# The Middle Ages in pollen-analytical research on the territory of the Czech Republic

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This lecture presents an orientation survey of mostly own results of pollen analyses of samples of medieval ages from archaeological situations in the Czech Republic. The aim of several-years cooperation with archaeologists was to find out whether and in what extent the results of pollen analyses are able to specify more exactly the outcomes of archaeological research.

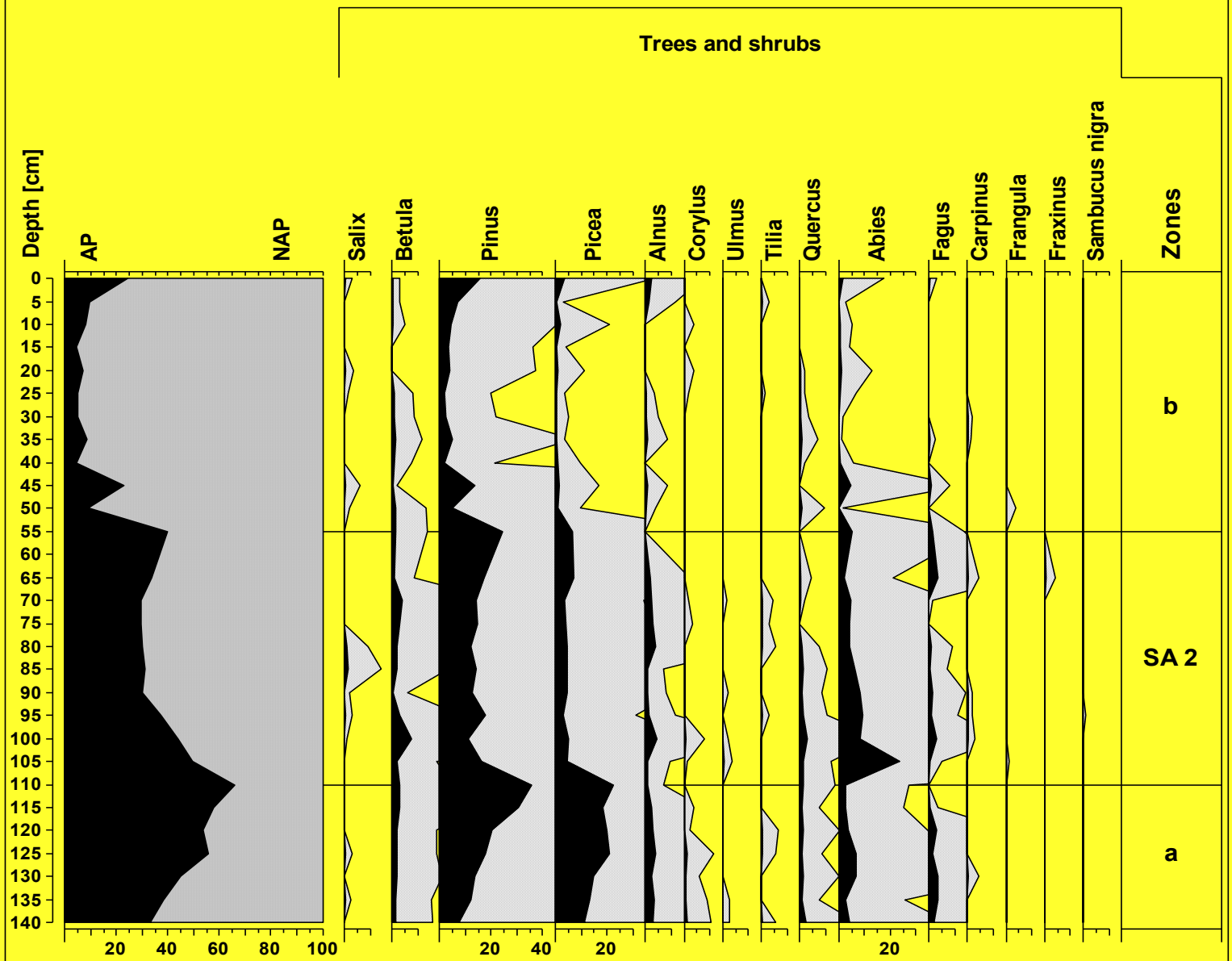
Pollen-analytical research in the Czech Republic, which is made specific for archaeologists, have not a longer tradition. On the contrary the intensive cooperation of specialists in macroremains-analyses with archaeologists enjoys a longer tradition (dr. E. Opravil, dr.V.Čulíková, ing.E.Hajnalová et others).

**This map shows survey of localities with my own pollen-analytical research (exception Pohansko). Only some results were publicated – sorry!**

**As an example of pollen-analytical research, the pollen diagram from the town Most (NW part of the Czech Republic – Bohemia) is presented. The medieval town Most was destroyed by mining of brown coal.**

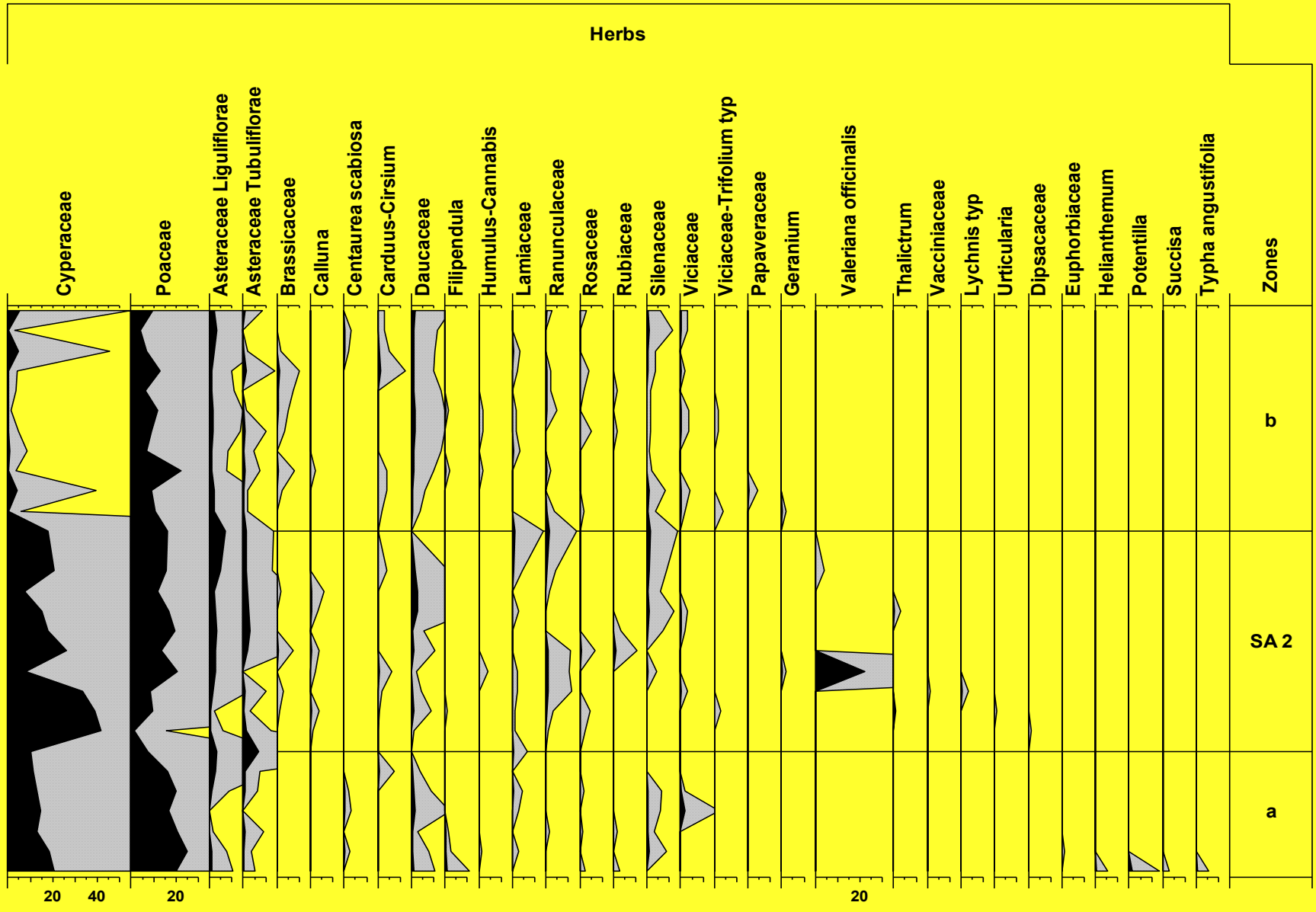
**Alluvial deposits of the small river Bílina from the centre of „old“ town Most provided pollen-analytical information about the environment of this town in Early and High Middle Ages.**

MOST, Profile PK-2-A [50°30'N; 13°30'E; 225 m a.s.l.]
Czech Republic, NW Bohemia
1.part



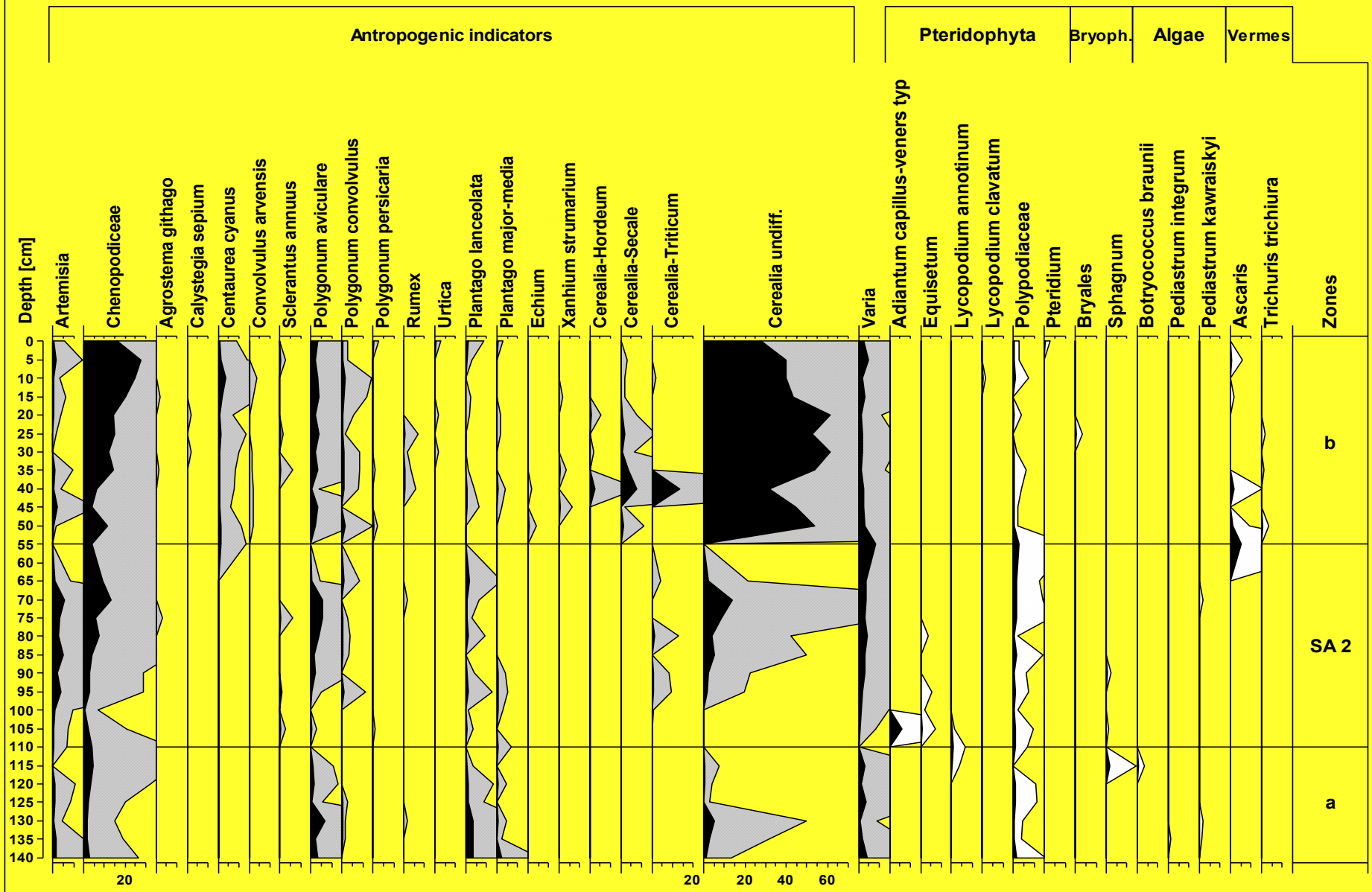

Pollenanalyst:V.Jankovska

MOST, Profile PK-2-A [50°30'N; 13°30'E; 225 m a.s.l.]
Czech Republic, NW Bohemia
2.part




Pollenanalyst:V.Jankovska

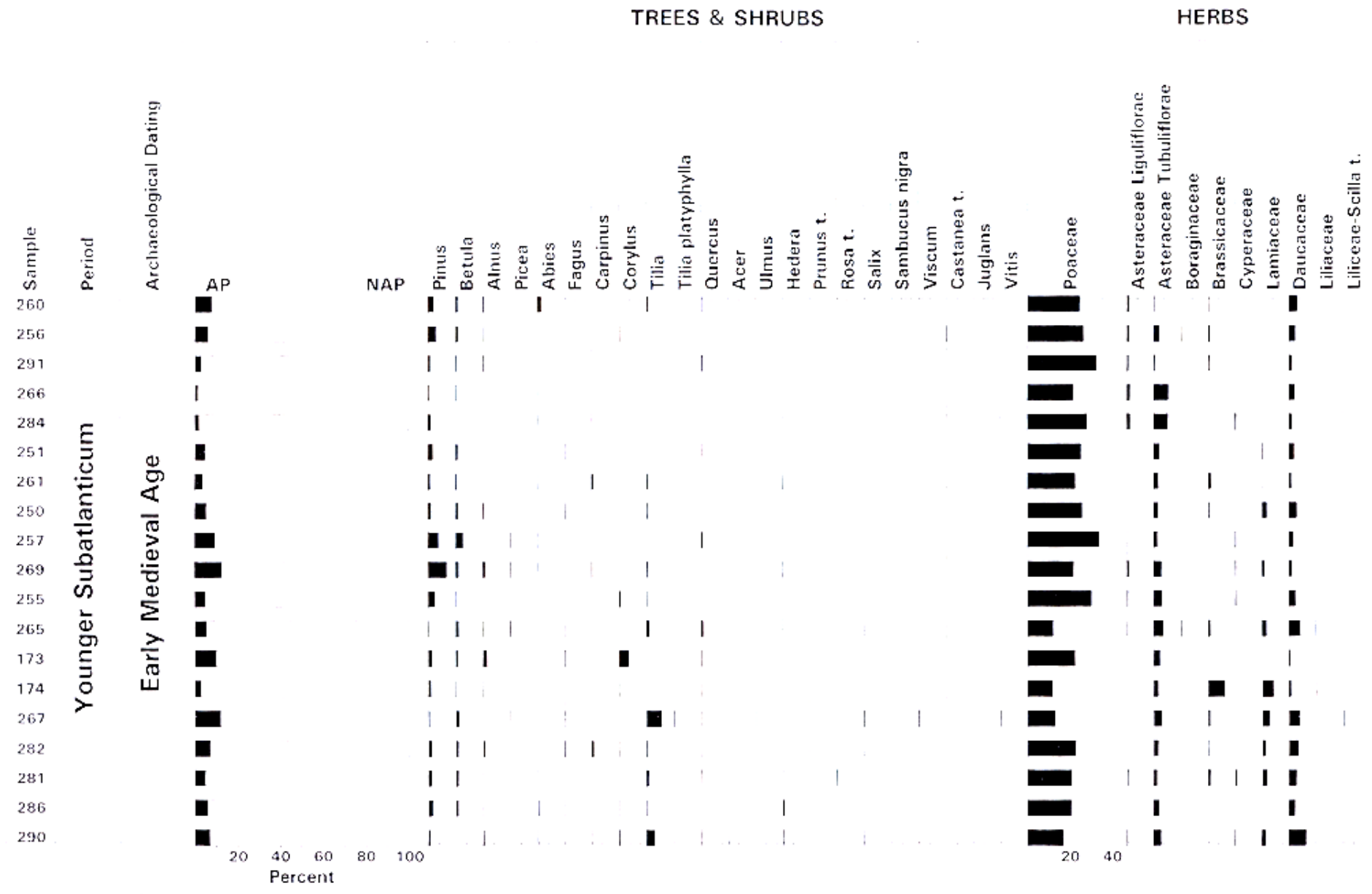
MOST, Profile PK-2-A [50°30'N; 13°30'E; 225 m a.s.l.]
Czech Republic, NW Bohemia
3.part

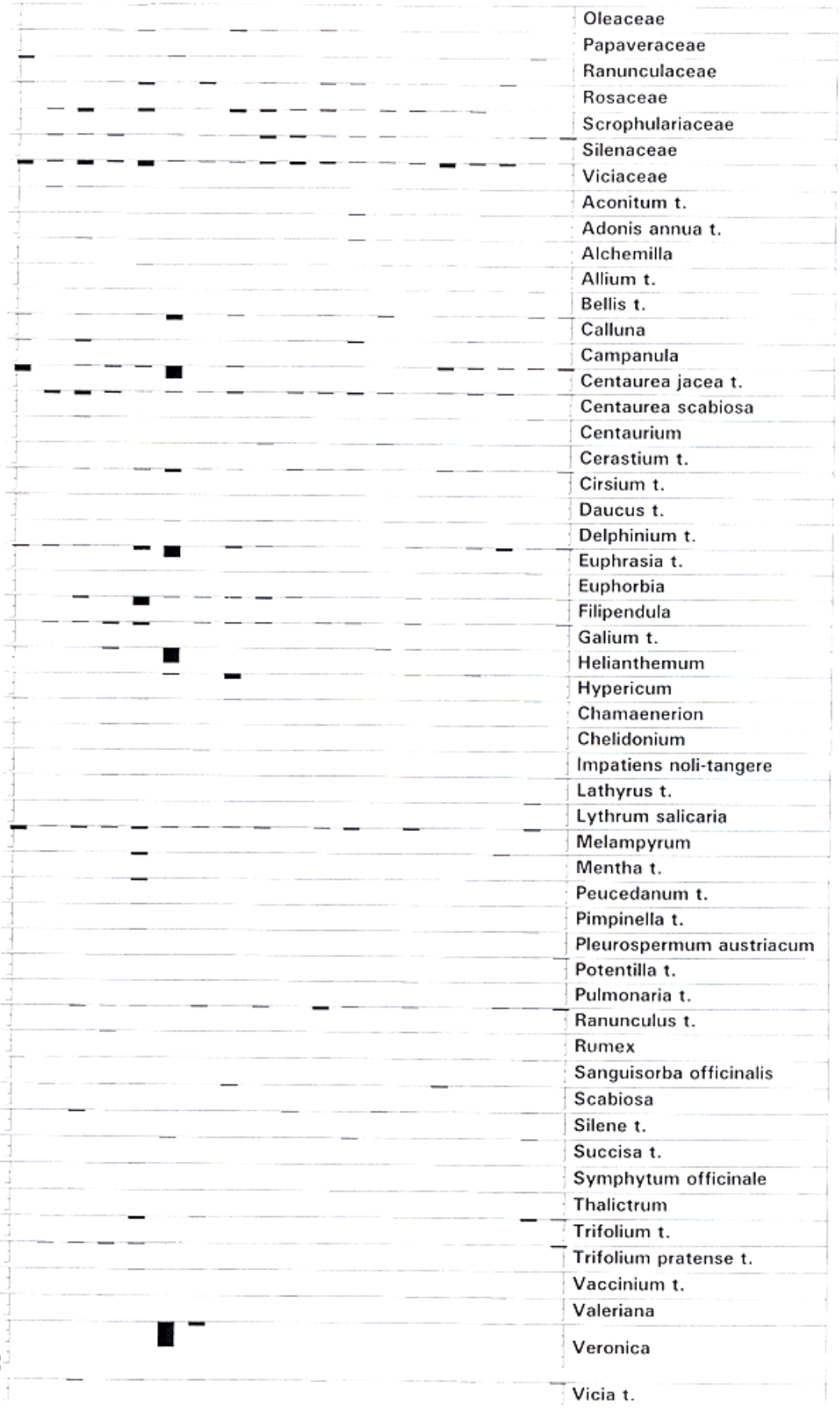



Pollenanalyst: V.Jankovska

**As an example of pollen-analytical research from the Early Middle Ages (8-9.century) serves pollen diagram from Prague, locality Mostecká cesta. It is localizated on the left bank of Vltava river, not far from Prague Castle. All samples were taken on this locality, but in different places (not continuous profile).**

# PRAHA 1 - MALA STRANA, MOSTECKA CESTA




Oleaceae
Papaveraceae
Ranunculaceae
Rosaceae
Scrophulariaceae
Silenaceae
Viciaceae
Aconitum t.
Adonis annua t.
Alchemilla
Allium t.
Bellis t.
Calluna
Campanula
Centaurea jacea t.
Centaurea scabiosa
Centaurium
Cerastium t.
Cirsium t.
Daucus t.
Delphinium t.
Euphrasia t.
Euphorbia
Filipendula
Galium t.
Helianthemum
Hypericum
Chamaenerion
Chelidonium
Impatiens noli-tangere
Lathyrus t.
Lythrum salicaria
Melampyrum
Mentha t.
Peucedanum t.
Pimpinella t.
Pleurospermum austriacum
Potentilla t.
Pulmonaria t.
Ranunculus t.
Rumex
Sanguisorba officinalis
Scabiosa
Silene t.
Succisa t.
Symphytum officinale
Thalictrum
Trifolium t.
Trifolium pratense t.
Vaccinium t.
Valeriana
Veronica
Vicia t.
HERBS

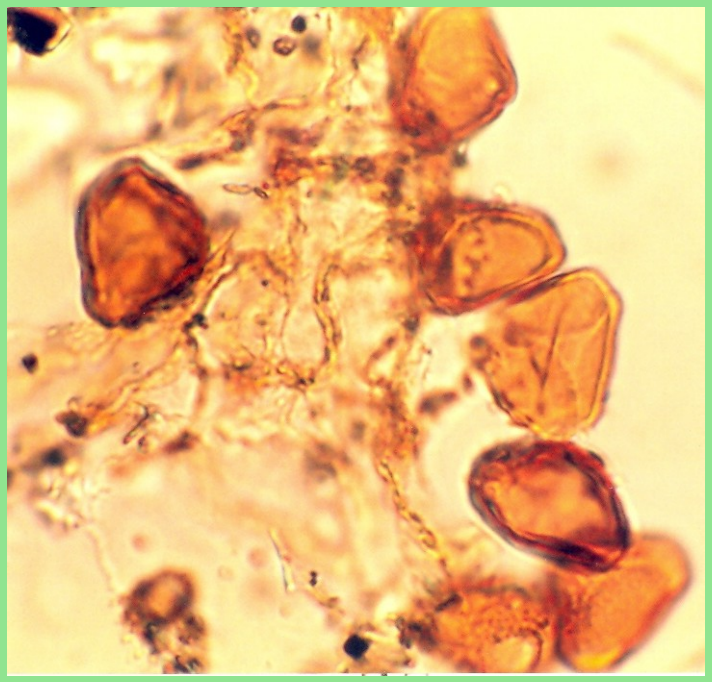
Pollenanalyst: V.Jankovska

# Prague – Náměstí republiky: List of found pollen grains, spores and NPP taxons (mainly High and Late Middle Ages)

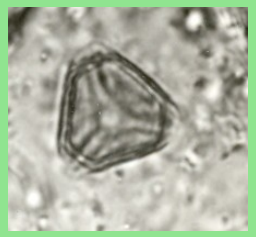
| PRAGUE - NÁMĚSTÍ REPUBLIKY - Square (List of found taxons) | | | |
|---|---|---|---|
| | | | |
| Taxony | Taxony | Taxony | Taxony |
| AP | NAP | Cerealia-Secale | Hypericum |
| Alnus glutinosa t. | Aconitum t. | Cerealia-Triticum t. | Chenopodiaceae |
| Abies | Adonis aestivalis t. | Centaurea sp. | Iris t. |
| Betula alba t. | Agrostemma githago | Centaurea cyanus | Knautia |
| Carpinus | Ajuga t. | Centaurea jacea t. | Lathyrus t. |
| Corylus | Alchemilla | Centaurea scabiosa | Lamiaceae |
| Fagus | Allium t. | Cirsium t. | Lilium |
| Hedera | Anchusa t. | Consolida / Nigella | Liliaceae |
| Juglans | Anetum graveolens t. | Convolvulus arvensis | Lotus t. |
| Juniperus | Anemone t. | Cuscuta | Lysimachia t. |
| Ligustrum t. | Arctium t. | Cyperaceae | Lythrum salicaria |
| Lonicera | Artemisia | Daucaceae | Lychnis t. |
| Myrtus t. | Asteraceae Liguliflorae | Daucus t. | Mentha t. |
| Picea | Asteraceae Tubuliflorae | Echium | Melampyrum |
| Pinus sylvestris t. | Bellis t. | Eranthis t. | Mercurialis annua |
| Pinus cembra t. | Boraginaceae | Erica t. | Papaver t. |
| Prunus t. | Borago officinalis | Ericaceae | Pastinaca t. |
| Ribes rubrum | Brassicaceae | Euphorbia | Phlomys t. |
| Rosa t. | Brassicaceae-Cardamine | Euphrasia / Rhinanthus | Pimpinella anisum |
| Salix | Butomus t. | Fagopyrum | Pimpinella major t. |
| Sambucus nigra | Calluna | Filipendula | Pisum |
| Tilia cordata | Calendula | Galium t. | Plantago lanceolata |
| Tilia platyphylla | Caltha t. | Gentiana t. | Plantago major-media |
| Ulmus | Calystegia | Helianthemum | Polemonium |
| Quercus | Campanula t. | Heleborus viridis t. | Polygonum aviculare |
| Vitis | Cerealia sp. div. | Humulus / Cannabis | Polygonum convolvulus |

PRAGUE - NÁMĚSTÍ REPUBLIKY - Square (List of found taxons)

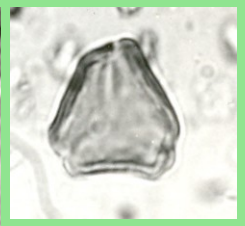
| Taxony | Taxony | Taxony |
|---|---|---|
| Polygonum persicaria t. | Stachys t. | Anthoceros punctatus |
| Poaceae | Symphytum t. | Hepaticeae sp.div. |
| Potentilla t. | Succisa | |
| Pulsatilla t. | Xanthium cf. strumarium | ALGAE |
| Ranunculaceae | Teucrium t. | Botryococcus sp. |
| Ranunculus t. | Thalictrum | Botryococcus neglectus |
| Ranunculus arvensis t. | Trifolium pratense t. | Botryococcus neglectus x pila t. |
| Rosaceae | Trifolium t. | Pediastrum boryanum var. boryanum |
| Rubiaceae | Urtica | Pediastrum boryanum var. cornutum |
| Rumex sp. | Vaccinium t. | |
| Rumex acetosella t. | Valerianella dentata t. | VERMES |
| Rumex acetosa t. | Vicia t. | Ascaris |
| Rumex aquatilis t. | Viciaceae | Enterobius |
| Sanguisorba minor | Varia | Vermes sp. |
| Sanguisorba officinalis | | Trichuris |
| Scabiosa | PTERIDOPHYTA | |
| Sagina t. | Polypodiaceae | FUNGI |
| Scleranthus annuus | Pteridium | Fungi sp. |
| Scrophulariaceae | Lycopodium annotium t. | Gelasinospora |
| Silenaceae | Lycopodium clavatum | Thecaphora |
| Silene t. | Equisetum | |
| Solanum nigrum | | RHIZOPODA |
| Solanum cf. tuberosum | BRYOPHYTA | Arcella |
| Solanum t. | Sphagnum | |
| Sparganium - Typha angustifolia | Anthoceros laevis | |

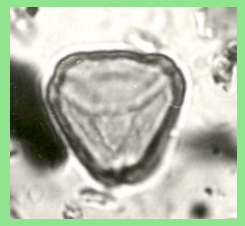


*Myrtus* type, Praha, Karlovo náměstí

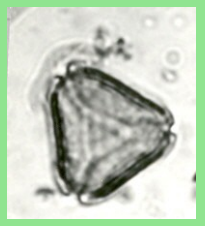


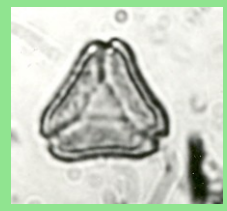
Nymburk



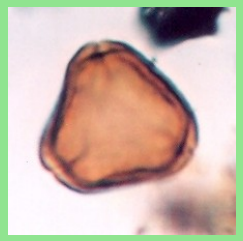


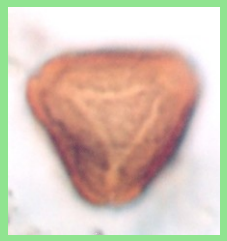
*Myrtus* type
Praha, Václavské náměstí





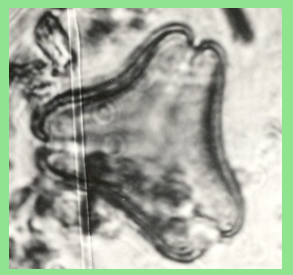
Prachatice



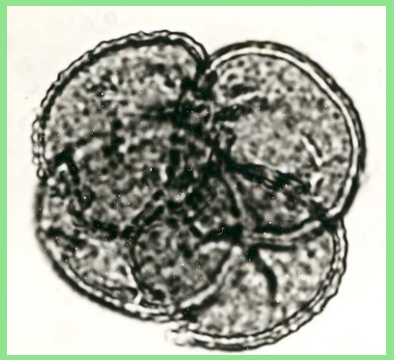


*Myrtus* type Opava, Drůbeží trh

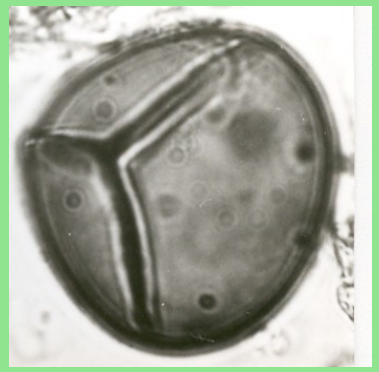
*Vitis*, Praha
Náměstí Republiky



*Loranthus*
Prachatice



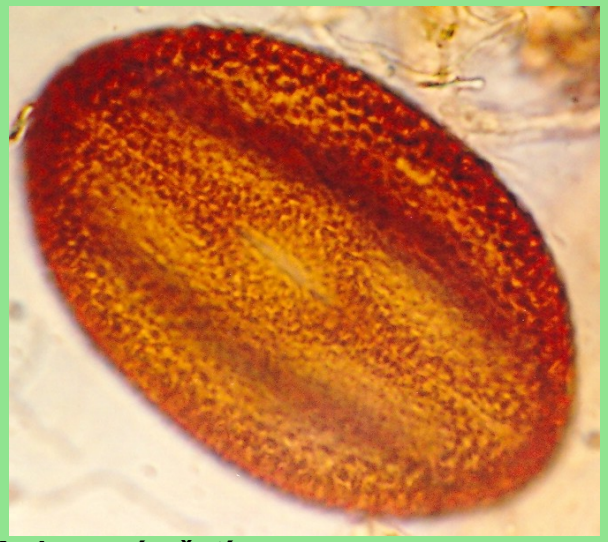
*Calluna*, Praha



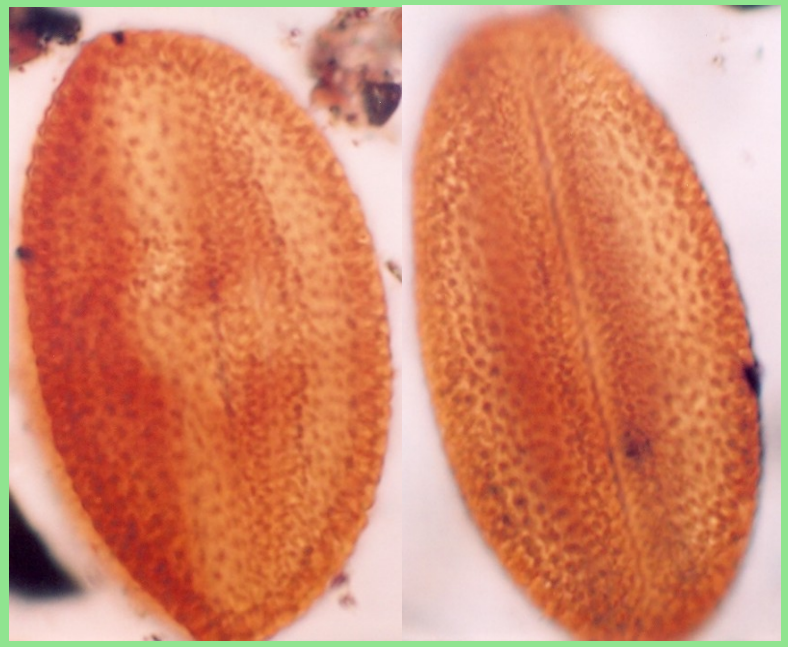
*Adianthum* type, Most

*Borago officinalis*, Praha, Václavské náměstí

# *Fagopyrum cf. esculentum*

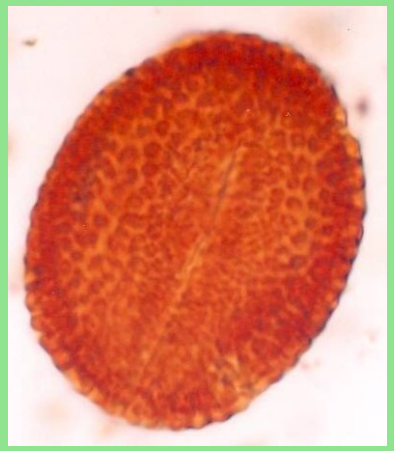


Praha, Karlovo náměstí



Praha, Náměstí Republiky

Opava, Drůbeží trh



Praha, Náměstí Republiky

Chotěbuz

# *Centaurea cyanus*





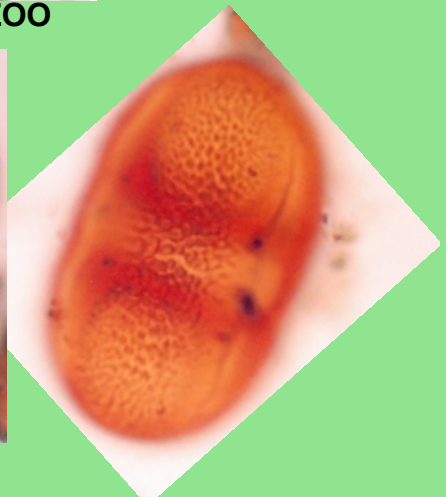
Praha, Václavské náměstí


Praha, Náměstí Republiky

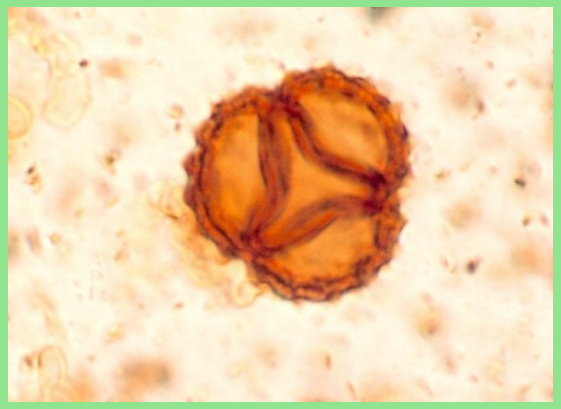

*Centaurea cyanus* and ZOO

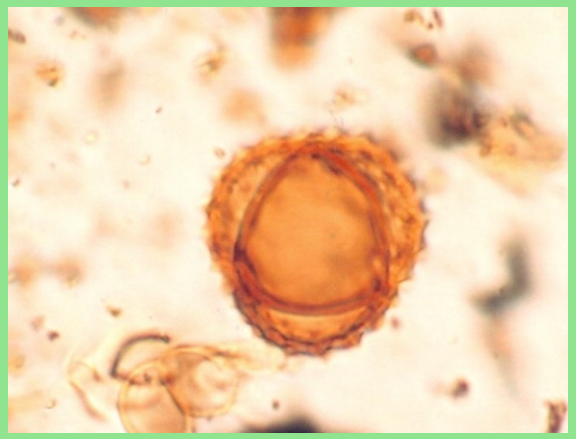


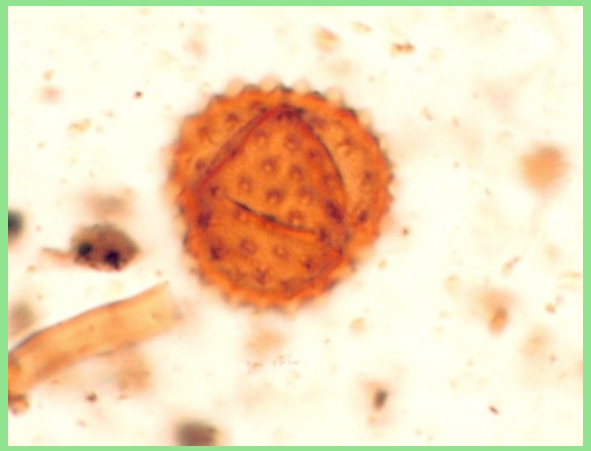




Praha, Náměstí Republiky







*Ambrosia* cf. *artemisifolia*

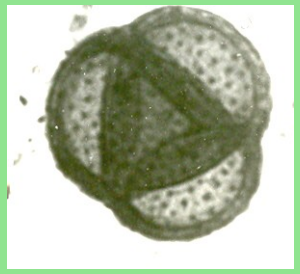
Krkonoše, CZ (long distance transport 2007)

*Ambrosia* cf. *artemisifolia*

Vysoké Tatry, SK

(long distance transport 2007)

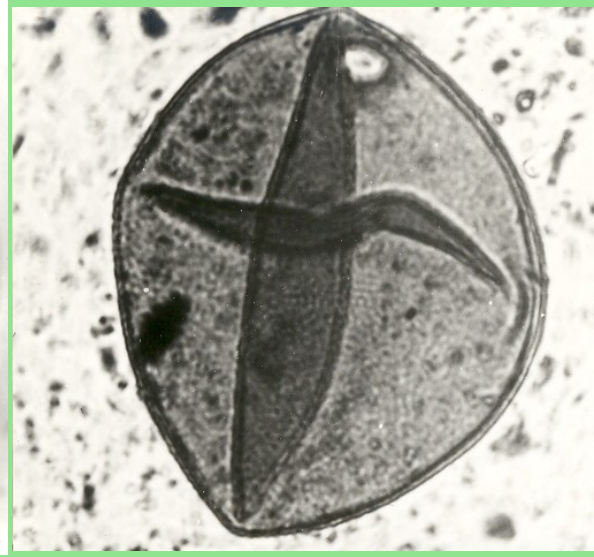
Chotěbuz, 60 cm



*Xanthium* cf. *strumarium*, Most

# Cultivated plants

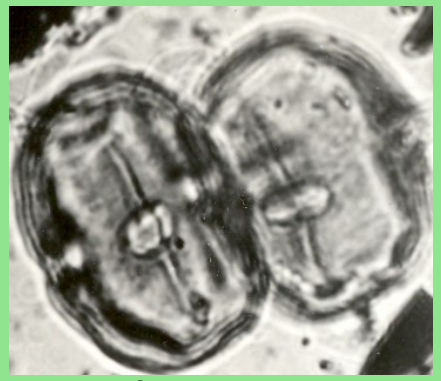
*Secale*, Praha



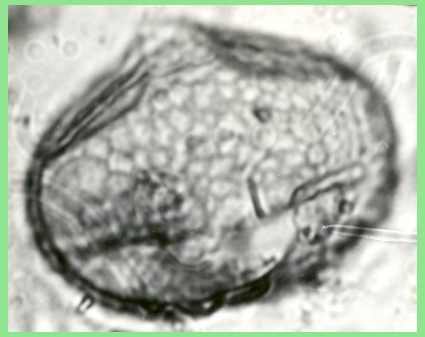
*Triticum* type, Most

Vicia cf. sativa, Praha, Náměstí republiky

cf. *Pisum*, Praha, Náměstí republiky



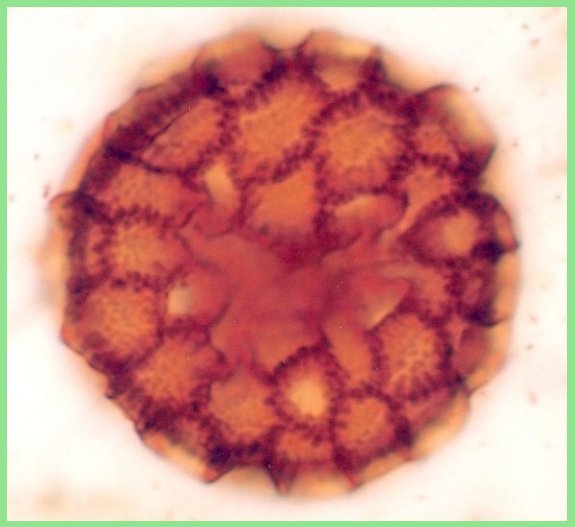
*Vicia cf. sativa*, Prachatice



cf. *Pisum*, Prachatice

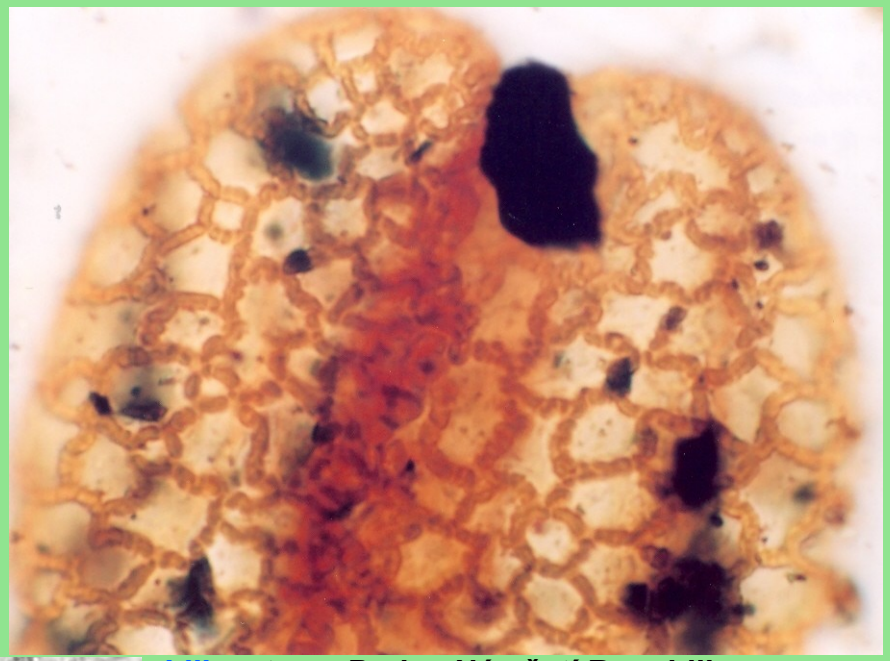
*Fagopyrum*, Chotěbuz, P 10

*Triticum* type, Chotěbuz, 60 cm

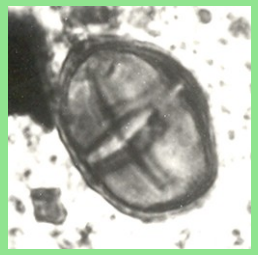


*Polygonum persicaria* type
Chotěbuz, 60 cm

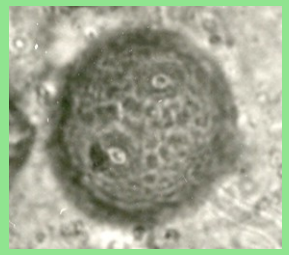
*Chenopodiaceae,*
Praha, Náměstí Republiky



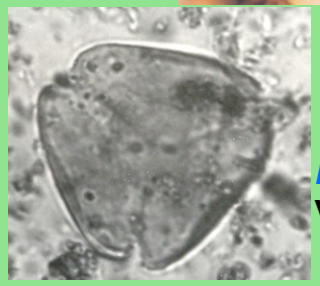
*Lilium* type, Praha, Náměstí Republiky



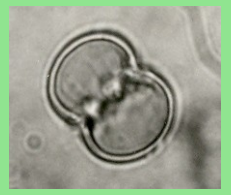
*Polygonum convolvulus*,
Most



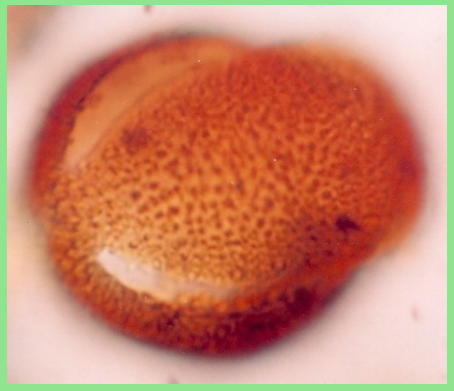
*Plantago lanceolata*,
České Budějovice



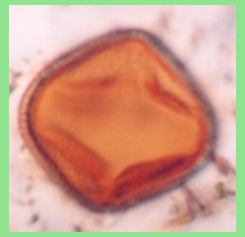
*Rhinanthus* type, Praha,
Václavské náměstí



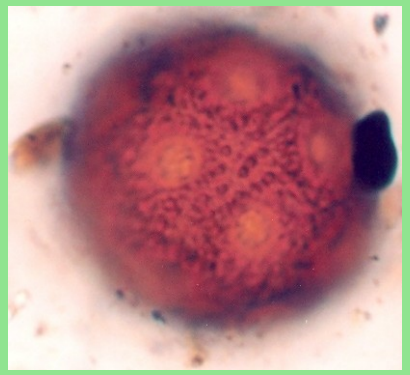
*Cerinthe*, Praha,
Václavské náměstí



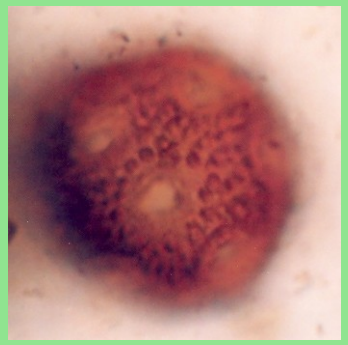
*Nigella* type, Praha, Náměstí Republiky



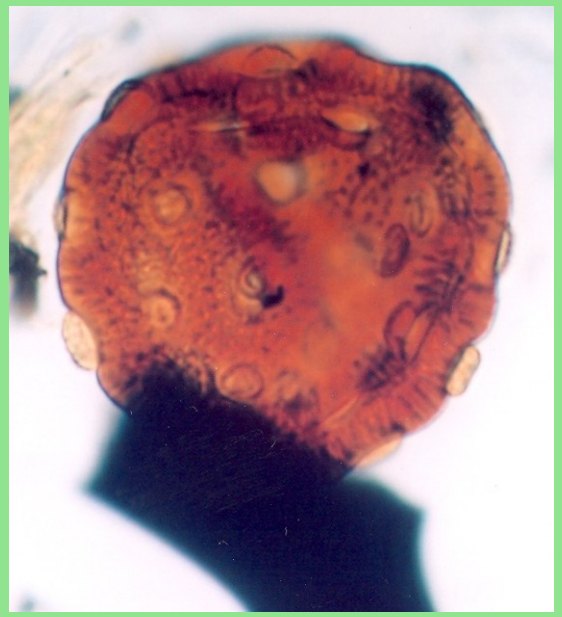
*Mercurialis annua*?
Praha, Náměstí
Republiky



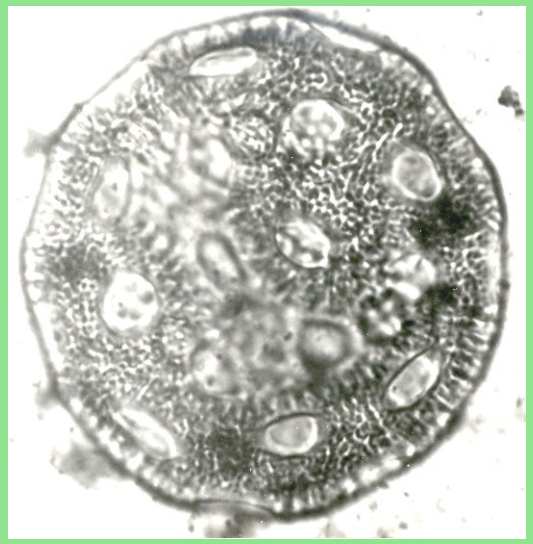
*Cerastium* type
Chotěbuz, 60 cm

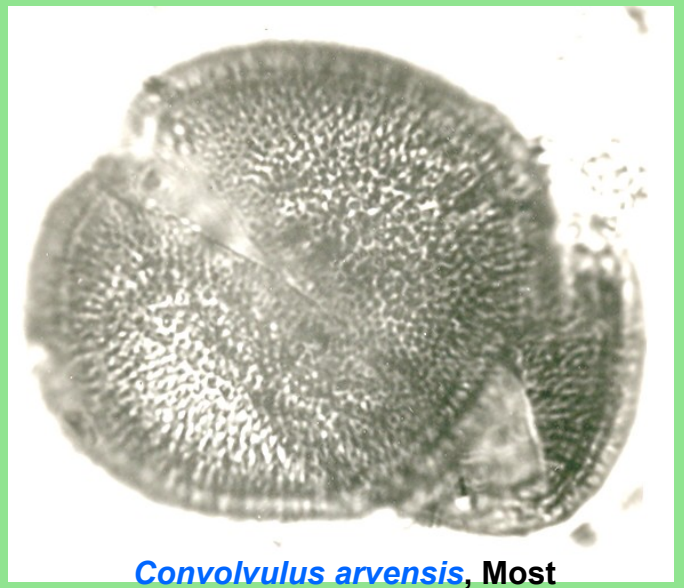


*Scleranthus annuus*
Chotěbuz, 60 cm

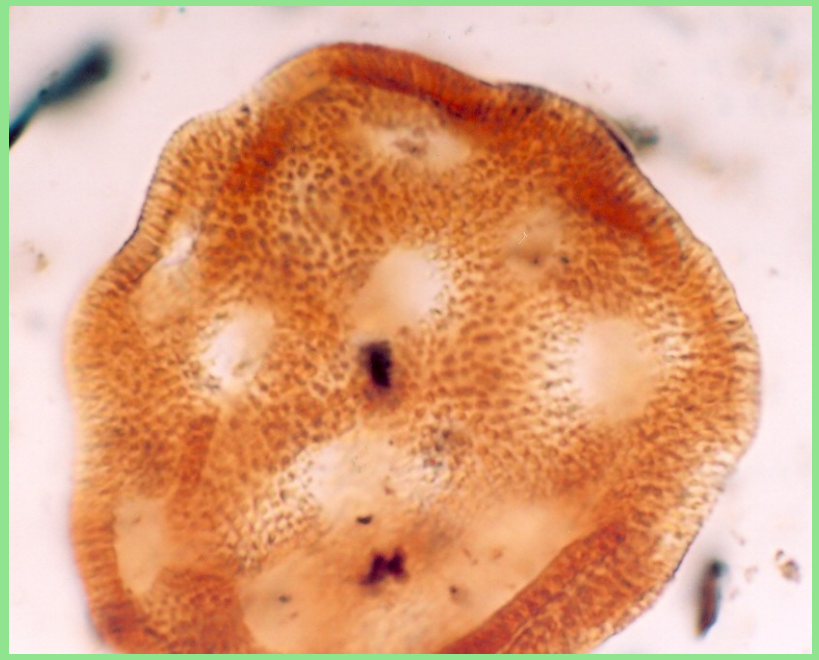


*Agrostemma* type, Opava, Drůbeží trh

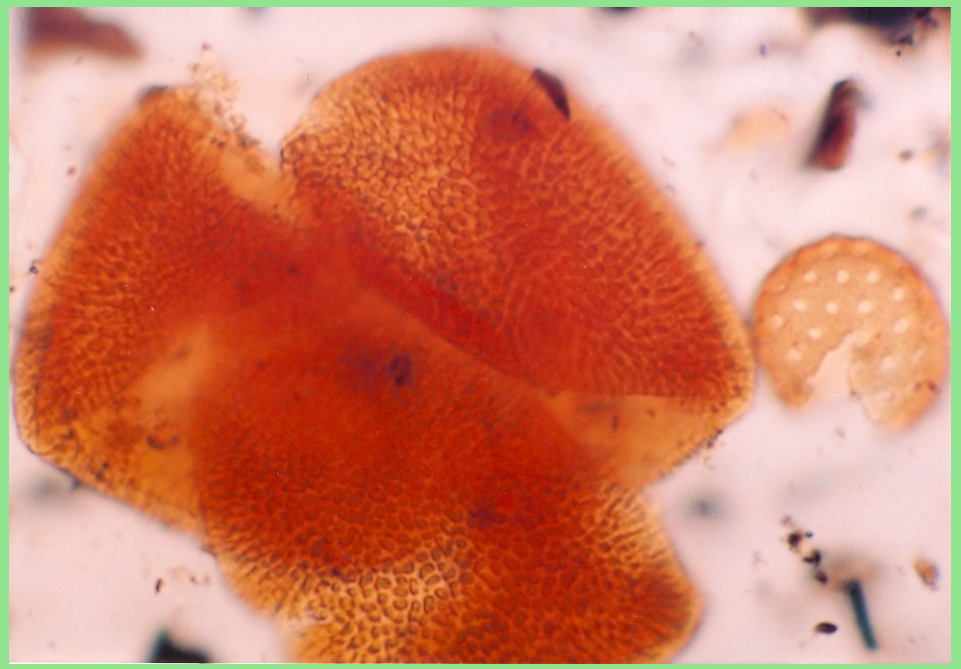




*Convolvulus arvensis*, Most

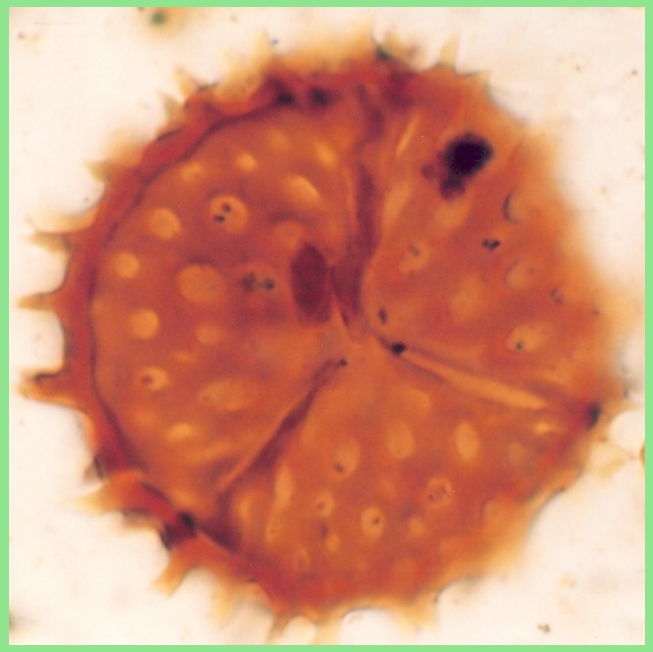


*Calystegia*, Praha, Náměstí Republiky

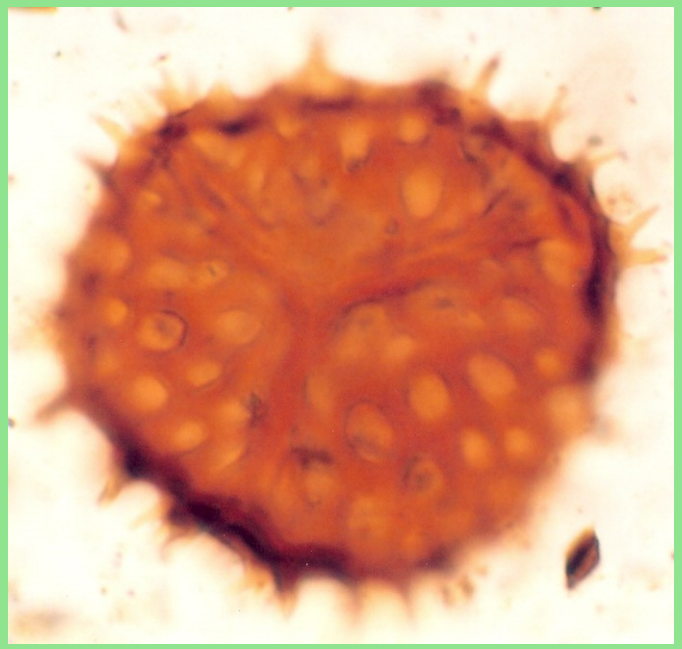


*Convolvulus*, Praha, Náměstí Republiky

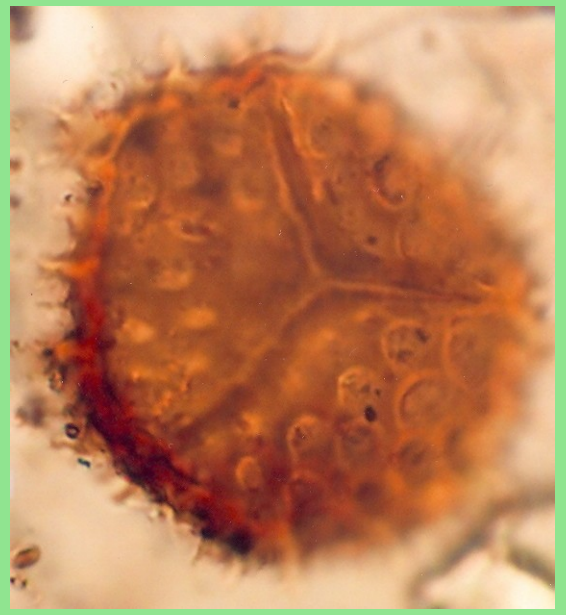
## *Anthoceros punctatus*



Chotěbuz, 60 cm

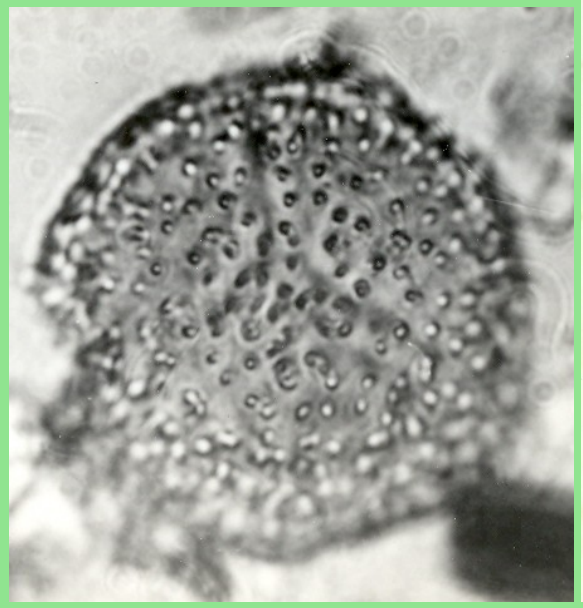


Chotěbuz, 60 cm

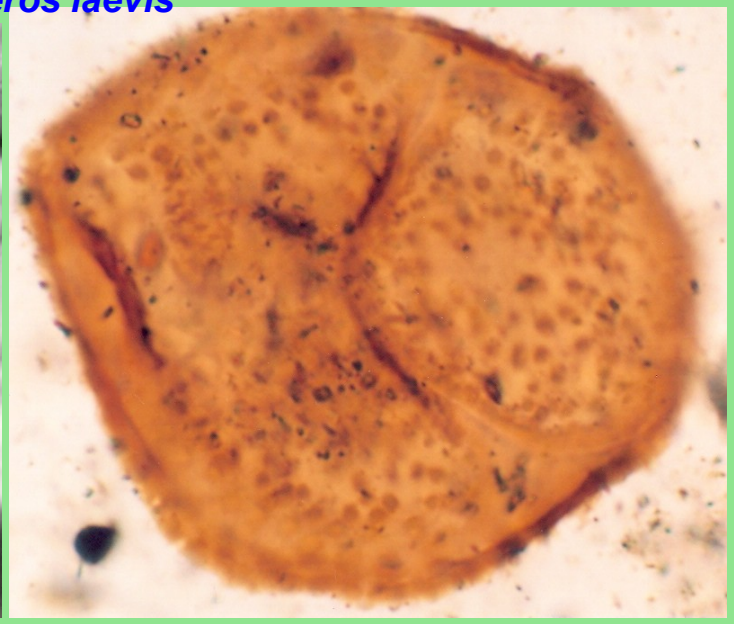


Chotěbuz, P10

## *Anthoceros laevis*



Prachatice

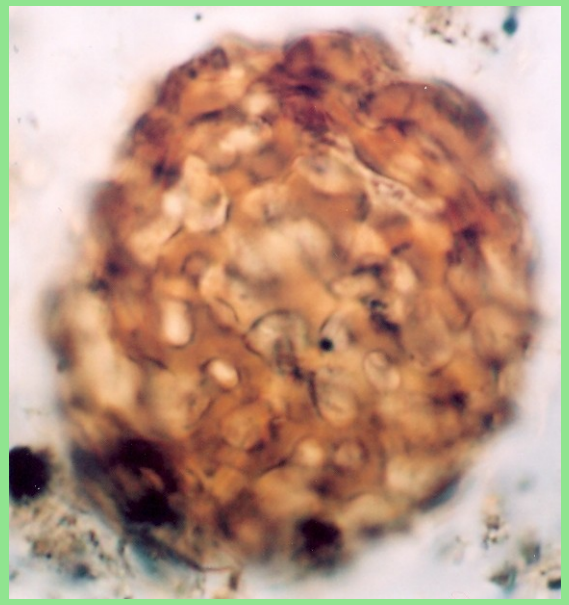


Chotěbuz, 60 cm

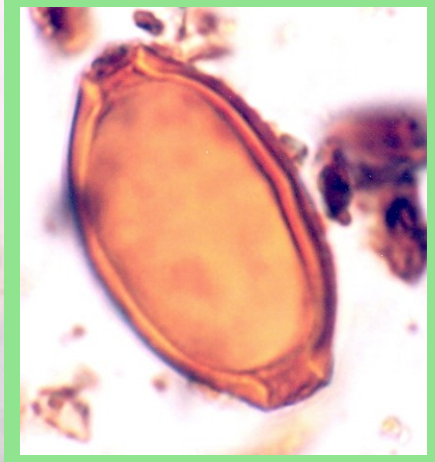
## *Anthoceros punctatus*

Vlkaneč – from clay-brick

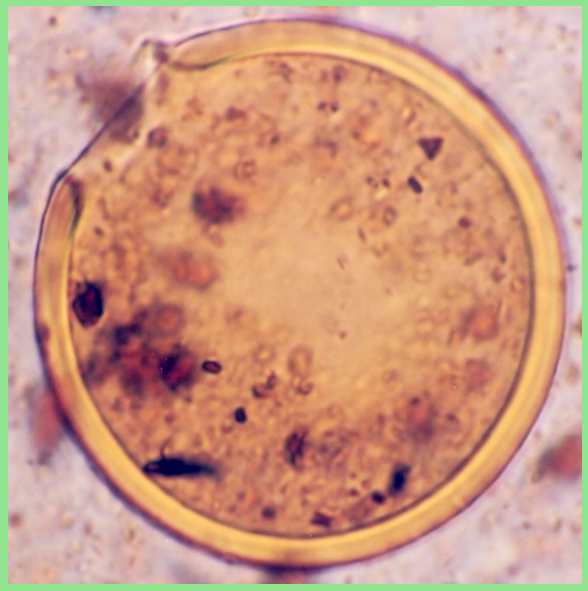
# Vermes



*Ascaris* cf. *lubricides*,
Opava, Drůbeží trh



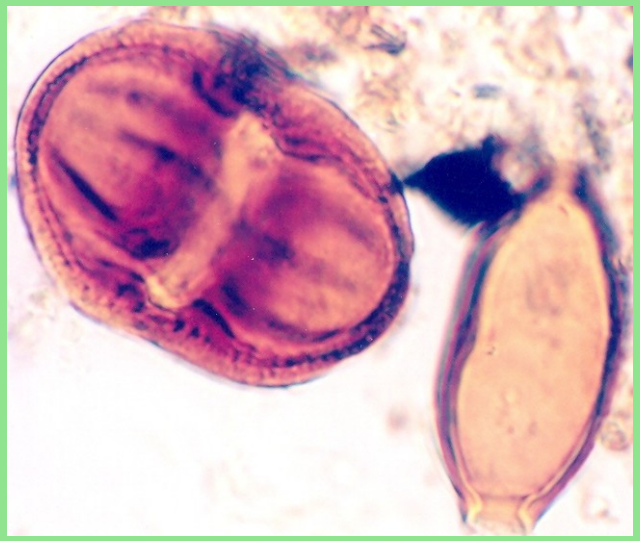
*Trichuris* cf. *trichiura*,
Brno, Dornych



Vermes? Brno, Dornych

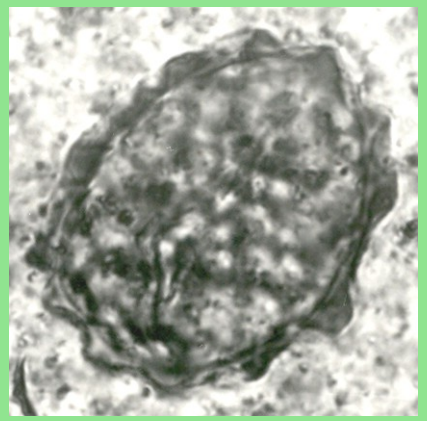
*Trichuris* and *Ascaris*,
Opava

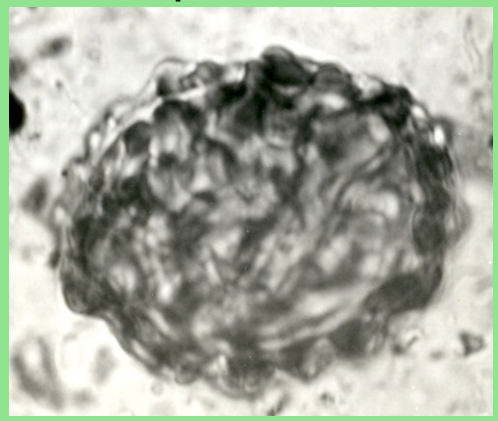
*Trichuris* cf. *trichiura*
Nymburk



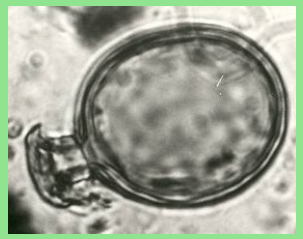
*Centaurea cyanus* and *Trichuris*,
Opava

*Trichuris* cf. *trichiura*
Praha



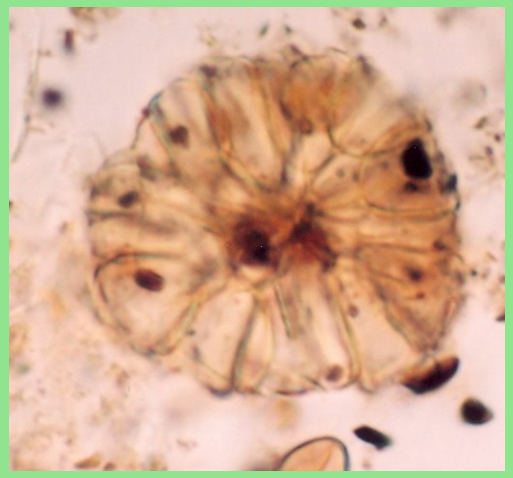


*Ascaris*, Kadaň

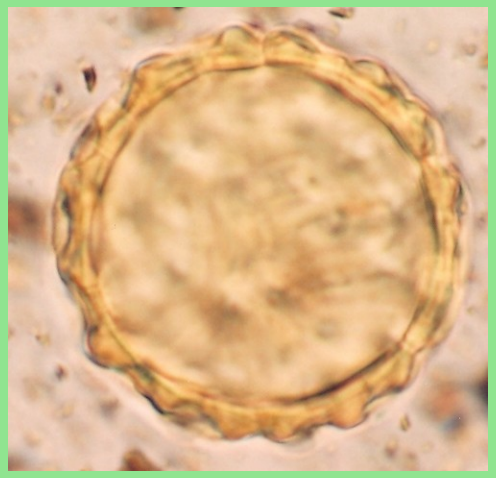


Vermes

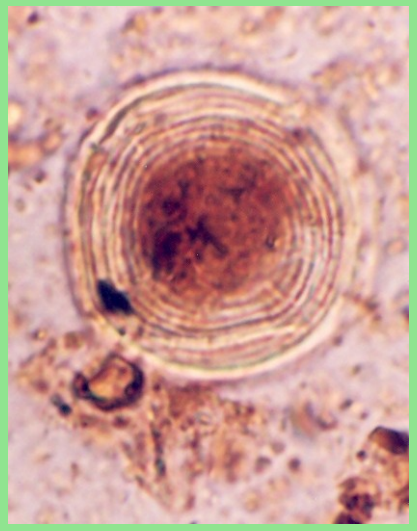
# Non-Pollen-Palynomorphs



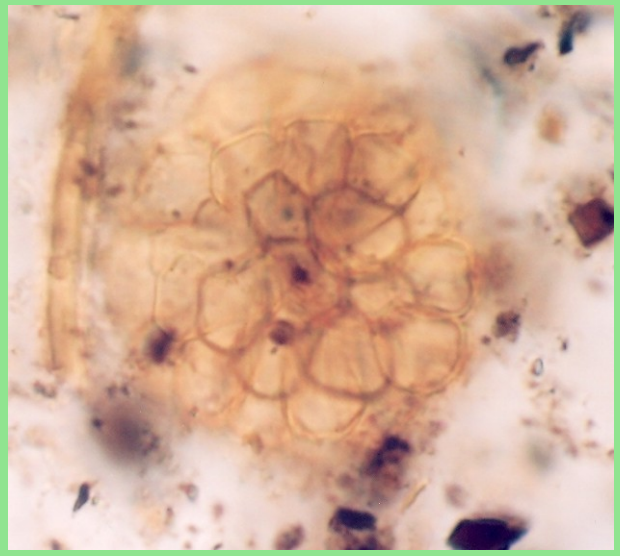
ZOO?, Praha, Náměstí Republiky

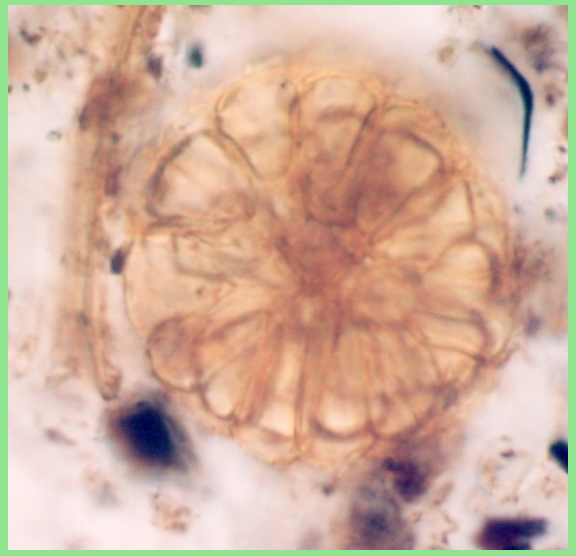


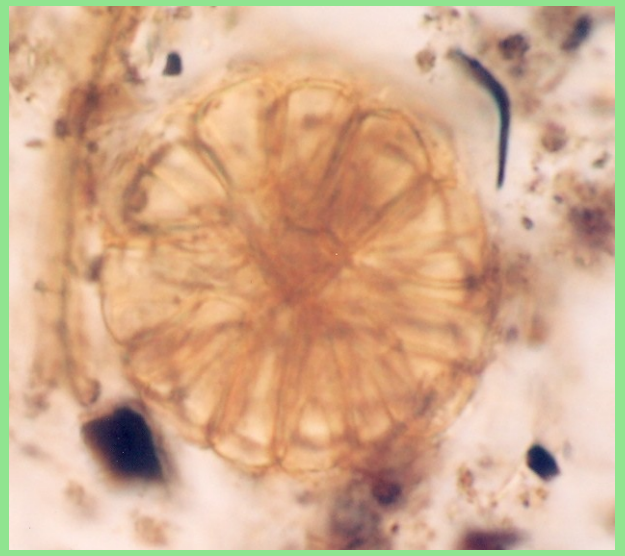
Vermes? Krkonoše (long distance transport 2007)



ZOO?, Brno, Dornych







ZOO?, Praha, Náměstí Republiky

## CONCLUSION

**The following was determined:**

**1 – Pollen and other palynomorphes do occur in the fill of different archaeological structures – it means – in cesspits of various function, in wells, cisterns, water ditches, ponds and soil layers of the medieval ages.**

**2 – It is possible to provide palaeoreconstruction of the environment for Middle Ages on the basis of pollen-analytical research when we have quantitative and qualitative enough pollen-analytical informations.**

**3 – Thanks to big number of pollen-analytical results from Middle Ages it was possible to distinguish pollen spectra of Early and High Middle Ages – specially from the large medieval towns.**

**4 – Interesting informations about the history of some plants serve botanists like as information about finds of intestinal parasites serve zoologists.**

**5 – For historians and other specialists are interesting of course pollen-analytical informations about origin and function some mysterious structures (e.g. Kounovské řady – Raw), like a results of pollen analyses of dust from old medieval books.**

**6 – Final conclusion: results of pollen analyses are usefull for many specialists of biotic and abiotic disciplins.**

# Thank you for your attention!