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A revision of *Apodiphus* Spinola (Heteroptera : Pentatomidae)

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### Abstract

The genus *Apodiphus* Spinola is redefined on the basis of external structures and male and female genitalia and is compared with *Paranevisanus* Distant. This new definition of *Apodiphus*, based on its type-species, *A. amygdali* (Germ.), excludes *A. pilipes* Horváth. *Neonevisanus* Distant is synonymised with *Apodiphus* Spinola and the type-species of the genus *Neonevisanus*, (*N. rugosus* Dist.) is synonymised with *A. integriceps* Horváth. *Neonevisanus pallidus* Hoberlandt (= *A. siazovi* Kirich. syn. n.) is transferred to *Apodiphus* and *A. amygdali*, *A. integriceps*, *A. pallidus* and *A. murghzarus* sp. n. are described in detail, with illustrations. The species of *Apodiphus* feed on almond, apple and other deciduous trees. The genus ranges from Italy in the west to N. India in the east, generally at relatively low altitudes up to 1600 m. Its probable centre of origin is Iran, where three out of the four species are found. *A. amygdali* is the only European species.

### Introduction

While investigating the members of *Dalpada* Amyot & Serville (*s.l.*), it was found that certain species described in allied genera, namely *Apodiphus* Spinola, *Paranevisanus* Distant, *Neonevisanus* Distant and *Asylana* Distant, also needed revision. The description of a new genus, *Jugalpada* Ghauri, based on *Dalpada varia* Dallas, together with three new species (Ghauri, 1975a) and a revision of *Paranevisanus* (Ghauri, 1975b) have been published. The present paper deals with the species considered to belong to the genus *Apodiphus* Spinola (*s.s.*). This has resulted in synonymies, both at generic and specific level, and new combinations. *Apodiphus* is redefined, all species under it are fully illustrated and descriptive notes are added where relevant.

The species of *Apodiphus*, and those of allied genera, feed on deciduous trees, especially almond and apple. According to Kirkaldy (1909), there are three valid species in *Apodiphus*. A study of these, in conjunction with species in allied genera, showed that two distinct genera can be recognised within the existing concept of *Apodiphus*. *A. amygdali* (Germar) and *A. integriceps* Horváth are true *Apodiphus*, while the third species, *A. pilipes* Horváth, belongs to *Paranevisanus* Distant, 1908 (Ghauri, 1975b). *Neonevisanus* Distant, 1918 is a new synonym of *Apodiphus*. Other changes are detailed in the following pages.

At present four valid species, including a new species discovered in the course of this work, represent the genus *Apodiphus* (*s.s.*).

These are: *A. amygdali* (Germar) (holotype from Dalmatia); *A. integriceps* Horváth (L 2212)

(holotype from Tashkent); *A. pallidus* (Hoberlandt) (holotype from Kerman); and *A. murghzarus* sp. n. (holotype from Murghzar, Swat, Pakistan).

#### *Apodiphus* Spinola

*Apodiphus* Spinola, 1837, 295. Type-species *Halys hellenica* Lefèbvre, 1831, 24, [= *Halys amygdali* Germar, 1817, 284].

*Neonevisanus* Distant, 1918, 121. Type-species *N. rugosus* Distant, by original designation. **Syn. nov.**

Body relatively longer (width: length 8.5:19.0) than that of the genus *Paranevisanus* Distant (w: 19.0:18.0), thickly punctuate and rugose, underside without erect, long, fine hairs; colour ochraceous, reddish to dark brown; head length variable (3.10–3.60 mm), mostly longer than wide, apex truncate or subtruncate, tylus slightly shorter than juga, juga with apex truncate or slightly sinuate, with raised lateral margin in most species; antennae, first segment not reaching apex of head, second and third segments subequal (60:55); rostrum passing base of abdomen, bucculae slightly shorter than first rostral segment, almost reaching posterior margin of eye in lateral view; pronotum, lateral margins relatively more sinuate than in *Paranevisanus*, humeral angles not horny; scutellum much longer than wide at base; mesosternum with median carina depressed; auricle of metasternal scent gland very small; fore tibia not or very slightly dilated; abdomen with more or less shallow median sulcus.

Male genitalia; pygophore, ventral margin with a median emargination, laterally diverging, slightly sinuate; paramere with short stem, broad head at almost right angle to stem, ridged or crenulated area vertical to base, setose process almost reduced, setae few, present on margin of stem and near apical margin of crenulated area; aedeagus, vesica small, tubular with spatulate sclerotised short appendages, conjunctiva, small, ventral appendages short sclerotised, other appendages small membranous.

Female genitalia; external plates, first valvifer regularly and gently convex, triangular, inner margin more or less straight, paratergite 9 elongate; spermatheca, proximal part of duct (nearest to opening) broad and bulbous, also slightly wider at distal end, both pump flanges present, bulb small with few and simple outgrowths.

*Comments.* The genus *Apodiphus* is closely related to the genus *Paranevisanus*. The external features of these genera, the shape of the juga, for example, are similar, to a lesser (cf. *A. amygdali* and *P. subgenericus* Distant) or a greater degree (cf. *A. pallidus* and *P. subgenericus*). This variation within the genus resulted in the erection of genera, such as *Neonevisanus*, which are now considered invalid. The male and female genitalic structures show clear differences and provide a sound basis for the definition of genera. The male paramere in *Apodiphus* has its crenulated area vertical to its base, whereas this structure faces the base in *Paranevisanus*. In females, the spermathecal tube is swollen at the proximal end in *Apodiphus*, but not in *Paranevisanus*. Externally also, the first valvifer is not swollen in *Apodiphus* as it is in *Paranevisanus*; and ventrally the body is not pubescent in *Apodiphus* as it is in *Paranevisanus*. The specific variation between species in the shape of the apex of the juga also occurs within the species among specimens from different geographical areas, although these intraspecific variations are much less pronounced than the interspecific differences. It seems probable that this might have been a contributing factor, in addition to intraspecific colour variation, to the description of invalid species, such as *A. rugosus* (Distant) from India.

The designation of a 'holotype' specimen as a lectotype in my revision of *Paranevisanus* Distant (Ghuri, 1975a) was made because of the possibility of deposition of specimens other than the existing 'holotype' by Distant in other museums. There have been instances where series of specimens of species which were represented in the BM (NH) by single specimens have been found in the Indian Museum, Calcutta. The term 'paralectotype' was employed in the paper mentioned above solely to establish a new combination.

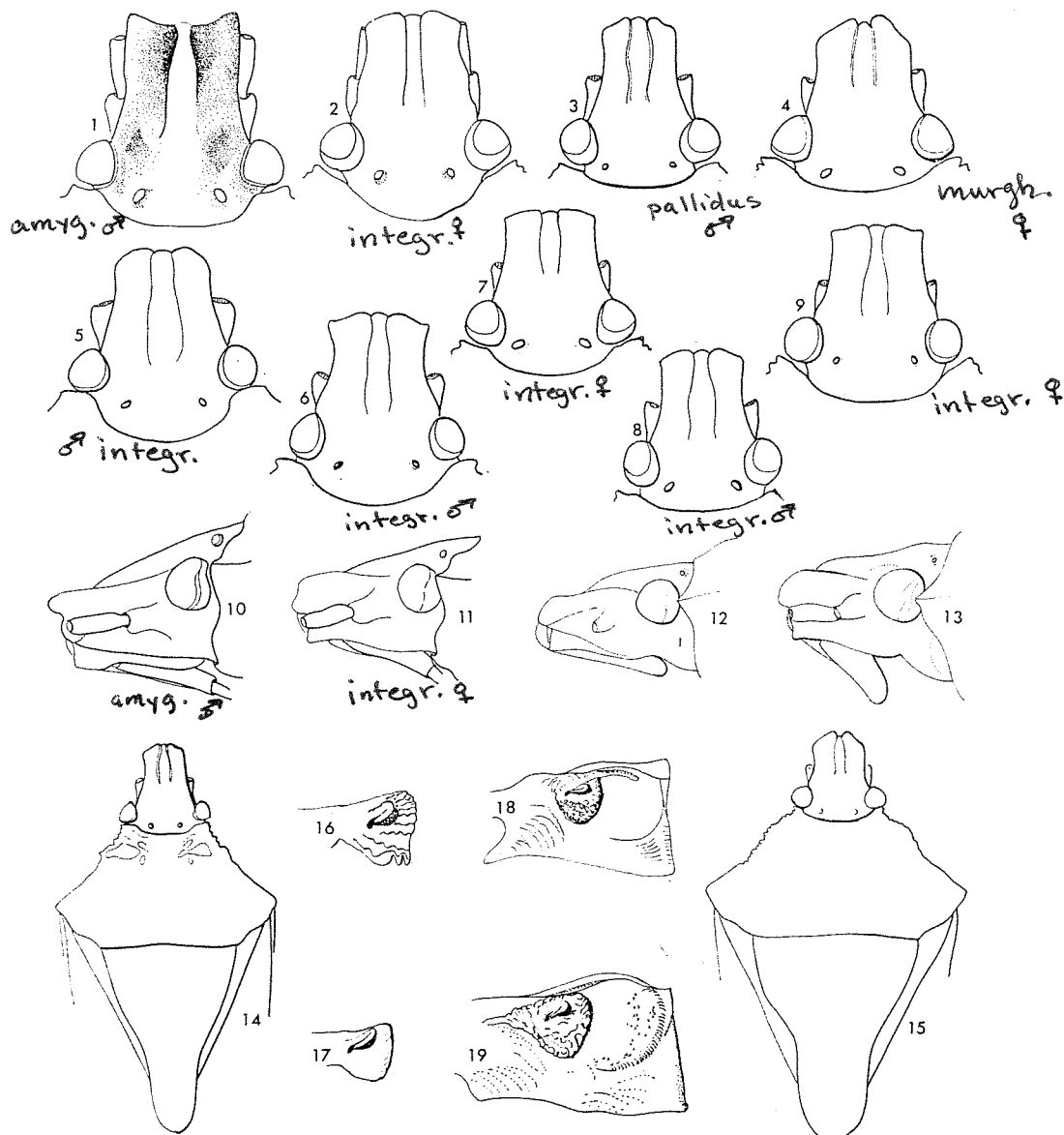


Fig. 1-9.—Dorsal view of head. 1, *Apodiphus amygdali* ♂ (from Athens, determined as *hellenica* by Dallas); 2, ♀ paratype of *A. integriceps* (type locality Tashkent); 3, ♂ holotype of *A. pallidus* (type of *Neonevisanus pallidus* Hoberlandt, Schahdad, Kerman, Iran); 4, ♀ holotype of *A. murghzarus* sp.n. (type locality Murghzar, Swat, Pakistan); 5, *A. integriceps* ♂ (Gilgit); 6, *A. integriceps* ♂ (Quetta); 7, *A. integriceps* ♀ (Bushire, Iran); 8, *A. integriceps* ♂ (Aden); 9, *A. integriceps* ♀ (Saharanpor, India, type of *Neonevisanus rugosus* Distant). Fig. 10-13.—Lateral view of head. 10, *A. amygdali* ♂ (same specimen as Fig. 1); 11, ♀ paratype of *A. integriceps* (same specimen as Fig. 2); 12, *A. pallidus* ♂ (same specimen as Fig. 3); 13, *A. murghzarus* sp.n. ♀ (same specimen as Fig. 4). Fig. 14-15.—Dorsal view of head, pronotum and scutellum. 14, *A. pallidus* ♂ (same specimen as Fig. 3); 15, *A. murghzarus* sp.n. ♀ (same specimen as Fig. 4). Fig. 16-19.—Auricle of scent gland. 16, *A. amygdali* ♂ (same specimen as Fig. 1); 17, *A. integriceps* ♀ (same specimen as Fig. 2); 18, *A. pallidus* (paratype ♂ of *Apodiphus siazovi* Kirichenko, Bandar Abbas, Iran); 19, *A. murghzarus* sp.n. ♀ (same specimen as Fig. 4).

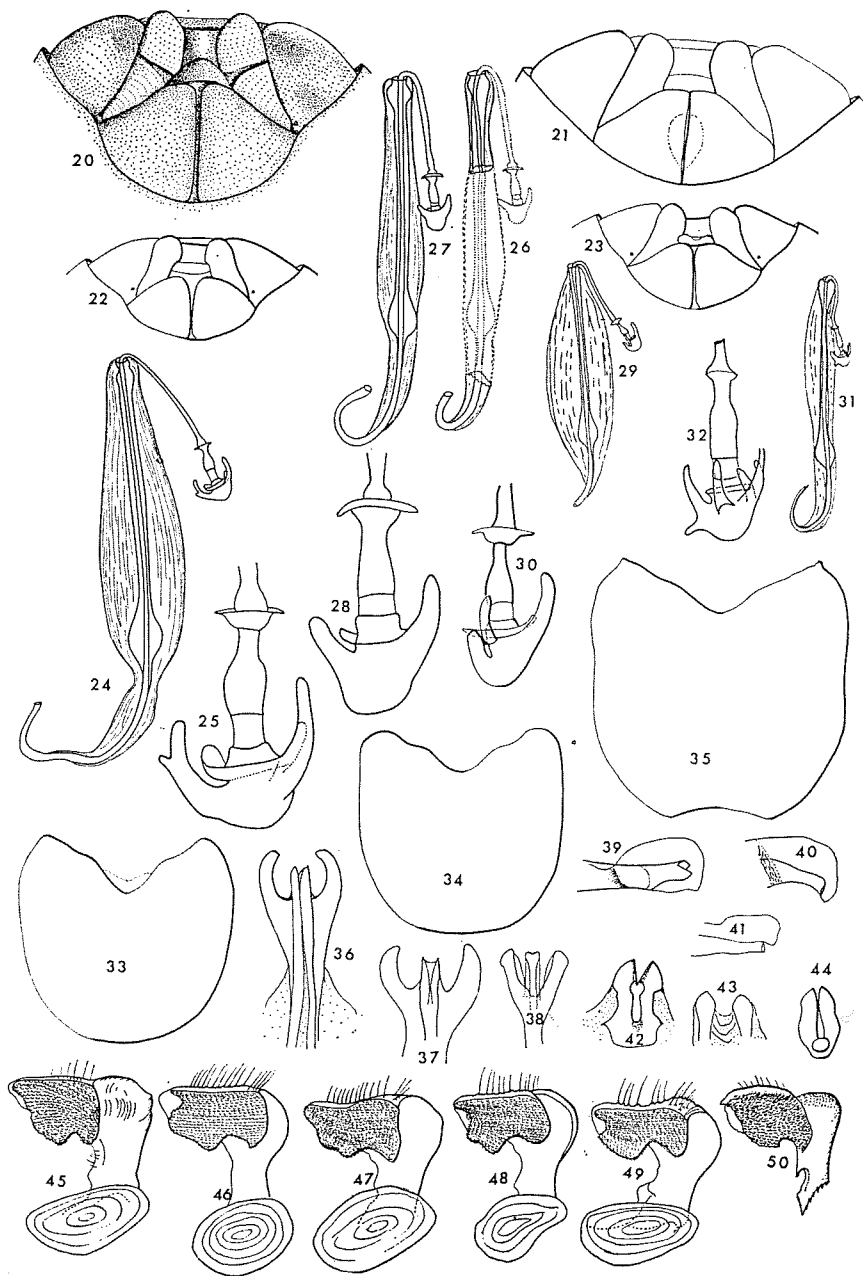


Fig. 20-23.—Female plates. 20, *A. amygdali* (from Athens, det. as *hellenica*); 21, *A. integriceps* (paratype, same specimen as Fig. 2); 22, *A. pallidus* (Segucha, Kerman, Iran); 23, *A. murghzarus* sp.n. (same specimen as Fig. 4).  
 Fig. 24-32.—Spermatheca. 24, 25, *A. amygdali* (same specimen as Fig. 20); 26, *A. integriceps* (paratype, same specimen as Fig. 2, reconstructed); 27 & 28, *A. integriceps* (Tashkent, Kirichenko det.); 29 & 30, *A. pallidus* (same specimen as Fig. 22); 31 & 32, *A. murghzarus* sp.n. (same specimen as Fig. 4).  
 Fig. 33-35.—Pygophore, ventral view. 33, *A. amygdali* (same specimen as Fig. 1);

*Distribution.* Material has been examined from the following localities: U.S.S.R. (Tashkent); INDIA (Saharanpur); PAKISTAN (Fort Sandeman, Gilgit, Quetta); IRAN (Gasht, Ghokhre, Jahram, Kerman, Busher and Tehran) and IRAQ (Baghdad) and from unknown and various localities in the following countries: ADEN, SYRIA, TURKEY, ALBANIA, BULGARIA, YUGOSLAVIA, GREECE and ITALY.

This distribution of the genus *Apodiphus* overlaps that of the genus *Paranevisanus* (*sensu* Ghauri, 1975a), as far as part of the Himalayan Range is concerned. According to the specimens available for this study, the eastern-most limit of the distribution of *Apodiphus* is Saharanpur in India, although Atkinson (1888, 4) recorded *A. amygdali* from Assam, which Distant (1902, 115) considered to be a misidentification of *Paranevisanus* (*Apodiphus*) *pilipes* (Horváth), described from Kashmir. In the west, from Turkey to Italy, the genus is represented only by *A. amygdali*. The limit of *A. integriceps* Horváth is Aden in the west and Saharanpur in the east. A recently described species, *A. pallidus* (Hoferlandt), is confined to Iran, which seems to be the centre of distribution of the genus *Apodiphus*, whence it has spread both eastward and westward. Three of the four species described in this paper are known from Iran; other localities have one or the other species only, except Turkestan (Southern Russia), which lies adjacent to Iran, where both *A. amygdali* and *A. integriceps* are found. The new species described here as *A. murghzarus* is from Pakistan, and the type-locality, Murghzar, is close to Turkestan. Whereas *Paranevisanus* is mainly a Himalayan genus, *Apodiphus* seems to belong to the lower hills at altitudes up to 1600 m, rather than to the higher ranges of Iran, Iraq, Turkey and countries further west (Fig. 51).

*Apodiphus amygdali* (Germar) (Fig. 1, 10, 16, 20, 24, 25, 33, 36, 39, 42, 45)

*Halys amygdali* Germar, 1817, 284; *vide* Fieber, 1861, 337.

*Halys hellenica* Lefèbvre, 1831, 24.

*Halys exsculpta* Burmeister, 1835, 362.

Colour; general colour yellowish, reddish, brownish or black with dark punctures and yellow, orange-yellow or red impunctate levigate raised spots. Connexivum regularly spotted, middle lightly coloured, yellow, red or orange, anterior and posterior ends spotted dark, anterior spot concave anteriorly and convex posteriorly, posterior spot convex anteriorly and concave posteriorly, thus leaving narrow clear lines between them on actual margin of connexivum and constricting middle spot in specimens of lighter shades narrow clear lines transformed into broad fascia.

Size (mm); head, length 3.30, width across eyes 3.23 and between eyes 2.00, length of antennal segments I, II, III, IV and V 1.13, 2.26, 2.07, 2.26 and 2.45, respectively, width in front of eyes 2.07 and at apex of juga 2.00; pronotum, width at anterior margin 3.40 and at humeral angles 9.34, length at median line 4.15; maximum width of body 9.03, total length of body 18.00; width of scutellum at base 5.66, length 6.41.

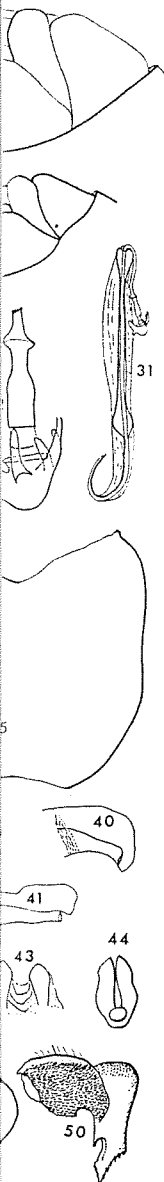
Structure; anterior margin of juga straight, each jugum gradually rising laterally, forming a V-shaped channel at apex, subject to slight variation, in some specimens juga

34, *A. integriceps* (paratype, Tashkent); 35, *A. pallidus* (same specimen as Fig. 3). Fig. 36–38.—Dorso-ventral view of vesica. 36, *A. amygdali* (same specimen as Fig. 1); 37, *A. integriceps* (same specimen as Fig. 34); 38, *A. pallidus* (same specimen as Fig. 3).

Fig. 39–41.—Lateral view of vesica. 39, *A. amygdali* (same specimen as Fig. 1); 40, *A. integriceps* (same specimen as Fig. 34); 41, *A. pallidus* (same specimen as Fig. 3).

Fig. 42–44.—Conjunctival process. 42, *A. amygdali* (same specimen as Fig. 1); 43, *A. integriceps* (same specimen as Fig. 34); 44, *A. pallidus* (same specimen as Fig. 3).

Fig. 45–50.—Paramere. 45, *A. amygdali* (same specimen as Fig. 1); 46, *A. integriceps* (same specimen as Fig. 34); 47, *A. integriceps* (same specimen as Fig. 5); 48, *A. integriceps* (same specimen as Fig. 6); 49, *A. integriceps* (same specimen as Fig. 8); 50, *A. pallidus* (same specimen as Fig. 3).



as *hellenica*);  
us (Segucha,  
fig. 4).  
as Fig. 20);  
d); 27 & 28,  
me specimen  
fig. 4).  
n as Fig. 1);

rising only gently forming a shallower 'V'; width at apex of juga sub-equal to width between anterior margins of eyes; lateral margins of pronotum markedly sinuate, anterior half minutely denticulate, humeral angles triangular, appreciably extending beyond costal margin, viewed in repose; rostrum reaching anterior margin of third visible sternite.

Male genitalia; pygophore, ventral margin deeply emarginated, paramere, crenulated area only slightly less wider than its length, vesical and conjunctival sclerotised appendages as shown in figs.

Female genitalia; first valvifer broadly triangular, gently convex, inner margin straight, paratergite 9 elongate, divided by a transverse suture, spermathecal bulb small with two long and one short tubules, longer tubules, sometimes shortly branched; other points as in generic description, and as shown in figs.

*Material.* Holotype ♀ of *Halys hellenica* Lefèbvre, GREECE: Collection of M. Spinola, Tassarola, Alessandria, Italy. (Specimen not examined but photograph provided by Prof. C. Vidano.) GREECE: *Attika*, (*Dr Eger*), 1 ♂ 2 ♀; (Saunders Collection), 1 ♀; Piraeus, 1927, (*Champion Collection*), 4 ♂ 4 ♀; (*G. R. Champion*), 3 ♂ 5 ♀; Smyrna, (Saunders Collection), 1 ♂ 1 ♀; Athens, 9.viii.02, (*G. C. Champion*), 2 ♂ 2 ♀; 1 ♀, *hellenicus* (Dallas det.), (Fig. 20); 1 ♂, *Apodiphus hellenica* Spinola, Navarino, vii.1891, 1 ♀, *A. amygdali*; 10.viii.1946, (*H. P. Handisyde*), 1 ♂; (*Martin Coll.*), 1 ♀; Parnass, (Saunders Collection), 1 ♀; Corfu, (*Distant Collection*), 1 ♀; *amygdali* Germ., (Fig. 24, 25); (*Distant Collection*), 1 ♂; Port Pogon, (*G. C. Champion*), 1 ♂ 1 ♀; Nauplia, (*G. C. Champion*), 1 ♀. TURKEY: Izmir, 12.vii.1958, (*N. Lodos*), eggs unhatched and hatched on *Platanus* spp.; Bosphorus, ix-x.1951, (*M. Burr*), 1 ♂; Gallipoli, 1.i.-10.viii.1923, (*W. M. J. Martin*), 1 ♂ 1 ♀; Bornova, 16.vii.1957, (*N. Lodos*), 1 ♂ on *Platanus* sp.; Antalya, Kalediran nr. Gazipasa L750, 20-22.vii.1963, (*E. James*), 1 ♀; Mersin, Gozne, 3.vi.1960, (*Guichard & Harvey*), 1 ♀; Sandras Dag Agla, 24.vii.1947, (*M. Burr*), 1 ♀. YUGOSLAVIA: Montenegro Kotor, 14.viii-16.ix.1957, (*A. H. Galston*), 1 ♂. IRAQ: Baghdad, 20.vii.35, (*Yusuf Lazar*), at light, *Apodiphus amygdali* (Germ.) det. W.E. China 1937, 1 ♂; same data as above but 21.viii.35, 1 ♀; same data as above but 30.vii.35, 1 ♀; same data as above but 3.ix.35, 1 ♀; '*Apodiphus amygdali* Walker's Catal.', 1 ♂ 1 ♀; 5.viii.1918, (*P. A. Buxton*), 1 ♀; Kandali, viii.1920, (*Y. R. Rao*), *Apodiphus amygdali* (Germ.) det. Uvarov 1 ♀ on peach stem; Jadrijah, 2.viii.20, 1 ♀ on peach and apricot stem; 9.vi.37, 1 ♂; Mosul-Karind., (*H. E. Shortt*), 1 ♀. IRAN: Varamine, 4.vi.60, (*E. S. Brown*), 1 ♂ 2 ♀ 2779; 1.vii.59, (*E. S. Brown*), *Apodiphus amygdali* (Germ.) M. S. K. Ghauri det. 1 ♀ 1938; Hamadan, 19.vi.60, (*E. S. Brown*), 1 ♂; Gorgan Distr., Belokali, 9.vii.59, (*E. S. Brown*), 1 ♀; Isfahan Jusdan, i.1958, (*E. S. Brown*), *Apodiphus* sp., 1 ♀ 33; Shiraz, 8.ix.60, (*E. S. Brown*), 1 ♀ 3083; (*Atkinson Collection*), *A. amygdali*, 1 ♂ 2 ♀; Abadeh, vi-vii.1916, (*P. Paschen & P. Gough*), 4 ♂ 3 ♀; Tehran, 8.vii.60, (*E. S. Brown*), 1 ♀; same data as above but 28.vii.1960, 1 ♀ and 29.vii.1960, 1 ♀; 1972, (*N. D. Jago*), attacking fruit trees, 1 ♂; N. Persia, (*Stobart-Izzard Exped. 1961*), 1 ♀; (*Distant Collection*), 1 ♀; Menjil, Safid Rud R., 14.i.1919, (*P. A. Buxton*), 1 ♀; Persia, 12.29.25, 1 ♀, *hellenicus* (Dallas det.). Specimens without complete data: 1 ♂ 12409 Brit.Mus. 1936-247. 1 immature 10/7 67 Saunders Coll. Brit.Mus. 1910-357. 1 ♂—no label.

*Comments.* The synonymy of *Apodiphus amygdali* (Germar) is taken from Kirkaldy's catalogue (Kirkaldy, 1909). The colour plates of *Halys hellenica* Lefèbvre (1831) and *Halys amygdali* Germar (1817) show sufficient structure of the juga (a specific character, *vide supra*) to identify these names. In addition, two very good enlarged photographs of the ♀ type of *A. hellenicus* were kindly supplied by Professor C. Vidano, since the specimens from Tassarola (Spinola's collection) are unobtainable on loan. The latest keys to European Hemiptera edited by Stichel (1960, 1961) do not include *Halys exsculpta* Burmeister but only *A. amygdali*, thereby confirming Kirkaldy's synonymy. A total of ninety specimens of *A. amygdali* from various European and Asian localities were examined. A total of one hundred and twenty specimens of the

genus *Apodiphus* were studied and no species other than *A. amygdali* were found to occur in Europe. *A. amygdali* is widely distributed in deciduous fruit growing areas and feeds on almond (*Prunus amygdalus*), *Pistacia lentiscus*, *Platanus* sp. and some other hosts.

***Apodiphus integriceps*** Horváth (Fig. 2, 5, 6, 7, 8, 9, 11, 21, 26, 27, 28, 34, 37, 40, 43, 47, 48, 49)

*Apodiphus integriceps* Horváth, 1888, 172.

*Neonevisanus rugosus* Distant, 1918, 121, **syn. n.**

Colour very similar to that described for *A. amygdali*.

Size (mm) of ♂ (♀); head, length 3.20 (3.60), width across eyes 2.90 (3.10) and between eyes 1.60 (1.77), width in front of eyes 2.07 (2.13) and at juga 1.63 (1.94); lengths of antennal segments I, II, III, IV and V 0.94 (0.94), 2.26 (2.26), 2.07 (2.08), 2.45 (2.34) and 2.34 (—), respectively; pronotum width at anterior margin 3.20 (3.40) and at humeral angles 8.50 (9.24), length at median line 4.00 (4.07); maximum width of body 8.10 (9.03), total length 20.22 (18.50); width of scutellum at base 5.01 (6.34), length 6.80 (7.28).

Structure; head narrower at juga, apex of jugum sinuate, longer at its inner angle than at its outer angle (reversal of condition in *A. amygdali*), within this limit, condition of juga variable among specimens from Quetta (Pakistan), Gilgit (Pakistan), Tashkent and Aden; majority of specimens narrower than majority of *A. amygdali*; rostrum reaching middle of second visible sternite.

Male genitalia; pygophore, ventral margin shallowly emarginate, paramere, crenulated area almost twice as long as maximum width, vesical and conjunctival appendages as shown in Fig. 37, 40 and 43.

Female genitalia; similar to *A. amygdali*, tubules of spermathecal bulb shorter in *A. integriceps*.

**Material.** **INDIA:** Lectotype ♀ of *Neonevisanus rugosus* Distant designated as such here with the following data:—a red margined circular label 'Type', an oblong white hand-written label '*Neonevisanus rugosus* Dist. type', a white oblong hand-written label, 'Beharigarh Saharanpor 10.xii.1908', a white oblong printed label, 'United Prov., Dehra Dun. Dr.A.W.Imms 1915-228' and a pink oblong printed label, 'Brit.-Mus. Type No. Hem. 826'. 1 ♂ paratype, Tashkent, 144, *A. integriceps* Osch. det. Horváth, coll. Horváth, paratypus, *Aphodiphus integriceps* Horváth; 1 ♀ paratype with same data as ♂ paratype and with spelling mistake in *Apodiphus* in both ♂ and ♀ paratype labels, in Magyar Nemzeti Múzeum, Budapest. Non-type material. **USSR:** Tashkent, (*D. Puton*), *Apodiphus integriceps* Horv., 1 ♀; Tashkent & Samarkand, v. 1888, (*Vierny*), compared by me with paratype of *A. integriceps* Horv. 1 ♀; Tashkent, v. 1907, (*Zarudnyi*), *Apodiphus integriceps* Horv. Kiritchenko det., 2 ♀. **IRAN:** Bushire, (*W. D. Cumming*), 1 ♀. **ADEN:** 2 ♂ 2 ♀. **PAKISTAN:** Quetta, vii.1929, (*J. W. Evans*), 7 ♂ 5 ♀; Gilgit, (Distant Collection), 3 ♂, as '*pilipes*' Horv.; (Atkinson Collection), 1 ♂; (Distant Collection), 10 ♂; Nomal, 25.vi.62, (*C.I.B.C. Pakistan*), adult on *Malus pumila*, 2 ♂ 2 ♀, *Apodiphus integriceps* Horv. det.; Fort Sandeman, 3.vi.69, (*Qamar Abbas*), on Apricot, 2 ♂, *Apodiphus integriceps* Horv. det. G. M. Black.

**Comments.** This species feeds on fruit trees, especially apricot (*Armeniaca vulgaris*) and apple (*Pyrus malus*). Its presence in Quetta and Fort Sandeman, which are important apple-growing districts of Pakistan, is of major significance.

***Apodiphus pallidus*** (Hoberlandt) **comb. n.** (Fig. 3, 12, 14, 18, 22, 29, 30, 35, 38, 41, 44, 50)

*Neonevisanus pallidus* Hoberlandt, 1959, 499.

*Apodiphus siazovi* Kirichenko, 1966, 452, **syn. n.**

Colour; pale yellow to yellow to reddish yellow with dark punctures.

Size (mm) of ♂ (♀); head, length 3.23 (3.10), width across eyes 2.90 (3.05) and

between eyes 1.55 (1.66), width at juga 1.35 (1.16), width of head just in front of eyes 1.90 (1.93), space between ocelli 1.08 (1.08), width of an eye 0.77 (0.77), lengths of antennal segments I, II, III, IV and V 1.00 (1.00), 2.00 (—), 2.13 (—), 2.32 (—) and 2.28 (—), respectively; pronotum, width at anterior angles 2.90 (3.49), at humeral angles 7.36 (8.43), median length 3.33 (3.90); scutellum, width at base 4.26 (5.03), median length 5.62 (6.78); maximum width of body 7.36 (7.94), length of body 15.40 (18.60).

Structure; described in detail by both Hoberlandt (1959) and Kirichenko (1966); body comparatively long and narrow, head long and narrowed at apex, tylus longer or as long as juga.

Male genitalia; pygophore, ventral margin emarginated, paramere, crenulated area longer than wide, vesical and conjunctival sclerotised appendages as shown in Fig. 35, 41 and 44.

Female genitalia; spermathecal bulb small with three tubules, length of tube outside bag twice the space between first flange and bulb, also see figs.

*Material.* IRAN: Shahdad, Kerman, vi.50 (1950), (*Sarkissian*), holotype ♂ of *Neonevisanus pallidus* Hoberlandt; Bandar Abbas 100 km north of Gokhre, 27.iv.1955, (*D. M. Steinberg*), paratype ♂ of *Apodiphus siazovi* Kirichenko; Segucha, vii.1934, (*H. E. J. Biggs*), 1 ♀.

*Comments.* This species is known only from Iran. It is closely related to *A. integriceps*, but is distinguished from all other species of *Apodiphus* by its long head which is twice as long as the width of vertex between the eyes. As yet the host plants of this species are not known, but, as it is distributed within the range of *A. integriceps*, it is a potential pest of deciduous fruit trees.

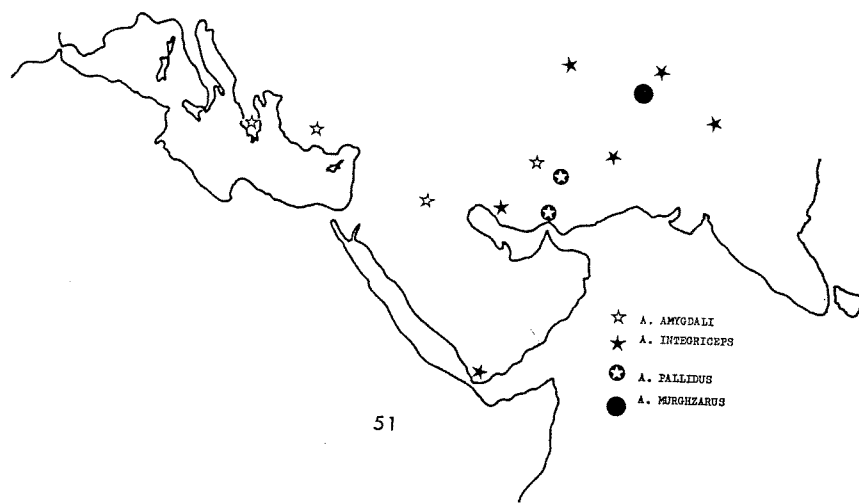


Fig. 51.—Distribution of *Apodiphus* species.

***Apodiphus murghzarus* sp. n.** (Fig. 4, 13, 15, 19, 23, 31, 32)

Only the female is known.

Colour; yellow with black punctures.

Size (mm); head, length 3.33, width across eyes 3.33 and between eyes 1.81, width in front of eyes 2.20 and at juga 1.82, space between ocelli 1.26, width of an eye 0.77, lengths of antennal segments I, II, III (IV & V missing), 1.00, 2.32 and 2.13, respectively;



pronotum, width at anterior angles 3.79 and at humeral angles 10.00, its median length 4.26; scutellum, width at base 6.16, its median length 7.56; maximum width of body 9.30, length of body 19.79.

Structure; body large, wide; head wide and short, narrowed at apex, jugum apex obliquely narrowed, tylus shorter than juga, general appearance of dorsal view of head triangular rather than oblong as in *A. integriceps*, as a result of head being much wider at base and narrower at apex (cf. Fig. 2 and 4).

Female genitalia; spermathecal bulb small with five tubules, length of tube outside bag 1.33 times space between first flange and bulb.

*Material.* Holotype ♀ (388); PAKISTAN, Swat, Murghzar, 12.viii.63, (S. M. Khan), in the British Museum (Natural History), London.

*Comments.* The new species has a comparatively more robust and wider body than its nearest relatives, *A. integriceps* and *A. pallidus*, the width of the pronotum at humeral angles in relation to the length of the head being three times in *A. murghzarus* and 2.6 to 2.7 times in *A. integriceps* and *A. pallidus* (cf. Fig. 14 and 15); shorter head, narrower at apex; the length of the part of spermathecal tube outside the bag is relatively shorter in the new species than in *A. integriceps* and *A. pallidus*, the length of inner tube between dilation and anterior apex is twice length of outer portion in *A. murghzarus* which reaches only halfway to inner dilation, whereas in *A. integriceps* and in *A. pallidus* it is much beyond it.

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#### References

- ATKINSON, E. T. (1888). 1. Notes on Indian Rhynchota: Heteroptera, no. 3.—*J. Asiat. Soc. Beng.* 57, 1-72.
- BURMEISTER, H. (1835). Handbuch der Entomologie.—400 pp. Berlin, T. C. F. Enslin.
- DISTANT, W. L. (1902). The Fauna of British India, including Ceylon and Burma. Rhynchota. Vol. 1.—438+xxxviii pp. London, Taylor & Francis.
- DISTANT, W. L. (1907-1908). The Fauna of British India, including Ceylon & Burma. Rhynchota. Vol. 4.—501 pp. London, Taylor & Francis.
- DISTANT, W. L. (1918). The Fauna of British India, including Ceylon & Burma. Rhynchota. Vol. 7.—210 pp. London, Taylor & Francis.
- FIEBER, F. X. (1861). Die europäischen Hemiptera. Halbflügler. (Rhynchota Heteroptera.) Nach der analytischen Methode bearbeitet.—444 pp. Wien, Gerold.
- GERMAR, E. F. (1817).—Reise nach Dalmatien und in das Gebiet von Ragusa.—323 pp. Leipzig & Altenburg, F. A. Brockhaus.
- GHAURI, M. S. K. (1975a). Jugalpada—a new genus of Halyini (Pentatomidae, Heteroptera).—*J. nat. Hist.* 9, 629-632.
- GHAURI, M. S. K. (1975b). Revision of the Himalayan genus *Paranevisanus* Distant (Halyini, Pentatominae, Pentatomidae, Heteroptera).—*Zool. Anz., Jena* 195, 407-416.
- HOBERLANDT, L. (1959). Hemiptera-Heteroptera from Iran, II.—*Sb. ent. Odd. nár. Mus. Praze.* 33, 497-523.
- HORVÁTH, G. (1888). Matériaux pour servir à l'étude des Hémiptères de la faune paléarctique.—*Revue Ent.* 7, 168-189.
- KIRICHENKO, A. N. (1966). [Hemiptera-Heteroptera collected by D. M. Steinberg in Iran in 1955].—*Ent. Obozr.* 45, 798-805.
- KIRKALDY, G. W. (1909). Catalogue of the Hemiptera (Heteroptera).—392 pp. Berlin, F. L. Dames.

- LEFÈBVRE, A. (1831). Table alphabétique des genres et espèces d'insectes contenus dans ce volume (1). Class IX; Insectes. Part 2.—*Magasin de Zoologie, Paris* 1, 1-40.
- SPINOLA, M. (1837). Essai sur les genres d'Insectes appartenants à l'ordre des Hémiptères, Lin., ou Rhyngotes, Fab., et la section des Hétéroptères, Dufour.—383 pp. Gènes, France, Fab. Y. Gravier.
- STICHEL, W. (1960). Illustrierte Bestimmungstabellen der Wanzen. II. Europa (Hemiptera-Heteroptera Europae). 4, 17 Hefte, 513-544.
- STICHEL, W. (1961). Illustrierte Bestimmungstabellen der Wanzen. II. Europa (Hemiptera-Heteroptera Europae). 4, 18 Hefte, 545-576.

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