The Education System (1).

- **Trivium.** (*Artes sermocinales.*)
  - *Grammar.*
  - *Rhetoric.*
  - *Dialectic*/*Logic*.

- **Quadrivium.** (*Artes reales / Artes physicae.*)
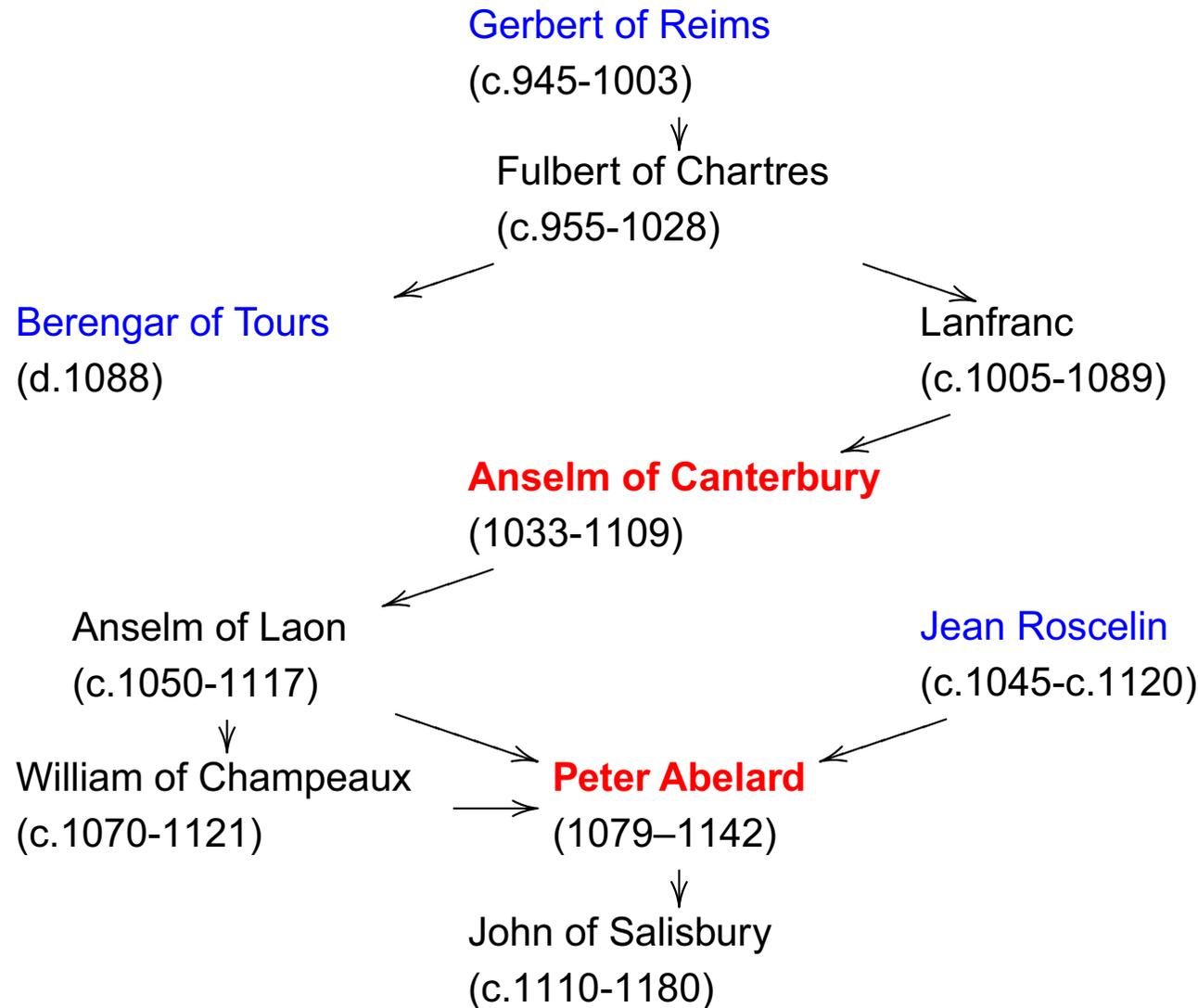 - *Arithmetic.*
  - *Geometry.*
  - *Astronomy.*
  - *Music.*

Ancient sources. Varro (116-28 BC), Cassidorus (c.490-c.585), Boëthius (c.475-524).

The Education System (2).

"Renaissances" of the Middle Ages.

- *Carolingian Renaissance.* Alcuin (735-804). Gottschalk and the first debate on double predestination. Johannes Scotus Eriugena (c.810-877).

- *Ottonian Renaissance.* Gerbert of Reims (later *Pope Silvester II*; c.945-1003). Fulbert of Chartres (c.955-1028). Berengar of Tours (d.1088). Lanfranc (c.1005-1089). Anselm of Canterbury (1033-1109).

- *Renaissance of the XIIth century.* Peter Abelard (1079-1142). John of Salisbury (c.1110-1180). The birth of the European University.

The Education System (3): A continuum?

Gerbert of Reims
(c.945-1003)

Fulbert of Chartres
(c.955-1028)

Berengar of Tours
(d.1088)

Lanfranc
(c.1005-1089)

Anselm of Canterbury
(1033-1109)

Anselm of Laon
(c.1050-1117)

Jean Roscelin
(c.1045-c.1120)

William of Champeaux
(c.1070-1121)

Peter Abelard
(1079–1142)

John of Salisbury
(c.1110-1180)

Realism & Nominalism.

- Was not a issue in the XIth century (Garland the Computist).

- Roscelin; Abelard (XIIth century).

- Aristotelian distinction:
  - Universal substances: **Animal**, **Human**.
  - Particular substances: **Socrates**, **Plato**, **Aristotle**.

Realists. Universals exists independent of the particulars.

Problem. What is the ontological status of these universals?

Nominalists. Universals exist only through the particulars.

Problem. Is it intuitively plausible that the concept 'tree' changes every time a tree is cut down?

Peter Abelard (1).

- 1079-1142.

- Abelard decides in favour of a clerical career against the will of his noble father. In 1094, he leaves home to study logic and dialectics under Roscelin of Compiègne.

- Abelard comes to Paris and studies under William of Champeaux. Public debates during lectures on universals.

Peter Abelard (2).

- 1102-1111. Abelard teaches in Melun, Corbeil, Paris.

- 1111-1113. Abelard goes to Laon to study theology with Anselm of Laon.

- 1113-1118. Abelard is the mentor of Héloise (1100-1163). They have a child, Astrolabe, and marry.

- 1118. Héloise's uncle Fulbert hires thugs who castrate Abelard. Abelard becomes monk at St.Denis, Héloise nun at Argenteuil.

- 1118-1136. Abelard lives as a monk.

- 1121. First condemnation (Council of Soissons).

Peter Abelard (3).

- 1136-1140. Abelard returns to teach in Paris.

- 1140. Second condemnation (Council of Sens).

- 1142. Abelard dies on the way to Rome.

- *Historia Calamitatum Mearum.* (1132)

Abelard's Logic.

- **The Square of Oppositions.** Discussion of the existential content of universal statements: Does *"Omnis homo est albus"* imply that there is a man?

- **Modal Logic.** Distinction of modal statements into *de re* and *de dicto*.

- **Temporal Logic.** Isolation of the concept of "true at a time".

- **Propositional Logic.** Theory of conditionals.

Martin M. **Tweedale**, Abelard and the culmination of the old logic, *in:* N. Kretzmann, A. Kenny, J. Pinborg (*eds.*), The Cambridge History of Later Medieval Philosophy, Cambridge 1982, p. 143-158

Abelard: *quidam non* vs *non omnis.*

Abelard notices that the Aristotelian square of oppositions includes "existential import":

"Every B is A" implies "Some B is A",

so he reads "*omnis homo est albus*" as "there are men and all of them are white".
Therefore, Abelard distinguishes between "*Non omnis homo est albus*" ("either there are no men or there are non-white men") and "*Quidam homo non est albus*" ("there is a non-white man").

Abelard: *de re* vs *de dicto*.

Abelard notices the modal logic distinction *de re* versus *de dicto*. ("*expositio per divisionem*" and "*expositio per compositionem*"), thereby developing a way to understand the Aristotelian "two Barbaras" problem.
However, he claims that *de dicto* modalities are not real modalities.
(This changes in Thomas Aquinas, *De Modalibus*.)

Abelard: true at time t.

Confusion in the Master Argument about tense and time.
Not all statements in past tense are necessarily true:
"Socrates did not talk to Plato."
One attempt of a solution is to introduce a semantics of
tense sentences that allows **truth at a time**.
One step in the direction of modern temporal logics.

Abelard: Conditionals.

A new (intensional) view of propositional logic:
"*Si non est A est B.*" is equivalent to "*Aut est A aut est B.*"

$$\neg A \rightarrow B \leftrightarrow A \vee B?$$

Abelard reads "*Si est A est B*" as "necessarily, A implies B", and thus has a different reading of the disjunction as "necessarily, $\neg A$ implies B".

Rediscovery of Aristotle.

- Until 1100: *Logica vetus*.
  - Aristotle, *Categoriae* (Boëthius).
  - Aristotle, *De interpretatione* (Boëthius).
  - Porphyrios, *Isagoge*.

- c.1120: Rediscovery of Boëthius' translations of
  - Aristotle, *Prior Analytics*.
  - Aristotle, *Topica*.
  - Aristotle, *Sophistici Elenchi*.

- c.1150: James of Venice translates
  - Aristotle, *Posterior Analytics*.
  - Aristotle, *De anima*.
  - Aristotle, *Metaphysica*.

Logica Nova.

Bernard G. **Dod**, Aristoteles Latinus, *in:* N. Kretzmann, A. Kenny, J. Pinborg (*eds.*), The Cambridge History of Later Medieval Philosophy, Cambridge 1982, p. 45-79

The historical situation around 1200.

- **Resources.** Rediscovery of Aristotle leads to a lot of new material.

- **Institutions.** The centres of learning (Paris, Oxford, ...) institutionalise learning in the Universities.

- *Consolidation of the XIIIth century.* Embedding of Aristotelian teaching into the Christian philosophy.

(Saint) **Albert the Great**

Albertus Magnus (c.1200-1280)

Doctor Universalis.

Founder of the *studium generale* in Cologne (1248).

Predecessor of modern concept of sciences:

The aim of natural science is not simply to accept the statements of others, but to investigate the causes that are at work in nature.

The historical situation around 1200.

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(Saint) **Thomas Aquinas** (1225-1274)
Student of Albert the Great.
Doctor Angelicus.

The birth of the university (1).

- *Pre-universities.*

  - Law School of Bologna since the early XIth century (*"Bononia docet"*).
  - Cloister schools and cathedral schools in Paris (*e.g.*, the cathedral school of Notre Dame).

- *Problems.*

  - Non-citizen students and scholars in the cities.
  - High prestige of the education requires canonical procedures.
  - Intellectual atmosphere is hard to control for the church.

The birth of the university (2).

- **Bologna** (c.1200). Non-Bolognese **students** form interest groups, the so-called *nationes* or *universitates*.

  - *universitas legistarum citramontanorum*,

  - *universitas legistarum ultramontanorum*,

  - *universitas artistarum et medicorum*,

  - *collegium doctorum*.

- **Paris** (c.1200). Parisian educational institutions plan a more systematic way of teaching organisation, forming a *universitas*.

  - *Facultas Artium.*

  - *Facultas Iurisprudentiae.*

  - *Facultas Medicinae.*

  - *Facultas Theologiae.*

The birth of the university (3)

The Bologna model (*modus Bononiensis*).

- Each *universitas* elects their own *rector* (a student).

- No colleges.

- No university-wide structure.

The Paris model (*modus Parisiensis*).

- Each faculty has their own administration (*decanus*, Dean; *quaestor*, financial officer), elected by the *magistri*.

- *Concilium generale*, dominated by the *magistri* of the *Facultas Artium*. Elects *rector*, normally a professor.

- Colleges, offering accommodation for poor students (and sometimes professors).

Early universities.

- **Bologna** (c.1200), **Paris** (c.1200)

- Oxford (1212)

- Salamanca (1218)

- Montpellier (1220)

- Naples (1224)

- Cambridge (1225)

- Toulouse (1229), Orléans (c.1235), Papal Rome (c.1245), Piacenza (1248), Angers (c.1250), Sevilla (1254), Valladolid (c.1290), Lisbon (c.1290), Lerida (c.1300), Avignon (1303), City of Rome (1303), Perugia (1308), Treviso (1318), Cahors (1332), Grenoble (1339), Pisa (1343), Prague (1348), Florence (1349), Perpignan (1350), Huesca (1354), Arezzo (1355), Siena (1357), Pavia (1361), Cracow (1364), Orange (1365), Vienna (1365), Pécs (1367), Lucca (1369), Erfurt (1379), Heidelberg (1385), Cologne (1388), Ferrara (1391), Buda (1395).

- **1400:** 30. **1500:** 60. **1600:** 110. **1700:** 150.

Teaching in the *Trivium*.

- **Grammar.**
  - Aelius Donatus, *Ars minor*, *Ars maior*.
  - Priscianus, *Institutiones grammaticae*.

- **Logic / Dialectic.**
  - *Logica vetus et nova*.
  - Petrus Hispanus, *Summulae logicales*.
  - William of Ockham, *Summa logicae*.

- **Rhetoric.**
  - Cicero.
  - Quintilianus, *Institutio oratoria*.

The academic career.

Nullus sit scholaris Parisius qui certum magistrum non habet.

- *Schola / Familia Scholarum*, headed by a *magister*.

- The *magister* guides the student socially and academically to the baccalaureate.

- After that, the scholar starts an teaching assistantship with his *magister*.

- After two to three years, he becomes "licentiate" after a private *rigorosum*.

- To become *magister*, there is another public ceremonial exam, the *inceptio*, in combination with a public disputation.