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IMPORTANT SPORES FOR THE DELINEATION OF THE DEVONIAN-CARBONIFEROUS BOUNDARY THROUGH USSR AND WESTERN EUROPE

(A report on the contributions to the Commission Internationale de Microflore du Paleozoique meeting in Moscow)

СПОРЫ, ВАЖНЫЕ ДЛЯ ПРОВЕДЕНИЯ ГРАНИЦЫ ДЕВОНА И КАРБОНА В СССР И ЗАПАДНОЙ ЕВРОПЕ

(Отчет о докладах, представленных Международной комиссии по микрофлоре палеозоя на собрании в Москве)

Introduction : The sessions organised by this group for which the authors acted as convenors were divided into formal presentations of papers and sessions at the microscope during which a tenth of top "species" were examined and discussed. After a short introduction by Dr. Chibrikova on the palynological basis of the Devonian/Carboniferous boundary in the different regions of the Soviet Union, six reports were given.

1. Kedo G.I. (U.S.S.R.). Palynological characteristics of Tournaisian Stage and the designation of his lower boundary.
2. Raskatova I.I., Umnova V.T., Kholmovaya R.S. (U.S.S.R.). On the Devonian/Carboniferous boundary in the Central region of the russian platform on the basis of palynological data.
3. Byvsheva T.V. (U.S.S.R.). Main steps in evolution of microflora (spores) in the transitional beds of Devonian and Carboniferous in the Volga-Oural area.
4. Sennova V. (U.S.S.R.). On the age of the transitional Devonian/Carboniferous formations of the Timan-Petchora provinces.
5. Chibrikova E.V. (U.S.S.R.). The Devonian/Carboniferous boundary in the different structural facies zones of the South Ural and Pre Ural on the basis of Palynological data.
6. Streel M. (Belgium). Present state of spore zonation in the Devonian/Carboniferous transitional beds in western countries.

Most of the russian data which were presented were coordinated in a very important joint paper by Kedo, Nazarenko, Naumova, Sennova, Umnova and Chibrikova (1972).

Compared to the additional new data provided by Byvsheva, it is clear that two main complexes of spores are widespread throughout the Russian Platform near the Devonian/Carboniferous boundary : a lower one with H. lepidophytus which is locally dated with the foram. Quasiendothyra kobeitusana and an upper one with Archaeo-

zonotriletes malevkensis (zone M12 Kedo) which is locally dated (?) with the forams Bisphaera. In some rather local place, there is an intermediate assemblage with abundant H. pusillites (zone M11 Kedo). Perhaps the most important new data is the recent discovery by Byvsheva of a zone m10 (see fig. 3) where H. explanatus, H. pusillites, H. lepidophytus, H. flexuosus, Archaeoz. famennensis coexist, a situation which is matched in BRD (Stockum) very near the base of the goniatite Gattendorfia zone, See Alberti, Groos-Uffenorde, Streel, Uffenorde, Walliser (1974).

All participants agree for a Devonian/Carboniferous limit to be placed near the base of the Gattendorfia zone and therefore we have prefered to focus on the identification and discussion of a few key species for joint delineation of spore concurrent range zones.

Top spores for the delineation of the Devonian-Carboniferous boundary

During the working sessions have been discussed the several varieties of H. lepidophytus Kedo, erected by Kedo and by Umnova, as well as the concept of H. pusillites Kedo and T. flexuosus Jusch. We have tried to neglect the generic status of these spores focusing on the specific (or variety) level. Participants agreed to separate the following taxonomic group but desagreed on the level (species or varieties) of these taxa.

lepidophytus "typicum" (Pl. 1, fig. 1)

Hymenozonotriletes lepidophytus Kedo 1957, tab. II, figs. 19-21.

Spelaeotriletes lepidophytus (Kedo) Streel in B.B.S.T.* 1974.

This typical species is assumed by western palynologists to show sparse small coni on the reticulum which is in turn restricted to the distal surface. Russian palynologists believe also in a less discernable reticulum on the proximal surface and emphasize the ornamentation of coni in the variety cassis Umnova (Pl. 1, fig. 2).

lepidophytus minor, tener.

Hymenozonotriletes lepidophytus var. tener Kedo 1963, tab. V, fig. 110.

Hymenozonotriletes lepidophytus var. minor Kedo 1971.

These varieties are established mainly on differences in the ratio body/spore diameter which is higher in minor than in "typicum" and "tener". Tener has a more dissected reticulum than "typicum" and "minor". It was agreed however that high body/spore diameter and dissection of reticulum are also found on single specimens so that the small size of these spores, compared with "typicum" seem to be more reliable criteria.

"macroreticulatus" (Pl. 1, fig. 4)

Hymenozonotriletes lepidophytus var. macroreticulatus Kedo 1974, plate, tab. I, figs. 4, 5 (Holotype is fig. 4). See also Kedo & Golubcov 1971, plate, tab. II, figs. 1, 2,3.

Probable synonymous species (or var.) :

Hymenozonotriletes aff. archaelepidophytus Kedo 1955 in Paproth & Streel 1971, pl. 25, figs. 2, 3 (later named Spelaeotriletes sp. A. Streel in B.B.S.T. 1974, pl. 20, figs. 5,6,7).

* G. Becker, M.J.M. Bless, M. Streel & J. Thorez.

Hymenozonotriletes cassiculus Higgs, in press (Micropaleontology).

"admirandus" (Pl. 1, fig. 3)

Hymenozonotriletes lepidophytus Kedo var. admirandus Kedo 1974, plate, tab. I, fig. 2.

Probable synonymous species and other generic statement : Endosporites ? sp. in Balme & Hassell 1962, plate 5, fig. 5.

Endosporites admirandus (Kedo) Streel in Streel 1975 (Lower Tournaisian in Belgium) in press, where specimen Pl. 2, fig. 5 is probably more related to "macroreticulatus".

The distinction between "macroreticulatus" and "admirandus" is difficult, particularly with regard to the morphographic gradation observed in the reticulum. Participants prefer to include all specimens with a definate reticulum to "macroreticulatus".

"pusillites" (Pl. 1, fig. 6)

Hymenozonotriletes pusillites Kedo : holotype or paratypes were not available for examination in Moscow but we have seen material from ml 1 in Bielorussia, believed by Kedo to be identical to the type material. It is quite clear that most, if not all, of the specimens, belong to what western palynologists are calling Vallatisporites vallatus Hacq. (Pl. 1, fig. 5) and that, unlike the plate VI of Kedo 1963, figs. 138-142 could let believe, there is few, if any, trends to the "verrucosus group" (Pl. 1, fig. 7). On another hand, Vallatisporites pusillites (Kedo) Dolby & Neves 1969 is a rather different species (Pl. 1, fig. 8) unknown from most of the Russian palynologists and which has probably to be renamed. These data are transfered to the CIMP Vallatisporites working group.

"flexuosus-radiatus" (Pl. 1, fig. 9)

Trachytriletes flexuosus Jusch. in Kedo & Golubcov 1971 tab. V, fig. 1 on New York State (Richardson) material. (other generic statement : Rugospora flexuosa (Jusch.) Streel in B.B.S.T. 1974, plate 21, figs. 8,9,10,11). Probable synonyms are Hymenozonotriletes famennensis Kedo in Neves & Dolby 1967, pl. II, fig. 3; in Paproth & Streel 1971; in Traverse & Warg 1973, plate 1, fig. 4, etc... This species is now believed by Kedo to be better named Trachytriletes (ex. Camptotriletes) radiatus (Jusch.) Kedo 1974 in a recent, important publication on the Upper Devonian spores of Bielorussia (in "Spores of Paleozoic of Bielorussia", Minsk, 1974). Despite the fact that it was not possible to see type material of Tr. flexuosus nor Tr. radiatus, it is evident that Russian palynologists are here considering the same taxon known as Hymenozonotriletes famennensis Kedo in many recent western papers.

Other taxa like the "Dictyotriletes" complex ", Verrucosisporites nitidus (Naumova) Playford and Hymenozonotriletes explanatus Kedo were brievely considered but not discussed.

Range Charts (figs. 1,2,3) of these taxa were prepared. A major correlation line appears at the top of the lepidophytus assemblage, below the LN assemblage in Southern Ireland, the TE assemblage in the Ardennes-Rhine basins, below the ml1 (or ml0) assemblage on the Russian platform.

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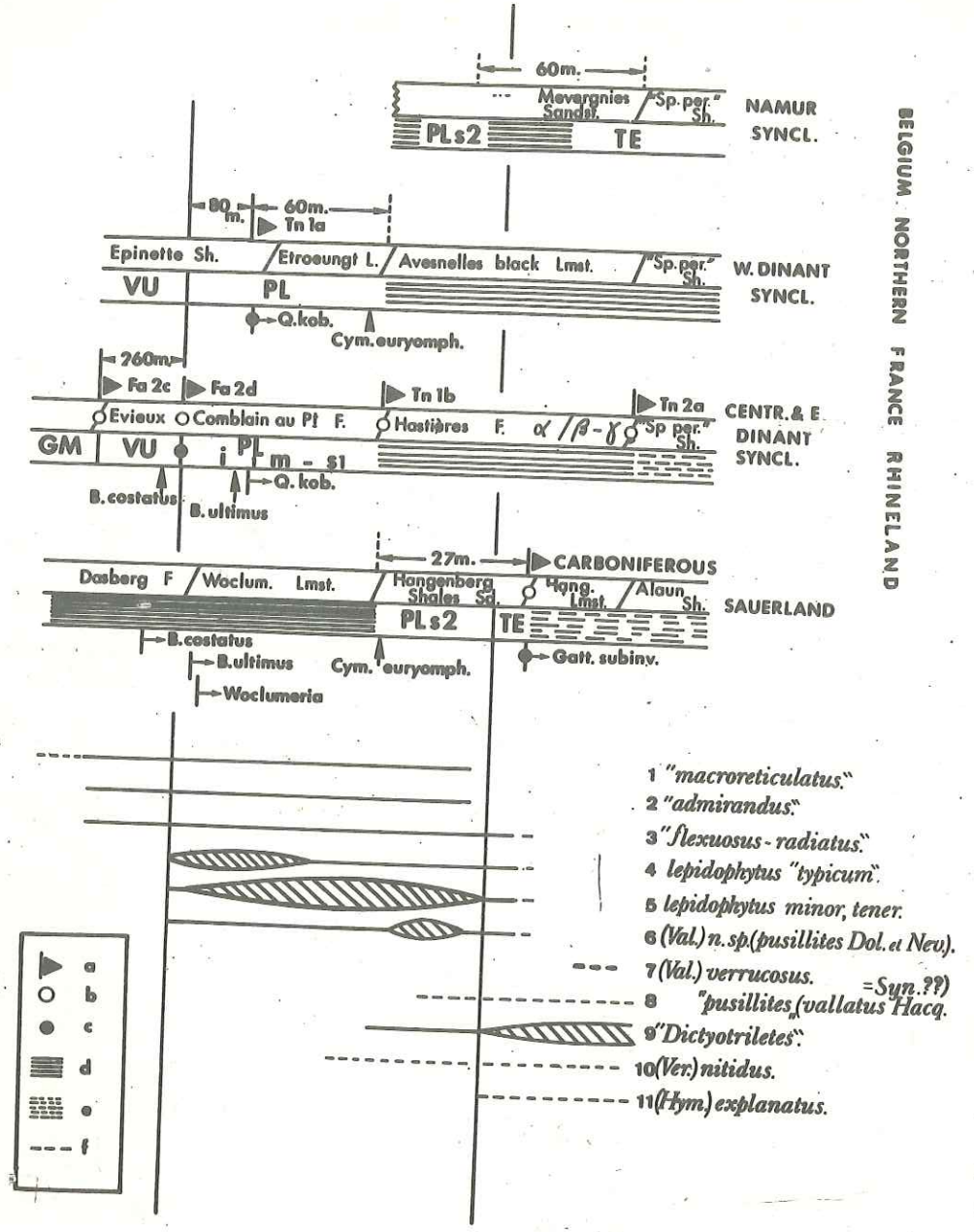

BELGIUM. NORTHERN FRANCE. RHINELAND

Fig. 1. Distribution of key spores in the Ardenno-Rhine basins. Data from Paproth & Streel 1971, Alberti et al. 1974 and Streel (in press) : a. base of a reference section; b. with a lithological definition; c. with a biostratigraphical characteristic; d. no palynological assemblages; e. poor palynological assemblage; f. sparse distribution

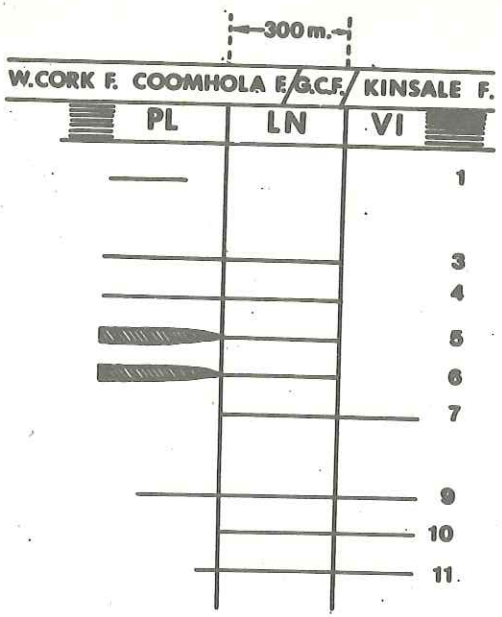

Fig. 2. Distribution of key spores in Southern Ireland. Data from Clayton, Higgs, Gueinn & Van Gelder 1974. See explanations on Fig. 1

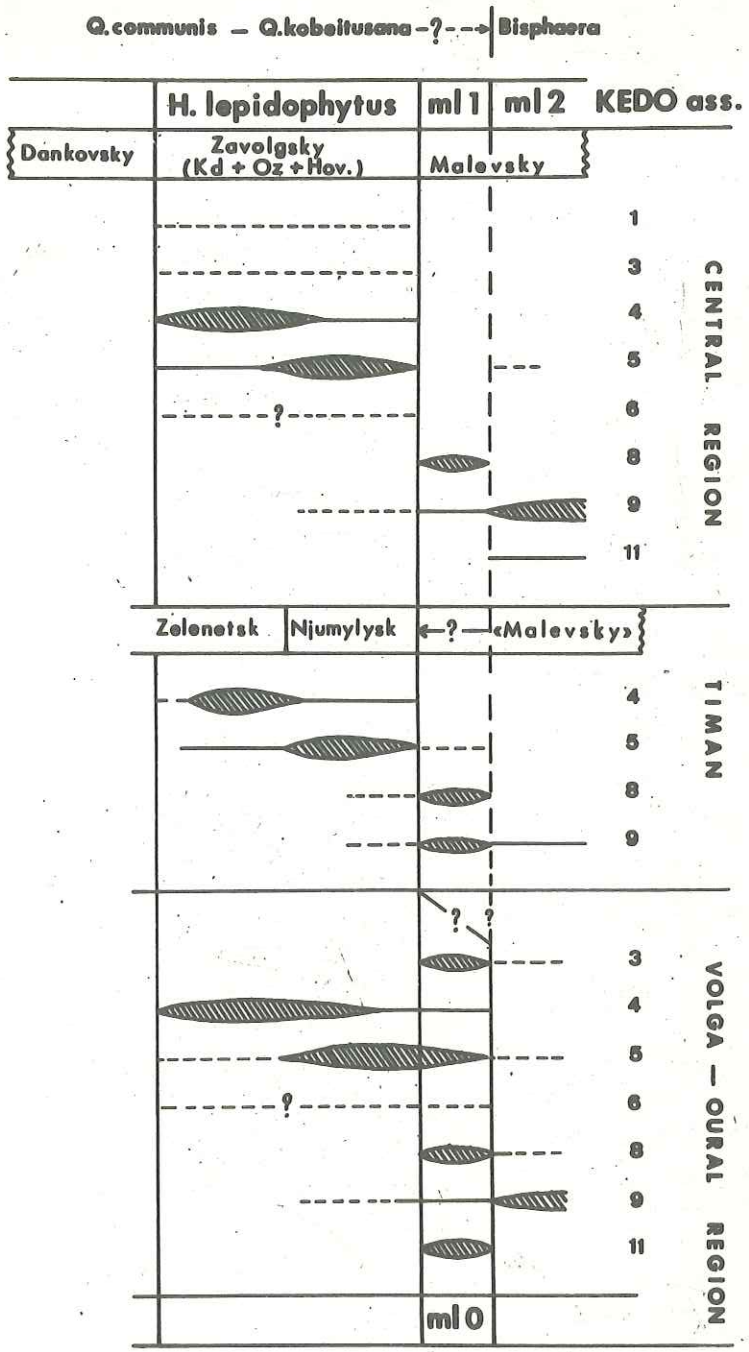

Fig. 3. Distribution of key spores on the russian platform. Data from Raskatova, Umnova, Nazarenko, Byvsheva and Kholmovaya (central region); Sennova (Timan); Byvsheva (Volga-Oural region). See explanations on Fig. 1