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Plesiophthalmus and its Allied Genera (Coleoptera, Tenebrionidae, Amarygmini)

(Part 12)

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Abstract The final part of this series of revisional study of the genus *Plesiophthalmus* and its allied genera is devoted to the following items: phylogenetic study, geographical distribution, key to the genera of the genus-group, key to the species-groups of the genus *Plesiophthalmus*, list of the species, and acknowledgments.

Key words: *Plesiophthalmus*; Amarygmini; Tenebrionidae; Coleoptera; phylogenetic study.

Phylogeny of *Plesiophthalmus* and its Allied Genera

I. *Major Characteristics of Genera based on the Males of Type Species*

The accompanying table showing major characteristics of *Plesiophthalmus* and its allied genera is based on the males of the respective type species. The genus *Amarygmus*, which is considered nearest to the ancestor of the above group, is placed in the first column (Table 1).

1. Generally speaking, commoner characteristics, *e.g.*, head steeply inclined or almost vertical and inserted into prothorax, profemur more or less thickened, etc., are usually plesiomorphic, whereas specialized ones, *e.g.*, dorsal surface wholly haired, male protarsus with 2nd segment longer than 1st, etc., are generally apomorphic.

2. Such genera as have less advanced character states, *e.g.*, *Euspinamarygmus*, *Plesiamarygmus*, etc., can be considered more primitive.

3. The genus *Amarygmus* DALMAN, 1823, seems to represent an ancestral type of the group. As shown in Table 1, almost all the advanced characters are not found in this genus, only the exception being the modification of profemora. Besides, *Amarygmus* is widely distributed in the Oriental, Australian and Ethiopian Regions, and comprises more than 300 species.

II. *Differentiation of* Plesiophthalmus *and its Allied Genera*

Major differentiation of morphological characters in *Plesiophthalmus* and its allied genera can be summarized as shown in Table 2.

1. It is not difficult to determine the trend of differentiation of respective characters, but their relative value for analysing phylogeny cannot be readily

Table 1. Comparison of major characteristics based on males of type species.

Characteristics	*Amarygmus*	*Hoplobrachium*	*Eupezoplonyx*	*Spinamarygmus*	*Euspinamarygmus*	*Spinodietysus*	*Eumolpocyriogeton*	*Plesiamarygmus*	*Pseudoogeton*	*Oogeton*	*Plesiophthalmus*	*Eumolpamarygmus*	*Javamarygmus*
Dorsal surface with hairy patches													○
Dorsal surface wholly haired						○							
Head vertical, inserted into prothorax		○	○	○	○	○	○	○	○	○	○	○	○
Head longitudinally sulcate in middle		○											
Pronotum with apical border interrupted in middle			○										
Pronotum bordered along base										○			
Pronotum narrower than elytra at base		○	○	○		○	○	○	○	○	○	○	○
Elytron with 3rd interval swollen at base												○	
Elytron with strial punctures foveolate												○	○
Hind wings: brachypterous or apterous						○			○	○			
Antenna more or less thickened apically		○	○	○	○	○	○	○	○	○	○	○	○
Protarsus with 2nd segment longer than 1st										○			
Protarsus more or less thickened		○	○	○		○	○	○	○	○	○	○	
Protibia and/or mesotibia distinctly bent				○									
Protibia distinctly thickened and haired in apico-inner portion				○			○				○	○	○
Protibia gouged in basal portion		○	○	○		○	○	○	○	○	○	○	
Profemur spined		○	○	○	○	○	○		○		○	○	○
Profemur more or less thickened	○	○	○	○	○	○	○	○	○	○	○	○	○
Genitalia more or less modified		○	○	○	○	○	○	○	○	○	○		○
Body more or less elongate		○	○	○		○		○	○	○	○	○	○
Body hemispherical							○						

* Circles indicate possession of relatively more advanced states than blanks.

decided.

2. The head may first become steeply declined, probably in correlation with change of eating behavior. Then, the profemora become thicker, or flattened and spined in some species, in both sexes. Their modification attains to an utmost stage in derivative species.

3. Two major lineages can be recognized in the modification of general body shape: ovate or rounded body form and elongate body form. However, either parallel modification or convergence seems to have taken place since rather early times, making the phylogenetic analysis rather difficult.

4. Similar parallelism or convergence is also observed within each species-group of *Plesiophthalmus*, for instance, in the shape of male anal sternite, in the structure of male genitalia, etc.

Table 2. Divergence of major morphological characters in *Plesiophthalmus* and its allied genera.

	Primitive state	Advanced state
Body shape	Ovate, moderately convex above	Oblong oval → more or less constricted between pronotum and elytra, or, rounded, rather hemispherical
Head	Obliquely inclined forwards	Steeply inclined → almost vertical against prothorax
Antenna	Filiform	Feebly thickened towards apex → several apical segments dilated to respective apices
Pronotum	Base as wide as those of elytra, gradually narrowed and inclined forwards	Base more or less narrower than those of elytra, roundly narrowed forwards, with convex disc
Elytra	Simply roundly narrowed towards apices; moderately convex above, punctato-striate, with intervals flat; glabrous	Gradually narrowed towards apices → subparallel-sided in basal part; strongly convex above → distinctly depressed in an inverted V-shape, strial punctures often foveolate, or evanescent; intervals convex, aciculate, mat, wrinkled, or vitreous; haired → covered with hairy patches
Hind wings	Fully developed	Brachypterous → apterous
Profemur in both sexes	Simple	Thickened → flattened and spined
Protibia in male	Simple; not haired	Gouged in basal portion → elongate and curved, thickened; haired in apico-inner portion → distinctly bent in middle
Mesotibia in male	Simple	Elongate and incurved → bent in middle
Protarsi	Simple; decreasing in length from basal to apical segments	Feebly thickened → dilated to each apex; 2nd segment longer than 1st
Apex of male anal sternite	Simply rounded	Slightly truncate → semicircularly emarginate
Male genitalia	Simply slender	Spatulate at apex, or, thickened → subfusiform; parameres with apical portions punctate → rasp-like → more complicated structure

III. *Presumptive phylogeny*

On the basis of the discussion given on the foregoing pages, two different dendrograms can be proposed for illustrating the phylogenetic relationships of the genera allied to *Plesiophthalmus*. The first dendrogram (Fig. 1) shows the supposed phylogeny of the genera derived from a single ancester, while the second dendrogram (Fig. 2) is based on the supposition that the genus-group has been derived from three lineages of *Amarygmus*-like ancestral stock. The second dendrogram is constructed by taking the more of their distribution into account.

The first dendrogram is apparently more clearcut than the second, but in my view, the second seems more reasonable, because similar states of certain features

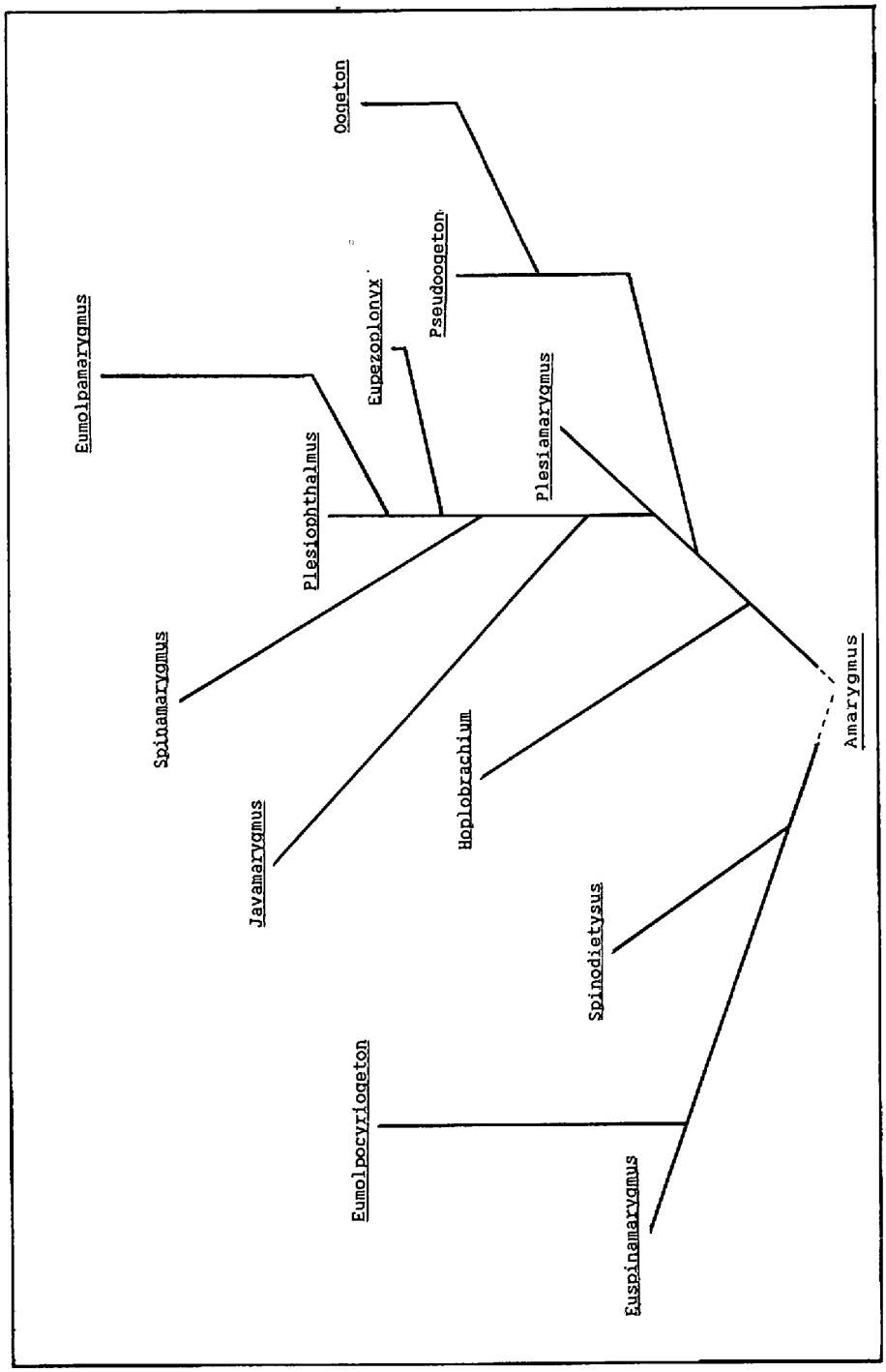

Fig. 1. Dendrogram showing possible relationship of monophyletic origin of *Plesiophthalmus* and its allied genera.

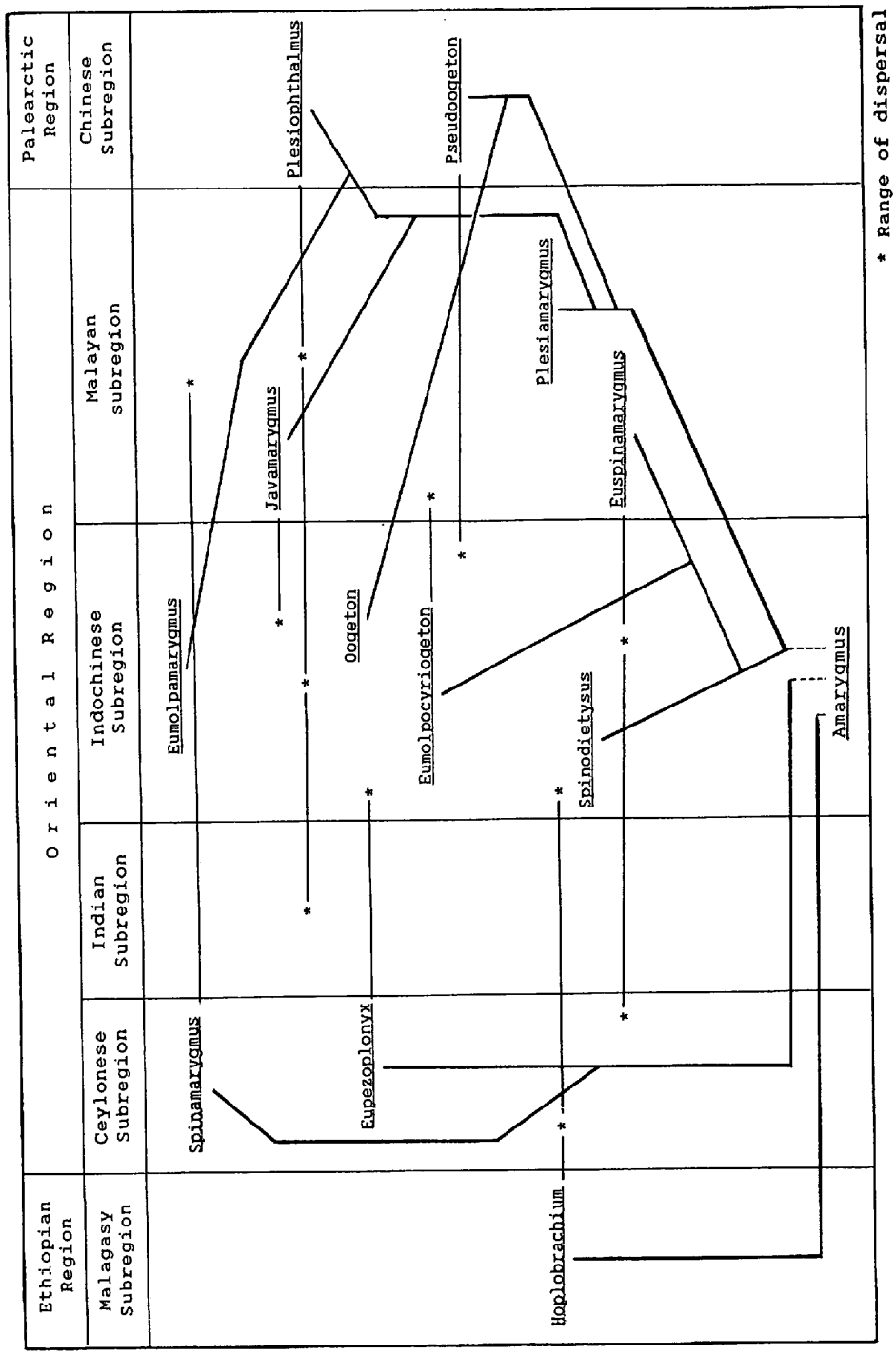

Fig. 2. Dendrogram showing possible relationship of *Plesiophthalmus* and its allied genera if derived from three different lineages of the *Amarygmus*-like ancestral stock.

found in two or more genera and species occurring in several remote areas, for instance, the Ceylonese and Indochinese Subregions, seem to have been brought about through parallel evolution or convergence.

Geographical Distribution of *Plesiophthalmus* and its Allied Genera

The genus *Plesiophthalmus* and its allied genera, 12 of which are dealt with in this paper, are widely distributed in the Oriental Region and in the Far East of the Palearctic Region. The Malagasy Subregion of the Ethiopian Region is also included in their distribution.

In this chapter, their distributional patterns will be elucidated from both the taxonomic and geographical viewpoints.

I. *Taxonomic Approach*

1. Genus *Spinamarygmus* PIC

This genus comprises 13 species, 12 of which are distributed in the Ceylonese Subregion and one exceptionally in the Malayan Subregion. As I mentioned in the text (MASUMOTO, 1988 a), the single Malayan species, *Spinamarygmus levis* KULZER, may not be a true member of the genus but that of some others, *e.g.*, *Plesiophthalmus*. If this will be verified, this genus becomes endemic to the Ceylonese Subregion.

2. Genus *Eumolpocyriogeton* PIC

Six species are named from the Indochinese and Malayan Subregions, namely, 3 species including the type species are described from North Vietnam, two from Borneo, and one from the Malay Peninsula. It may be worth noting that the Bornean species are closely allied to the Malayan one in their phylogenetic relationship.

3. Genus *Eupezoplonyx* PIC

PIC (1922) erected the genus for *E. ater* from Sri Lanka. Later, I (1988 b) described a species from Northwest Thailand. The genus is closely allied to the genus *Plesiophthalmus*.

4. Genus *Spinodietysus* PIC

This peculiar monotypic genus occurs only in North Vietnam.

5. Genus *Hoplobrachium* FAIRMAIRE

This genus has a somewhat complicated background concerning its distribution. The genus *Hoplobrachium* was erected by FAIRMAIRE (1886) for *H. asperipenne* from Madagascar, though the species has been regarded as a synonym of *Helops dentipes* FABRICIUS, 1781, from "Coromandel", on the southeastern coast of India (GEBIEN, 1943). WALKER (1858) described *Helops ebeninus* from

Table 3. Geographical distribution of *Plesiophthalmus* and its allied genera.

	Oriental Region													Other Region	Total
	Ceylonese Subregion	South India & Sri Lanka	Indian Subregion	Northeast India & Burma	Indochinese Subregion	Indochina to SE China	Taiwan	Ryukyu Islands	Malayan Subregion	Malay Peninsula	Sunda Islands	Borneo	Sulawesi	Philippines	Palearctic Region	Chinese Subregion	Japan	Central China to Korea	Sichuan		
Spinamarygmus PIC		12*									1										13
Eumolpocyriogeton PIC						3*				1		2									6
Eupezoplonyx PIC		1*				1															2
Spinodielysus PIC						1*															1
Hoplobrachium FAIRMAIRE		(1)				(1)														1*,**	1(2)
Eumolpamarygmus PIC						3*	1														4
Javamarygmus PIC						1	1				1*										3
Oogeton MIWA							1*														1
Euspinamarygmus MASUMOTO		1				1					1	1*		1							5
Pseudoogeton MASUMOTO							1												3*		4
Plesiamarygmus MASUMOTO											1*	(1)									1(1)
Plesiophthalmus MOTSCHULSKY				7(2)		58(1)	11(1)	9(1)		1	2(1)	7(1)	(1)				4*	2(2)			101(10)
Total		14(1)		7(2)		68(2)	15(1)	9(1)		2	6(1)	10(2)	(1)	1			4	2(2)	3	1	142(13)

* Localities of type species.
** The Malagasy Subregion of Ethiopian Region.

Ceylon. PIC (1922) described *Cephaloplonyx opacus* also from "Ceylan" as a new genus and new species. Both WALKER's and PIC's species are regarded as synonyms of FABRICIUS' one (GEBIEN, 1943). Besides, Yunnan was added to the distributional range of *Hoplobrachium dentipes* (FABRICIUS) (GEBIEN, 1943). I had opportunity of examining only one specimen from Sri Lanka, and was unable to confirm if the above taxonomic treatments are valid or not. At the present time, this genus is regarded as the one widely or sporadically distributed in South Asia.

6. Genus *Eumolpamarygmus* PIC

Four species are known from the Indochinese Subregion. Of these, 3 species are distributed in North Vietnam, and the remainder is in the montane zone of Taiwan. This suggests a zoogeographical relationship between the two areas.

7. Genus *Javamarygmus* PIC

This genus was erected as a subgenus of the above genus. Its type species, *Javamarygmus tristis* (PIC, 1928), was described from Java. PIC (1927) described "*Eumolpamarygmus maculosus*" from North Vietnam, and I (1982) described "*Eumolpocyriogeton chingshanum*" from Taiwan. I have re-examined those three and concluded that they should belong to the same genus (MASUMOTO, 1989 a).

Of *J. tristis*, I recently found some materials from Northwest Thailand and also from Hainan Is., South China (MASUMOTO, 1989 a). It is very interesting to note that members of this genus are not only widely distributed from Northwest Indochina to Taiwan, the Indochinese Subregion, but also extends their distribution to a remote place, Java, which belongs to the Malayan Subregion.

8. Genus *Oogeton* MIWA

This monotypic and extremely peculiar genus occurs only in the montane zone of Taiwan.

9. Genus *Euspinamarygmus* MASUMOTO

Five species are included in this genus, all from different areas, Sri Lanka, Thailand, Java, Borneo and the Philippines. The locality of the type species is Borneo. The five species tentatively placed in the same genus may be heterogeneous both in their morphological diversity and their sporadical occurrence, but the existence of one species in Mindanao Is. of the Philippines seems interesting from the zoogeographical viewpoint.

10. Genus *Pseudoogeton* MASUMOTO

Four species are known in the genus; three of them are distributed in Sichuan belonging to the Chinese Subregion of the Palearctic Region, and the remainder occurs in Taiwan of the Indochinese Subregion of the Oriental Region. It is possible that the Sichuanese and the Taiwanese species are not truly congeneric because

Table 4. Geographical distribution of the species-groups of the genus *Plesiophthalmus*.

	Oriental Region										Palearctic Region					
	Ceylonese Subregion	South India & Sri Lanka	Indian Subregion	Northeast India & Burma	Indochinese Subregion	Indochina to SE China	Taiwan	Ryukyu Islands	Malayan Subregion	Malay Peninsula	Sunda Islands	Borneo	Sulawesi	Philippines	Chinese Subregion	Japan	Central China to Korea	Sichuan	Total
Gr. *P. nigrocyaneus*				2*			1	1								3*	(1)		5(1)
Gr. *P. insignis*						1					1	2(1)	(1)						6(2)
Gr. *P. spectabilis*						3	(1)	(1)								1*	(1)		4(3)
Gr. *P. davidis*						6	1										2*		9
Gr. *P. pallidicrus*				(1)		6*													6(1)
Gr. *P. brevipennis*						1		4*											5
Gr. *P. pernitidus*						2*													2
Gr. *P. fuscoaenescens*						1		3*											4
Gr. *P. tonkinensis*				1		10*													11
Gr. *P. metallicus*						3*													3
Gr. *P. excellens*				3*(1)		5(1)													8(2)
Gr. *P. nigroaeneus*						2	2*												4
Gr. *P. striatus*						2*					2								4
Gr. *P. impressus*						3*	2	1											6
Gr. *P. fujitai*						1	2*												3
Gr. *P. perpulchrus*						2*	1												3
Gr. *P. kondoi*						2	1*												3
Gr. *P. mayumiae*						2	1*												3
Gr. *P. borneensis*						1					1(1)	1*							3(1)
Gr. *P. gokani*				1		2				1		2*							6
Isolated species																			
P. armicrus FAIRMAIRE						1													1
P. maculosus (PIC)						1													1
Incertae sedis																			
P. lineipunctatus FAIRMAIRE						1													1
Total				7(2)		58(1)	11(1)	9(1)		1	2(1)	7(1)	(1)			4	2(2)		101(10)

* Localities of type species.

they are either brachypterous or apterous and are restricted to two remote areas.

11. Genus *Plesiamarygmus* MASUMOTO

The monotypic genus *Plesiamarygmus* occurs in the Sunda Islands and Borneo.

12. Genus *Plesiophthalmus* MOTSCHULSKY

This genus comprises the largest number of species, which amounts to about 100, and is widely distributed in the eastern World. It is a unique genus which extends its distribution northwards to Japan and also to Sakhalin Is., westwards to the eastern Himalayas, and southwards to the Sunda Islands. It is of paticular interest that a species of this genus is recorded from Sulawesi.

Twenty species-groups are recognized in this large genus. Their geographical distributions are summarized in Table 4 and will be discussed later.

II. *Geographical Approach*

1. Oriental Region

1) Ceylonese Subregion

Four genera and 15 species are known. The localities of the type species of *Spinamarygmus* and *Eupezoplonyx* lie in this subregion. Both *Hoplobrachium* and *Euspinamarygmus* occur in this subregion, but their members are also distributed in other regions. It is possible that though currently placed in the same genera, the Ceylonese forms are in reality, not congeneric with those from other regions, and that this subregion may possibly be independent from the others so far as concerned with the distribution of the genera under consideration.

2) Indian Subregion

Only a single genus, *Plesiophthalmus*, and 9 species are distributed in Northeast India and Burma, and this subregion has a close affinity to the next.

3) Indochinese Subregion

Ten genera and more than 90 species are distributed in this subregion. Of these, 3 genera, *Spinodietysus*, *Eumolpamarygmus* and *Oogeton*, are endemic. More precisely, North Vietnam and its neighbouring areas are the richest in the fauna; 8 genera and 70 species are distributed in the areas from Northwest Thailand to Southeast China. It is followed by Taiwan, where 5 genera and 16 species occur. *Oogeton* is endemic to Taiwan. The Ryukyu Islands are the next richest, habouring 10 species, but is not diverse in genera, all the known species belonging to a single genus.

4) Malayan Subregion

Six genera and about 20 species are distributed. *Plesiamarygmus* is endemic to the subregion. It has localities of *Javamarygmus* and *Euspinamarygmus*. The

Sunda Islands are the richest in genera (5 genera and 6 species) and Borneo is the richest in species (10 species of 4 genera). One species is recorded from Sulawesi, and also one from the Philippines.

2. Palearctic Region

1) Chinese Subregion

When we include Sichuan in this subregion, two genera and nearly 10 species occur there. It contains the type localities of the type species of both *Pseudoogeton* and *Plesiophthalmus*.

3. Ethiopian Region

1) Malagasy Subregion

The monotypic genus *Hoplobrachium* occurs here, though it is considered to spread also over the Ceylonese and Indochinese Subregions. See p. 240, I. 5.

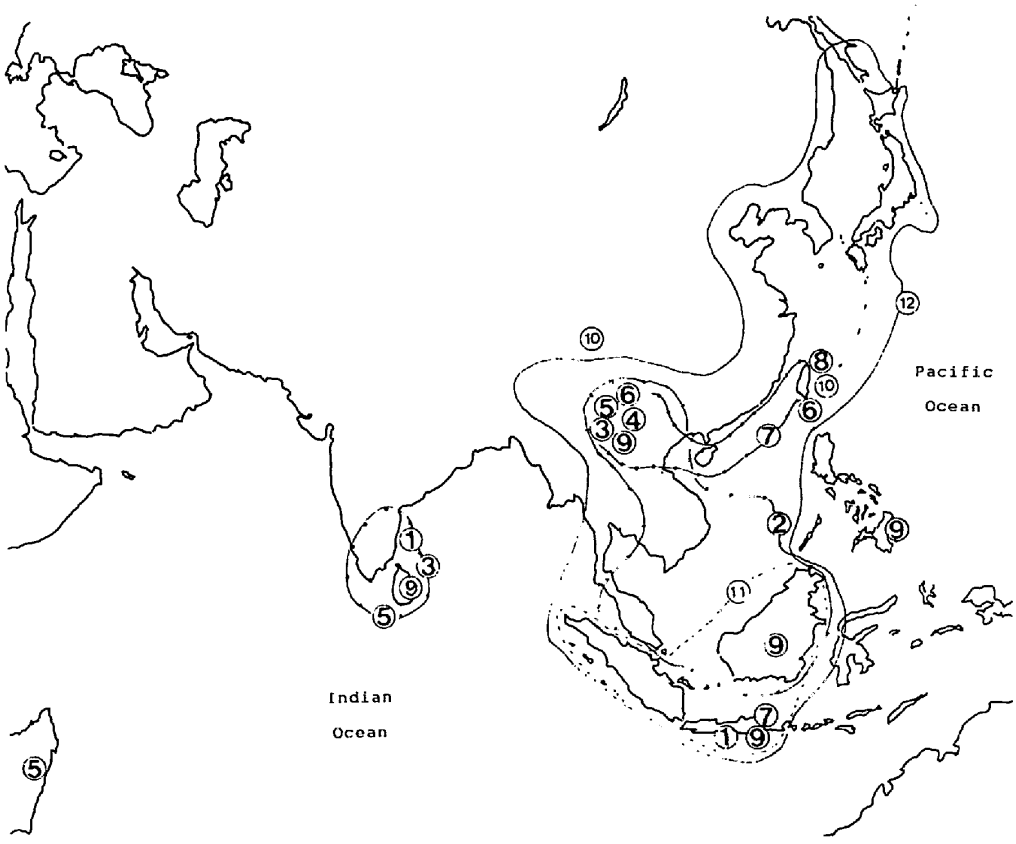

Fig. 3. Map showing the distribution of *Plesiophthalmus* and its allied genera. —— 1, *Spinamarygmus* PIC; 2, *Eumolpocyriogeton* PIC; 3, *Eupezoplonyx* PIC; 4, *Spinodietysus* PIC; 5, *Hoplobrachium* FAIRMAIRE; 6, *Eumolpamarygmus* PIC; 7, *Javamarygmus* PIC; 8, *Oogeton* MIWA; 9, *Euspinamarygmus* MASUMOTO; 10, *Pseudoogeton* MASUMOTO; 11, *Plesiamarygmus* MASUMOTO; 12, *Plesiophthalmus* MOTSCHULSKY.

Two more genera which superficially resemble the genus *Plesiophthalmus* and its allied genera are distributed in the Ethiopian Region. One is the genus *Megacantha* WESTWOOD, 1843, which comprises 5 species and is distributed mostly in West Africa. It has acutely spined profemora, but the body is distinctly elongate and only moderately, longitudinally convex above. The other is the genus *Eupezus* BRANCHARD, 1845. About 20 species are hitherto known also mainly from West Africa. In the members of this genus, the body is oblong oval and strongly convex above in general but the profemora are neither distinctly thickened nor spined. Actually, the two genera might not be related to the group treated in this paper.

III. *Discussion*

1. The area richest in both genera and species is obviously the Indochinese Subregion, especially North Vietnam and its neighbouring areas, which is followed by the Malayan Subregion. This seems to suggest that the genus-group arose in

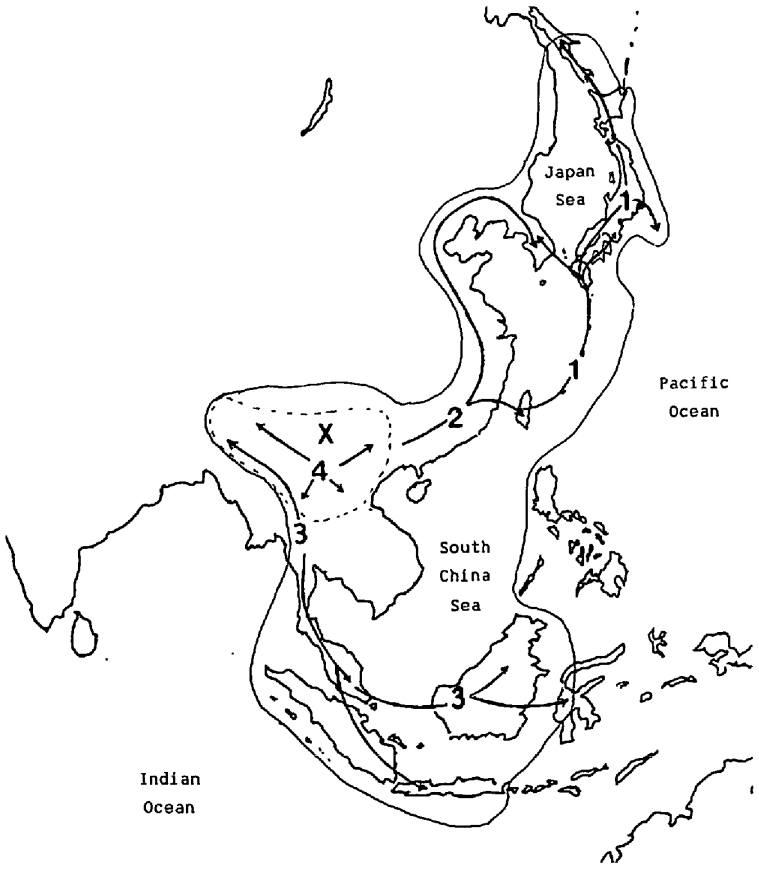

Fig. 4. Distributional range of the genus *Plesiophthalmus* and supposed routes of dispersal of some species-groups. —— X, Presumptive centre of distribution; 1, group of *P. nigrocyaneus*; 2, group of *P. davidis*; 3, group of *P. insignis*; 4, group of *P. excellens*.

the Indochinese Subregion and radiated from there, mostly towards the south.

2. The Ceylonese and also the Malagasy Subregions are likely almost independent from the Oriental Region. If this is true, parallelism may have taken place among relatives of *Plesiophthalmus*, for example, in the spined profemora.

3. In the case of certain genera, *e.g.*, *Euspinamarygmus* and *Pseudoogeton*, which are isolatedly and remotely distributed, parallel evolution may have taken place between two or more remote areas. It is therefore difficult to draw a final opinion on this subject.

4. As compared with Taiwan, the Ryukyu Islands are poor in the diversity of genera. This may suggest that the islands have long been separated by the sea from Taiwan or from the Asian Continent, but that Taiwan has been connected to the Continent from time to time.

5. The genus *Plesiophthalmus* may originate in North Vietnam, Yunnan and their neighbouring areas. This can be inferred from the fact that the area is the richest in the number of species and species-groups of *Plesiophthalmus*, which include all grades of differentiation.

6. The group of *P. nigrocyaneus* may have spread towards the northeast from the original habitat in early times, and was followed by the group of *P. spectabilis*. The group of *P. davidis* was the next, while the group of *P. insignis* may have spread towards the south through the Malay-Sunda Land Bridge to Borneo, and reached as far east as Sulawesi. Some species-groups of *Plesiophthalmus*, which are considered advanced, *e.g.*, the group of *P. excellens* and that of *P. perpulchrus*, occur only in the narrow areas around the presumptive centre of distribution.

Key to the Genera of the *Plesiophthalmus* Group

1 (2) Protarsus with second segment obviously longer than first; base of pronotum finely bordered; each segment of pro- and mesotarsi in male distinctly dilated to apex ..... Genus *Oogeton* MIWA

2 (1) Protarsus with second segment obviously shorter than first; base of pronotum usually not bordered; each segment of pro- and mesotarsi not distinctly dilated to apex.

3 (4) Neither profemora distinctly thickened in both sexes nor protibiae prolonged in male ..... Genus *Plesiamarygmus* MASUMOTO

4 (3) Profemora more or less distinctly thickened and/or spined in both sexes; male protibiae prolonged and curved inwards, mostly thickened and haired in apical portion of inner margin.

5 (6) Body hardly constricted between pronotum and elytra but simply ovate (*Amarygmus*-like) ..... Genus *Euspinamarygmus* MASUMOTO

6 (5) Body more or less constricted between pronotum and elytra, or rather hemispherical.

7 (10) Dorsal surface distinctly haired.
8 (9) Elytra rather subparallel-sided, with rows of foveae and hairy patches ..... Genus *Javamarygmus* PIC
9 (8) Elytra arcuate laterally, punctato-striate, wholly haired but without patches ..... Genus *Spinodietysus* PIC
10 (7) Dorsal surface not distinctly haired.
11 (12) Body rather hemispherical ..... Genus *Eumolpocyriogeton* PIC
12 (11) Body more or less oblong.
13 (14) Head fairly large, more than half of pronotum in width; brachypterous or apterous ..... Genus *Pseudoogeton* MASUMOTO
14 (13) Head rather small, less than half of pronotum in width; winged.
15 (16) Male protibiae or both pro- and mesotibiae, or, only mesotibiae distinctly bent in middle ..... Genus *Spinamarygmus* PIC
16 (15) Male protibiae and also mesotibiae usually not distinctly bent in middle.
17 (18) Elytra punctato-striate, the punctures often coarse and longitudinal, sometimes becoming foveolate or variolate; 3rd intervals distinctly swollen like gibbosity near base ..... Genus *Eumolpamarygmus* PIC
18 (17) Strial punctures or rows of punctures on elytra usually not becoming foveolate or variolate; 3rd intervals not swollen near base.
19 (20) Interocular space with a longitudinal medial sulcus ..... Genus *Hoplobrachium* FAIRMAIRE
20 (19) Interocular space without a longitudinal median sulcus.
21 (22) Pronotum more transverse, broadly, gently convex above, with apical border usually interrupted in middle, antero-lateral portions rather steeply inclined obliquely forwards ..... Genus *Eupezoplonyx* PIC
22 (21) Pronotum less transverse, mostly strongly convex above, with apical border mostly entire, antero-laterel portions gradually inclined obliquely forwards ..... Genus *Plesiophthalmus* MOTSCHULSKY

Key to the Species-groups of the Genus *Plesiophthalmus*

1 (4) Male protibiae neither prolonged nor curved, with apico-inner portion neither thickened nor haired; dorsal surface distinctly haired in a species. (Isolated species).
2 (3) Dorsal surface with distinct hairy patches ..... *P. maculosus* (PIC)
3 (2) Dorsal surface without distinct hairy patches .... *P. armicrus* FAIRMAIRE
4 (1) Male protibiae prolonged and curved, with apico-inner portion thickened and haired; dorsal surface hardly haired. (Grouped).
5 (8) Body distinctly hunchbacked, eumolpin-shaped.
6 (7) Elytra distinctly depressed in an inverted V-shape behind scutellum ..... Group of *P. perpulchrus*
7 (6) Elytra not depressed behind scutellum ..... Group of *P. excellens*

8 (5) Body not distinctly hunchbacked, not eumolpin-shaped.
9 (12) Elytra punctato-striate only in basal portions.
10 (11) Elytra depressed in an inverted V-shape behind scutellum ..... Group of *P. impressus*
11 (10) Elytra not depressed behind scutellum ..... Group of *P. kondoi*
12 (9) Elytra entirely punctato-striate, or with rows of punctures, or almost impunctate.
13 (14) Elytra depressed in an inverted V-shape behind scutellum ..... Group of *P. fujitai*
14 (13) Elytra not depressed behind scutellum.
15 (16) Dorsal surface distinctly mat ..... Group of *P. davidis*
16 (15) Dorsal surface not mat.
17 (18) Dorsal surface distinctly vitreously shining ..... Group of *P. pallidicrus*
18 (17) Dorsal surface not vitreously shining.
19 (20) Body rather elongate, rather subparallel-sided and less convex ..... Group of *P. borneensis*
20 (19) Body neither distinctly elongate nor subparallel-sided; dorsum moderately or strongly convex.
21 (22) Pronotum fairly broad and gently convex; male genitalia mostly extremely prolonged ..... Group of *P. insignis*
22 (21) Pronotum not so broad, moderately or strongly convex; male genitalia not extremely prolonged.
23 (24) Elytra more or less with colour patches ..... Group of *P. mayumiae*
24 (23) Elytra without colour patches.
25 (26) Elytra mostly with strong purplish or violet lustre; body strongly convex above ..... Group of *P. tonkinensis*
26 (25) Elytra without strong purplish or violet lustre.
27 (34) Dorsal surface strongly, metallically shining.
28 (31) Body rather elongate, longitudinally convex above.
29 (30) Body larger (11.5–17 mm), less strongly convex above; dorsal surface and legs not blackish ..... Group of *P. brevipennis*
30 (29) Body smaller (10–13.5 mm), more strongly convex above and somewhat *Elixota*-shaped; not only dorsal surface but also legs almost blackish ..... Group of *P. gokani*
31 (28) Body oblong oval to subovate.
32 (33) Body smaller (9.5–12 mm), rather ovate and less strongly convex above; pronotum and elytra differently coloured, often sericeously shining ..... Group of *P. metallicus*
33 (32) Body larger (14.5–19.5 mm), oblong oval and strongly convex above; dorsal surface unicoloured and metallically shining ..... Group of *P. pernitidus*
34 (27) Dorsal surface moderately or dully shining.

35 (38) Body elongate and less strongly convex above.
36 (37) Pronotum more closely punctate; elytra shorter; intervals more convex and often intricately aciculate; dorsal surface mostly with metallical lustre ..... Group of *P. nigrocyaneus*
37 (36) Pronotum less closely punctate; elytra longer; intervals less convex and hardly aciculate; dorsal surface often sericeously shining ..... Group of *P. spectabilis*
38 (35) Body shortened and more strongly convex above.
39 (42) Elytra less clearly punctato-striate.
40 (41) Pronotum larger and more steeply inclined forwards; dorsal surface often with sericeous lustre ..... Group of *P. nigroaeneus*
41 (40) Pronotum smaller and less steeply inclined forwards; dorsal surface often with bronzy or coppery lustre ..... Group of *P. fuscoaenescens*
42 (39) Elytra more clearly punctato-striate ..... Group of *P. striatus*

List of the Species Belonging to the Genus *Plesiophthalmus* and its Allied Genera

1.	Genus *Spinamarygmus* PIC, 1915	[(Part 1) 56 (1), p. 79]
	S. chrysomeloides (WALKER, 1858)	[p. 82]
	S. alienus (PASCOE, 1883)	[p. 84]
	S. indicus PIC, 1915	[p. 86]
	S. rufimembris PIC, 1928	[p. 88]
	S. levis KULZER, 1950	[p. 90]
	S. obscurus KULZER, 1950	[p. 92]
	S. fragilis KULZER, 1950	[p. 93]
	S. confusus KULZER, 1950	[p. 93]
	S. eumolpoides KULZER, 1950	[p. 94]
	S. intermedius KASZAB, 1980	[p. 96]
	S. ceylonicus KASZAB, 1980	[p. 97]
	S. bacchusi MASUMOTO, 1988	[p. 98]
	S. jessopi MASUMOTO, 1988	[p. 99]
2.	Genus *Eumolpocyriogeton* PIC, 1922	[(Part 2) 56 (4), p. 766]
	E. convexum PIC, 1922	[p. 770]
	E. sasajii MASUMOTO, 1988	[p. 771]
	E. nagaii MASUMOTO, 1988	[p. 772]
	E. malayense MASUMOTO, 1988	[p. 774]
	E. pickai MASUMOTO, 1988	[p. 776]
	E. vietnamense MASUMOTO, 1988	[p. 777]
3.	Genus *Eupezoplonyx* PIC, 1922	[(Part 2) 56 (4), p. 779]
	E. ater PIC, 1922	[p. 781]
	E. hideoi MASUMOTO, 1988	[p. 782]
4.	Genus *Spinodietysus* PIC, 1927	[(Part 2) 56 (4), p. 784]
	S. convexipennis (PIC, 1927)	[p. 786]

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