Introduction

The Silurian System of the eastern Yangzi (Yangtze) Gorges has remained the focus for studying the Silurian biostratigraphy of China since the pioneering works given by Lee C. C. and Chao Y. T. (1924) and Hsich C. Y. and Chao Y. T. (1925). Numerous workers mentioned or discussed the Silurian divisions and various fossils in it. The first studies on graptolites were made by Sun (1933) and Hsu (1934), and later by Mu (1959, 1962). More systematical descriptions and discussions of both stratigraphy and fossils were carried out by Nanjing Institute of Geology and Palaeontology (1974), Ni (1978) and Ge et al. (1979) in nearby Loreiping, Yichang and by Wang (1978) at Fenxiang, Yichang. The Silurian strata of present area are widespread around the Huanglin anticline (Fig. 1). They are divided into the Longmaxi, Loreiping and Shamao Formations in ascending order. The most representative section lies at Wangjiawan, near Loreiping, the second at Fenxiang. They are 42 km and 31 km NNE of Yichang City, respectively, and rich in various fossils, such as graptolites, brachiopods, trilobites, corals, conodonts, cephalopods and bivalves. The graptolites mainly occur in the Longmaxi Formation. The Loreiping and Shamao Formations, characterized by yielding a number of shelly fossils, yielded only a few graptolites. Based on the researches of the Wangjiawan, Fenxiang and neighboring sections, the latest Ordovician to Silurian graptolite zonation of present area and their correlation are discussed in this paper.

Longmaxi Formation

The Longmaxi Formation is composed of 622.9 m of black and yellowish-green graptolitic shale. Its base is coincident with the first occurrence of the G. persculptus zone, which is attributed to the latest Ordovician according to a decision on the Ordovician and Silurian boundary, ratified by the international Commission of Stratigraphy and IUGS. Its top which is the lower part of the Loreiping Formation is drawn at the appearance of abundant shelly fossil-bearing silty mudstone with nodules. The Longmaxi Formation is further divided into a lower Black Shale Member, and an upper Yellowish-green Shale Member (Yan and Wang, 1978).

Black Shale Member

This member is a set of black shale, about 51.9 m thick, the upper part of which gradually weathers into grey black shale, and contains abundant graptolites. Eight graptolite zones can be recognized at Wangjiawan section in descending order:
**Pernerografus argenteus Zone**

*Pernerografus argenteus* Zone

Diplograptus magnus-D. thuringiacus Zone

*Demirastrites triangulatus* Zone

*Coronograptus cypius* Zone

*Logarograptus acinaces* Zone

*Orthograptus vesiculosus* Zone

*Parakidograptus acuminatus* Zone

*Glyptograptus persculptus* Zone

The *Glyptograptus persculptus* Zone

This zone is 0.32 m thick and is characterized by the appearance of *G. persculptus* Salter, associated with *G. gracilis* Ge, *G. moderni* Koren et Mikhaylova, and *Climacograptus angustus* Perner at Wangjiawan section. *Akidograptus ascensus* occurs rarely in the upper part. In addition, *Paraorthograptus cf. typicus* (= *P. cf. pacificus* Ruedemann), *Climacograptus innatus* (Nicholson), *C. acanthodus* (Ni) (= *C. multispinus* Wang 1983 and *Paraclimacograptus sinizini* Chaletzkaja), *Diplograptus fusus* Wang have been recorded from this zone of Fenxiang and Huanghuachang sections (Wang et al., 1983a,b). The *G. persculptus* identified by Lin et Chen (1984. pl. 1, figs. 1–3) are generally poorly preserved and some are thought to be similar to those of Bornholm, Denmark (Bjerreskov, 1975), which have a fairly narrow rhabdosome and a low thecal count. In comparison with Williams (1983), it is unclear whether the latter may be assigned to *G. persculptus* s.s. The *G. persculptus* Zone of the present area may with the exception of the underlying 0.7 m thick black shale intercalated with thin-beded metabentonite containing *G. ?venustus* cf. *venustus*, be correlated with the well-known uppermost Ordovician same name zone of English Lake District (Hutt, 1975), and of Dob’s Linn, Scotland (Williams, 1983).
The Parakidograptus acuminatus Zone
This zone characterized by the presence of *P. acuminatus* is represented by the greyish-black thin bedded siliceous rock with shale. At Wangjiawan section its thickness is 0.63 m. The following graptolites have been obtained from the exposures: *Akidograptus ascensus*, *Climacograptus acanthodus* (Ni), *C. rectangularis* M'Coy, *C. medius* Törnquist, *C. innotatus* (Nicholson), *Diplograptus modestus* Lapworth. It is easily correlated with the corresponding *acuminatus* Zone from Bornholm, Denmark and northern Canadian Cordillera (Lenz, 1982) as well as from Britain, and from Mirny Creek and Kazakhstan, USSR (Koren et al., 1979; Apollonov et al., 1980).

The Orthograptus vesiculosus Zone
*P. acuminatus* Zone passes into the *O. vesiculosus* Zone without obvious lithological change. This zone is indicated by the disappearance of *P. acuminatus* and the appearance of abundant *O. vesiculosus*, along with *Diplograptus modestus* Lapworth, *D. longiformis* Wang, *D. thuringiacus* (= *D. elongatus* Churkin et Carter), *Climacograptus rectangularis* M'Coy, and *C. normalis* Lapworth. Its thickness is 2.6 m. In the Fenxiang section the zone yields *Atavograptus atavus* (Jones). This graptolite assemblage and its stratigraphic position show that the *O. vesiculosus* Zone of China is equivalent to the *vesiculosus* Zone redefined by Toghill (1968) at Dob's Linn with a 'acme-zone' character and may be correlated with the homonymous zone from Tongzi, Guizhou (Chen et Lin, 1978) and Guanyinqiao, Lanzhou section. Its lithological characteristic is similar to that of the equivalent zone from Tongzi, Guizhou (Chen et Lin, 1978) and Guanyinqiao, Lanzhou. *P. acuminatus* Zone elsewhere in the world. *M. luncta* is also designated as an equivalent zonal fossil to *C. cyphus* in Guizhou (Chen et Lin, 1978). The graptolites associated with them, *Diplograptus microterminatus* Churkin et Carter, *D. thuringiacus* Eisel, *Coronograptus* cf. *gregarius* (Lapworth), *Logarograptus* cf. *acinaces* (Törnquist), *Glyptograptus enodus* Packham, are all common elements of the *C. cyphus* Zone. The *C. cyphus* Zone of present area, therefore, is regarded as equivalent to the homonymous zone from Britain, Alaska of North American and USSR, as well as to the *C. gregarius* Zone of northern Cordillera (Lenz, 1982) and the upper part of the *M. revolutus* Zone from Bornholm, Denmark (Bjerreskov, 1975).

The Lagarograptus acinaces Zone
No marked lithological change is seen between this zone and the *O. vesiculosus* Zone. The *L. acinaces* Zone is characterized by the appearance of *L. acinaces* (Törnquist) and *Coronograptus leei* (Hsiü) in association with *Monograptus? changya-gensis* Sun, *Diplograptus microterminatus* Churkin et Carter (= *D. acuminatus* Wang, 1977), *D. diminatus* E. et W., and *D. bifurcus* Mu et al. (? = *D. coremus* Chen et Lin, 1978). *L. acinaces* is chosen as zonal designation in place of the original *C. leei* Zone since *C. leei* ranges through the *L. acinaces*, *C. cyphus* Zones and even higher levels. The *L. acinaces* Zone here is likely correlative to the same name zone of Britain, northern Canada and USSR (Koren, 1973).

The Coronograptus cyphus Zone
This zone of the Longmaxi Formation near Lreiping Village was first reported by Mu (1959). This species is quite frequent in the equivalent level on Lipeng, Yidu County (Wang, 1984), but has not been found at the Wangjiawan section. The zone is characterized by the appearance of *Monograptus? revolutus* (Kurck), *Pernograptus cf. austerus* (Törnquist) and *Monoclimacis luncta* Chen et Lin at the Wangjiawan section. The appearance of *Demirastrites triangulatus* marks the end of this zone. Both *M. revolutus* and *P. austerus* are representative elements of the *C. cyphus* Zone elsewhere in the world. *M. luncta* is also designated as an equivalent zonal fossil to *C. cyphus* in Guizhou (Chen et Lin, 1978). The graptolites associated with them, *Diplograptus microterminatus* Churkin et Carter, *D. thuringiacus* Eisel, *Coronograptus* cf. *gregarius* (Lapworth), *Logarograptus* cf. *acinaces* (Törnquist), *Glyptograptus enodus* Packham, are all common elements of the *C. cyphus* Zone. The *C. cyphus* Zone of present area, therefore, is regarded as equivalent to the homonymous zone from Britain, Alaska of North American and USSR, as well as to the *C. gregarius* Zone of northern Cordillera (Lenz, 1982) and the upper part of the *M. revolutus* Zone from Bornholm, Denmark (Bjerreskov, 1975).

The Demirastrites triangulatus Zone
This zone is about 12.6 m thick at the Wangjiawan section. Its lithological characteristic is similar to that of the underlying *C. cyphus* Zone. The greyish black shale is rich in graptolites. The zone is defined by the disappearance of *C. cyphus* and *M. revolutus* and the appearance of *D. triangulatus*. Associated graptolites are *Diplograptus microterminatus* Churkin et Carter, *D. thuringiacus* Eisel, *Glyptograptus* cf. *sinatus* (Nicholson), *Pseudoglyptograptus retroversus* (Bulman et Rickards), *Oktavites communis* (Lapworth), *Petalolithus* cf. *folius* (Hisinger). This graptolite assemblage indicated that the zone here probably correlates with the same name zone of Britain.
The Diplograptus magnus- D. thuringiacus Zone
This zone, which is 15.2 m thick in the Wangjiawan section, is marked by the appearance of Diplograptus thuringiacus. Other common graptolites comprise Pribylograptus leptotheca (Lapworth), P. cf. argutus (Lapworth) and Pseudo-glyptograptus retroversus (Bulman et Rickards). Diplograptus cf. magnus was obtained from the more or less identical level of Gaolou, Ensi City. It is similar to D. thuringiacus in the characteristics of rhabdosome and thecae, and differs only in that the latter is bigger. Whether the two species are synonymous is worth considering. Since this assemblage is situated between the D. triangulatus and P. argenteus Zones, it is likely equivalent to the D. magnus Zone of Britain.

The Pernerograptus argenteus Zone
This zone, which is situated in the toppest Black Shale Member of Wangjiawan section, is about 5.6 m thick. It is characterized by incoming of Pernerograptus cygneus (Tornquist). P. cf. argenteus was only found at the neighboring Fenxiang section. The common graptolites are Pernerograptus differmisis (Tornquist), P. austerus bicornis (Hutt), P. cf. austerus sequence (Hutt), Paramonoclimacis sinicus (Geh), Rasrites phleoides (Tornquist), Orthograptus cf. cyperoide (Tornquist), Diplograptus thuringiacus Eisel, Pseudo-glyptograptus retroversus (Bulman et Rickards), Climacograptus scalaris (Hisinger). argenteus and cygneus are typical elements for the P. argenteus Zone of Britain, moreover, Hutt (1975) has shown that cygneus is a junior synonym of argenteus. P. diffomisis, P. austerus bicornis, P. cf. austerus sequence, on the other hand, are mainly recorded from the D. triangulatus and D. magnus Zones of Britain (Hutt, 1974). Accordingly, whether the P. argenteus Zone of the study area can be correlated with the same zone elsewhere in the world and whether its boundary coincides with the underlying D. magnus- D. thuringiacus Zone is worth further study. It is suggested that the Black Shale Member at the Wangjiawan section is correlative with the Rhuddanian to lower Idwian (B1-B2).

Yellowish-green Shale Member
This member consists of yellowish-green shale, and sandy shale with a few sandstone bands, and contains graptolites and few shelly fossils. Its thickness is 571.4 m. The following three graptolite zones, Demirastrites convolutus, Monograptus sedgwickii and Coronograptus ?arcuatus (= Monoclimacis arcuata) zones can be recognized. The uppermost zone can, however, range up to the Loreiping Formation.

The Demirastrites convolutus Zone
This zone, which is 51.9 m thick, readily correlates with the same name zone all over the world since the graptolite assemblages are similar. The D. convolutus Zone at Wangjiawan section is marked by the incoming of D. convolutus (Hisinger), D. decipiens (Tornquist), Streptograptus

Explanation of Plate 1
Fig. 1. Glyptograptus persculptus Salter X9, the G. persculptus Zone, Fenxiang section, Yichang, Hubei.
Fig. 2. Parakidograptus acuminatus (Nicholson) X6, the P. acuminatus Zone, Wangjiawan section, Yichang, Hubei.
Fig. 3 Akidograptus ascensus Davies X3, the P. acuminatus Zone, Huanghuachang section, Yichang, Hubei.
Fig. 4. Diplograptus thuringiacus Eisel X5, the D. thuringiacus Zone, Wangjiawan section, Yichang, Hubei.
Fig. 5. Orthograptus vesiculosus (Nicholson) (= Cystograptus vesiculosus) X3, the O. vesiculosus Zone, Fenxiang section, Yichang, Hubei.
Fig. 6. Climacograptus nebula (Toghill et Strachan) X10, the Member 1 of the Shamao Formation, Wangjiawan section, Yichang.
Fig. 7. Monograptus sedgwickii (Portlock) X5, the M. sedgwickii Zone, Wangjiawan section, Yichang, Hubei.
Fig. 8. Pseudo-glyptograptus retroversus (Bulman et Rickards) X10, the D. convolutus Zone, Wangjiawan section, Yichang, Hubei.
Figs. 9-10. Diplograptus cf. magnus H. Lapworth X3, the D. magnus- D. thuringiacus Zone, Gaoluo section, Xuanen, Hubei.
Xiaofeng: Lower Silurian graptolite zonation

lobiferus (M'Coy), S. lobiferus harpago (Törnquist), Diversograptus ramosus Manck, Glyptograptus elegans Packham, Oktavites communis (Lapworth), and Petalolithus ovato-elongatus (Kurch).

The Monograptus sedgwickii Zone
This zone is 138.9 m in thickness. It is characterized by the presence of M. sedgwickii (Portlock) at the Wangjiawan section. Other graptolites comprise Glyptogratus incertus Elles et Wood, Demirastrites decipiens (Törnquist) and Pernero-graptus cygneus (Törnquist). This graptolite assemblage is very close to that of corresponding M. sedgwickii Zone from Britain, Northern Canadian, USSR and Alaska of North American.

The Coronograptus larcuatus Zone
This zone ranges from the uppermost part of the Yellowish-green Shale Member into the lower part of the overlying Loreiping Formation. The C. larcuatus Zone is divisible into Lower and Upper units. The Lower C. larcuatus Zone is defined by the appearance of the nominal species, the absence of M. sedgwickii at the Wangjiawan section. Associated graptolites are Pseudoglyptograptus retroversus (Bulman et Rickards), Glyptograptus incertus Elles et Wood, Climacograptus simplex Rickards, and Oktavites communis obtusus (Rickards). These graptolites all are of common elements of the M. sedgwickii Zone and the last two species are usually recorded in the middle part of the M. sedgwickii Zone of Britain (Rickards, 1976). The Lower C. larcuatus Zone is, therefore, probably coeval with the middle part of Britain M. sedgwickii Zone, while underlying Monograptus sedgwickii Zone of the present area is correlative with only the lower part of British sedgwickii Zone. The thickness of the lower C. larcuatus Zone is 303.5 m.

Loreiping Formation

Lower Member : Upper C. larcuatus Zone
This member is composed of yellowish-green calcareous silty mudstone with nodular biogenic marl, containing abundant brachiopods, trilobites, corals, conodonts and a few cephalopods and graptolites. Its thickness is 103 m. The dominant graptolites are Coronograptus larcuatus (Mu et al.), Glyptogratus elegans Packham, G. serratus Elles et Wood, Climacograptus simplex Rickards, Pseudoglyptograptus retroversus (Bulman et Rickards), and Pristograptus regularis (Törnquist). This assemblage suggests that the Upper C. larcuatus Zone probably corresponds to the upper part of British M. sedgwickii Zone. In view of this, the boundary between the Longmaxi and Loreiping Formations roughly coincide with the boundary between the middle and upper parts of British M. sedgwickii Zone.

Upper Member
The member is composed of yellowish-green thin-bedded siltstone, silty mudstone, with 45.9 m thick, containing various shelly fossils. Its top and bottom are marked by the presence of bio-

Explanation of Plate 2
Fig. 1. Monograptus cf. drepanoformis Toghill et Strachan X5, the Member 2 of the Shamao Formation, Wangjiawan section, Yichang.

Fig. 2 Demirastrites cf. triangularus (Harkness) X10, the D. triangularus Zone, Wangjiawan section Yichang, Hubei.

Fig. 3 Demirastrites triangularus (Harkness) X3, the D. triangularus Zone, Fenxiang section, Yichang, Hubei.

Fig. 4 Lagarograptus cf. acinaces (Törnquist) X5, the L. acinaces Zone, Wangjiawan section, Yichang, Hubei.

Fig. 5 Demirastrites convolutus (Hisinger) X5, the D. convolutus Zone, Wangjiawan section, Yichang, Hubei.

Figs. 6,8. Climacograptus nebula (Toghill et Strachan) X10, the Member 1 of the Shamao Formation, Wangjiawan section, Yichang.

Figs. 7,10. Monograptus marri Perner X3, Fig. 7 is a part of the opposite aspect of the Fig. 10, the Member 2 of the Shamao Formation, Wangjiawan section, Yichang, Hubei.

Fig. 9. Pernerograptus cf. argenteus (Nicholson) X5, the P. argenteus Zone, Fenxiang section, Yichang, Hubei.

Fig. 11. Monograptus ?revolutus (Kurck) X5, the C. cyphus Zone, Fenxiang section, Yichang, Hubei.
genic limestone containing *Pentamerus* and is easily distinguished from the overlying and underlyng strata. The Upper Member of the Loreiping Formation lies between the Upper C.?arcuatus Zone of the Lower Member and the Member 1 of the Shamao Formation with *Climacograptus nebula* (Toghill et Strachan) (= *Reticulimacis typica* Mu). Although no graptolite have been found, the interval is likely to be equivalent to the most part of the *S. turriculatus* Zone, of the upper Fronian (C2–3) stage.

### Shamao Formation

The age of the Shamao Formation has been a controversial and unresolved problem for a long time. The Shamao Formation of this paper is same as the original Shamaoshan beds proposed by Xie and Chao (1925) except that the upper unit of the original definition is now proven to be the Middle Devonian Yuantaiguan Formation. Lithologically, four members can be recognized. Member 1 and 3 consist of mudstone and siltstone, while member 2 and 4 are characterized by sandstone and siltstone.

**Member 1**

This member is characterized by yellowish-green silty mudstone intercalated with siltstone and is 77.4 m in thickness. It contains shelly fossils and graptolites, the latter is represented by *Climacograptus nebula* (Toghill et Strachan) (= *Reticulimacis typica* Mu et al.), *Pristigraptus variabilis* (Perner), *Monograptus cf. drepanoformis* Toghill et Strachan, and *Oktavites planus* (Barrande)?. *C. nebula* was first discovered from the *M. gries­toniensis* Zone of Grieston Quarry, near Inner­leithen, Peebleshire, Britain (Toghill et Stra­chan, 1970), and subsequently was reported from the *turriculatus-griestoniensis* Zone of English Lake District and Howgill Fells (Hutt, 1974), and from the corresponding level on Bornholm, Den­mark (Bjerreskov, 1975). These graptolites indi­cate that Member 1 of the Wangjiawan section may be equivalent to the upper *turriculatus* and lower *crispus* Zones.

**Member 2**

Member 2 comprises a set of yellowish-green and greyish-green thin bedded siltstone, and fine sandstone, intercalated with sandy shale and shale. Its thickness is 118 m. The base is marked by the incoming of very red mudstone bands. Its top is readily drawn at the appearance of a thin (0.93 m) band of brown ferruginous calcareous sandstone, containing conodonts and fragments of trilobites. The following graptolites are found in the lower and middle parts of this member at the Wangjiawan section: *Monograptus cf. dre­panoformis* Toghill et Strachan, *M. marr* Perner, *Monoclimacis sp.*, *Pristigraptus variabilis* (Per­ner), *Pr. wulongguanensis* Wang sp.n., and *Pet­alolithus cf. minor* Elles. *M. drepanoformis* is a principal element of the *M. griestoniensis* Zone of the Grieston Quarry, Britain (Toghill et Stra­chan, 1970). *M. marr* is a common element in the *turriculatus to crispus* Zones of Britain. *Pr. regularis* and *Pe. cf. minor* usually appear in a lower stratigraphic level elsewhere in the world. The graptolite fauna suggests that Member 2 is equivalent to the upper *crispus to griestoniensis* Zones of Britain. Hun (1958) reported that a late Silurian graptolite fauna had been discovered from the Wulongguan near Loreiping, Yichang. A reexamination of Hun’s collections and the ac­quisition of new material suggests that the fauna is typical of Member 2 of the Wangjiawan sec­tion. Specimens identified as *Monograptus bo­henicus* and *M. nilssoni* are, in fact, *Pr. regu­laris* and *Pr. variabilis*, respectively, while *Monograptus uncinatus* cf. var. *micropoma*, *M. dubius* and *M. colonus* are thought to identical with *Pr. wulongguanensis* Wang sp.n.

**Member 3**

Overlying Member 2 is a 284 m thick sequence of yellowish or greyish-green shale, and sandy shale
with a few bands of argillaceous siltstone, designated Member 3. Its fauna includes a few brachiopods, bivalves, trilobites and the graptolite Dictyonema wangjiawanensis Wang sp.n. Since the shelly fossils found here are similar to those of the upper Xiushan Formation which contains Stomatograptus sinensis Wang (Ge et al., 1979), the age of Member 3 is likely to be of the latest early Silurian or earliest middle Silurian.

Member 4
The highest member of the Shamao Formation is composed of greyish-green and very red barren medium bedded fine-grained quartz sandstone and siltstone intercalated with sandy shale. Its thickness is 185.3 m at the Wangjiawan section. This member is readily distinguished from the yellowish-green sandy mudstone at the top of the Member 3 by greyish-green medium bedded sandstone in the lower part of this member. Its top lies unconformably beneath the grey quartzite with gravels which characterizes the base of the Middle Devonian Yuantaiguan Formation. Based on the lithology and stratigraphic position, the age of Member 4 may be equivalent to the Huixinshao Formation in Rongxi and Xiushan of Sichuan and Shiqian of Guizhou, that is early middle Silurian. The correlation of the graptolite sequence from the Longmaxi Formation to the Shamao Formation of the eastern Yangzi Gorges with other regions of the world is shown in table 1.

The graptolite sequence across the Ordovician-Silurian boundary
There are three Ordovician-Silurian boundary sections, near Yichang, as reported by Wang et al. (1980, 1983a,b): (1) Huanghuachang section,
Table 2. The correlation of the latest Ordovician-earliest Silurian biostratigraphic succession from the eastern Yangzi Gorges with other places of the world.

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<td>D. szechuanensis</td>
<td>(= D. complexus)</td>
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</table>
| (2) Fenxiang section, and, especially (3) Wangjiang section, which are the best potential candidates for the choice of an international Ordovician-Silurian boundary stratotype. In these sections the following eight zones can be recognized in the Wufeng Formation and basal Longmaxi Formation: D. szechuanensis (= D. complexus), T. typicus, Paraorthograptus- D. mirus, D. bohemicus, Hirnantia-Kinnella, G. persculptus, P. acuminatus and O. vesiculosus Zones.

The suggestion that D. szechuanensis is conspecific with D. complexus Davies and that Paraorthograptus typicus Mu and other species of Paraorthograptus are conspecific with P. pacificus Ruedemann (Williams, 1982) are being serious consideraton by Chinese graptolite students. On-going studies the Paraorthograptus uniformis Zone (proposed by Mu 1974 and Mu et al. 1984) show that it is difficult to recognize and that even the index species is probably synonymous with P. pacificus even though present author previously recognized it (Wang et al., 1983b). It should be noted, however, that Paraorthograptus pacificus is long ranging and is difficult to use for worldwide correlation as done by Williams (1983). The fact that *Dicellograptus anceps* has been found at the base and top of the D. szechuanensis Zone, and that D. szechuanensis may be conspecific to D. complexus suggests that the D. complexus Subzone as well as the basal P. pacificus Subzone with D. aff. complexus (Anceps Band D at Dob’s Linn section, Scotland is correlative with the D. szechuanensis Zone of the eastern Yangzi Gorges. The fission track date of a bentonite layer near the top of the D. szechuanensis Zone is 447 ± 10 m.y. (Wang et al., 1980; Ross et Naeser, 1984). Most graptolites reported from the upper part of the P. pacificus Subzone (Anceps Band E) at Dob’s Linn section by Williams (1982), such as *Dicellograptus graciliramosus* (= D. minor), *Climacograptus longispinus supernus*, *Orthograptus abbreviatus*, *Paraplagmatograptus uniformis* (= Plegmatograptus ? craticulus), *Paraorthograptus pacificus*, *Pleurograptus lui* and *Pararetiograptus regularis* (= *Orthoretiograptus denticulatus* Wang et al. of Williams, 1982), have been recorded from the T. typicus Zone of the eastern Yangzi Gorges. Furthermore, *P. lui* is found only in the D. szechuanensis and T. typicus Zones. It is suggested, therefore, that the upper part of the P. pacificus Subzone (Anceps Band E) at Dob’s Linn section is possibly correlative with all or part of the T. typicus Zone. It should not overlooked that an interval of unfossiliferous
pale grey mudstone, 0.96 m thick is sandwiched between the Anceps Band E (i.e. the top of the *P. pacificus* Subzone) and a thin brown Extraordinary Band at Dob's Linn section. An similar nonfossiliferous gap also exists between the *P. pacificus* and *C. extraordinarius* (= *G. persculptus* forma A) Zones at Mirny Creek and Kazakhstan sections, USSR (Koren et al., 1979; Apollonov et al., 1980) and at Darraweit Guim, central Victoria (Vandenberg et al., 1984). It is this interval which may be equivalent to the *Parakidograptus* – *D. mirus* Zone and possibly the top of the *T. typicus* Zone in the present area. The occurrence of *C. extraordinarius* and related species in the *D. bohemicus* Zone suggests that the *D. bohemicus* Zone and the overlying *Hirnantia-Kinnella* Zone of the eastern Yangzi Gorges may correlate with the *C. extraordinarius* Zone at Dob’s Linn section, Scotland and possibly with the overlying pale grey mudstone of 1.17 m thick and even the 0.56 m thick black shale with *G. ?venustus venustus* at the base of Birkhill Shale. They are also probable correlatives of the *C. extraordinarius* and *D. bohemicus* (= *G. persculptus* forma B) Zones of USSR.

The correlation of the Ordovician-Silurian biostratigraphic succession between the Wangjiawan section and other places of the world is shown in table 2. The researches on the Ordovician-Silurian boundary in the eastern Yangzi Gorges suggest it more reasonable to fix the boundary at the base of the *G. persculptus* Zone, i.e. between the *G. persculptus* and *Hirnantia-Kinnella* Zones. In order to respect the decision ratified by the Commission of Stratigraphy and IUGS, however, the Ordovician-Silurian boundary is, unfortunately, drawn at the base of the *Parakidograptus acuminatus* Zone.

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Dansk sammendrag


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