

A revision of the genera *Drepanophyllum* Karsch and *Stenamblyphyllum* Karsch

(Orth. Tettigoniidae)

BY

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Amongst some material recently acquired by the British Museum (Natural History) are a male and two females of an interesting new species of *Drepanophyllum* Karsch. This species is described in this paper, and I have also taken the opportunity of revising this genus and clarifying its relationship with *Stenamblyphyllum* Karsch.

The genera *Drepanophyllum* Karsch and *Stenamblyphyllum* Karsch form, together with *Debrona* Walker and *Tetraconcha* Karsch, a fairly well-defined group of African Phaneropterinae, in which the fore tibiae are biconchate, the fastigium of the vertex has a steeply sloping or vertical sulcus, and the females have a greatly reduced ovipositor, crenulate at the tip. In *Stenamblyphyllum* Karsch the venation of the fore wings is fairly normal in both sexes (though the attenuation of the wing has resulted in partial fusion between R_s and MA) and the fastigium of the vertex has not undergone the extreme modification shown by the other three genera; the male fore wings of the remaining members of the group usually show a slight stridulatory modification near the base of MA, and the fastigium of the vertex has a vertical sulcus.

The stridulatory modification mentioned above and the biconchate fore tibiae suggest an affinity between this group as a whole and the African Acrometopae. The shape of the vertex and pronotum, however, and the well-developed ovipositor and lack of hind wings in the female, enable the Acrometopae to be clearly distinguished from the present group.

Throughout this paper "Congo Republic" refers to the former Belgian colony.

(*) British Museum (Natural History).

The wing-vein nomenclature used is that of Ragge (1955).

I am most grateful to the following specialists, who have been kind enough to send me type specimens and other material from their respective museums:

Mr. P. Basilewsky, Dr. W. Bazyluk, Dr. M. Beier, Mr. R. H. Carcasson, Dr. K. K. Günther, Mr. E. C. Pinhey, and Mr. D. C. Rentz.

MATERIAL.

This group is not very fully represented in the British Museum (Natural History), and this revision would not have been possible without the loan of material from the sources listed below, through the kind co-operation of the specialists mentioned above (the abbreviations used where the material is listed in detail are inserted, where appropriate, in parenthesis).

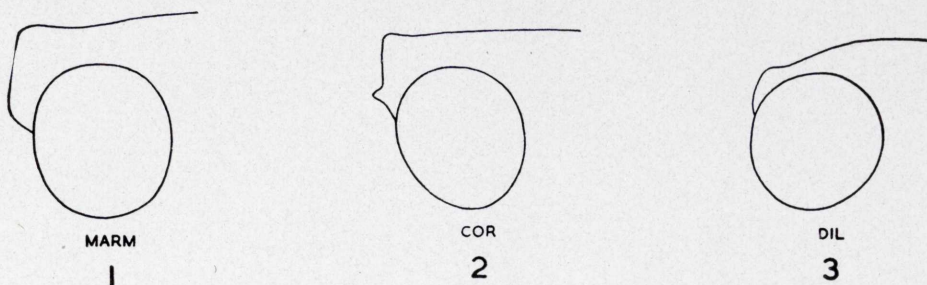
Musée Royal de l'Afrique Centrale, Tervuren (Mus. Af. Cent.); Instytut Zoologiczny of the Polska Akademia Nauk, Warsaw; Naturhistorisches Museum, Vienna (Nat. Mus. Vienna); Coryndon Museum, Nairobi (Coryndon Mus.); Zoologisches Museum of the Humboldt-Universität, Berlin (Zool. Mus. Berlin); National Museum of Southern Rhodesia, Bulawayo (Nat. Mus. S. R.); California Academy of Sciences, San Francisco (Cal. Acad. Sc.).

KEY TO THE GENERA.

The other two genera of the group, *Debrona* Walker and *Tetraconcha* Karsch, are included in this key for the sake of completeness.

1. Fastigium of the vertex compressed, narrower than the first antennal segment 2.
- Fastigium of the vertex not compressed, at least as broad as the first antennal segment **Tetraconcha** Karsch.
2. Lateral pronotal lobes deeper than long. Fore wings not more than four times longer than their median width, not widened apically **Debrona** Walker.
- Lateral pronotal lobes longer than deep. Fore wings more than five times

- longer than their median width, or, if shorter than this, conspicuously widened apically 3
3. Fastigium of the vertex produced forwards, as figs. 1 and 2. Fore wings not as in fig. 8, less than seven times longer than their maximum width ...
 **Drepanophyllum** Karsch (p. 301).



Figs. 1-3.—Lateral view of the vertex of 1) *Drepanophyllum marmoratum* Karsch; 2) *D. corrosifolium* Karsch; 3) *Stenamblyphyllum dilutum* Karsch.

- Fastigium of the vertex of normal shape, as in fig. 3. Fore wings as in fig. 8, usually more than seven times longer than their maximum width ...
 **Stenamblyphyllum** Karsch (p. 308).

Drepanophyllum Karsch, 1890.

Drepanophyllum Karsch, 1890, *Ent. Nachr.* **16**: 358. Type-species, by monotypy, *Drepanophyllum marmoratum* Karsch, 1890.

Karschia Brunner, 1891, *Additamenta zur Monographie der Phaneropteren*, p. 41. Type-species, by monotypy, *Karschia corrosa* Brunner, 1891.

Diagnosis. ♂ ♀. Fastigium of vertex produced forwards, as in figs. 1 and 2, compressed; sulcus vertical or almost so. Fore wings less than seven times longer than their maximum width, as in figs 4-7 and 9-12.

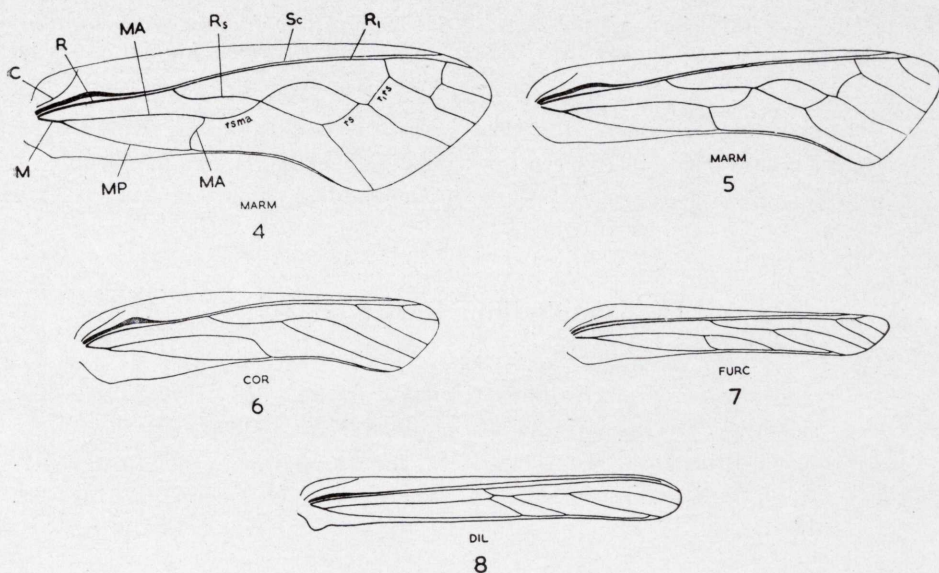
Discussion. The shape of the vertex enables this genus to be readily distinguished from *Stenamblyphyllum* Karsch. The broad and apically widened fore wings of *D. marmoratum* Karsch and *D. corrosifolium* Karsch differ markedly from the very narrow ones of *Stenamblyphyllum* Karsch, but this gap is bridged by those of *D. furcatum* sp. n.; the partial fusion that occurs between R_s and MA in the fore wings

of *Stenamblyphyllum* Karsch is not shown by any of the three species of *Drepanophyllum* Karsch.

Distribution. The known range of this genus extends from Nigeria and Cameroun across the Congo to Uganda.

KEY TO THE SPECIES.

1. Fore coxal spine well-developed. Fastigium of the vertex with a ventral anterior protuberance, as in fig. 2 *D. corrosifolium* Karsch (p. 305).
- Fore coxal spine poorly developed or absent. Fastigium of the vertex without a ventral anterior protuberance, similar to fig. 1 2.



Figs. 4-8.—The right male fore wing of 4) *Drepanophyllum marmoratum* Karsch (Lolodorf); 5) *D. marmoratum* Karsch (Epulu); 6) *D. corrosifolium* Karsch; 7) *D. furcatum* sp. n.; 8) *Stenamblyphyllum dilutum* Karsch.

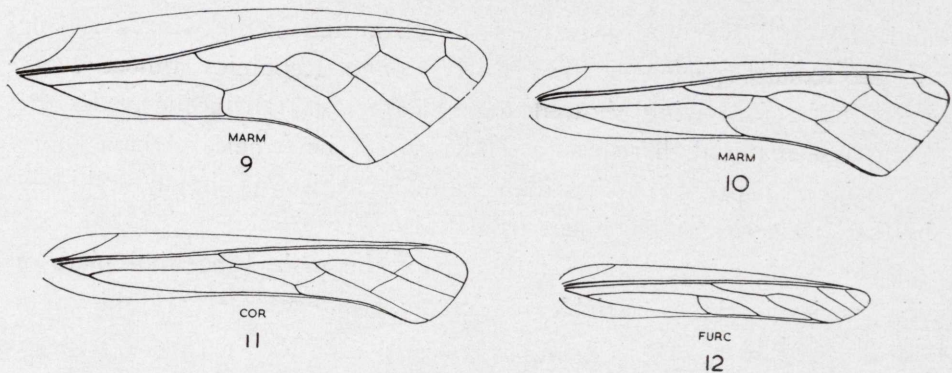
2. Fore wings widened apically, as in figs. 4, 5, 9 and 10. Male cerci not bifurcate, as in fig. 13 *D. marmoratum* Karsch (p. 303).
- Fore wings not widened apically, as in figs. 7 and 12. Male cerci bifurcate at the tip, as in fig. 15 *D. furcatum* sp. n. (p. 307).

Drepanophyllum marmoratum Karsch, 1890.

Drepanophyllum marmoratum Karsch, 1890, *Ent. Nachr.* **16**: 360. Holotype ♀, Cameroun: Barombi (*Preuss*). In the Zoologisches Museum of the Humboldt-Universität, Berlin.

Karschia corrosa Brunner, 1891, *Additamenta zur Monographie der Phaneropteriden*, p. 41. Holotype ♀, Cameroun (*Dohrn*). In the Instytut Zoologiczny of the Polska Akademia Nauk, Warsaw.

Diagnosis. ♂ ♀. Fore wings as in figs. 4, 5, 9 and 10. Fastigium of vertex as in fig. 1. Fore coxal spine poorly developed or absent. Male cerci as in fig. 13.



Figs. 9-12.—The right female fore wing of 9) *Drepanophyllum marmoratum* Karsch (Barombi); 10) *D. marmoratum* Karsch (Abong M' Bang); 11) *D. corrosifolium* Karsch; 12) *D. furcatum* sp. n.

Measurements. Males: Total length (12): 48·4-59·9, mean 55·93; Median length of pronotum (16): 4·3-5·5, mean 4·99; Length of hind femur (17): 26·3-32·1, mean 30·11; Length of fore wing (15): 37·0-43·9, mean 41·61.

Females: Total length (15): 48·0-57·2, mean 53·49; Median length of pronotum (20): 4·0-5·3, mean 4·69; Length of hind femur (17): 26·7-31·8, mean 29·44; Length of fore wing (14): 35·3-42·5, mean 40·19.

Discussion. This species may be easily recognized by the shape and venation of the fore wings; there is a constantly arranged system of cross-veins connecting R_1 , R_s and MA (see fig. 4, r_1rs , rs and $rsma$), which is probably also shown by some specimens of *D. corrosifolium* Karsch (see p. 305).

An interesting feature of the fore wings of this species is that they may or may not show one or more translucent patches of very variable extent and position. In one male specimen from the Congo and in some of the female specimens from Cameroun these patches were quite absent; in certain other Congolese specimens there was a very small translucent patch in area R_s and some incipient ones in the costal area. A number of specimens of both sexes from Cameroun and the Congo had well-developed translucent patches in areas R_s and C, and suggestions of further ones in various other parts of the wing. The patches reached their fullest extent in a few specimens from localities widely scattered across the range of the species; in these cases translucent patches were developed in the precostal and costal areas, in areas R_s and MA, and over a large part of the distal half of the wing. In one of the female specimens from Eala (Congo Republic) almost every part of the fore wing showed some degree of translucency. In the Congolese material there was a tendency for the females to have more extensive transparent patches than the males; this was shown strikingly by the long series of specimens from Eala.

The median indentation at the tip of the male subgenital plate of this species is rather variable in extent; two examples are shown in figs. 17 and 18.

Material examined.

♀ holotype. ♀ holotype of *Karschia corrosa* Brunner.

Nigeria: Gambari, 28.x.1941, 1 ♂ (*Golding*); Cameroun: Lolordorf, 1 ♂ (*Conradt*) (Zool. Mus. Berlin); Abong M'Bang distr., 1-30.iv.1936, 1 ♀ (*Merfield*); D'Ja Posten, 3°15'N., 13°30'E., 15.v.-30.vii.1939, 2 ♀♀ (*Merfield*); Batouri distr., 24.iii.1934, 1 ♂ (*Merfield*); Batoudi distr., 1935, 1 ♂ (*Merfield*); Congo Republic: Eala, iii-vii.1935, 8 ♂♂, 8 ♀♀ (*Ghesquière*) (Mus. Af. Cent.); Eala, iii-viii.1936, 1 ♂, 3 ♀♀ (*Ghesquière*) (Mus. Af. Cent.); Bambesa, ix.1933, 1 ♂ (*Brédo*) (Mus. Af. Cent.); Bambesa, vii.1934, 2 ♀♀ (*Brédo*) (Mus. Af. Cent.); Bambesa, 23.iii.1933, 1 ♀ (*Vrydagh*) (Mus. Af. Cent.); Bambesa, v.1937, 1 ♂ (*Vrydagh*) (Mus. Af. Cent.); Equateur, Bofuje [?], vii.1936, 1 ♂ (*Hulstaert*) (Mus. Af. Cent.); Kivu, Shabunda, Mpwe, 2.ii.1950, 1 ♂ (*Laurent*) (Mus. Af. Cent.); Ban-

gala, Mimbo, 8.x.1927, 1 ♂ (*Collart*) (Mus. Af. Cent.); Epulu, 950 m., 2.x.1957, 1 ♀ (*Ross & Leech*) (Cal. Acad. Sci.); Epulu, x.1947, 1 ♂ (*Jackson*) (Coryndon Mus.).

In the British Museum (Natural History) unless otherwise stated.

Distribution. This species probably occurs throughout the forested parts of Nigeria, Cameroun and the Congo.

***Drepanophyllum corrosifolium* Karsch, 1896.**

Drepanophyllum corrosifolium Karsch, 1896, *Stettin ent. Ztg* 57: 326.

Unknown number of syntypes of both sexes, Cameroun: Yaunde (*Zenker*) and Cameroun: Lolodorf (*Conradt*). Probably lost (but see below).

Diagnosis. ♂, ♀. Fore wings as in figs. 6 and 11. Fastigium of vertex as in fig. 2, with ventral anterior protuberance. Fore coxal spine well-developed. Male cerci as in fig. 14.

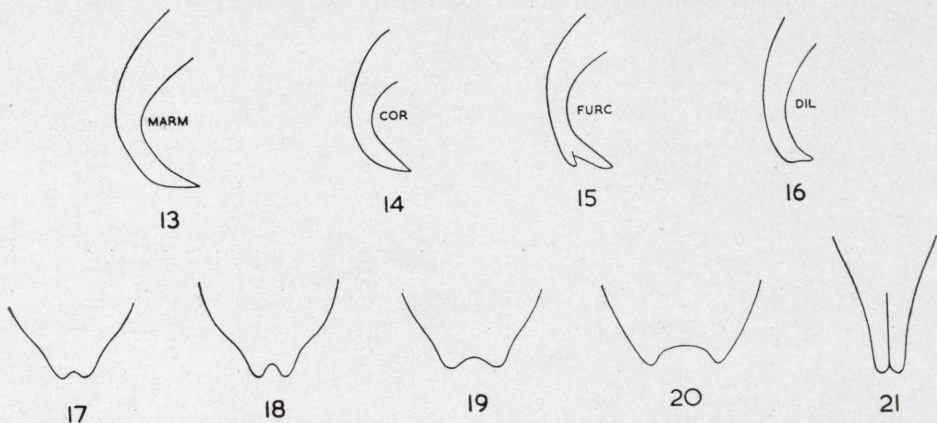
Measurements. Male. Total length: 43·4; Median length of pronotum: 4·5; Length of hind femur: 26·2; Length of fore wing: 33·4.

Females: Total length (1): 48·3; Median length of pronotum (2): 4·1-4·2, mean 4·15; Length of hind femur (3): 25·0-26·2, mean 25·67; Length of fore wing (3): 35·2-37·3, mean 36·43.

Discussion. Karsch (1896) based this species on an unknown number of syntypes of both sexes from the Cameroun localities Yaunde and Lolodorf. The only character that he cited to enable the species to be distinguished from *D. marmoratum* Karsch was the narrower fore wings of the female; the measurements given for the male agree well with that species, and it seems certain that his male material, which has apparently been lost, was typical *D. marmoratum* Karsch. The measurements given for the female, however, show that his material of this sex had narrower fore wings than is normal in *D. marmoratum* Karsch, and may well have represented a distinct species. A female specimen was found amongst the material kindly lent to me by Dr. K. K. Günther of the Zoologisches Museum, Berlin, that agrees well with the measurements given by Karsch, and, as its data corresponds exactly with that cited by Karsch for part of his type material (Lolodorf), it is quite possible that this specimen is one of the syntypes of *D. corro-*

sifolium Karsch. A female specimen from Mundame, amongst material kindly lent to me by Dr. M. Beier of the Naturhistorisches Museum, Vienna, agrees closely with this possible syntype, and a male specimen from Mundame, in the same batch of material, is very probably conspecific with these two females.

It is on these three specimens that I have based the account given here of *D. corrosifolium* Karsch. They all differ from normal specimens of *D. marmoratum* Karsch in having a well-developed fore coxal



Figs. 13-21.—*Drepanophyllum* Karsch and *Stenamblyphyllum* Karsch. 13-16.—Dorsal view of the left male cercus of 13) *Drepanophyllum marmoratum* Karsch; 14) *D. corrosifolium* Karsch; 15) *D. furcatum* sp. n.; 16) *Steramblyphyllum dilutum* Karsch. 17-21.—Ventral view of the subgenital plate of 17) *D. marmoratum* Karsch, male (Gambari); 18) *D. marmoratum* Karsch, male (Eala) (*D. corrosifolium* Karsch is very similar); 19) *D. furcatum* sp. n., male; 20) *D. furcatum* sp. n., female; 21) *S. dilutum* Karsch, male.

spine, narrower fore wings, and a vertex with a peculiarly shaped fastigium (fig. 2). The fore wings of the female specimens have a similar arrangement of cross-veins to that found in *D. marmoratum* Karsch, but the male lacks this feature, showing only a slight suggestion of rsma. The subgenital plate of the male is very similar to fig. 18.

Although differing from *D. marmoratum* Karsch in the characters mentioned above, these three specimens show no differences of taxonomic importance in their genitalia, and when more material becomes available they may well prove to be mere variants of that species. A female specimen from Ilesha, Nigeria, tends to support this possibility. As, while its narrow fore wings and well-developed fore coxal spine agree with the three Cameroun specimens, the fastigium of its vertex is of the normal type found in *D. marmoratum* Karsch.

Material examined.

Cameroun: Lolodorf, 1 ♀ (*Conradt*) (Zool. Mus. Berlin); Mundame, 1 ♂, 1 ♀ (*Rhode*) (Nat. Mus. Vienna); Nigeria: Ilesha, 1 ♀ (*Humfrey*) (British Museum (Natural History)).

Distribution. Known only from Cameroun and southern Nigeria.

***Drepanophyllum furcatum* sp. n.**

Holotype ♂, Uganda: Entebbe, 2.ii.1931 (*Hancock*). In the British Museum (Natural History).

Diagnosis. ♂, ♀. Male cerci bifurcate at the tip, as in fig. 15. Fore wings as in figs. 7 and 12, not widened apically. Fastigium of vertex similar to fig. 1. Fore coxal spine poorly developed.

Description. ♂. Fastigium of vertex produced forwards, compressed, similar to fig. 1; sulcus vertical or almost so.

Pronotum without lateral carinae. Fore coxal spine poorly developed. Fore tibiae with about 5-6 external ventral spurs. Mid tibiae with about 10-15 external ventral spurs. Hind femora with 1-2 very small ventral spinules. Hind tibiae with about 29-32 external dorsal spines. Fore wings as in fig. 7, not widened apically.

Cerci as in fig. 15, bifurcate at the tip. Subgenital plate as in fig. 19.

General coloration green, with margin of pronotum black and with black markings on head, knees, tarsi and stridulatory organ. Proximal half of R of fore wings dark brown or black. Femora speckled with reddish brown. Cerci and dorsum of abdomen black.

♀. As male except for fore wings and genitalia. Fore wings as in fig. 12, not widened apically. Subgenital plate as in fig. 20. Veins of anal area of fore wings with black markings.

Measurements. Male: Total length: 36.5; Median length of pronotum: 4.3; Length of hind femur: unmeasurable; Length of fore wing: 29.5.

Females: Total length (1): 34.1; Median length of pronotum (2): 4.2-4.6, mean 4.40; Length of hind femur (2): 21.7-24.2, mean 22.90; Length of fore wing (2): 28.2-29.6, mean 28.90.

Variation. The tibial spines and spurs and the femoral spinules vary a little in number.

Discussion. This species may be readily recognized by the shape and venation of the fore wings and by the bifurcate male cerci.

Material examined.

♂ holotype; 1 ♀ paratype, Uganda: Ankole, Kalingu F., viii.1946 (*Jacson [sic]*); 1 ♀ paratype, Uganda: Mawakota, vii.1928 (*van Someren*).

All in the British Museum (Natural History).

Distribution. Known only from Uganda.

***Stenamblyphyllum* Karsch, 1896.**

Stenamblyphyllum Karsch, 1896, *Stettin ent Ztg* 57: 326. Type-species, by monotypy, *Stenamblyphyllum dilutum* Karsch, 1896.

Diagnosis. ♂ ♀. Fastigium of vertex as in fig. 3, compressed, sloping steeply to frons, sulcate above. Fore wings usually more than seven times longer than their maximum width, not obliquely truncate apically, as in fig. 8; R_s and MA fused together for short distance.

Discussion. This genus may be easily distinguished from *Drepanophyllum* Karsch by the shape of the vertex and by the relatively long and narrow fore wings.

Distribution. Known only from Cameroun and the Congo.

***Stenamblyphyllum dilutum* Karsch, 1896.**

Stenamblyphyllum dilutum Karsch, 1896, *Stettin ent. Ztg* 57: 327. Lectotype ♀, Cameroun: Victoria (*Preuss*). In the Zoologisches Museum of the Humboldt-Universität, Berlin.

Diagnosis. ♂ ♀. Male cerci as in fig. 16. Male subgenital plate as in fig. 21. Venation of fore wings as in fig. 8.

Measurements. Males: Total length (2): 41.7-45.4, mean 43.55;

Median length of pronotum (2): 4.4-4.6, mean 4.50; Length of hind femur (2): 26.6-27.6, mean 27.10; Length of fore wing (2): 32.0-35.4, mean 33.70.

Females: Total length (5): 44.3-47.2, mean 45.72; Median length of pronotum (6): 4.2-4.4, mean 4.28; Length of hind femur (7): 26.8-28.4, mean 27.51; Length of fore wing (7): 35.5-37.9, mean 36.59.

Discussion. This species may be easily recognized by the shape and venation of the fore wings and by the male genitalia.

I have selected and marked one of the two syntypes of this species as a lectotype; this specimen already carried a red type label.

Material examined.

♀ lectotype; 1 ♀ paralectotype, Cameroun: Lolodorf (*Conradt*) (same depository as lectotype).

Cameroun: Mamfe, ii.1958, 1 ♀ (——) (Nat. Mus. S. R.); Dibongo, 2 ♀ ♀ (——) (Mus. Af. Cent.); Dibongo, Sanaga, 1 ♂ (*Rolle*) (Nat. Mus. Vienna); Congo Republic: Hte Tshuapa, Yolo, vi.1937, 2 ♀ ♀ (*Buckinckx*) (Mus. Af. Cent.); Kasongo, ix.1959 (*Benoit*) (Mus. Af. Cent.).

Distribution. As given for the genus.

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