

In six of these ten lines every F5 individual exhibited the Ultrabithorax phenotype, indicating that the synthesized Hnr^3 ry^6 chromosome was lethal in homozygous condition. In the other four lines 10-20% of the F5 individuals exhibited orange eye color and failed to exhibit the Ultrabithorax phenotype. The orange eye color was distinct from the eye color of kar , ry and kar ry homozygotes. These observations indicated that four of the independently arisen Hnr^3 ry^6 chromosomes were viable in homozygous condition, a suggestion confirmed by test crossing putative homozygotes to appropriate tester stocks.

Subsequently, Ubx heterozygotes from the six lines which produced no viable homozygotes were also test crossed. In each case the presence of the Hnr^3 allele was confirmed, but heterozygotes for the synthesized chromosomes and the original ry^6 bearing chromosome proved to be lethal. Apparently, the recessive lethality of these six chromosomes was due to homozygosity for factors present on the original ry^6 bearing chromosome, not to homozygosity for the Hnr^3 ry^6 combination per se.

The reported Hn ry synthetic lethal system was peculiar in its limitation to only one of five ry alleles tested in combination with Hnr^3 (Goldberg et al. 1962). It is possible that in the previous work on this system the ry^6 allele served as a marker for a linked hidden lethal interaction factor that has since been lost. Alternatively, the viability of Hnr^3 ry^6 homozygotes may depend critically on the genetic background at one or more other loci (three of my four homozygously viable Hnr^3 ry^6 chromosomes carried the kar allele, which was probably present in the Hnr^3 ry^6 chromosomes of Goldberg et al. as well). Whatever the source of the discrepancy in results, the extant ry^6 allele does not combine with Hnr^3 to form an unconditional synthetic lethal.

References: Goldberg, A., A. Schalet & A. Chovnick 1962, DIS 36:67-68; Lucchesi, J.C. 1968, Genetics 59:37-44; Taira, T. 1960 DIS 34:107.

Thompson, V. Roosevelt University, Chicago, Illinois. Second chromosome crossing over in *D.melanogaster* females heterozygous for first, second and third chromosome balancers.

Multiple heterozygosity for balancer chromosomes often leads to a breakdown in the effectiveness of individual balancers (MacIntyre & Wright 1966). Here I report the effect on second chromosome recombination of simultaneous heterozygosity for the first chromosome balancer $winscy$ [$In(1)sc^S$ $Lsc^{8R}+dl-49$, y sc^{S1} sc^8 w] and

Wallace's "A1" second-third chromosome translocation. The A1 rearrangement is the result of a reciprocal translocation between two balancer chromosomes, $In(2L)$ Cy $In(2R)$ Cy , Cy L and $In(3LR)$ Ubx^{130} , $Ubx^{130eS}(=TM2)$ (Wallace 1966; _____ et al. 1966). In the absence of first chromosome structural heterozygosity the A1 rearrangement suppresses most second chromosome recombination, with the notable exception of about 4% crossing over in the vicinity of the centromere (Thompson 1977).

Males hemizygous for the $winscy$ chromosome and heterozygous for the A1 rearrangement were crossed to females from stocks homozygous for net , vg and dp b bw . Daughters carrying Cy , L and Ubx were backcrossed to males from the appropriate mutant stock and the progeny scored for phenotype. The results, based on 1004 vg cross offspring, 582 net cross offspring and 383 dp b bw cross offspring, appear in Table 1. Left arm recombination is not affected by the introduction of $winscy$ heterozygosity and remains at very low levels, perhaps because the left arm includes the second chromosome break point of the translocation. Right arm recombination is markedly increased (about 10-20 fold over A1 heterozygote levels). Not unexpectedly, most or all of the increase in recombination appears to take the form of double crossing over.

This is reflected in strong negative crossover interference in the Cy - vg - L and Cy - L - bw intervals, which exhibit interference values of -2.3 and -1.8 respectively.

Table 1. Second chromosome crossing over in females heterozygous for the $winscy$ and A1 balancer chromosomes.

Map position	0.0	6.1	13.0	48.5	67.0	72.0	104.5
Marker	net	Cy	dp	b	vg	L	bw
% crossing over	0.0	1.0	0.5	16.1*	4.5	9.4	

*Estimated from Cy - vg and Cy - L crossover values in conjunction with the other values given.

References: MacIntyre, R.J. & T.R.F. Wright 1966, DIS 41:141-143; Thompson, V. 1977, Genetics 85:125-140; Wallace, B. 1966, Am.Nat. 100:565-583; Wallace, B., E. Zouros & C. Krimbas 1966, Am.Nat. 100:245-251.

Toda, M.J. & O.K. Kwon.* Hokkaido University, Sapporo, Japan. *Cheju National University, Cheju, Korea. Collection records of drosophilid flies from the Quelpart Island, Korea.

The location of the Quelpart Is. is important to consider the faunistic relationship between Japan and the East Asian Continent. We made a brief collection of drosophilid flies in the Island.

The collections were made in a secondary deciduous broad-leaved forest with admixture of laurels and *Cryptomeria japonica* at Mt. Booriak, Quelpart Is., for two days on August 12 and 13, 1979. The collections were mainly based on bait trapping with grapes and peaches fermented by Baker's yeast. Besides, to collect other species which are hardly attracted to fruit traps, sweeping collections with an insect net were made at various places: on fleshy fungi, on forest floor, at shelters of cliffs or rocks, and on tree trunks covered with moss or lichen. Males of genus *Amiota* flying around human eyes were also captured.

The present collection yielded 745 specimens of 30 species belonging to seven genera in Drosophilidae. Up to the present, 42 drosophilid species have been recorded from the Island (Chung 1955, 1958; Paik & Kim 1957; Kang et al. 1959; Lee 1964). Of the 30 species obtained in the present study, 17 are new to the Island, of which 6 are also new to Korea. A total of 59 drosophilid species so far recorded from the Quelpart Is. are listed below, together with information of their geographical distributions, which are classified into eleven types: endemic to the Quelpart Is. (E), recorded only from Korea (K), only from Korea and China (KC), only from the Quelpart Is. and Japan (QJ), only from Korea and Japan (KJ), Eastern Asiatic (EA), Southeastern Asiatic (SA), Palaearctic (P), Holarctic (H), Cosmopolitan (C) and others (O). The species new to the Island are marked with *, and those to Korea with **. For the species obtained in the present study, numbers of specimens collected are given in parentheses as Total=♀♀+♂♂ after the codes of respective collection methods: by fruit traps (Tf), on fleshy fungi of Agaricales (Mg) and Aphyllophorales (Mp), sweeping on forest floor (Sff), on tree trunks (TT), at rock shelters (RS), and around human eyes (HE).

- ** 1. *Amiota* (*Amiota*) *albilabris* (Roth) P: Korea, Japan, Europe (HE:3=0+3)
- 2. *A. (A.) chungii* Okada (= *A. alboguttata* f. *koreana* Okada & Chung) K
- ** 3. *A. (Phortica)* *okadai* Maca (= *A. variegata* Fallen type A) QJ (Tf:1=0+1)
- 4. *Leucophenga* (*Leucophenga*) *maculata* (Dufour) P: Korea, Japan, Taiwan, Java, Europe
- * 5. *L. (L.) orientalis* Lin & Wheeler (= *L. magnipalpis* Duda) EA: Korea, Japan, Taiwan (Mp:1=0+1, Sff:16=0+16, TT:1=0+1, RS:1=1+0)
- * 6. *L. (L.) ornata* Wheeler SA: Korea, Japan, Taiwan, Philippine, Java, Nepal, Australia (Mp:1=0+1)
- * 7. *L. (L.) sorii* Kang, Lee & Bahng KJ (TT:1=0+1)
- 8. *Microdrosophila* (*Oxystyloptera*) *urashimae* Okada KJ
- 9. *Liodrosophila* *castanea* Okada & Chung K (Sff:1=1+0)
- 10. *Scaptomyza* (*Scaptomyza*) *choi* Kang, Lee & Bahng E
- 11. *Sc. (Sc.) graminum* Fallen H: Korea, Japan, S.Asia, Siberia, Europe, N.America, Africa
- 12. *Sc. (Parascaptomyza)* *pallida* (Zetterstedt) C
- **13. *Sc. (P.) elmoi* Takada O: Korea, Japan, Taiwan, Hawaii, Australia (Sff:1=1+0)
- **14. *Nesiodrosophila* sp. E (RS:1=0+1)
- 15. *Mycodrosophila* *basalis* Okada KJ
- *16. *My. gratiosa* (de Meijere) (= *My. splendida* Okada) O: Korea, Japan, Taiwan, Micronesia, S.Asia, Polynesia, Seychelles, Africa (Mg:1=0+1, Mp:1=1+0)
- *17. *My. planipalpis* Kang, Lee & Bahng KJ (Mp:1=1+0)
- *18. *My. poecilogastra* (Loew) P: Korea, Japan, China, Europe (Mp:2=0+2)
- *19. *My. shikokuana* Okada KJ (Sff:1=0+1)
- **20. *My. subgratiosa* Okada QJ (Sff:1=0+1)
- 21. *Drosophila* (*Scaptodrosophila*) *coracina* Kikkawa & Peng SA: Korea, Japan, China, Borneo
- 22. *D. (Sc.) puncticeps* Okada KJ
- 23. *D. (Sc.) subtilis* Kikkawa & Peng EA: Korea, Japan, China