III. REPORT ON MAIZE COOPERATIVE

As mentioned in the 1957 Maize News Letter, three separately-acquired stocks of Chromosome 6 traits have very similar phenotypes: antherless (*at*), silky ear-1 (*si*$_1$), and E. G. Anderson's new trait "male sterile-silky" ("*ms*-*si*"). All were previously found to be closely linked to *Y*$_1$.

Among several hundred plants of these traits grown here, all mutant plants have been both antherless and silky in phenotype. Intercrosses between the Cooperative's stocks of *at* and *si*$_1$ indicate allelism. No published description of the original stocks of *at* has been found. According to the published description of *si*$_1$, mutant plants have supernumerary silks on the ear and also have a few silks in the tassel, with little pollen shed. Under Illinois conditions, neither *at* nor *si*$_1$ plants have exserted anthers. On the assumption that there has been no past mix-up in *at* stocks, *at* and *si*$_1$ are apparently allelic. Intercrosses of *si*$_1$ and "*ms*-*si*" also indicated allelism. Testcross data involving *si*$_1$ and *Y*$_1$ gave 8 recombinants in 265 plants (3.0%). A small progeny carrying a third marker, *Pl*, indicates that the probable order is *si*$_1$ - *Y*$_1$ - *Pl*.

A trait submitted to the Coop as probably being *ms*$_1$ has given 9.2% recombination with *Y*$_1$ in testcrosses (23 recombinants in 251 plants). Our collection does not include a known stock of *ms*$_1$ for an allelism test. This trait may, however, be mislabelled since the *ms*$_1$ reported in the 1935 Maize Linkage Summary showed about 3% recombination with *Y*$_1$. This unidentified male-sterile is not allelic to *si*$_1$. It has not yet been tested with *po*.

The gene *po* in Chromosome 6 has been uncovered by hemizygous tests involving transmissible duplicate-deficient complements from three translocations. These translocations, along with Dr. Longley's cytological placements, are as follows: 2-6 5419 (2L.82; 6S.79), 4-6 4341 (4S.37;6S.81), and 6-9 4778 (6S.80; 9L.30). In similar tests *yg*$_2$ (Chromosome 9) was uncovered by two translocations: 8-9 4453 (8L.86; 9S.68) and 3-9 6722 (3S.66; 9S.66). Other translocations and distally-located markers are being tested.

There are still a number of older genetic traits that should be added to the Coop collection if stocks of them can be found. We would appreciate receiving verified stocks of any of the following traits:

Chromosome 1--ga$_6$, zl
" 2--ts$_1$, d$_5$
" 3--yt
" 4--de$_1$, de$_{16}$
" 5--sf, cb, f$_2$
" 6--ms$_1$, w$_5$ w$_6$, v$_6$, yd, at
" 9--yf, pk, Pr$_2$, Da$_2$, de$_{15}$, v$_{15}$, w$_{11}$, o$_3$