A number of detachments resulting from induced exchange between an attached X and the y+Y were found to be attached-XY, and were considered to be of the sequence XY5.Y'y+ if the markers were retained (Parker and McCrone, 1958). One stock, # 129-16, that has been used in making some doubly-marked Y's has been found instead to be of the sequence Xy+yL·YS, with the break in the y+Y distal to ac and y+, but proximal to I(1)J1+. This stock differs from the other compound XY detachments that retain y+ in having some yellow variegation in combination with yellow or yellow2 in the attached-XY/O. Variegation in the presence of yellow2 is most easily seen as pale spots in the darker sclerites at the tip of the male abdomen.

One derived Y (Y-66d, YSy+yL·YS) arose spontaneously in a 129-16/0 male and was recovered as a single y+v bb/Y-66d female. Males of the constitution y sc/Y-66d are fertile and show a more pronounced yellow variegation than do y sc 129-16/0 males. Variegation in this case and in the case of the original 129-16 stock suggested a different relationship of the yellow locus in these stocks. Furthermore, were y+ in a terminal rather than in an interstitial position, the derived Y, having two doses of the y+ duplication should show the pronounced Hw-like phenotype of extra hairs in the Second Posterior Cell of the wing, branched Posterior Crossveins, etc., that is regularly found in iso-marked y+Yy+ chromosomes (Williamson).

A test of the position of the y+ marker was to reconstitute an attached X from 129-16. Were the marker terminal, it should almost surely be lost in forming a new attached X; if interstitial, it should be retained. One such attached X arose spontaneously in the 129-16/0/y+y bb stock; it retained the marker. The interstitial position was further confirmed by finding that the y+ duplication in 129-16 and in Y-66d did not cover I(1)J1 either with or without an extra Y.

Williamson has obtained a number of spontaneous attached X detachments from a doubly-marked Y derived from 129-16, where the detachments carried either both of the markers (y+ and BS) or neither, showing this derivative to be BSy+y rather than y+YBS as formerly believed.

The interstitial position of y+ in 129-16 suggested that Y-66d could carry two doses of the Y5 male-fertility complex (KS) as well as one of the YL complex (KL), hence should be of the structure, KS y+ KL·KS. This was verified by testing a series of radiation-induced detachments, using ability to complement FR-2 as a test for the presence of a complete KS. Of 8 detachments that carried y+, and therefore should in any simple exchange also carry one or the other of the KS complexes, 7 were found to give fertile males in combination with FR-2. The eighth case proved to be a complex one, having all of the markers of 4R as well as y+ and kl-5 linked with the X, requiring a total of 4 breaks to form the detachment. (ORNL is operated by Union Carbide Corporation for the U.S.A.E.C.)