and ADH release might be simultaneously inhibited by the mechanism described by HAYWARD and BAKER[7]. The skin temperature was rather high under control conditions (32–35 °C) and evident increase of its temperature during heating was seen only in 2 cases. This allows us to assume that there was no greater displacement of blood from deep tissue to the skin and thus ADH release cannot be explained as due to a decrease of the inhibitory influences from volume receptors. Moreover, even in these cases, when strong panting was observed, there was no change of the plasma osmolality. Thus it seems that local heating of middle and rostral parts of the preoptic area and of the ventral septum stimulates some thermosensitive neurones which activate the hypothalamo – hypophysial antidiuretic system. The finding that the effective area for influencing ADH release corresponds to the region in which highly thermosensitive units have been described[8] strongly supports the hypothesis that these neurones influence the regulation of ADH release.

Résumé. On a examiné des effets d'un élèvement local de la température du prosencéphale basal sur le taux de l'ADH plasmatique et les réponses thermorégulatrices chez les chiens chroniquement munis de thermodes. On a constaté en avant de la commissure antérieure une élévation de la concentration de l'ADH dans le plasma sanguin et dans la plupart des cas une polypnée. On peut supposer que les neurones thermosensitifs de la même région jouent un rôle dans l'activation du système antidiurétique hypothalamo-hypophysaire.

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3 July 1972.

[7] J. N. HAYWARD and M. A. BAKER, Am. J. Physiol. *214*, 843 (1968).
[8] J. S. EISENMAN and D. C. JACKSON, Expl. Neurol. *19*, 33 (1967).
[9] The author thanks Mrs. W. RADZISZEWSKA for making histological preparations and Mr. W. PRINGLE from Parke and Davis for supplying the ampoules of Pitressin used in this study.

Comparative Studies of Male Genital Structures of Hybrids and Their Parental Species

STURTEVANT[1] was first to show that male genital apparatus offers quite constant and diagnostically valid species differences especially among insects. Since then it has been extensively used in such studies by many workers and in some cases offered a new approach for understanding the mechanism of speciation. The practical importance of these structures has also been now realized by modern systematists (HSU[2]; STALKER[3]; MALOGOLOWKIN[4]; OKADA[5,6]; SPASSKY[7]; TAKADA[8,9]; KANESHIRO[10]; YANG and WHEELER[11]; WHEELER and TAKADA[12]).

Drosophila bipectinata DUDA[13] and *D. malerkotliana* PARSHAD and PAIKA[14] are both sympatric species. Genetic analysis of 3 species, *ananassae, bipectinata* and *malerkotliana* made by NARDA[15,16] has revealed that the latter 2 species are closely related and produce F_1 sterile male and fertile female hybrids. The author wishes to present a comparative account of genital structures of the hybrids and their parental species.

Material and method. Reciprocal crosses between *D. bipectinata* and *D. malerkotliana* were made and the hybrids thus produced were inbred for F_2 progeny and also back crossed with both the parental species. A sufficient number of hybrids from both crosses were utilized for the study of genital structures so as to find out variability within them. Preparations were made from the living organisms as well as after KOH treatment. Diagrams were made with the help of Carl Zeiss Camera-lucida attached to an Olympus microscope.

Observation. Reciprocal crosses (*malerkotliana* ♀× *bipectinata* ♂; *bipectinata* ♀× *malerkotliana* ♂) produced a number of F_1 hybrids of both sexes. The inbreeding test, F_1 ♂×F_1♀, failed to produce offspring while backcrosses in both ways produced offspring.

F_1 (*malerkotliana* ♀× *bipectinata* ♂) females crossed separately to males of both the parental species, produced offspring of both sexes which were more like *bipectinata* and *malerkotliana* respectively. However, some males obtained in *bipectinata* cross showed abdominal tergite coloration, faint but resembling *malerkotliana* male. In second cross, F_1 males crossed separately to both parental species, produced no offspring.

In an alternative back cross F_1 (*bipectinata* ♀× *malerkotliana* ♂) females crossed separately to males of both the parental species, produced offspring of both sexes similar in phenotype to the above cross. In second cross, F_1 males crossed separately to both parental species, produced no offspring.

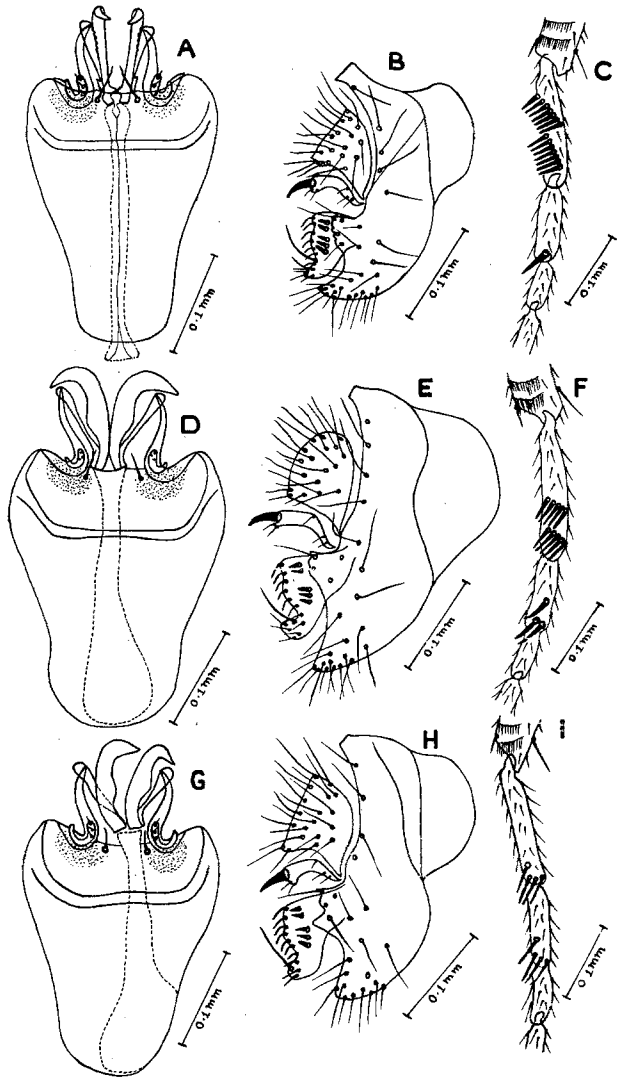
Thus inbreeding and backcross tests clearly indicate that hybrid females are fertile while males are sterile.

Comparison of phenotype and male genital structures of the parental species and their hybrid. *Drosophila bipectinata.* General body coloration yellow, each abdominal tergite with a dull brown, narrow posterior band. Male prothoracic legs with two obliquely placed sex-combs on metatarsal segment, upper comb with about 5–8 teeth, lower one with 6–9 teeth, 1–2 teeth on distal part of first tarsal segment of same leg (Figure C). Periphallic organs (Figure B): Genital arch elongate, narrowing anteriorly, with about 26–30 bristles along the posterior margin, toe pointed, posterior margin with a process covering a small part of primary clasper. Anal plate triangular. Primary clasper with about 13 marginal bristles, one of them large and directed upward; primary teeth in 2 groups usually 2 and 3. Secondary clasper with a large tooth. Phallic organs (Figure A): Aedeagus bifid, somewhat broadened at middle, pointed and curved apically. Anterior paramere U-shaped. Posterior paramere

[1] A. H. STURTEVANT, Psyche *26*, 153 (1919).
[2] T. C. HSU, Univ. Texas Publs. *4920*, 80 (1949).
[3] H. D. STALKER, Ann. ent. Soc. Am. *46*, 343 (1953).
[4] C. MALOGOLOWKIN, Revta. bras. Biol. *13*, 245 (1953).
[5] T. OKADA, Kontyu *22*, 36 (1954).
[6] T. OKADA, Kontyu *23*, 97 (1955).
[7] B. SPASSKY, Univ. Texas Publs. *5721*, 48 (1957).
[8] H. TAKADA, Annotnes zool. jap. *36*, 208 (1963).
[9] H. TAKADA, Univ. Texas Publs. *6615*, 315 (1966).
[10] K. Y. KANESHIRO, Univ. Texas Publs. *6918*, 55 (1969).
[11] H. Y. YANG and M. R. WHEELER, Univ. Texas Publs. *6918*, 132 (1969).
[12] M. R. WHEELER and H. TAKADA, Univ. Texas Publs. *7103*, 225 (1971).
[13] O. DUDA, Ann. Mus. Nat. Hung. *20*, 24 (1923).
[14] R. PARSHAD and I. J. PAIKA, Res. Bull. Panjab Univ. Sci. *15*, 225 (1964).
[15] R. D. NARDA, Caryologia *21* (4), 293 (1968).
[16] R. D. NARDA, J. Genet. *60*, 1 (1970).

large, dilated dorsobasally. Ventral fragma triangular, longer than broad. Novasternum without median notch but with a pair of submedian spines.

Drosophila malerkotliana. General body coloration pale yellow, each abdominal tergite with a black band, except in male where terminal tergites completely black. Sex-comb in 2 sets, upper metatarsal comb with 2 transverse rows of 1 and 3–4 tough bristles; lower tarsal comb with similar rows of 1 and 3 tough bristles (Figure 1). Periphallic organs (Figure H): Genital arch with about 22–25 bristles along posterior margin. Other characters similar to *bipectinata*. Phallic organs (Figure G): Aedeagus bifid, broadened at middle, pointed and curved apically. Ventral fragma nearly quadrate. Other characters similar to *bipectinata*.



D. bipectinata, A) phallic organs; B) periphallic organs; C) male prothoracic leg. *Hybrid*, D) phallic organs; E) periphallic organs; F) male prothoracic leg. *D. malerkotliana*, G) phallic organs; H) periphallic organs; I) male prothoracic leg.

Hybrids. General body coloration pale yellow, each abdominal tergite with a narrow black band, except in male where terminal tergites light black. Male prothoracic legs with 2 obliquely placed sex-combs on metatarsal segment, upper one with about 3–5 teeth, lower one with 5–7 teeth, first tarsal with 2 transverse rows of 1, and 2–3 teeth (Figure F).

Periphallic organs (Figure E). Genital arch with about 25 bristles along posterior margin. Other characters similar to parental species.

Phallic organs (Figure D). Ventral fragma apparently quadrate, a little longer than broad. Other characters similar to parental species.

Remarks. *D. bipectinata* and *D. malerkotliana* are closely related species. Females of both species are very much similar but their males differ only in sex-comb pattern and abdominal tergite coloration. Furthermore, male genital components of both the species are apparently alike.

In the present studies it has been found that abdominal tergite coloration of male hybrids is like that of *malerkotliana* while sex-comb pattern is more like *bipectinata*. Other characters like aedeagus, parameres, basal apodeme, ventral fragma, genital arch, claspers are really of intermediate type.

Zusammenfassung. Körperfarbe und Strukturen des Genitalapparates sowie der Geschlechtskämme des 1. Beinpaares männlicher Hybriden aus reziproken Kreuzungen von *Drosophila bipectinata* × *D. malerkotliana* werden beschrieben. Die Hybriden zeigen intermediäre Merkmale, wobei vergleichend die Körperfarbe mehr *D. malerkotliana*, die Geschlechtskämme mehr *D. bipectinata* ähnlich sind.

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Über die Ätiologie der Lippen-Kieferspaltformen und Gaumenspalten beim Menschen und im Tierexperiment

Lippen-Kiefer-Gaumen(LKG)-Spaltformen sind beim Menschen die zweithäufigsten Missbildungen. Von 1000 lebend geborenen Kindern haben 1–2 Spalten[1]. Variationen dieser Missbildung – einseitige und doppelseitige Spalten verschiedener Ausprägung – treten häufiger isoliert auf, als in Verbindung mit Embryopathiesyndromen, wie Missbildungen der Extremitäten, Meningocelen, Gehirnanomalien etc. Kausalgenetisch und morphologisch werden zwei Gruppen unterschieden:

a) LK-Spalten ohne bzw. mit Fortsetzung in den Gaumen;
b) isolierte Gaumenspalten.

Die Befunde der in unserer Klinik operativ korrigierten Fälle werden seit 15 Jahren dokumentiert. Die Auswertung des Materials der Datensammlung ergibt Hinweise auf verschiedene endogene und/oder exogene Ursachen. Wobei jedoch berücksichtigt werden muss, dass

[1] G. Pfeifer, Therapiewoche *22*, 1939 (1972).