

# 08 Environmental history of the Czech Republic

Lukáš Dolák, MSc, PhD

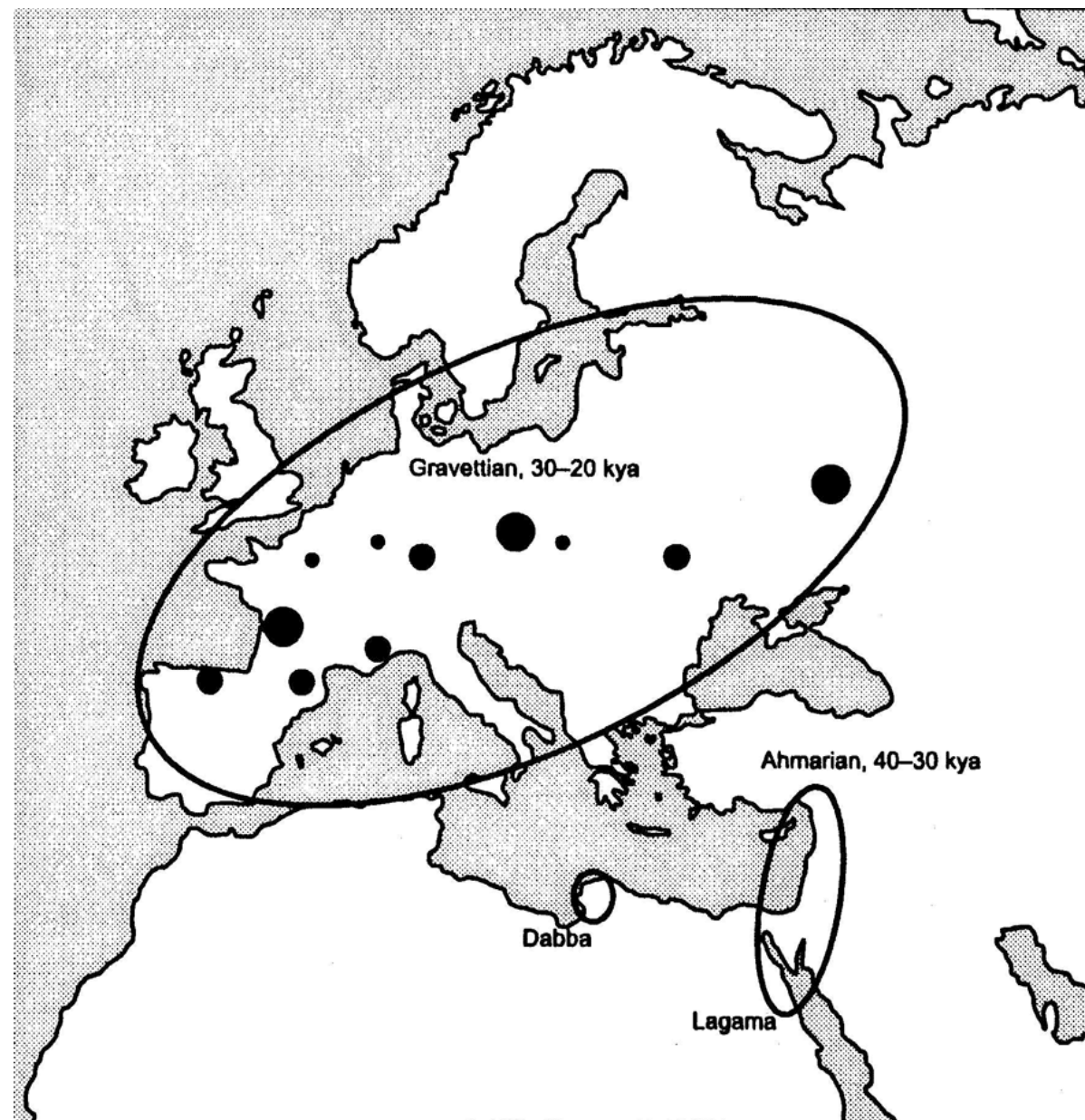
# Content

1. Prehistory
2. Medieval age
3. Baroque landscape
4. 19<sup>th</sup> century revolutions
5. 20<sup>th</sup> century: age of sudden changes

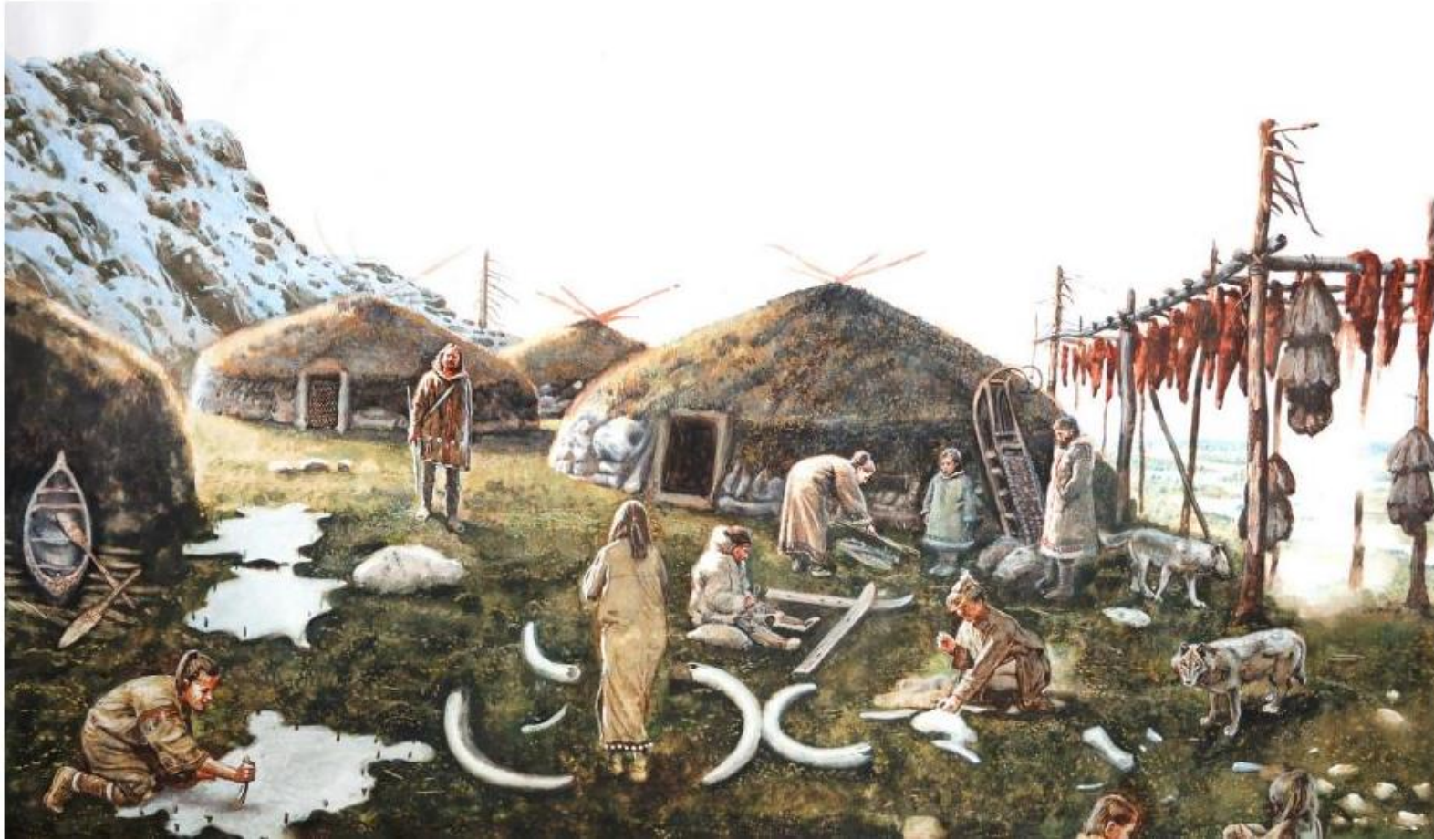
# Prehistory

# Mammoth hunters

- **Gravettian (33 000–21 000 BP)**
  - last glacial maximum
  - developed civilization
  - calculating skills and merchants
  - burning of coal (Ostrava)
  - relocation of settlements according to climatic conditions



# Mammoth hunters



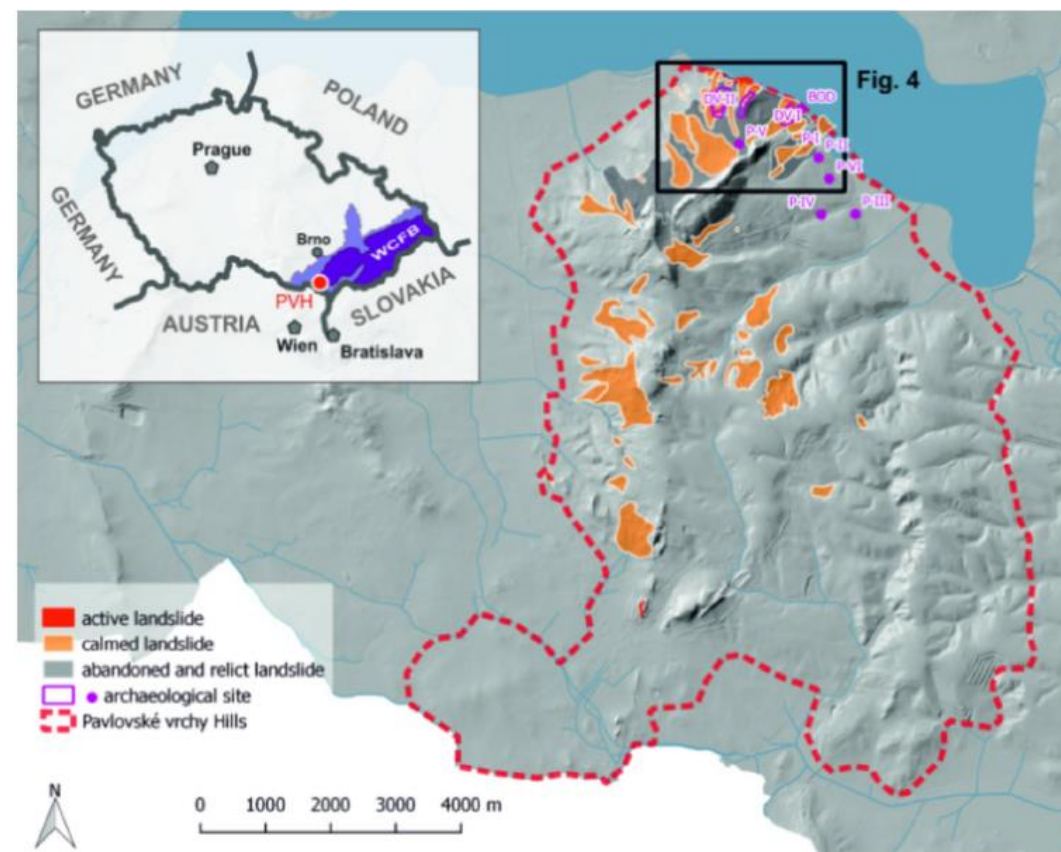
# Mammoth hunters

- Forced settlement movement due to landslides



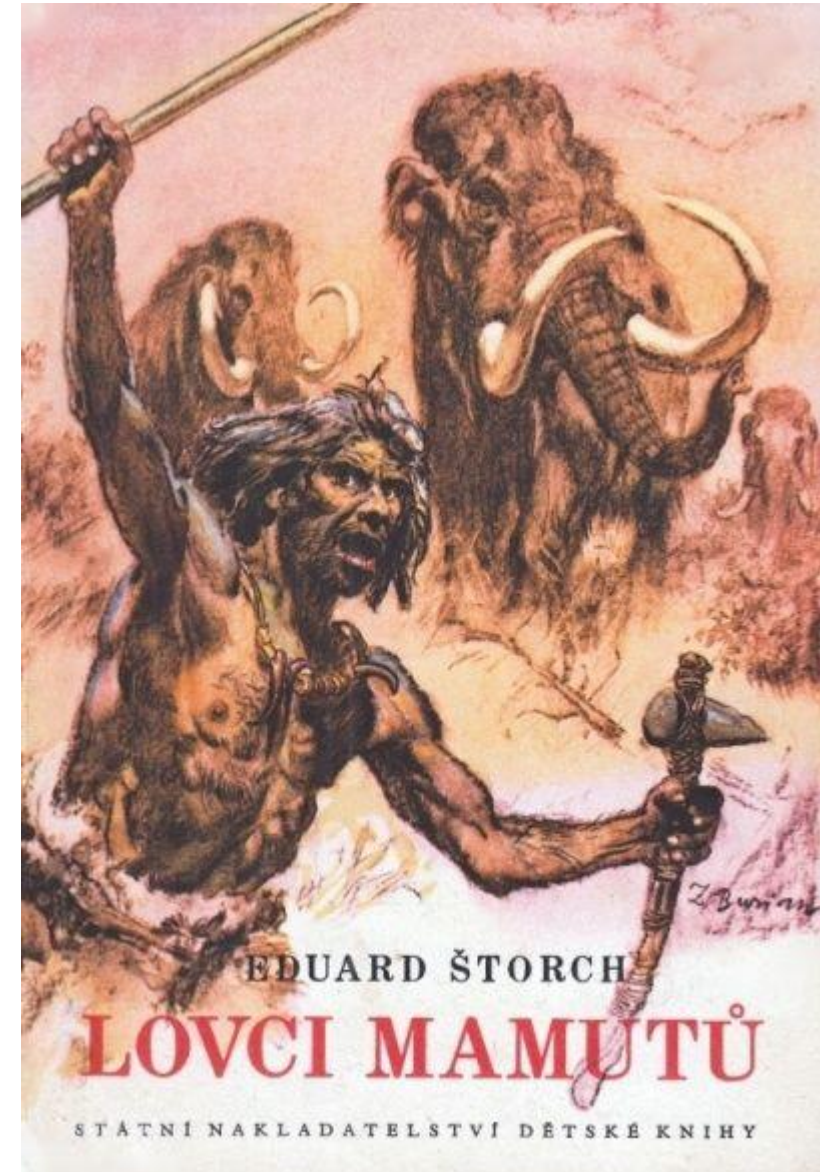
## A chronology of landsliding based on archaeological and documentary data: Pavlovské vrchy Hills, Western Carpathian Flysch Belt

Míchal Bíl<sup>1\*</sup>, Oldřich Krejčí<sup>2</sup>, Lukáš Dolák<sup>1</sup>, Vladimíra Krejčí<sup>2</sup>, Jan Martínek<sup>1</sup> & Jiří Svoboda<sup>3,4</sup>



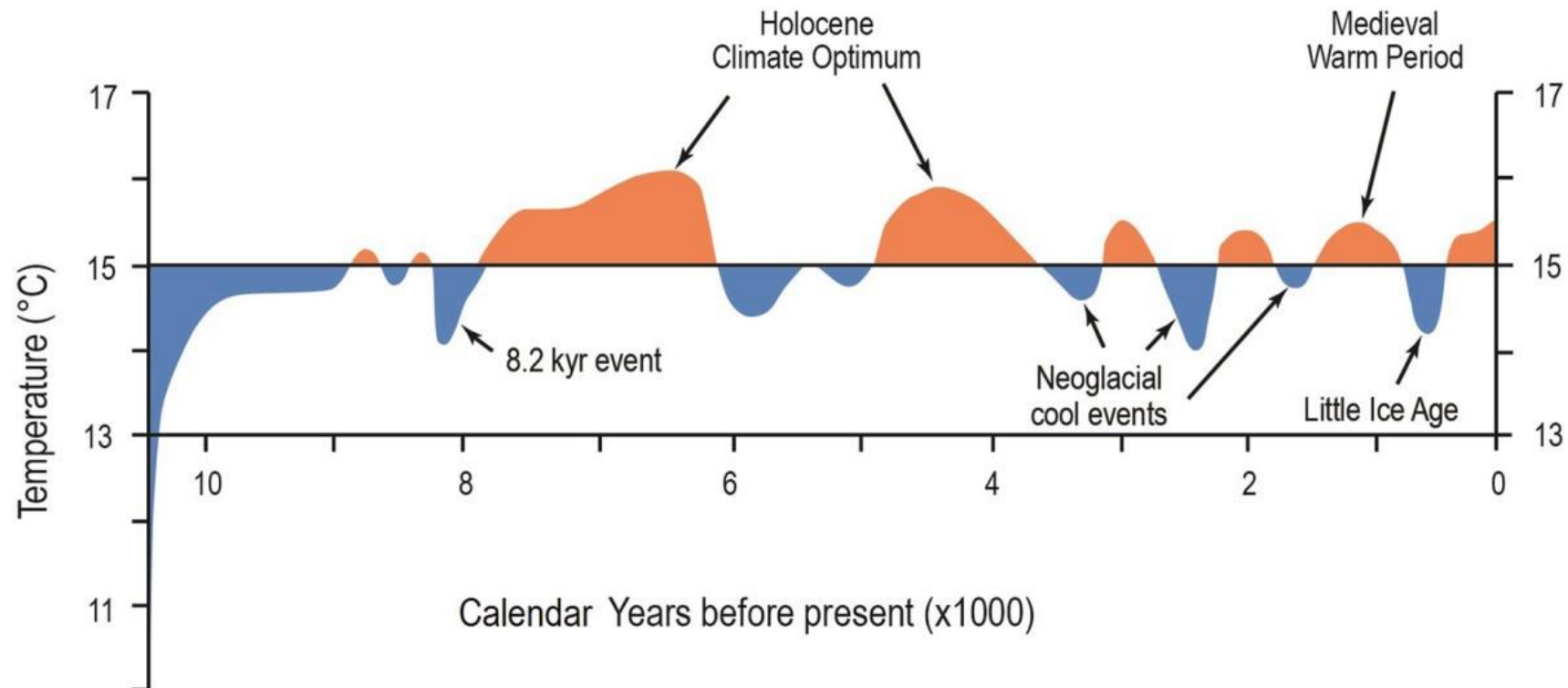
# Mammoth hunters

- Polar rabbit hunters



# Neolithic revolution in central Europe

- **Holocene Climatic Optimum (8 200–5 500 BP)**
- **7 000 BP:** the first farmers in central Europe





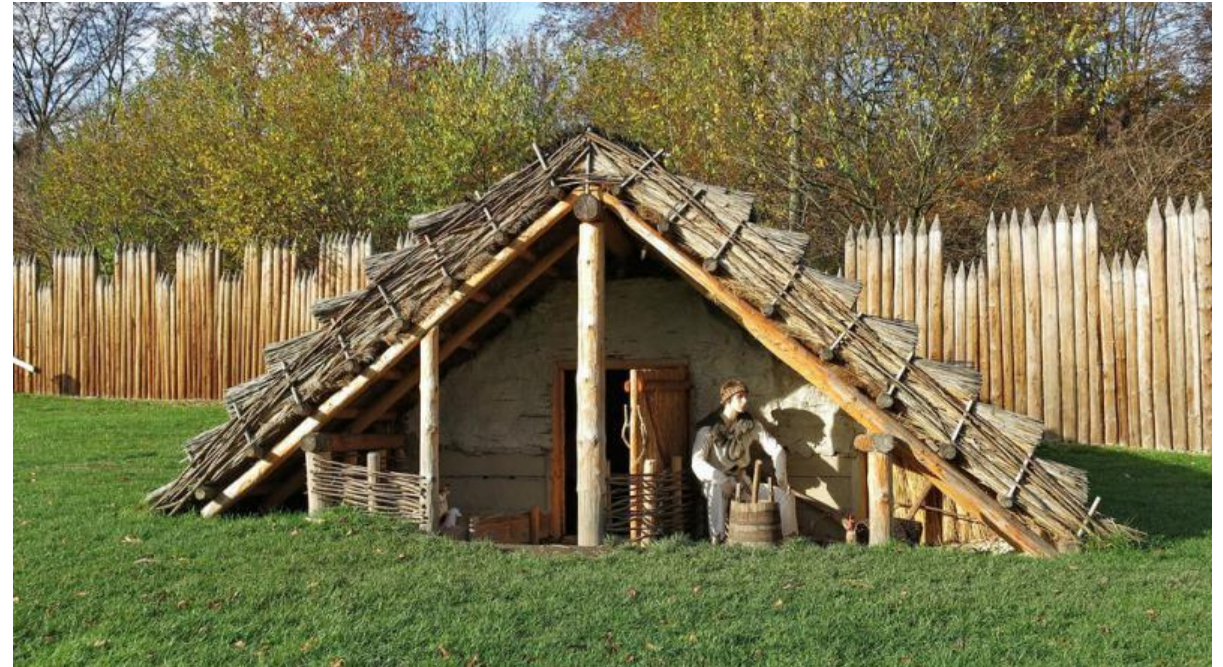
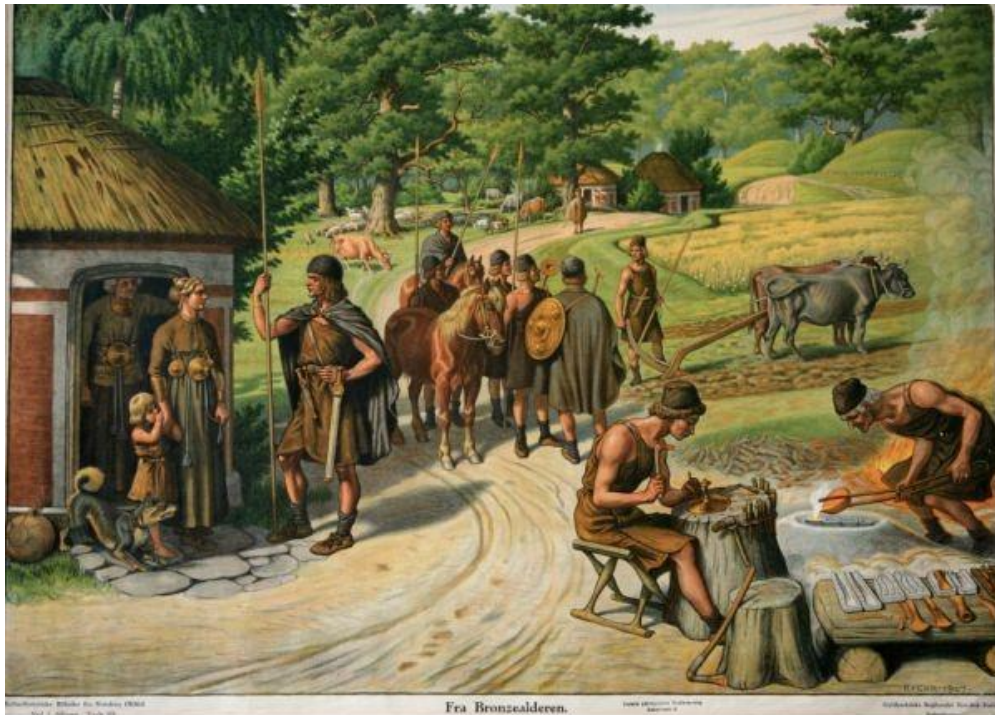
# Neolithic revolution in central Europe

- Czech Lands: forested landscape, the last remains of the steppes
- Steppes: agricultural development (spreading of steppes at the expense of forests)
- Onset of the cultural landscape



# From Eneolithic to Slavs

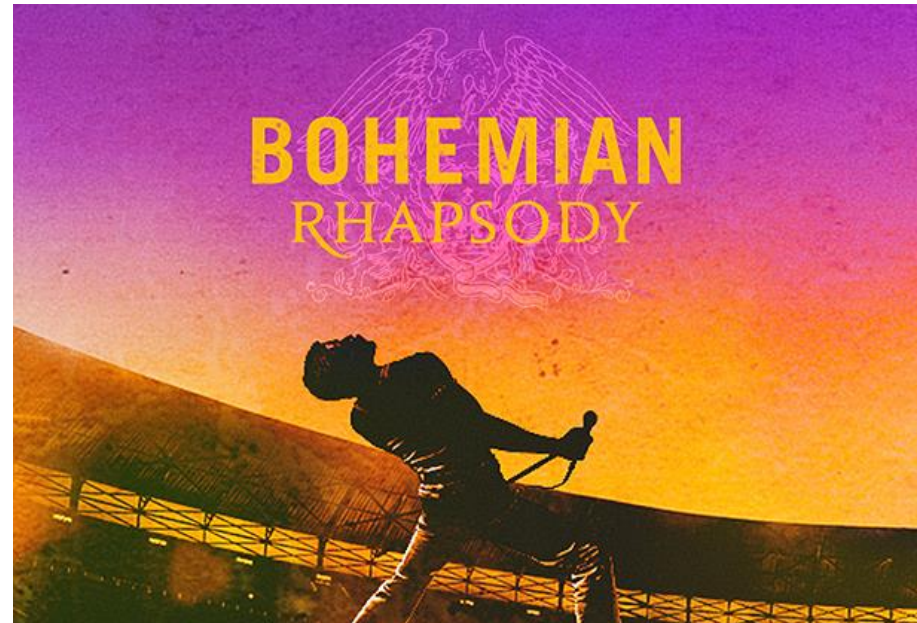
- **Several various cultures in the Czech Lands**
  - Eneolithic/Bronze/Iron Age/Celtic/German cultures (5 000 BP–400 CE)



# Boji tribe (ca. 400–0 BP)

- **Bohemianism**

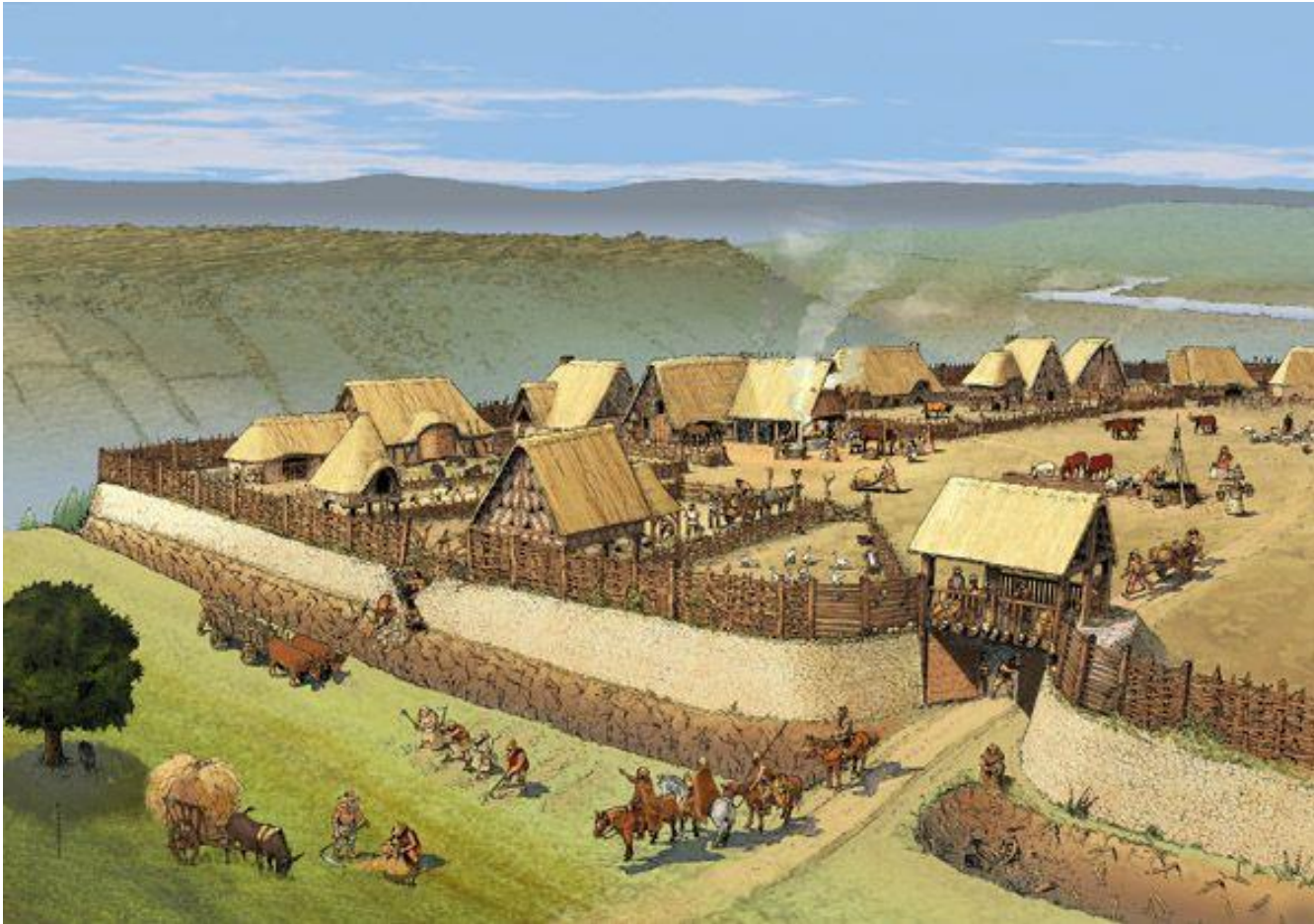
- an unconventional lifestyle, originally practised by 19<sup>th</sup>–20<sup>th</sup> century European and American artists and writers
- Boji (Celtic tribe, ca. 400–0 BP) – Bojohemum (latinized form) – Bohemia – Czechia



# Boji tribe (ca. 400–0 BP)

- **Unprecedented landscape**
  - a mosaic of forests, fields, meadows, pastures and settlements
  - increase in biodiversity
- **Oppidium** – the first „*city*“
  - large, elevated and fortified urban **settlement** with a planned structure and stone buildings close to raw material resources
  - a centre for handicraft and long-distance trade

# Boji tribe (ca. 400–0 BP)



Oppidium – the first „city“

# Boji tribe (ca. 400–0 BP)



Oppidium Závist



# Medieval age

# Medieval age (4<sup>th</sup>–7<sup>th</sup> centuries)

- **Arrival of the Slavs**
- Beginning of systematic deforestation





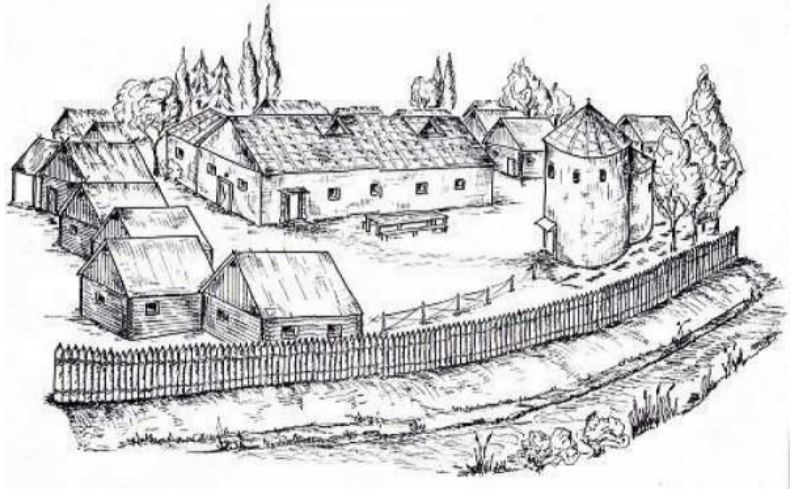
# Medieval age (12<sup>th</sup>–15<sup>th</sup> centuries)

- Fixed organization of villages: centres, churches



early Gothic church of St. Michael on the edge of the village of Vítochov

# Medieval age (12<sup>th</sup>–15<sup>th</sup> centuries)



Stříbro

Český Krumlov

# Medieval age (12<sup>th</sup>–15<sup>th</sup> centuries)

- Formation of pluvias



Holčovicko,  
Město  
Albrechtice

# Medieval age (12<sup>th</sup>–15<sup>th</sup> centuries)

- Formation of pluvias (remnants still visible today)



Holčovicko,  
Město  
Albrechtice

# Medieval age (12<sup>th</sup>–15<sup>th</sup> centuries)



Holčovicko

# Medieval age (13<sup>th</sup> century)

- Highest density of villages in the Czech Lands
- Shift of some settlements to the edge of river floodplains (soil erosion, floods)



## External medieval colonization (13<sup>th</sup>–14<sup>th</sup> centuries)

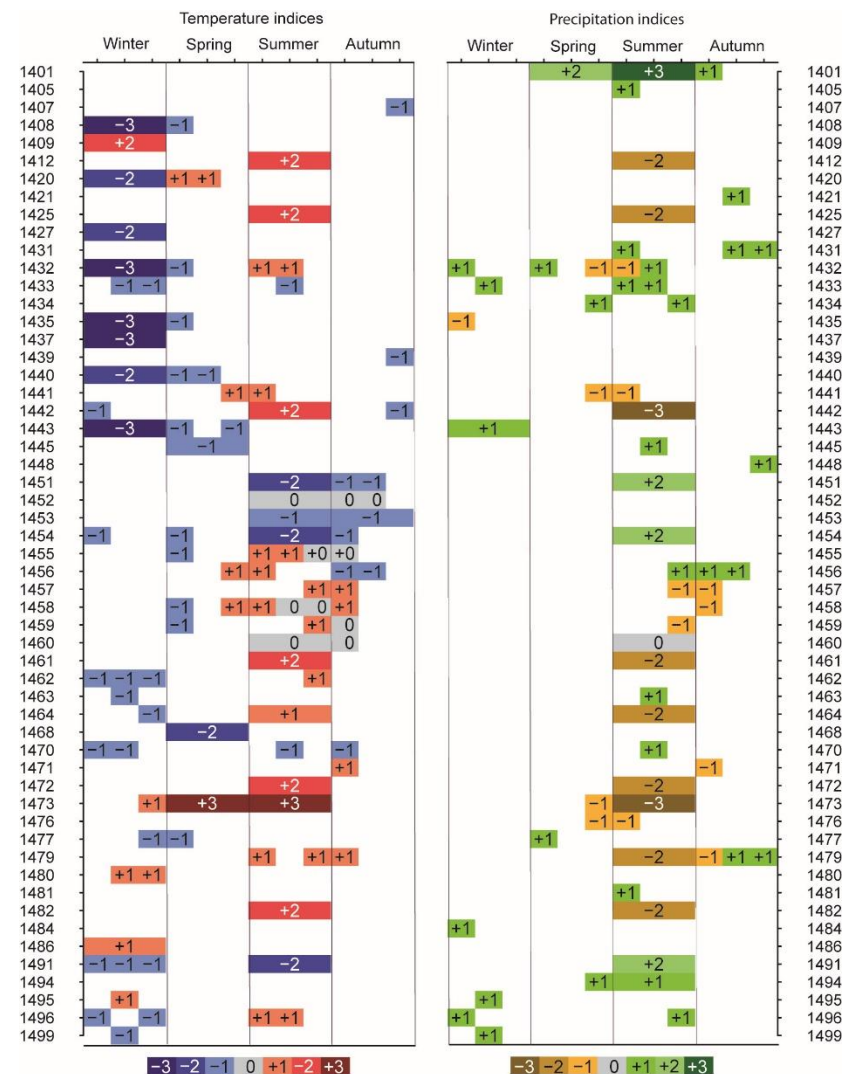
- Settlement of the hills and **border mountains** by mainly **German-speaking** settlers (miners, glassmakers)
- **Causes:** medieval climate anomaly, agricultural oversupply, population growth, local overpopulation, political and economic interests



# Hussite wars and their consequences (15<sup>th</sup> century)

- The loss of 1/3 of the population
- **1430s**: Spörer Minimum (crop failure and famine)
- Beginning of renaissance landscape

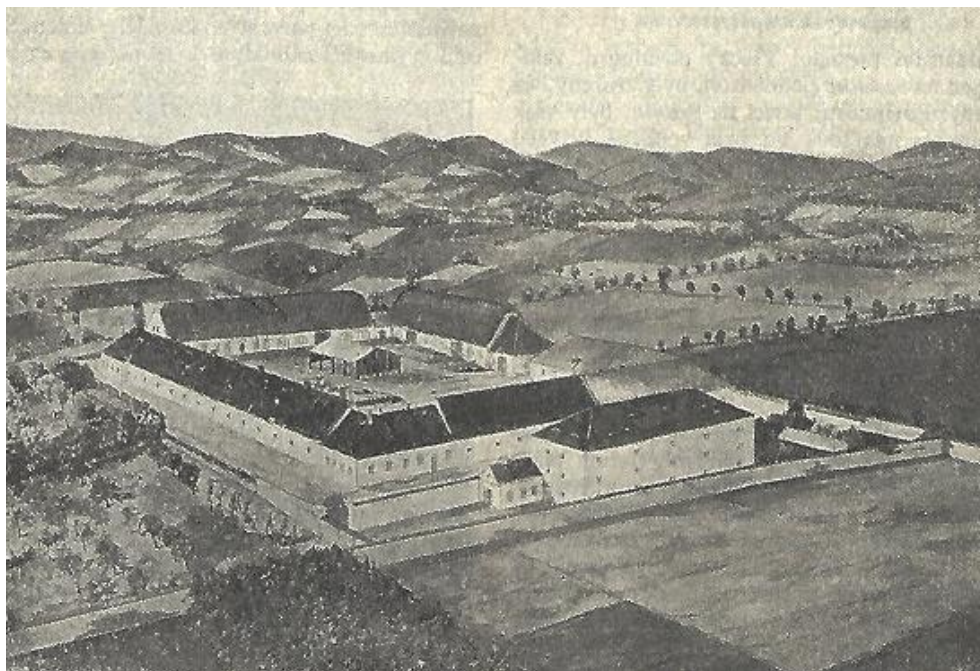
Monthly and seasonal temperature/precipitation indices reconstructed from Czech documentary evidence for the 15th century





## Hussite wars and their consequences (15<sup>th</sup> century)

- Formation of **large estates** under the administration of the nobility (unification of fragmented peasant lands)
- Intensive **sheep breeding** (use of fallow land, higher demand for wool)



# Hussite wars and their consequences (15<sup>th</sup> century)

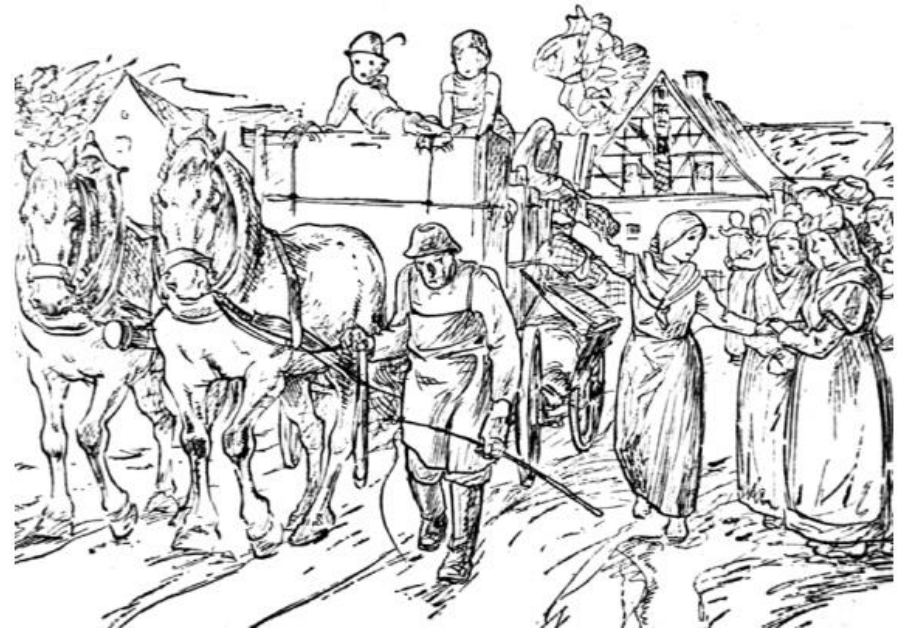
- Beginning of the golden age of pond farming (1450s–17<sup>th</sup> century)
- Gradual reforestation



# Baroque landscape

# The 30 Years' War (1618–1648)

- The **end of the Renaissance landscape**
- Czech lands as *terra deserta* (devastated landscape)
- **Population decline** – land abandonment (20%)
- Large-scale **loss of settlements**
- Decline of pond farming



# Baroque landscape (17<sup>th</sup>–18<sup>th</sup> centuries)

- **Consequence of the 30 Years' War** (disillusionment of humanism)
- **Basis of today's landscape**
- **Composite landscape**



Orlická Pheasantry

# Baroque landscape (17<sup>th</sup>–18<sup>th</sup> centuries)

- Building of **sacred monuments** in the open landscape (crosses, chapels, statues of saints, churches, Ways of the Cross)



Way of the Cross, Cvikov



# Baroque landscape (17<sup>th</sup>–18<sup>th</sup> centuries)

- Planting of **alleys** and **solitary trees** (chestnut tree - baroque tree, lime tree - national tree)



# Baroque landscape (17<sup>th</sup>–18<sup>th</sup> centuries)



Flower Garden, Kroměříž



St. Thomas Church, Brno



# **19<sup>th</sup> century revolutions**

# 19<sup>th</sup> century revolutions: agricultural

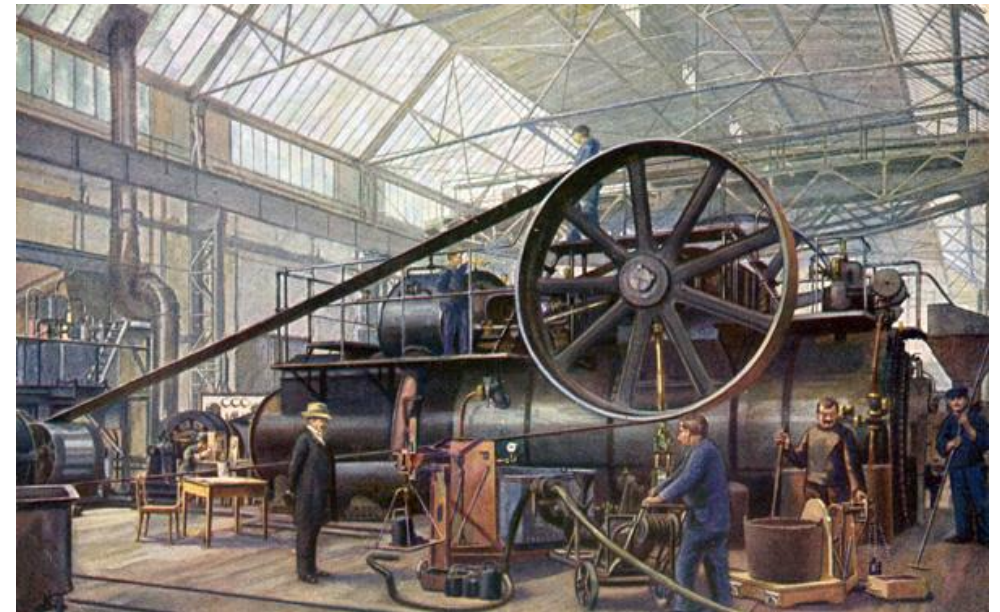
- Beginning of **commercial agriculture** (mechanization, chemicalization, melioration)
- Origins of the **monotonous landscape**

Imperial Route and the hop farm near Steknik



# 19<sup>th</sup> century revolutions: industrial

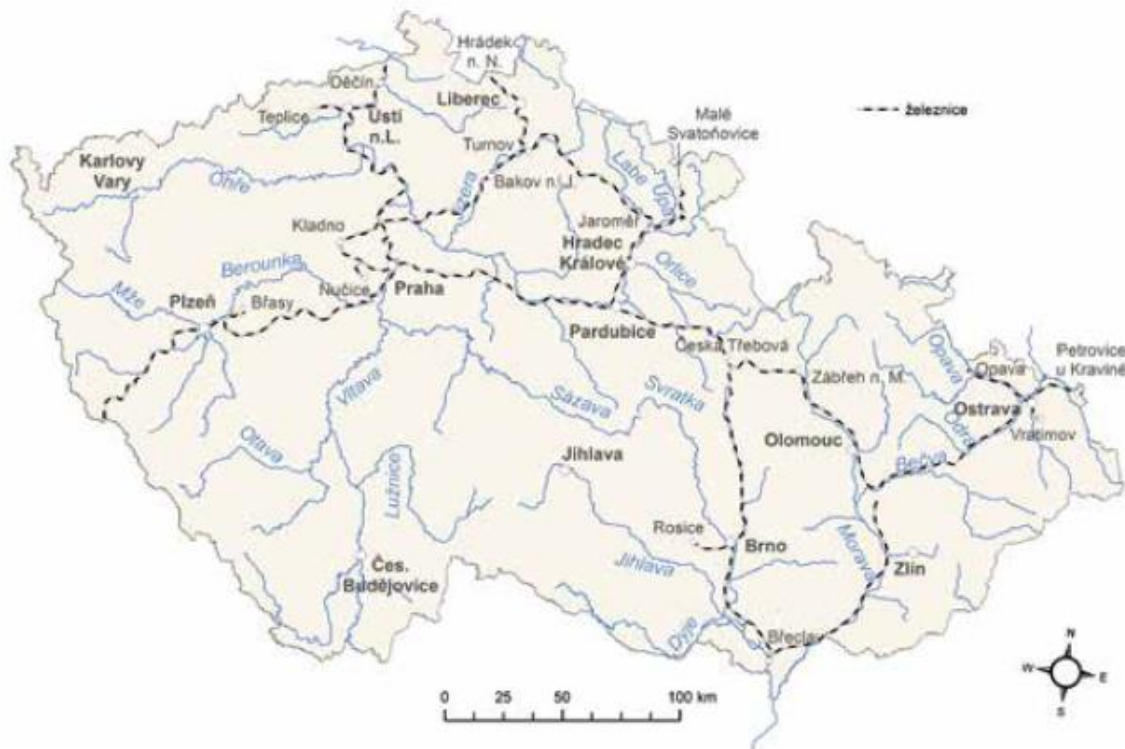
- Significant milestone
  - agriculture stops shaping the landscape
- Czech lands the **most industrialised region** in Austria – the highest impact on the landscape
- **Steam engine**: concentration of production in areas with available coal



# 19<sup>th</sup> century revolutions: transport

- **Development of steam shipping**
  - regulation and straightening of watercourses
- **Development of railways**
  - beginning of **mass transport** of people and goods
  - linking coal resource areas with industrial areas: **fragmentation** of the landscape
  - **stagnation** and **development** of new **centres**

# 19<sup>th</sup> century revolutions: transport



development of the steam railway between 1867 (left) and 1874 (right)

# 19<sup>th</sup> century revolutions: demographic and urbanisation

- **Population influx** from the countryside to the cities



# 19<sup>th</sup> century revolutions: demographic and urbanisation

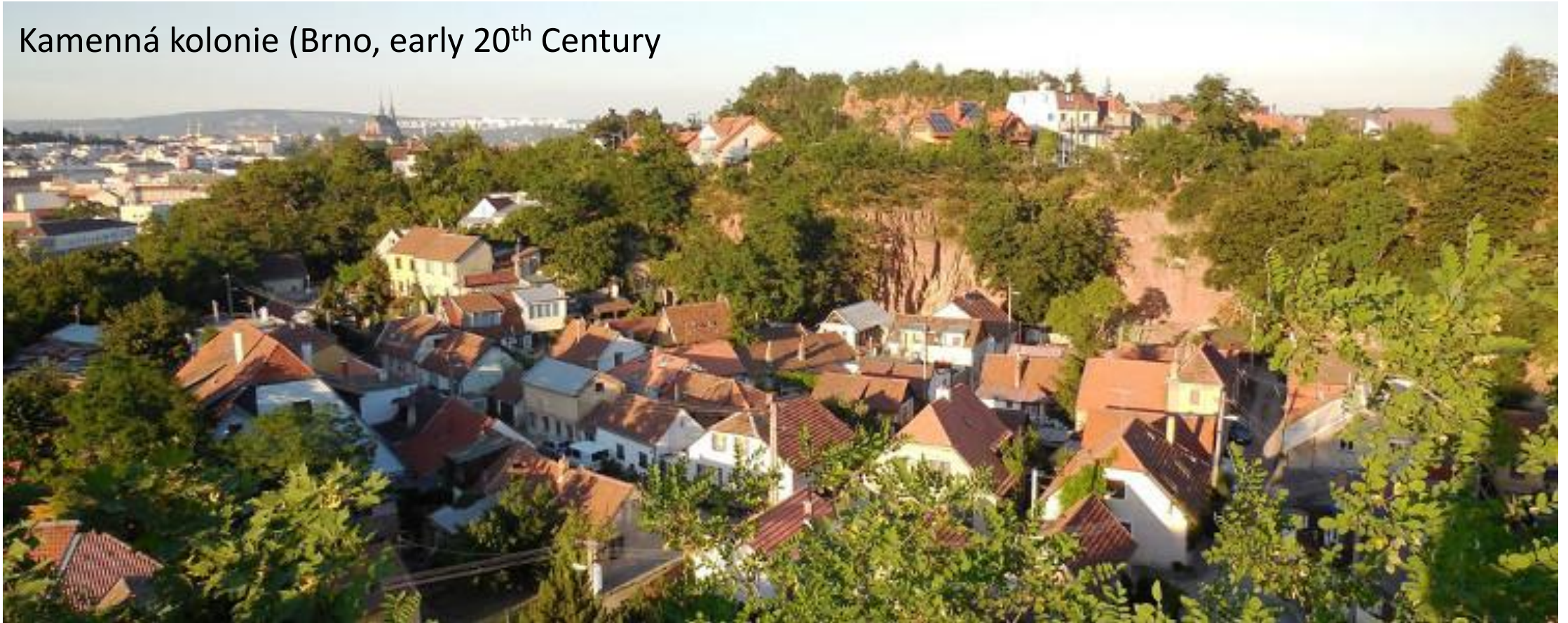
- Establishment of **industrial quarters** (railway connections, efficiency of the steam engine)
- Continued **demolition of city walls** and growth of cities (parks)



# 19<sup>th</sup> century revolutions: demographic and urbanisation

- Formation of **workers' colonies** and urban landscapes

Kamenná kolonie (Brno, early 20<sup>th</sup> Century)





# 19<sup>th</sup> century revolutions: demographic and urbanisation

- Formation of **workers' colonies** and urban landscapes



# 19<sup>th</sup> century revolutions: demographic and urbanisation

- Formation of workers' colonies and **urban landscapes**



Ostrava region



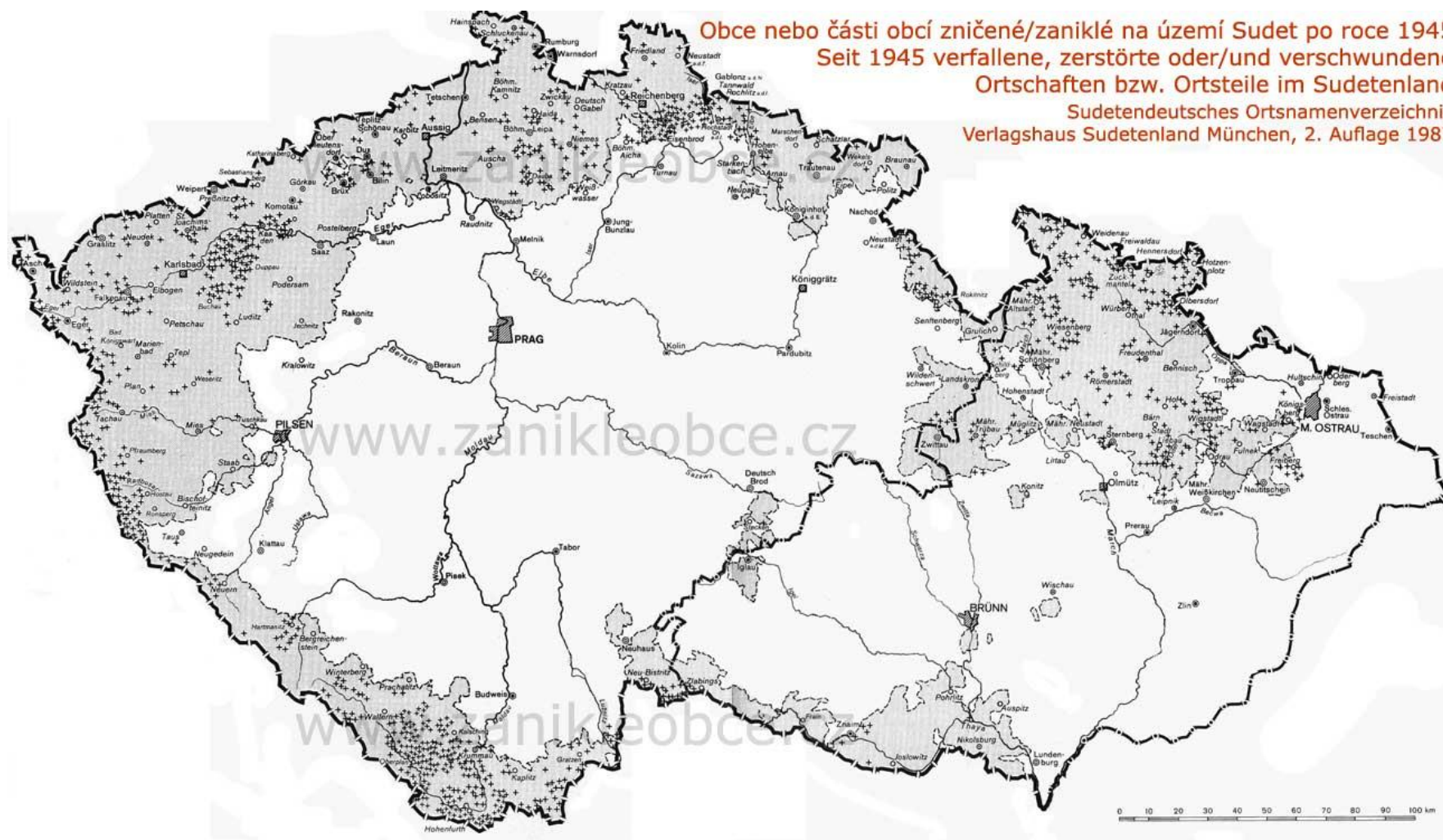
Church of St. Peter of Alcantara, Karviná - Doly

**20<sup>th</sup> century: age of sudden changes**

# Development until 1948

- **Foundation of Czechoslovakia (1918)**
  - **land reform**: confiscation of private property - change in ownership relations - land use changes
- Increase in **mechanisation** in agriculture – **uniformity** of the landscape
- **World War II (1939–1945)**
  - displacement of the German population (border areas) and resettlement operations (1945–47)

# Development until 1948



# Situation in the 1948–1989 period

- **February 1948:** the Communist takeover
  - transformation into **heavy industry**
  - **environmental degradation** and pollution
  - **forest degradation** in western Bohemia
  - creation of **new protected landscape areas**



# Situation in the 1948–1989 period: agriculture

- **Collectivisation** of agricultural production (1949–1960)
- Establishment of **unified agricultural cooperatives**



# Situation in the 1948–1989 period: agriculture

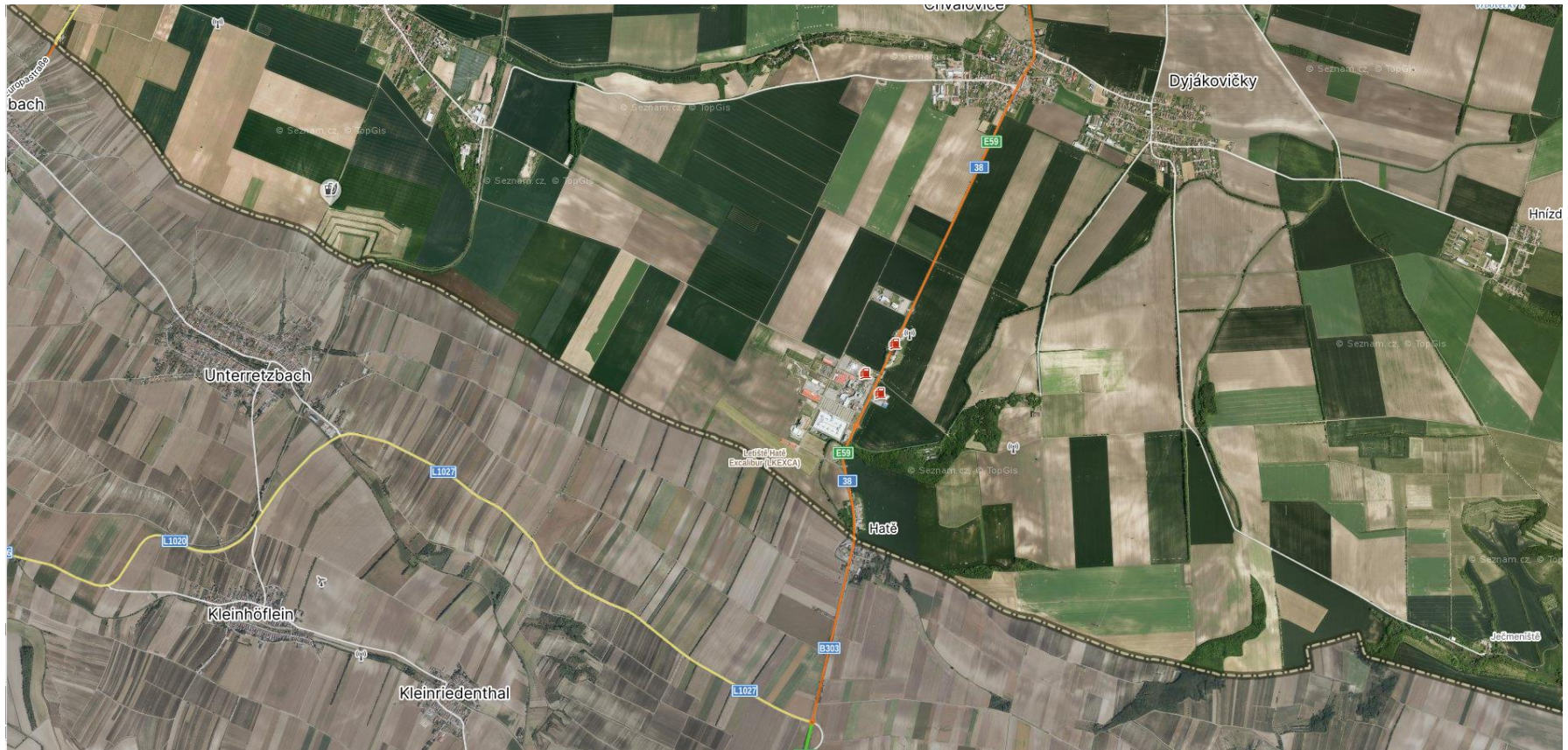
- **Land aggregation** (efficient use of mechanization, higher yields)





# Situation in the 1948–1989 period: agriculture

- **Land aggregation** (efficient use of mechanization, higher yields)



Czech-Austrian  
border, Znojmo  
region

# Situation in the 1948–1989 period: agriculture

- The most intensive **soil erosion** in the Holocene
- Mass expansion of **land drainage**: accelerated water runoff
- **Interruption of continuity** of farming, breaking of ownership and relationship to land = **disruption of relationship to landscape**

# Situation in the 1948–1989 period: settlement

- The most significant changes since the external medieval colonization
- **Destruction** of settlements in the **borderlands**
  - displacement of Germans, Iron Curtain, military camps, coal mining

Zahájí (1947) and  
the present



# Situation in the 1948–1989 period: settlement



blasting of the Church of St. John and St. Paul June 4, 1959, border settlement Kaplicka in Českokrumlov region

# Situation in the 1948–1989 period: settlement



ruins of the Erzgebirge village Königsmühle

# Situation in the 1948–1989 period: settlement



the border brook Mechový potok in the Bohemian Forest and the Marchhäuser solitude near Bischofsreut



Frohlich farm in Zastávka, Liberec region

# Situation in the 1948–1989 period: settlement

- **Destruction** of settlements in the **central part** of the CR
  - construction of dams (>1200 settlements in total)
- **Decline** of anthropogenic **pressure** in the **borderlands**
- Sorela: socialist realism



# Situation in the 1948–1989 period: settlement

- Development of **cottage** and cottage industry (preservation of folk architecture)



Peasant Baroque, Holaršovice



# Situation in the 1948–1989 period: water management

- **Straightening and damming of rivers**
- Concept of **rapid drainage of water** from the landscape



# Present days

- Emphasis on **environmental protection**
- **Ending coal mining** and landscape rehabilitation



# Present days

- **Reduction** of air pollution
- **Sanitation** of dumping sites
- Efforts to **keep water** in the landscape



# Present days

- **Intensive agriculture** (pesticides, nitrification) – low biodiversity



# Present days

- **Building on arable land, urban sprawl**
- **Parcelization** of the landscape
- Overtourism
- Impacts of **climate change**  
(droughts, bark beetle calamity)



# References

- Bíl, M., Krejčí, O., Dolák, L., Krejčí, V., Martínek, J., Svoboda, J. (2020): A chronology of landsliding based on archaeological and documentary data: Pavlovské vrchy Hills, Western Carpathian Flysch Belt. *Scientific Reports*, 10, 1, 976. <https://doi.org/10.1038/s41598-020-57551-4>
- Daniel, J., Frajer, J. Klapka, P. (2013): *Environmentální historie České republiky*. Brno: Masarykova univerzita, 198 s.
- Lokoč, R. a M. Lokočová (2016): *Vývoj krajiny v České republice*. Druhé doplněné vydání. Brno: Lipka - školské zařízení pro environmentální vzdělávání, 103 s.
- Ložek, V. (2007): *Zrcadlo minulosti: česká a slovenská krajina v kvartéru*. Praha: Dokořán, 198 s.
- Saktorová, D, 2018: *Jesenické plužiny. Dochované historické struktury v krajině*. Krajský úřad Moravskoslezského kraje.

**Thank you for your attention**