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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 Paléozoïque meeting in Moscow)

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

(Отчет о докладах, представленных Международной комиссией 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 the 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.


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.


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

Compared to the additional new data provided by Byshcheva, 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. lepidophyllum* which is locally dated with the foraminiferal *Quasiendothyrina kobeitatsiana* and an upper one with *Archaeo-
**Schizotritides malevkanis** (zone M12 Kedo) which is locally
dated (?) with the forma *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 Byvhaeva of a zone m10
(see fig. 3) where *H. explanatus, H. pusillites, H. lepi-
dophythus, H. flexuosus, Archaeo. famennensis* coexist,
a situation which is matched in BND (Stockum)
very near the base of the goniatiite 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 preferred to focus on the identifi-
cation 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. lepidophythus* Kedo, erected by
Kedo and by Umnova, as well as the concept of *H. pusillites*
Kedo and *T. flexuosus* Juschk. 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 disagreed on the level
(species or varieties) of these taxa.

*lepidophythus "typicum"* (Pl. 1, fig. 1)

**Spalaeotritides lepidophythus** (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 palynolo-
gists believe also in a less discernable reticulum on the
proximal surface and emphasize the ornamentation of coni
in the variety *casina* Umnova (Pl. 1, fig. 2).

*lepidophythus minor, tener.*

*Hymenosporotritides lepidophythus var. tener* Kedo 1963,
tab. V, fig. 110.

*Hymenosporotritides lepidophythus 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)

**Hymenozonotritides lepidophythus var. macroreticulatus**
Kedo 1974, plate, tab. I, figs. 4, 5 (Holotype in fig. 4).
See also Kedo & Golubcov 1971, plate, tab. II, figs. 1, 2, 3.
Probable synonymous species (or var.) :

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

Hymenozonotrilites canniculus Higgs, in press (Micropaleontology).

"admirandus" (Pl. 1, fig. 3)
Hymenozonotrilites lepidophytus Kedo var. admirandus
Kedo 1974, plate, tab. I, fig. 2.

Probable synonyms: species and other generic statement:
Endosporites 7 sp. in Salme & Hassell 1962, plate 5,
fig. 5.

Endosporites admirandus (Kedo) Street in Street 1975
(Lower Tournaian 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 definite reticulum to "macroreticulatus".

"puissilites" (Pl. 1, fig. 6)
Hymenozonotrilites puissilites Kedo: holotype or para-
types 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 Vallatiporites
vallatus Hacq. (Pl. 1, fig. 5) and that, unlike the
plate VI of Kedo 1963, figs. 128-142 could let believe,
there is few, if any, trends to the "verrucosus group"
(Pl. 1, fig. 7). On another hand, Vallatiporites pu-
silites (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 transferred to the CIMP Vallatiporites
working group.

"verrucosus-radiatus" (Pl. 1, fig. 9)
Trachytrilites flexuosus Jusch. in Kedo & Golubcov 1971
fig. 1 on New York State (Richardson) material.
(other generic statement: Rugospora flexuosa (Jusch.)
Street in R.B.S.T. 1974, plate 24, figs. 8,9,10,11).
Probable synonyms: Hymenozonotrilites femennensis
Kedo in Neves & Dolby 1967, pl. II, fig. 3; in Paproth
& Street 1971; in Traverse & Warg 1973, plate 1, fig. 4,
etc... This species is now believed by Kedo to be better
named Trachytrilites (ex. Camptotrilites) radiatus
(Jusch.) Kedo 1974, in a recent, important publication on
the Upper Devonian spores of Bielorussia (in "Spores of
Paleozoic of Bielorussia", Minak, 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 Hymenozonotrilites femennensis Kedo in many recent
western papers.

Other taxa like the "Dicyotrilites" complex", Verrucos-
sporites nitidus (Naumova) Playford and Hymenozonotril-
ites explanatus Kedo were briefly 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 lepido-
phytus 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.
References


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

Fig. 1. Distribution of key spores in the Ardenno-Rhine basins. Data from Paproth & Stree1 1971, Alberti et al. 1974 and Stree1 (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. 5. Distribution of key spores on the Russian platform.

Data from Raskatova, Usanova, Nazarenko, Byvsheva and
Kholmovaya (central region); Senova (Timan); Byvsheva
(Volga-Oural region). See explanations on Fig. 1.