Is History (even/worse Medieval History) useful for scenario-writers?

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Some preliminary statement

About History, scientists, energy scenarios and the End of the world (or Doomsday)

Is there a medieval notion of energy?

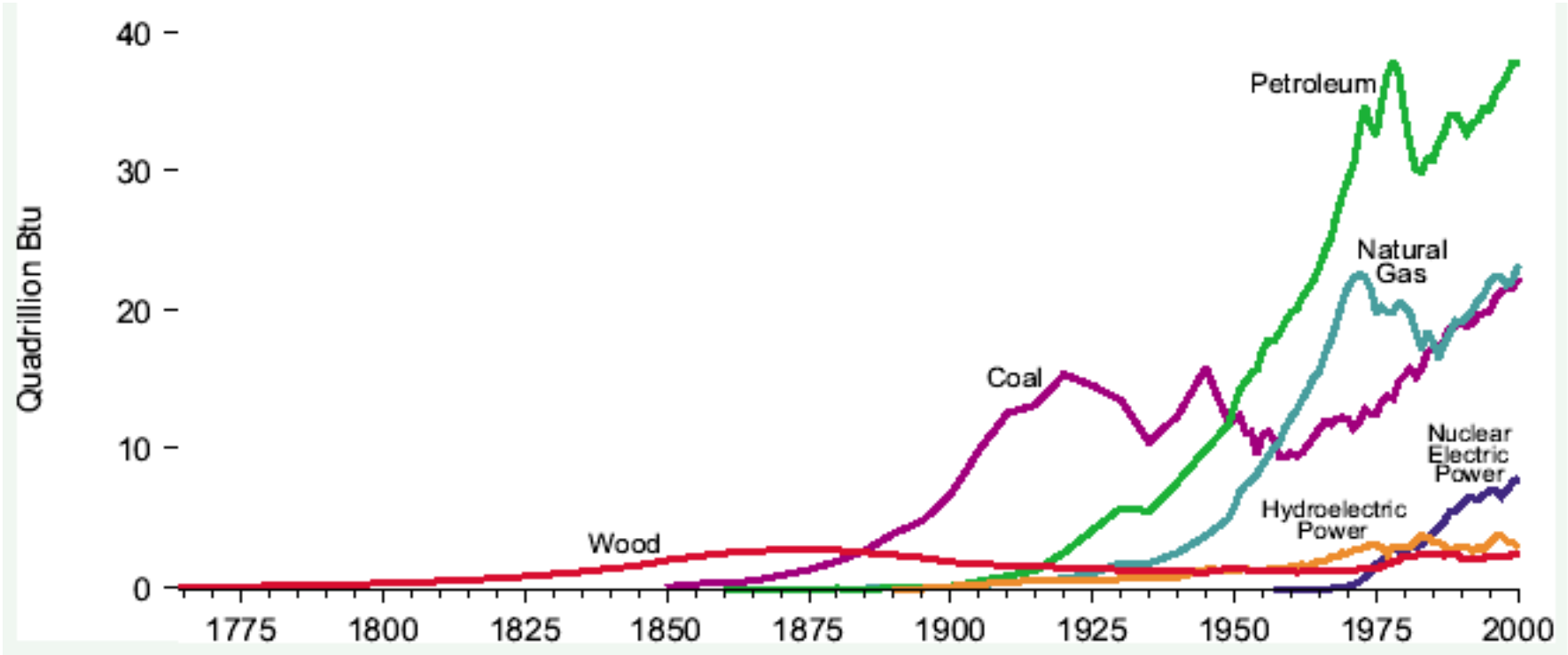
« For hit is symonye to sull that sent is of Grace,

And that is wit, and water and wynde and fuyre the ferthe:

Thise foure sholde be fre to alle folk that hit nedeth. »

For it is simonie to sell what is sent by grace/that is knowledge, water, wind and fire (the 4th)/ these 4 should be free for everyone needs it

John **Langland**, *Piers Plowman*, C-Text, *Passus* 9, v. 54-56



Dealing with the initial part of the figure is dealing with some of the most important episods of economic growth in European history

POWER TO THE PEOPLE

Energy in Europe over the Last Five Centuries

Astrid Kander • Paolo Malanima • Paul Warde

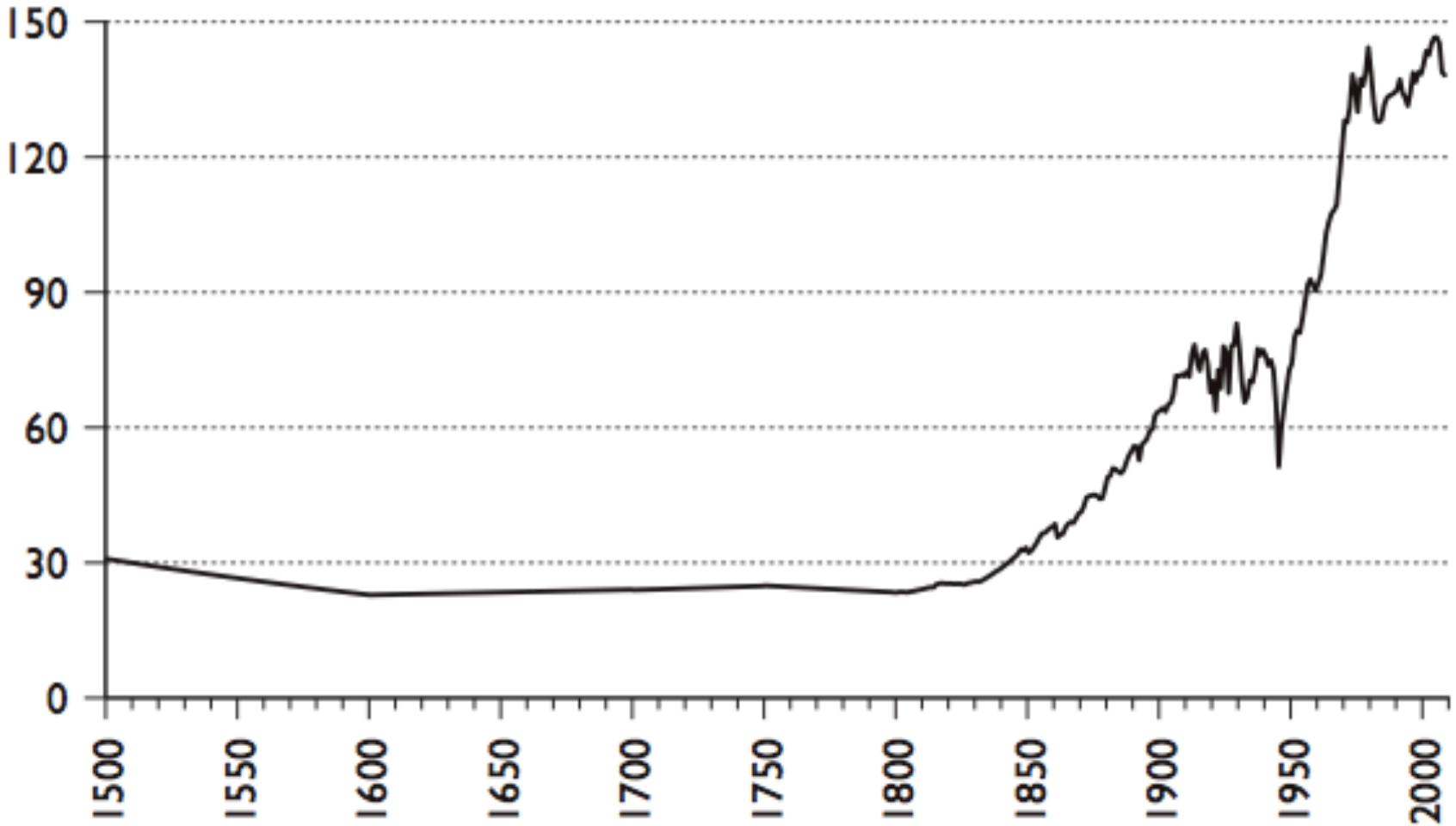
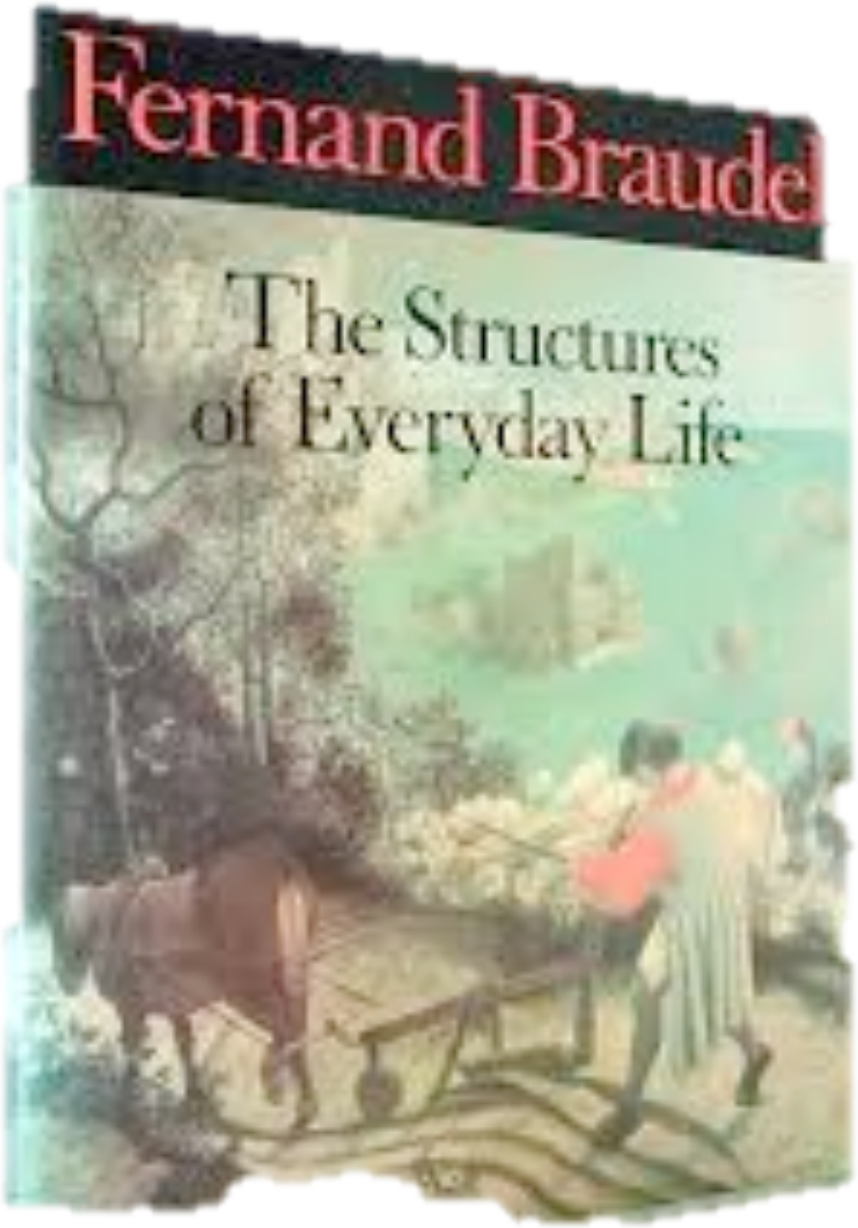
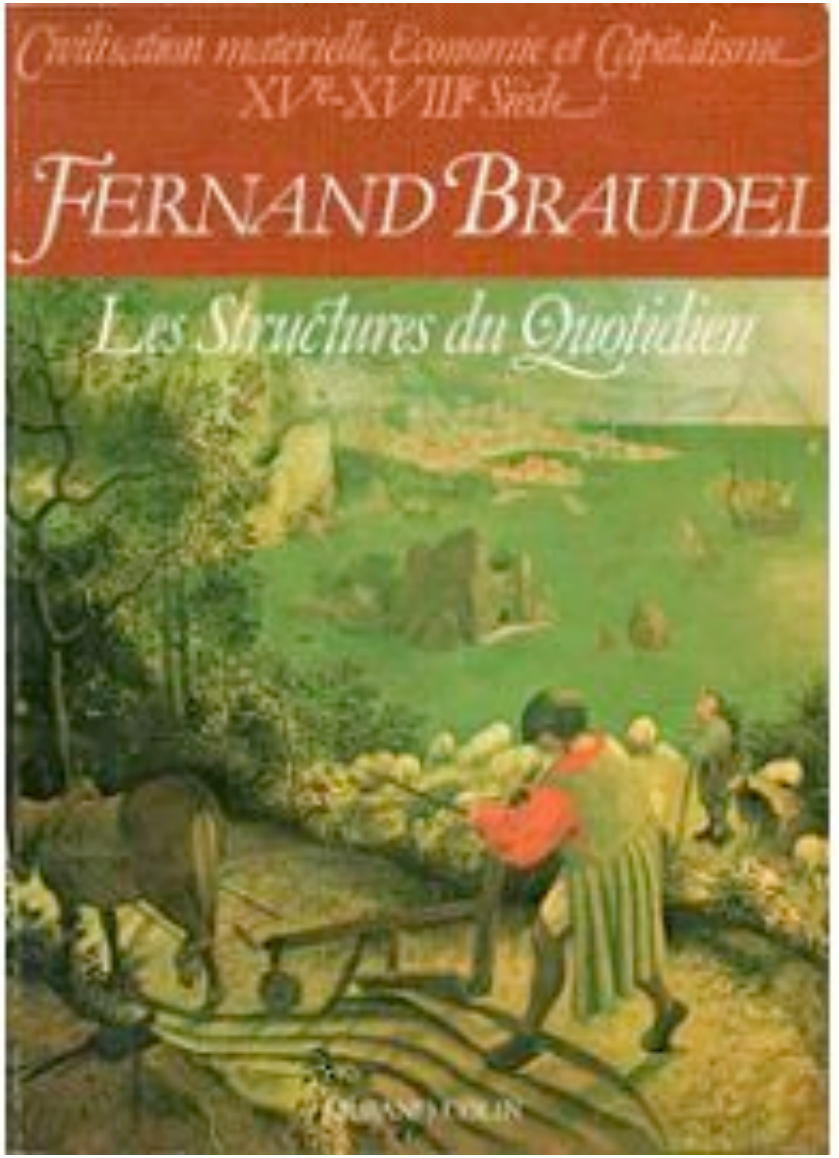
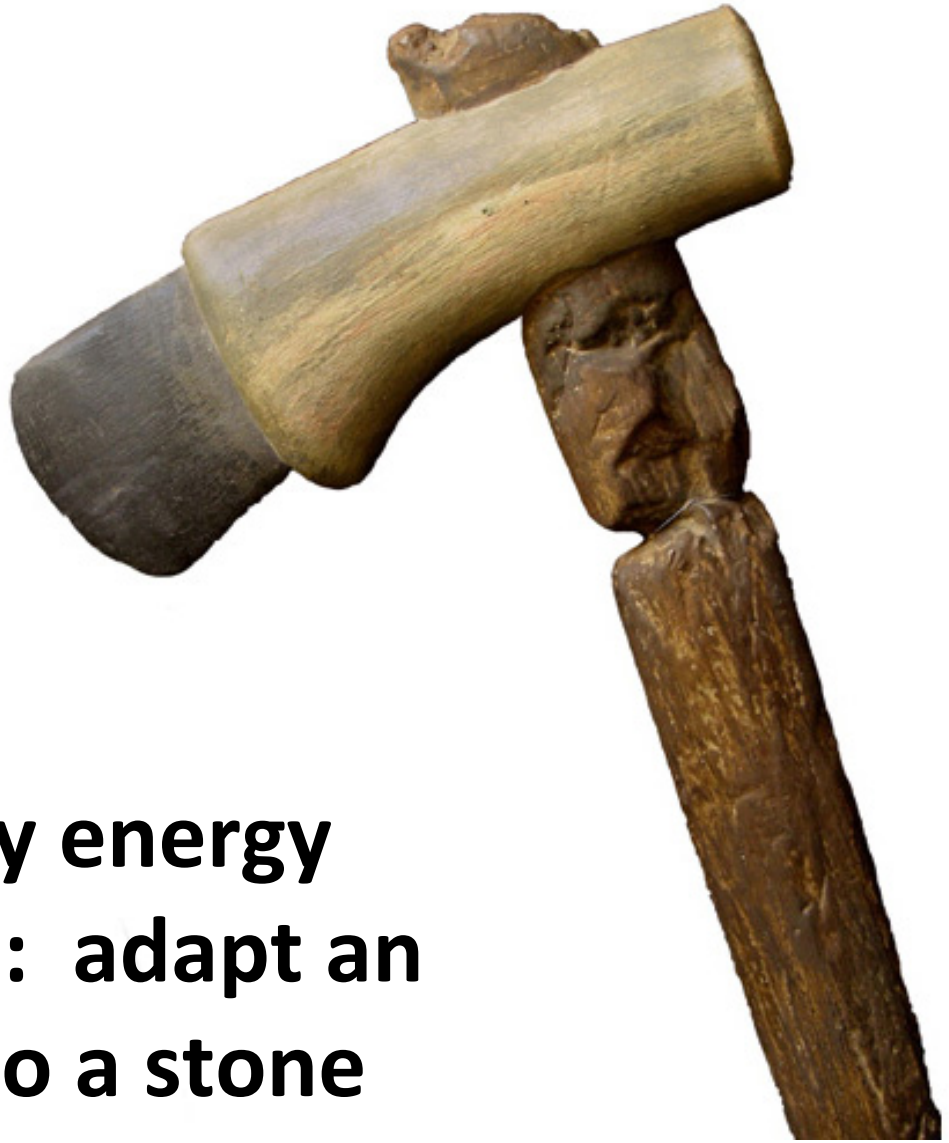


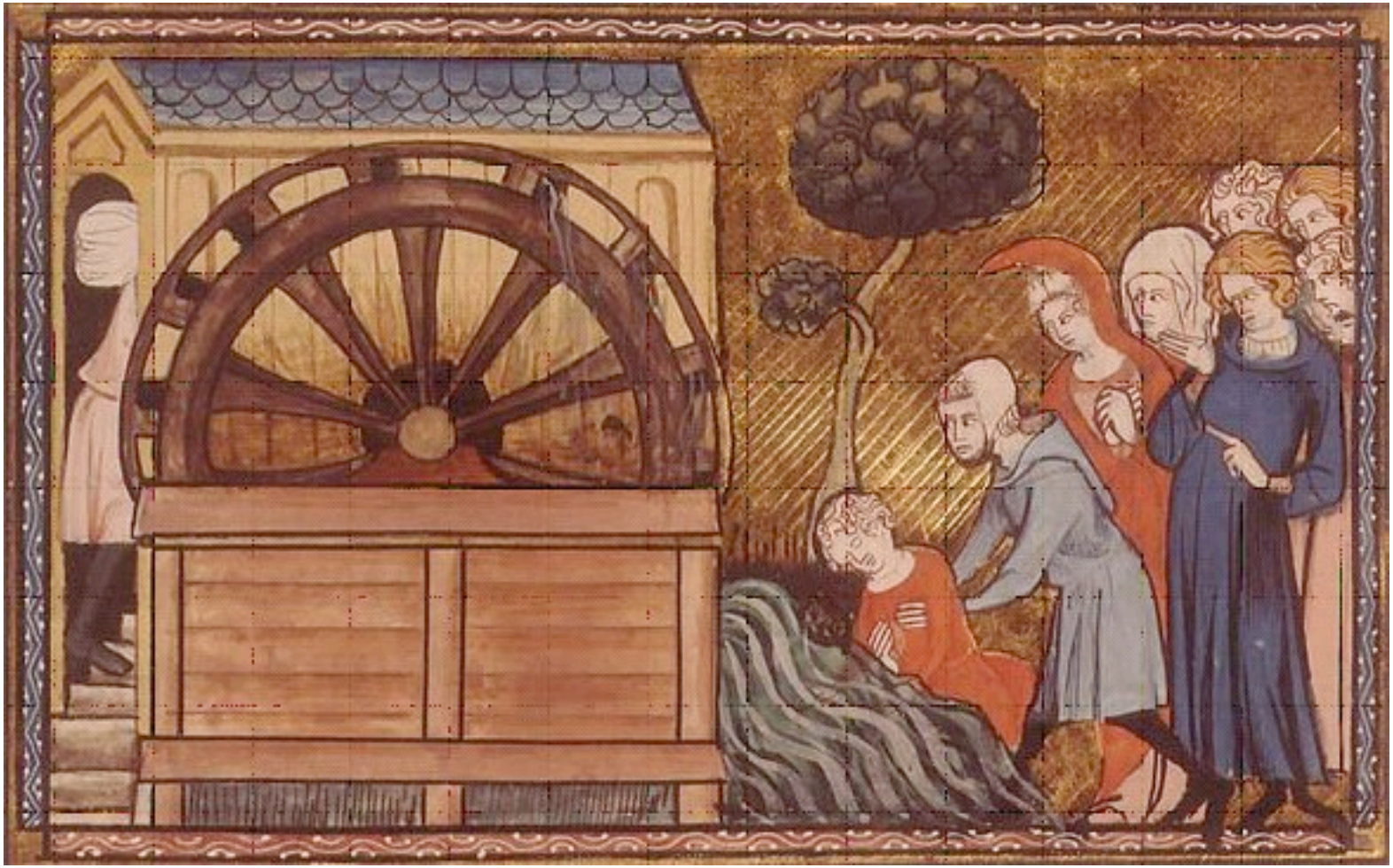
Figure 1.1. Energy consumption per capita in Europe (Gigajoules, 1500–2008)
Sources: Own detailed data, 1800–2008, see www.energyhistory.org. For the period 1500–1800 the trend is nothing more than a rough estimate. See chapter 3.


Fernand Braudel
The Structures of Everyday Life

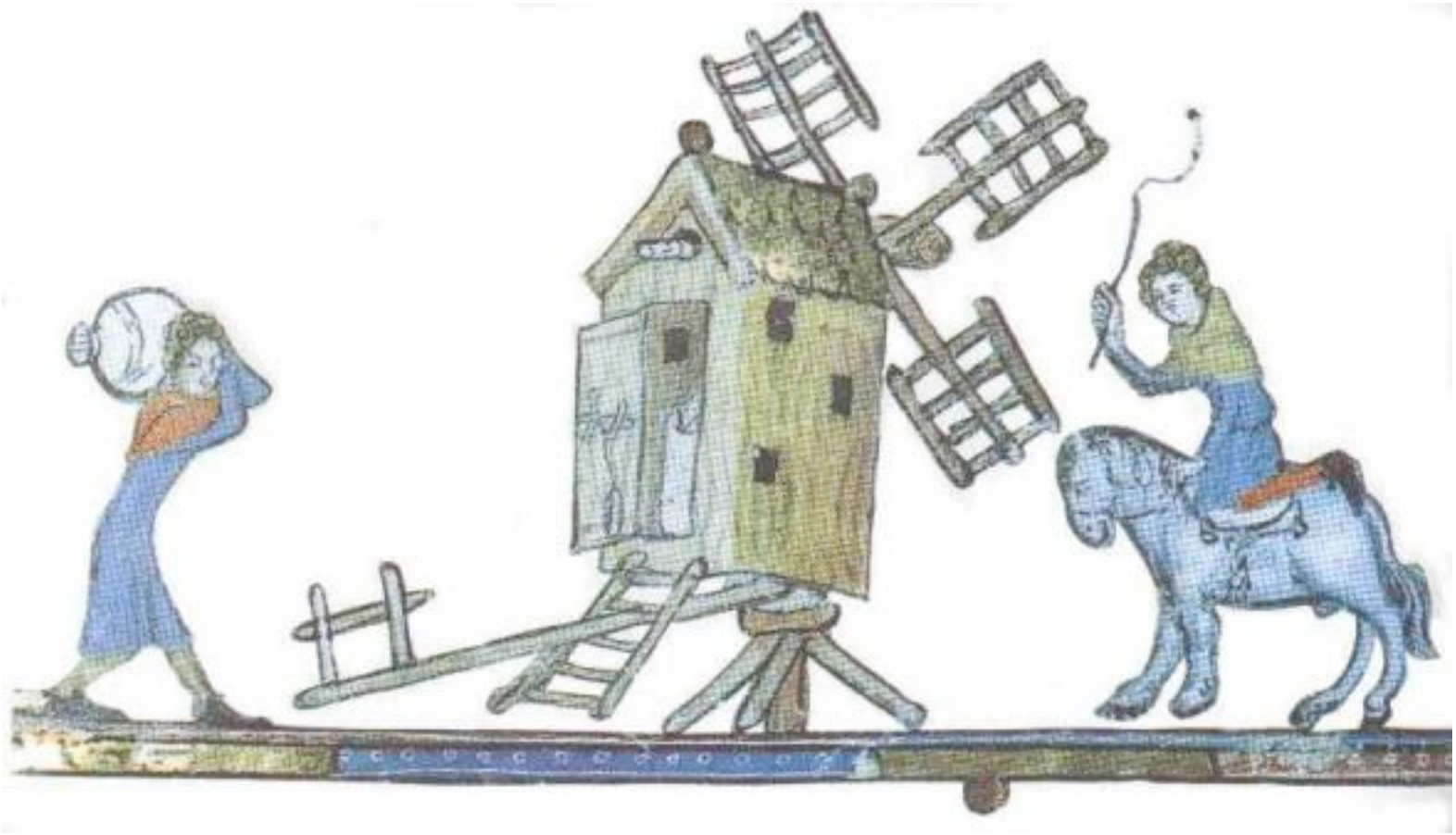

Civilisation matérielle, Économie et Capitalisme
XVe-XVIIIe Siècle
FERNAND BRAUDEL
Les Structures du Quotidien



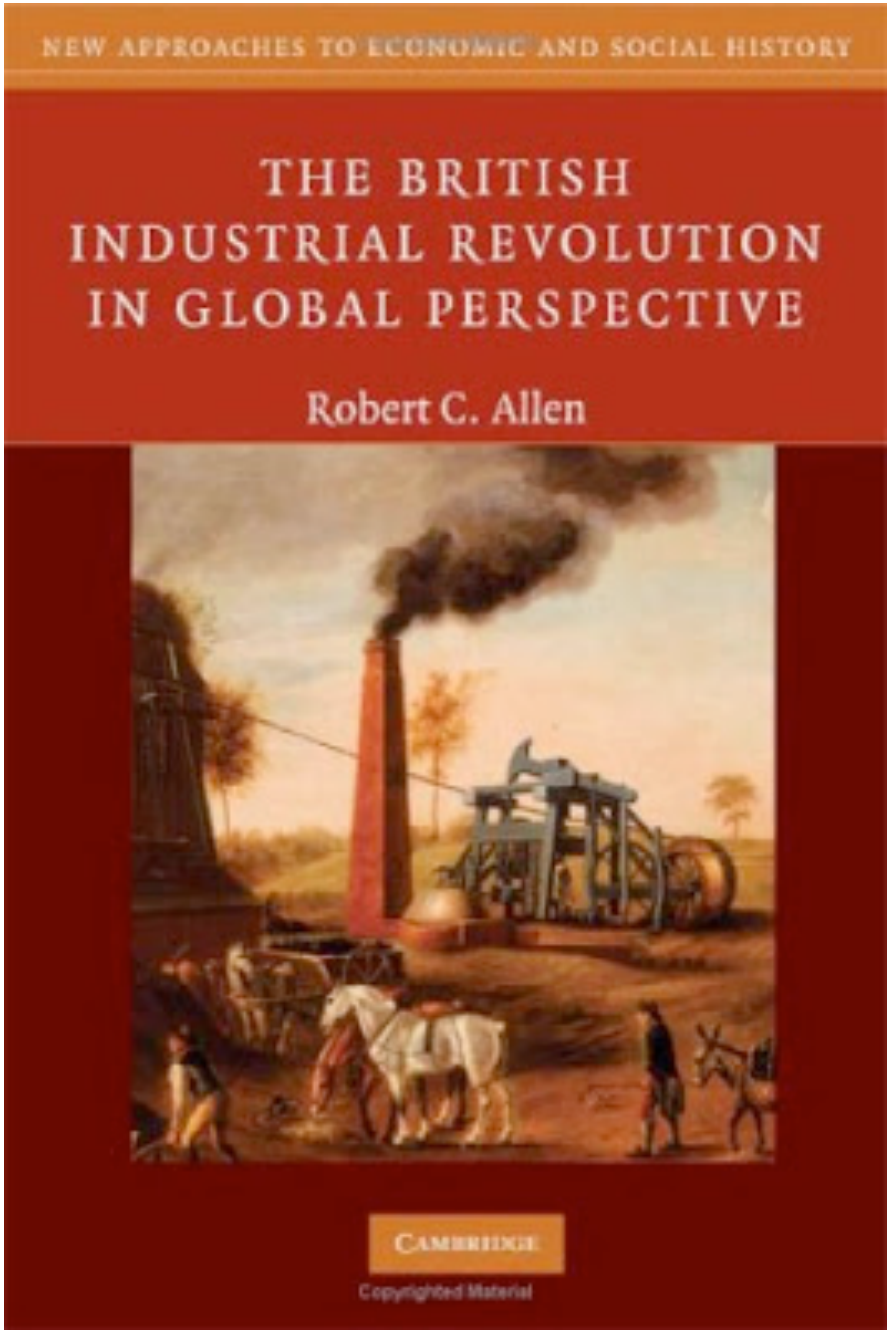
An early energy transition: adapt an handle to a stone



The water-mill: a field for innovation and transitions
invention in Roman times, diffusion and diversification during the Middle Ages



The windmill, arrived in Europe around 1200. First pecialised in grain grinding.
A solution against the water-mill intermittencies?


NEW APPROACHES TO ECONOMIC AND SOCIAL HISTORY
THE BRITISH INDUSTRIAL REVOLUTION IN GLOBAL PERSPECTIVE
Robert C. Allen
CAMBRIDGE
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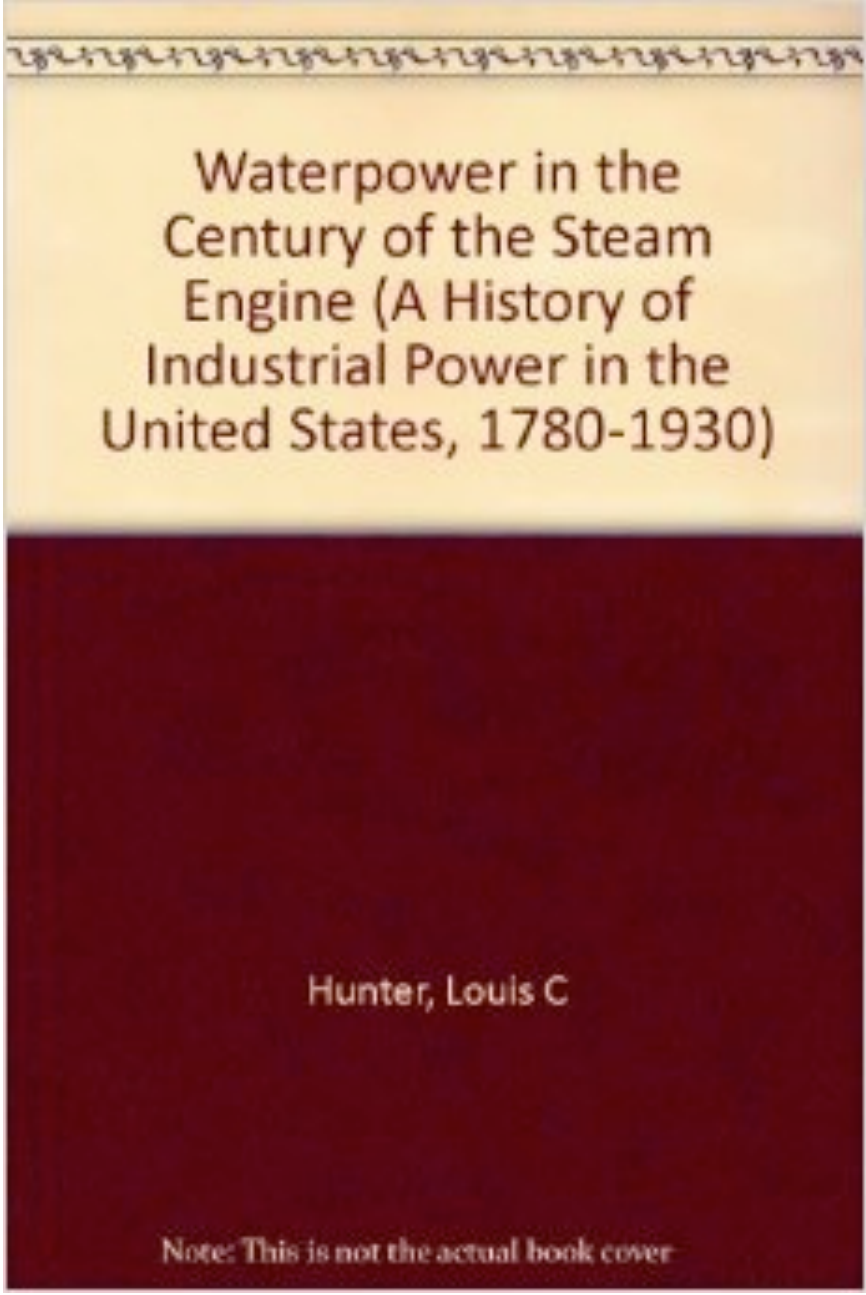
Waterpower in the Century of the Steam Engine (A History of Industrial Power in the United States, 1780-1930)
Hunter, Louis C
Note: This is not the actual book cover

THE GREAT DIVERGENCE

China, Europe, and the Making of the Modern World Economy

KENNETH POMERANZ

Two brief case-studies in energy transitions in an old steel-intensive economy

1. Plough, oxen and horses: economics environmental and socio-political impacts of a change in draught animals (North-western Europe, 12th-14th centuries?)

NB: plough/plow= charrue

plowshare= soc

Coulter= coutre

Ard= araire

Plowman and plough (Picardie, 13th century)

- With an horse-driven plough, a ploughman and his son are able to cultivate up to 12-15ha (oxen x2; individual handwork x 10).
- High increase of human productivity
- Medium grain and land-yield
- Part of the crop in oats, to feed the horses
- Draught animals raise an issue of intermittency (of their use). Between the periods of field-work, horses used for transport services in urban economy

Pays d'Ouche (Normandy), ca 1300

Cistercian monks, royal administration, forges, famine and environmental crisis: towards an energy transition in iron-production

The case: wood, monks and forges in southern Normandy

The source: records of a dispute (1316-1317) between the Cistercian monks of La Trappe Abbey and local royal officers, about the fiscal situation of the wood of their granges settled in the iron-production district of the Pays d'Ouche, which had been seized by the local officers.


Bernay
N154
Orbec
Évreux
Conches-en-Ouche
Gastine
E402
Le Sap
Damville
Breteuil
Rugles
N154
Gacé
L'Aigle
A28
Verneuil-sur-Avre
Le Merlerault
Brezolles
La Trappe
E402
N12
Sées

- Statements made by peasants during the inquiry made in the surrounding villages, explain that the trees to be sold had been sewn and cultivated by the monks in the fields, out of the forest:

« trouvé fut par plus anciens et de grand âge qu'un frère convers, qu'ils appelaient Robert *Serf des oies*, avait semé et planté lesdits bois et que il l'avoient veu et seu en leur enfance […], et par plusieurs autres qui disaient que il avoient vu après être parvenus à l'âge de connaissance et perception que dans lesdits bois il virent semer et croître du seigle […], et disaient aucuns d'eux qu'ils y avoient glané en août en leur enfance. »

- So:

  1. Since they did not grow **inside the forest**, these trees were not subject to the royal taxes of « tiers et danger » (ca 40% of the value of the wood).

  And:

  2. The crops that grew in fields of costumary ecclesiastic tenure (*elemosyna*), like these trees were anyway tax free.

Are theses trees some kind of biofuel?

What should be the definition of a medieval loophole (Fr « niche fiscale »)?

- **The sentence: a triumph for the monks**

« jugé fut et dit par droit par plusieurs clercs et autres sages qui étaient auxdites assises que lesdits religieux avoient si bien informés lesdits commissaires que lesdits bois leur doivent être mis délivrés comme francs et quittes de tous tiers et dangers »

The trial, first in local then in central court shows some uncertainty in the institutionnal level of governance

And a defeat for the royal officiers

- « demandâmes auxdits chevalier et procureur s'ils voulaient rien dire contre le conseil dessus dudit, et lesdits chevalier et procureur, et plusieurs sages avocats étant auxdites assises, dirent qu'ils ne voyaient ni n'apercevaient cause pour le roi par quoi ils pussent ou dussent contredire que les bois soient delivrés [avec l'argent des ventes de bois déjà faites,] »

- The fiscal issue is only one aspect of the situation.

- **The most interesting issue is the choice made by the monk to grew trees on fields previously devoted to rye**

- The geographical context: an iron-production district in the surround of Paris.


Lisieux
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Le Merlerault
Brezolles
La Trappe
E402
N12
Sées
Tourouvre

Some figures from a feudal survey (ca. 1313-1320)

- Around Glos-la-Ferrière : **at least 200 furnaces**, each paying a yearly tax of 1 iron-bar.
- One forge near Orbec needs yearly **4,5 ha of woodland** for fuel.
- For 200 furnaces : **900 ha** yearly, that is 18000 ha (40000 acres) of coppice, with a 20 years-rotation.

- **coppice-= taillis**

Was there an ecological crisis in the begining of the 14th century?

Forest of Orbec

100 acres high stand forest of which 10 cut yearly

+540 acres coppice of which 60 cut yearly = 10 ans

i.e. : 10 years average revolution

Forest of Saint-Evroult

320 acres coppice, of which 140 have been cut recently, and 60 use to be cut yearly

i.e. 6 years average revolution

NB 1 local acre= 2 english acres

- **The evidence of a critical situation: does it explain the choice made by the monks, ca 1280?**

But, in the context of the great famine, it raises the issue of the sustenability of the arbitration for wood against grain.

- There are also agrarian and botanic aspects

The Pays d'Ouche has bad soils (for rye) but many iron-ore and there is an important iron demand in Paris.

*It is also a region of pine-trees (*sapins pectinés*), bad for charcoal : what kind of trees were sewn?*

Conclusion

- *1348: The Plague puts an end to the ecological crisis.*
- *1480: The transition to indirect process of iron-production changes the nature and dimension of the question of energy costs.*
- The documents record an experiment in innovation for the mamagement of forest biomass. The provide evidence of a long-term management of landscapes.
- From a more interdisciplinary point of view? What for a further inquiry ?
  - 1. importance of paleoenvironmental approaches.
  - 2. Importance of a methodic reflexion on scale choices for the analysis of processes.