownish in color, and empty; that is, practically no pollen grains were observed. On the contrary, all of the F_1 hybrids involving R273 had normal anthers with fertile pollen grains.

From the above observation it can be concluded that the genotype of Ionia is $\underline{rf_1}\underline{rf_1}\underline{rf_3}\underline{rf_3}$. It was not possible, however, to identify the genotype for $\underline{Rf_2}$ from the present experiment.

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1. Retention of Euchlaena as a genus separate from Zea.

During the 3 decades since Reeves and Mangelsdorf cited cytogenetic evidence in support of the transfer of the genus Euchlaena to the genus Zea, as originally proposed by Kuntze in 1904 and subsequently ignored by Hitchcock and other grass taxonomists, much additional botanical and archeological information has become available that does, in my opinion, fully justify the retention of Euchlaena as an autonomous genus. Reeves and Mangelsdorf conceded that Zea and Euchlaena are morphologically distinct, but argued that their cross-fertility, the similarity of their chromosomes and linkage relations, and the observed