



Дискусия

Comments on the paper “Middle Triassic paleomagnetic data from northern Bulgaria: constraints on Tethyan magnetostratigraphy and paleogeography” by G. Muttoni, M. Gaetani, K. Budurov, I. Zagorchev, E. Trifonova, D. Ivanova, L. Petrounova, W. Lowrie (Palaeogeography, Palaeoclimatology, Palaeoecology, 160 (2000), 223–237.

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Д. Тронков. 2005. *Критични бележки по статията “Middle Triassic paleomagnetic data from northern Bulgaria: constraints on Tethyan magnetostratigraphy and paleogeography” om Giovanni Muttoni, Maurizio Gaetani, Kiril Budurov, Ivan Zagorchev, Ekaterina Trifonova, Daria Ivanova, Lyudmila Petrounova, William Lowrie (Palaeogeography, Palaeoclimatology, Palaeoecology, 160 (2000), 223–237. – Сп. Бълг. геол. д-во, 66, 1–3, 181–184.*

Резюме: Внимателната ревизия на всички триаски разкрития в Гранитовската ивица, северно от Белоградчик показва, че: 1. Полевите магнитостратиграфски и биостратиграфски опробвания, съобщени в статията, са извършени в местността Венеца при с. Гранитово, т.е. на около 500 m северно от местността Едиветър, посочена в текста на статията като място на опробването и на около 2 km северно от мястото означено на фиг. 1b. 2. Опробваните скали не принадлежат на типовия разрез на Едиветърската свита и изобщо не принадлежат на тази свита. Те са част от стратиграфски по-високо разположената Бабинска свита. 3. Публикуваният стратиграфски разрез (фиг. 2) е компилиран от 3 пъти суперпозиционно наставен един и същ стратиграфски интервал, но наблюдаван на терена в 3 стъпаловидно разседнати разкрития. В този разрез няма неразкрити части.

Върху основата на коригиран литостратиграфски разрез е извършена критична био- и хроностратиграфска реинтерпретация на биостратиграфските данни, съобщени в статията. Установява се че: 1. Опробваните триаски пластове представляват само малка част от пелсонския подетаж на анизкия етаж. 2. Липсват обективни данни за присъствието както на по-ниския егейски, така и на по-високия илирски подетаж на анизкия етаж. 3. Тези констатации поставят под съмнение достоверността и надеждността на стратиграфските корелации, изводи и заключения в статията. 4. Неубедителни са различията в магнитостратиграфските резултати, получени за идентичния стратиграфски интервал, изследван 3 пъти в трите разкрития на компилирания стратиграфски разрез.

Неоснователно е твърдението, изразено в статията, че в изследвания разрез „се наблюдава латерален преход между Бабинската и Едиветърската свита”, ако за такъв преход не се приеме добре разкрития тектонски контакт между литоложки различните пластове по разседите, показани тук на фиг. 1.

Несигурната хроностратиграфия, както и неубедителните магнитостратиграфски резултати изложени в статията, поставят под съмнение положителния принос по отношение целите на статията — попълване на времевата скала на среднотриаската морска магнитостратиграфска полярност.

В послеписа е цитиран пълния текст на отказа за публикуване на този критичен материал в списанието PALAEO—3. Анализирани са аргументите за този отказ. Посочено е, че те са плод на хипотетични предположения и дедуктивни съждения и са изцяло неоснователни. Авторът на критичните бележки схваща този отказ като незаслужено дискриминационен.

Key words: Bulgaria; litho-, bio-, chrono-, magnetostratigraphy; Middle Triassic.

Introduction

The discussed paper “... presents magnetostratigraphic and biostratigraphic results from the Aegean to upper Illyrian (Anisian) Edivetur section of northwestern Bulgaria with the aim of contributing to the

completion of the Middle Triassic marine magnetic polarity time scale tied to ammonoid, conodont, and foraminifer biostratigraphy” (p. 223–224). A careful examination of the paper reveals some inaccuracies in the field work of the authors that resulted in questionable stratigraphic solutions.

The sampling location

The geographic position of the sampling area is not accurately defined. The traces of magnetostratigraphic and micropaleontological sampling (71 boreholes and 25 field marks written in durable black paint) are situated along the western slope of Venetsa Ridge, several hundred meters to the north of the authentic section of Edivetur Formation (described earlier by Tronkov, 1973) and about 2 km north of the sampling locations shown in Fig. 1b. In fact, the sampling area is located not on Sheet Belogradchik, as stated by the authors, but on the adjacent Sheet Vidin of the 1:100 000 Geological Map of Bulgaria (also cited in the paper).

The lithostratigraphy

The authors, instead of "... Edivetur Formation, which is the object of this study ..." (p. 226), have sampled and studied part of the overlying Babino Formation (see Fig. 1 in this comment).

The compiled section, shown in Fig. 2 of the paper, is not quite correct from stratigraphic point of view. It is not conformed to the stratigraphy of the Iskar Carbonate Group and the geological structure of the area. The beds in the three outcrops of the section have been placed in vertical superposition. In fact they constitute an approximately identical stratigraphic interval about 10 m thick. There are no "covered" gaps as shown in Figs. 2 and 6 of the paper.

Revision of the bio- and chronostratigraphy of Venetsa section (= Edivetur section sensu Muttoni et al.)

Finds of ammonoids are not mentioned in the paper. The reported conodonts are not suitable for accurate stratigraphic interpretations of the discussed section due to unreliable taxonomic determinations and/or uncertain stratigraphic position of the collected samples. The chronostratigraphy of the section is based solely on foraminifer biostratigraphy and relatively abundant foraminifer taxa. There is no

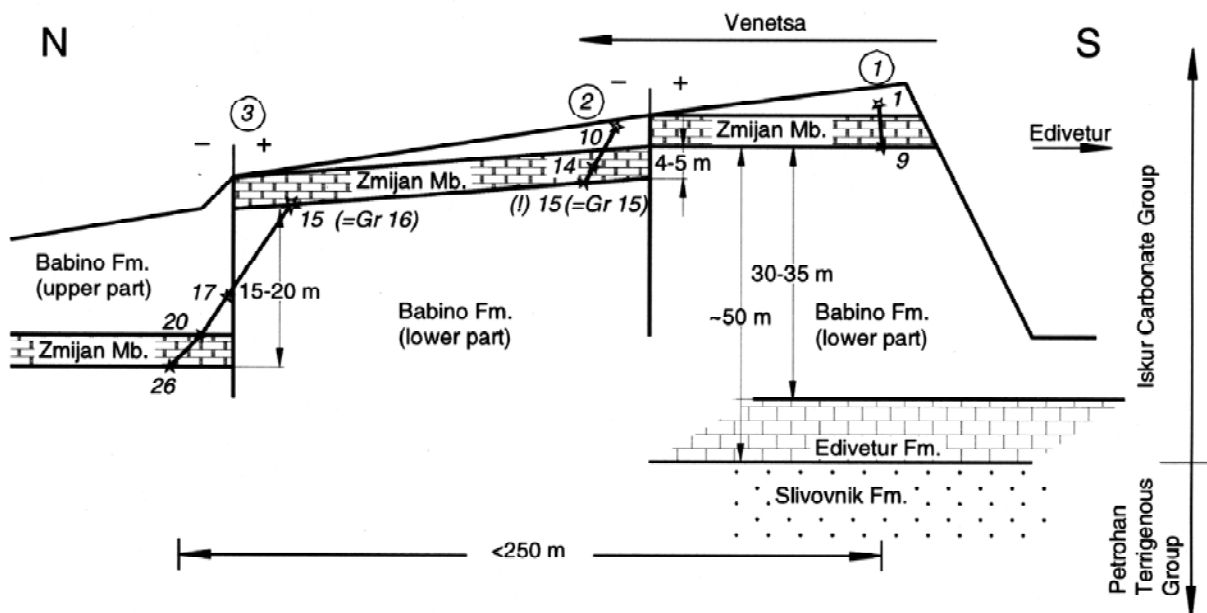


Fig. 1. Schematic longitudinal section of a part of Venetsa Ridge at Granitovo Village near the town of Belogradchik (Northwestern Bulgaria)

Asterisks and numbers show some characteristic locations of field marks of micropaleontological samples according to Fig. 2 in the discussed paper. Sample number Gr 16 is incorrectly marked by number 15, i. e. field mark 15 = Gr 16; the location of sample Gr 15 is not indicated in the field. The circled figures show the numbers of the three outcrops used to compile the section shown in Fig. 2 of the paper.

Fig.1. Схематичен надлъжен геоложки профил на част от рид Венета при село Гранитово, близо до град Белоградчик (Северозападна България)

Със звездички и числа са означени някои по-характерни места на полевите марки, свързани с микропалеонтологичното опробване, показано на Fig. 2 в коментираната статия. На мястото на проба Gr 16 на терена погрешно е поставена полева марка 15, т.е. полева марка 15 = проба Gr. 16; на мястото на проба Gr. 15 на терена няма поставена полева марка. Числата в кръгчетата показват номерата на трите разкрития, от които е компилиран разрезът, показан на Fig. 2 в статията.

doubt that the paleontological determinations are quite correct and precise. Unfortunately, as a result of the unsuccessful combination between the identified biointerval zones and the incorrectly compiled lithostratigraphic section, the authors have arrived at some incorrect stratigraphic solutions (Figs. 2 and 6).

The present bio- and chronostratigraphic revision of Venetsa section (= Edivetur section sensu Muttoni et al.) is based on the new stratigraphic position of the micropaleontological samples in the revised lithostratigraphic section. This revision is conformed to the biostratigraphic meaning of foraminifer taxa and the chronostratigraphic range of their biostratigraphic zones (Trifonova, 1992, 1993, 1994; Tifonfova in: Budurov, Trifonova, 1995; Tifonfova in: Budurov et al., 1995). The main results are as follows:

i. The whole studied section includes only part (probably the lower) of the wide *Pilammina densa* Range Zone = "Pelsonian Substage (without its lowermost parts...) and Illyrian Substage (without its uppermost parts) of the Anisian Stage" (Trifonova in: Budurov et al., 1995, p. 55).

ii. There are no data on the presence of either lower and higher foraminifer biostratigraphic zones or earlier or later Triassic stages and substages in the study area.

iii. There are neither direct nor indirect data that allow fixing the boundary between the Pelsonian and the Illyrian Substages (Anisian). Any attempt to place this boundary both on the revised and unrevised (Fig. 2 and 6 in the discussed paper) stratigraphic section seems to be rather arbitrary. The use of this boundary for distant chronostratigraphic correlations in a regional context (Fig. 6) is controversial and the correlations themselves — doubtful.

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P.S. The above text of my comment has been submitted (30.10.2003) without any changes for publication in PALAEO—3 where the discussed paper was published. Following the reasonable suggestions and prerogatives of the Editor-in-Chief Mr. Finn Surlyk, this text is a revised, shorter and slightly restructured version but without any changes in the content of the earlier proposed (30.01.2003) text that was submitted for print to the same journal.

The magnetostratigraphy

The magnetostratigraphic studies are evidently based on modern techniques. However, it is difficult to explain how magnetostratigraphic measurements, repeated three times within the same stratigraphic interval of the compiled section, can yield different results (Figs. 2 and 6).

Other aspects of the paper

The statement that "... in the locality at Edivetur a lateral transition of the Babino and Edivetur formations is observed" as well as the conclusion that "... the two units are partly coeval" (p. 228) are incorrect. A lateral transition between the two formations has not been observed and is not existing either in the area of Edivetur or within the entire, over 10 km long Granitovo strip. Also, there is no lateral transition between the beds of Babino Formation in the Venetsa section. Of course, such a transition may be inferred, if we eliminate the well-exposed tectonic contact between lithologically different beds on both sides of the normal faults (see Fig. 1, this comment).

Conclusions

The uncertain chronostratigraphy and the unconvincing magnetostratigraphic results proposed by the authors for Venetsa section (= Edivetur section sensu Muttoni et al.) at Granitovo Village call in question their contribution to "... the completion of the Middle Triassic marine magnetic polarity time scale" (p. 224).

Later, in April 2004, I have been informed that my comment will not be published in PALAEO-3. Obviously, the Editorial board and its Editor-in-Chief have the absolute right to take such a decision. However, I would like to express my disagreement with the arguments formulated by the Editor-in-Chief Mr. Finn Surlyk: "This comment cannot be accepted for publication. The criticism is founded on postulated sample localities, which appear to be

another locality sampled earlier by Mrs. Bergerat and Mr. Mauritsch about two kilometers north of Edivetur. The finding of some drill holes in a rock succession and attribution of these holes to a certain study requires proof. Most important rock successions in Europe are full of such holes and it is mainly by circumstantial evidence only that they can be referred to certain (groups of) researcher(s). The scientific English is poor and would require complete revision.”

All cited principal arguments of Mr. Finn Surlyk are related to the geographic and geological identification of the studied by Muttoni et al. object, i. e. they are related to the authenticity of the field data and the authenticity of the inferred from them scientific conclusions in the paper. In fact, this is the essence of my comment and of the entire discussion. Unfortunately, the arguments of Mr. Finn Surlyk are hypothetic assumptions and deductive speculations. They reveal that he is not well acquainted both with the geographic and the geological data concerning the region of the studied object. Furthermore, he has not taken into consideration that the field localities of the magnetostratigraphic holes are quite different from those of the paleomagnetic holes. These differences allow an easy discrimination between the two types of holes.

No information is available in the literature about paleomagnetic studies of Mrs. Bergerat and Mr. Mauritsch on Triassic outcrops in this region. I do not know as well whether Mr. Finn Surlyk has visited the Triassic outcrops north of Belogradchik. Probably he has used incorrect and erroneous information from incompetent and/or incorrect informants.

During my field revision of all (all!) outcrops of carbonate Triassic rocks in Granitovo Strip to the north of Belogradchik, which preceded the writing of my comment (30.01.2003), I discovered holes from paleomagnetic studies in the carbonate Triassic rocks only at two (!) localities within the whole (!) Granitovo strip. The first, northernmost one is located on the western slope of Venetsa Ridge (section Venetsa = section Edivetur sensu Muttoni et al.). The holes in this locality (more than 70) are arranged in stratigraphic succession as shown in my Fig. 1 and

Fig. 2 of Muttoni et al. This identification was confirmed in 2001 by Mr. K. Budurov and Mrs. D. Ivanova (personal communication).

The second locality is about 5–6 km south (not north!) from the Edivetur section sensu Muttoni et al. (the Granitovo strip terminates about 2 km to the north of “Edivetur” and in fact there are no exposures!). The holes (10 in number) in this locality were drilled in one bed, i. e. practically in one stratigraphic point only. I have not discussed these holes in my comment. Later, after personal consultations with Mr. D. Dimov and Mr. Z. Ivanov (co-authors of Mrs. Bergerat), I was told that these holes were drilled in only one station of their joint studies of the Triassic paleomagnetism in this region but were not included in any publication. For these and other personal findings I have informed Mr. Muttoni in the initiated by him e-mail correspondence (20.02–14.03.2003). Mr. Finn Surlyk has been also informed about this correspondence (30.10.2003). The reference to Mr. Mauritsch is inappropriate. He did not conduct any studies on the Triassic in this region.

I am convinced that only those who are immediately acquainted with the problem, i. e. Mr. Muttoni and his team on one hand and myself on the other, can have the priority to give a competent and well-founded opinion in this discussion. A genuine and authoritative arbiter can be the competent geological community only. It should be duly and fully informed about this case. In this sense, but also personally, I am disappointed with the ungrounded decision of Mr. Finn Surlyk, Editor-in-Chief of PALAEO—3. At the same time I express my satisfaction in this particular case to the Editorial Board of the Review of the Bulgarian Geological Society.

I hope that these notes will provoke a correct, unbiased and fair replica both from Mr. G. Muttoni, Corresponding author of the paper — concerning my comment, and from the Editorial Board of PALAEO—3 — concerning the undeserved discrimination of my comment and myself.

Постъпила на 30.11.2004 г.