

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



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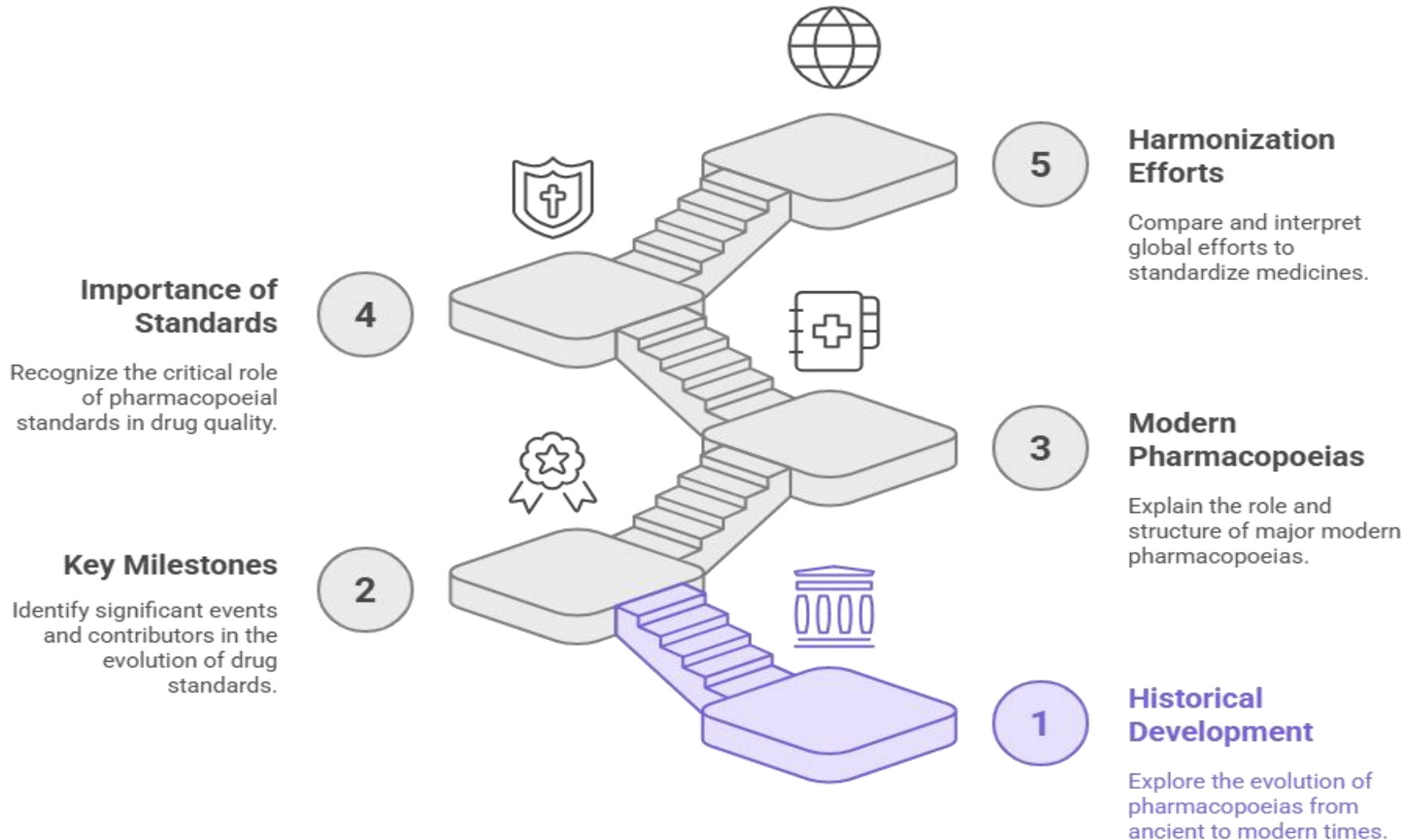
COURSE NAME : Pharmaceutical Inorganic Chemistry (BP 104 T)

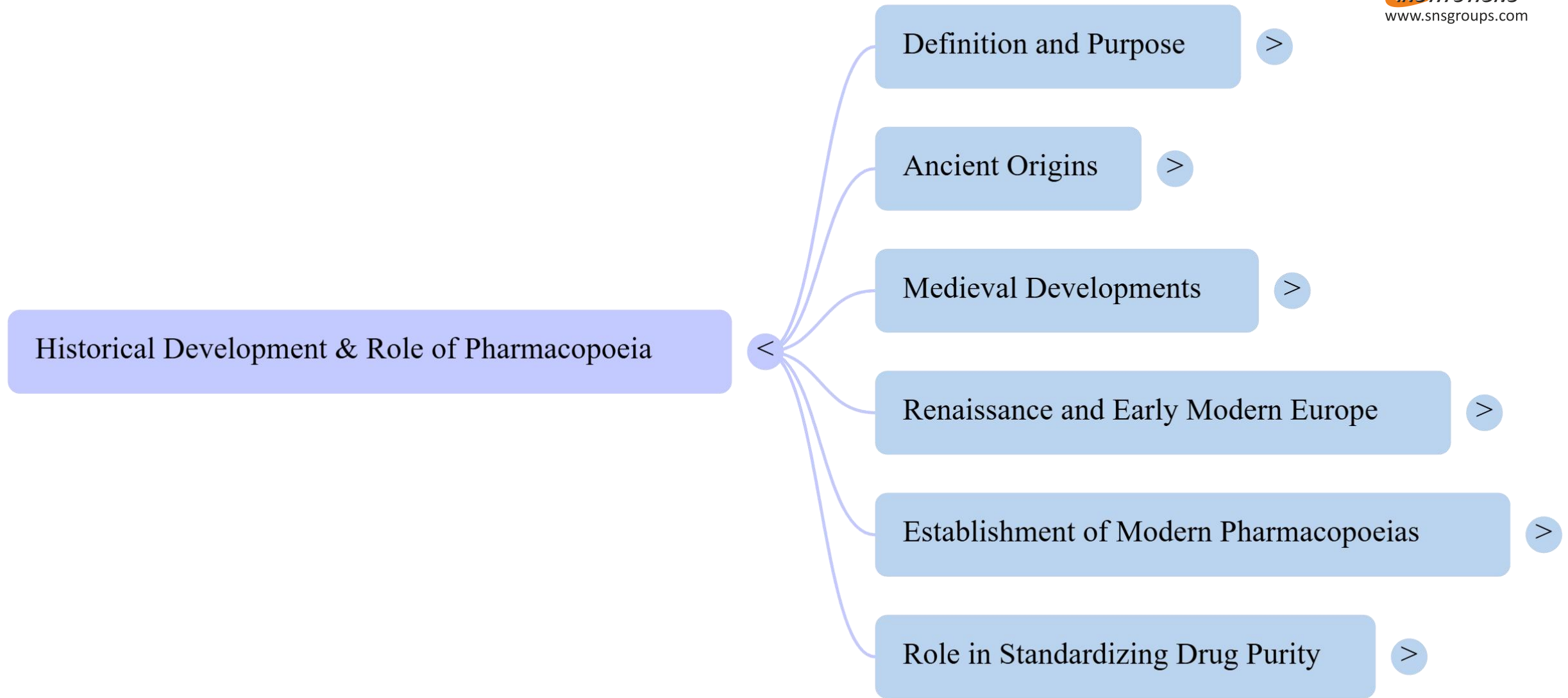
I YEAR / I SEM

TOPIC: Impurities in pharmaceutical substances (UNIT I)

SUB TOPIC: Origins of Pharmacopoeia

Achieving Comprehensive Pharmacopoeial Understanding





Foundations of Pharmaceutical Standards



Identity Standards

Establishes criteria for verifying the authenticity of pharmaceutical substances.



Quality Standards

Ensures that pharmaceutical products meet specified quality benchmarks.



Purity Standards

Defines acceptable levels of impurities in pharmaceutical substances.



Strength Standards

Sets requirements for the potency and concentration of active ingredients.



Packaging Standards

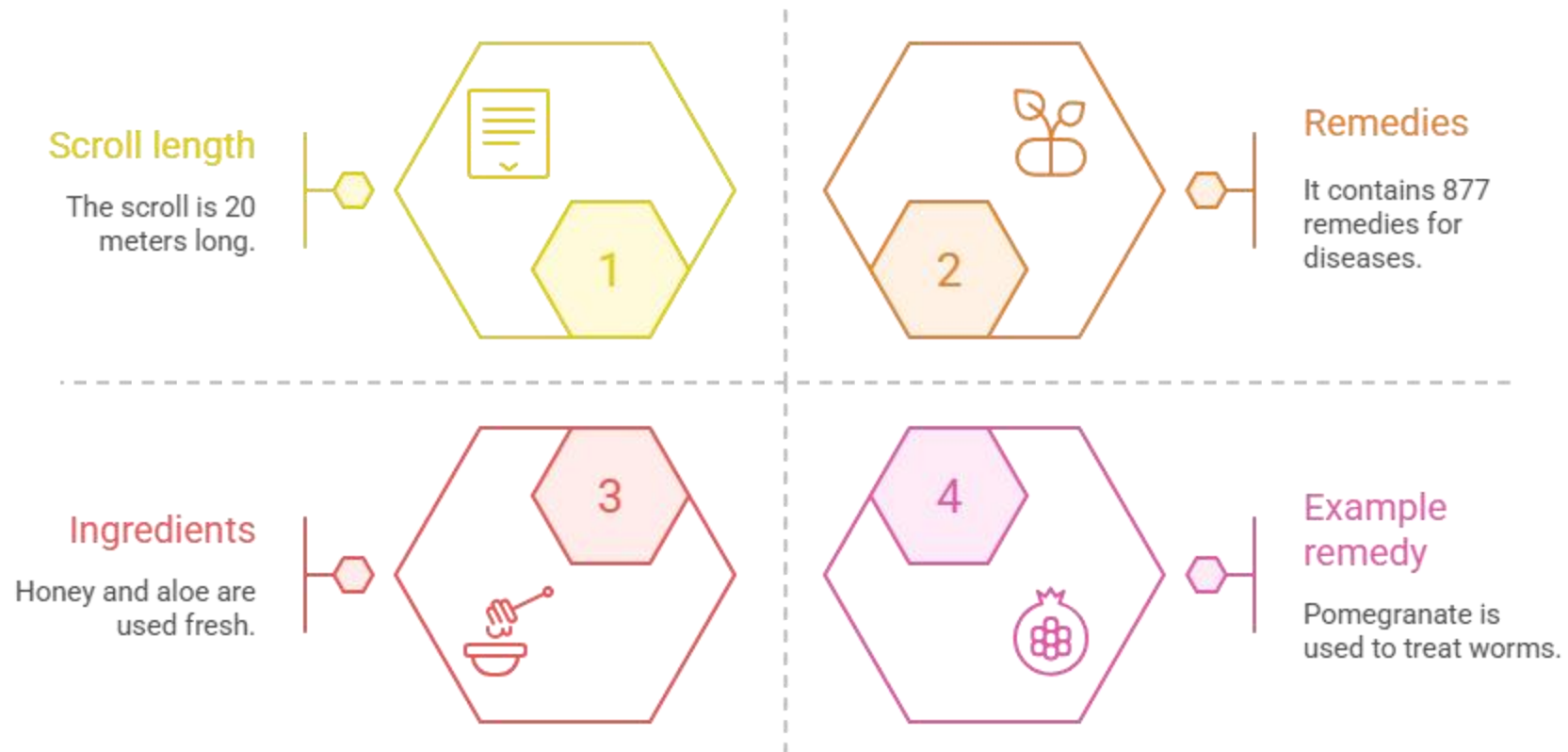
Specifies guidelines for the safe and secure packaging of medicines.

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ANCIENT ORIGINS

1. Ancient Egypt (Ebers Papyrus, 1550 BC)

Ebers Papyrus details



2. Contributions from Ancient Greece

Contributions to Ancient Medicine

Dioscorides
Compiled a comprehensive materia medica with sensory tests



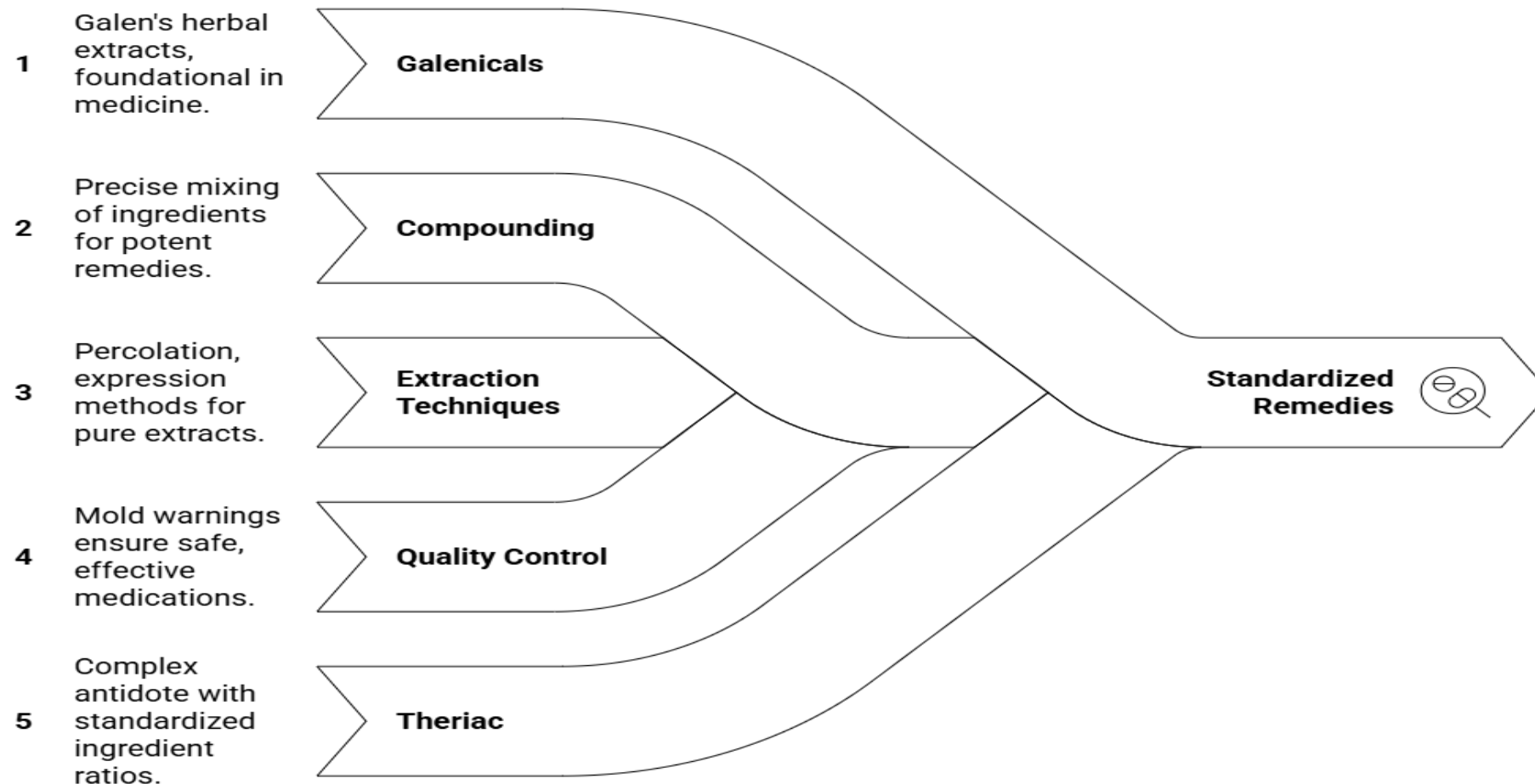
Hippocrates
Father of Medicine; rational approaches and purity emphasis

Theophrastus

Classified medicinal plants and prevented

3.ROMAN INFLUENCES

Galen's Legacy in Medicine



Medieval Medical and Chemical Innovations



Rhazes' Kitab al-Mansuri

Rhazes authors a medical text focusing on purity through distillation.



Avicenna's Canon

Avicenna compiles a comprehensive medical encyclopedia.



Drug Listing

Avicenna lists 760 drugs in his Canon.



Impurity Tests

Avicenna develops tests for taste and color impurities.



Alcohol Distillation

Avicenna introduces the process of alcohol distillation.

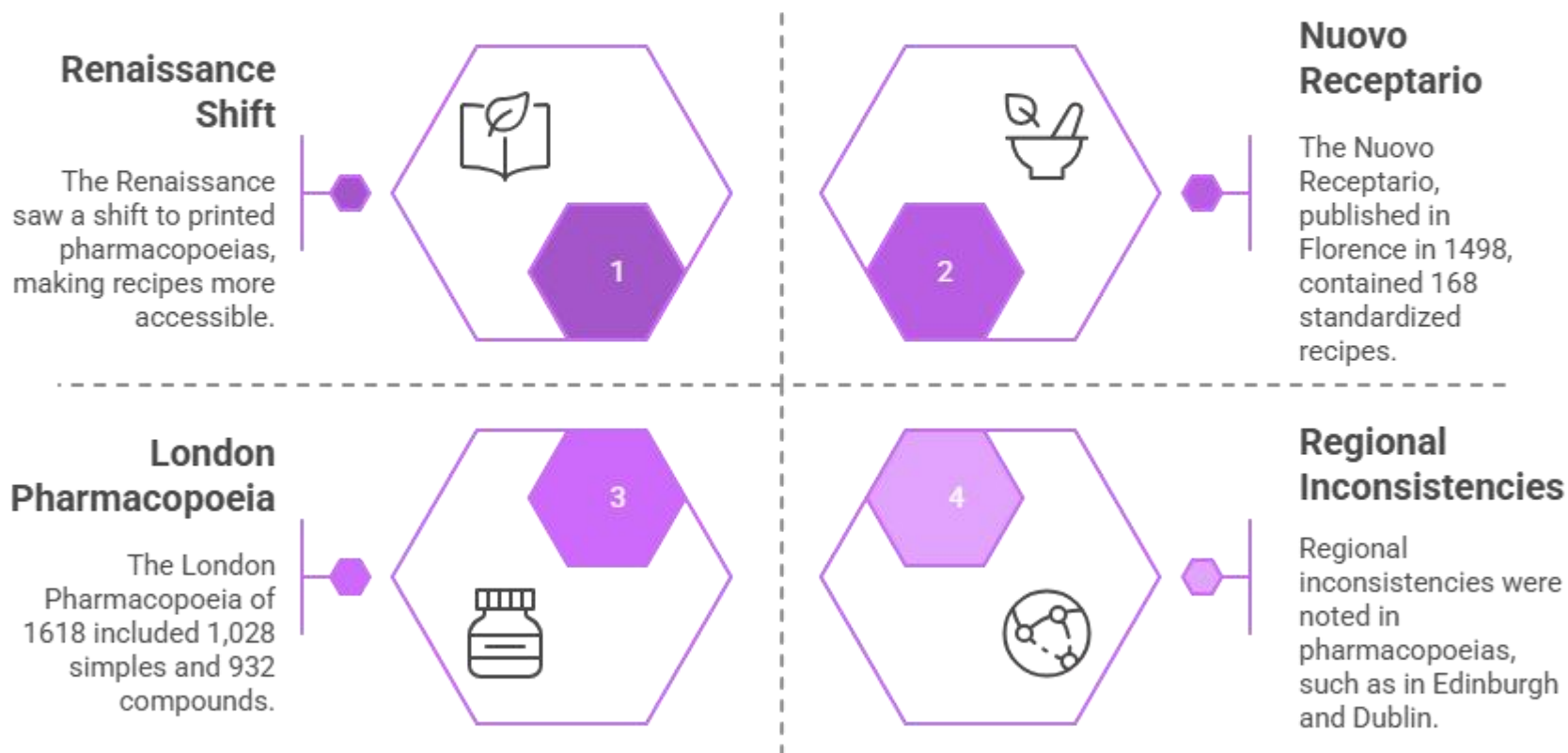


Mercury Toxicity Warning

Avicenna warns about the dangers of mercury exposure.

Renaissance and Early Modern Pharmacopoeias in Europe

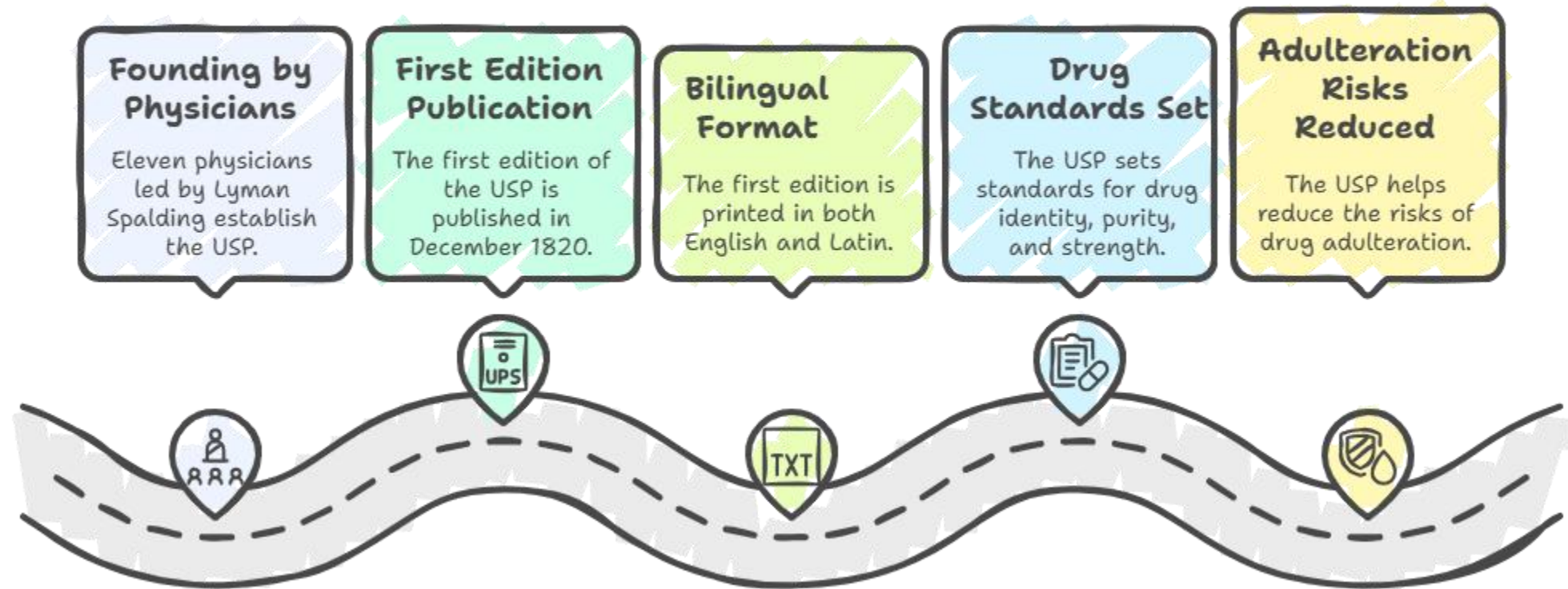
Renaissance Pharmacopoeias



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Establishment of the United States Pharmacopeia (1820)

Establishment of the United States Pharmacopeia



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Formation of the British Pharmacopoeia (1864)

Formation of the British Pharmacopoeia



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Role in Standardizing Drug Purity

Pharmaceutical Testing Evolution



Sensory Tests

Early methods relied on human senses like taste.

USP 1820 introduced chemical analysis for purity.

Chemical Assays



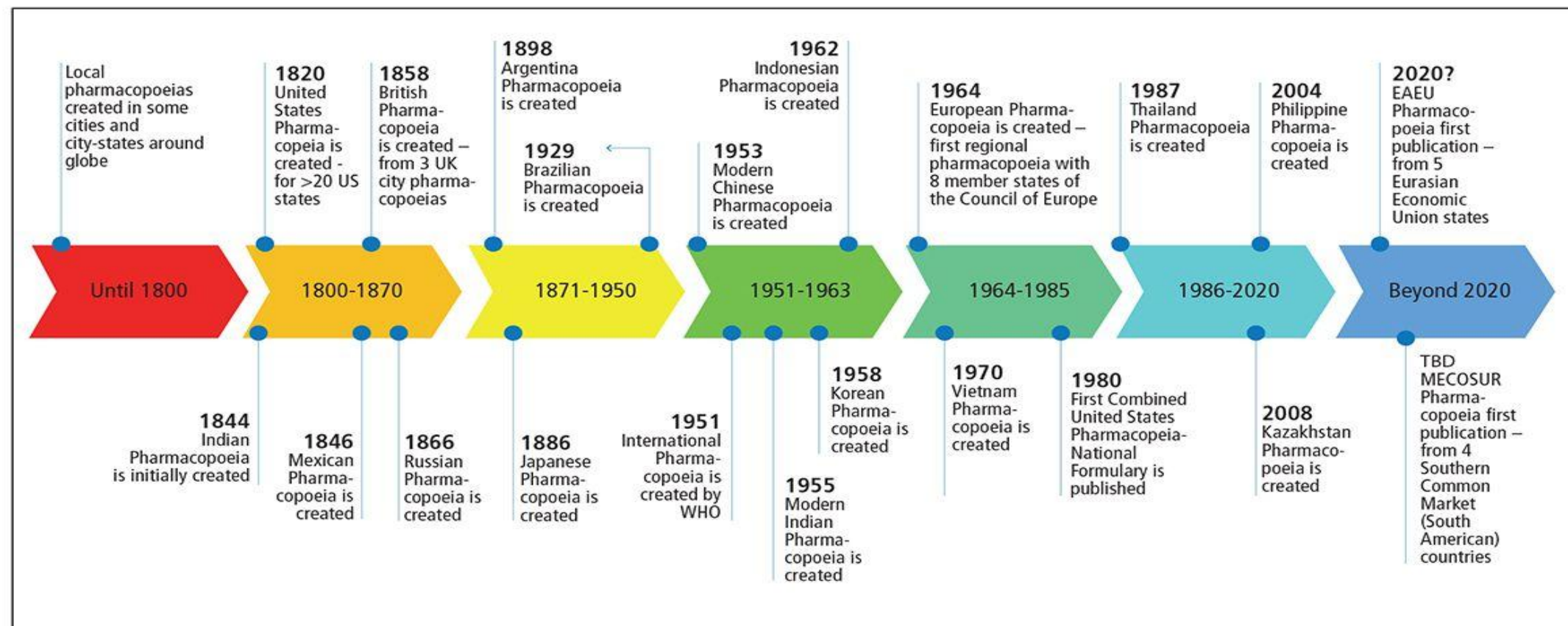
Quantitative Limits

BP 1864 established precise impurity percentage limits.

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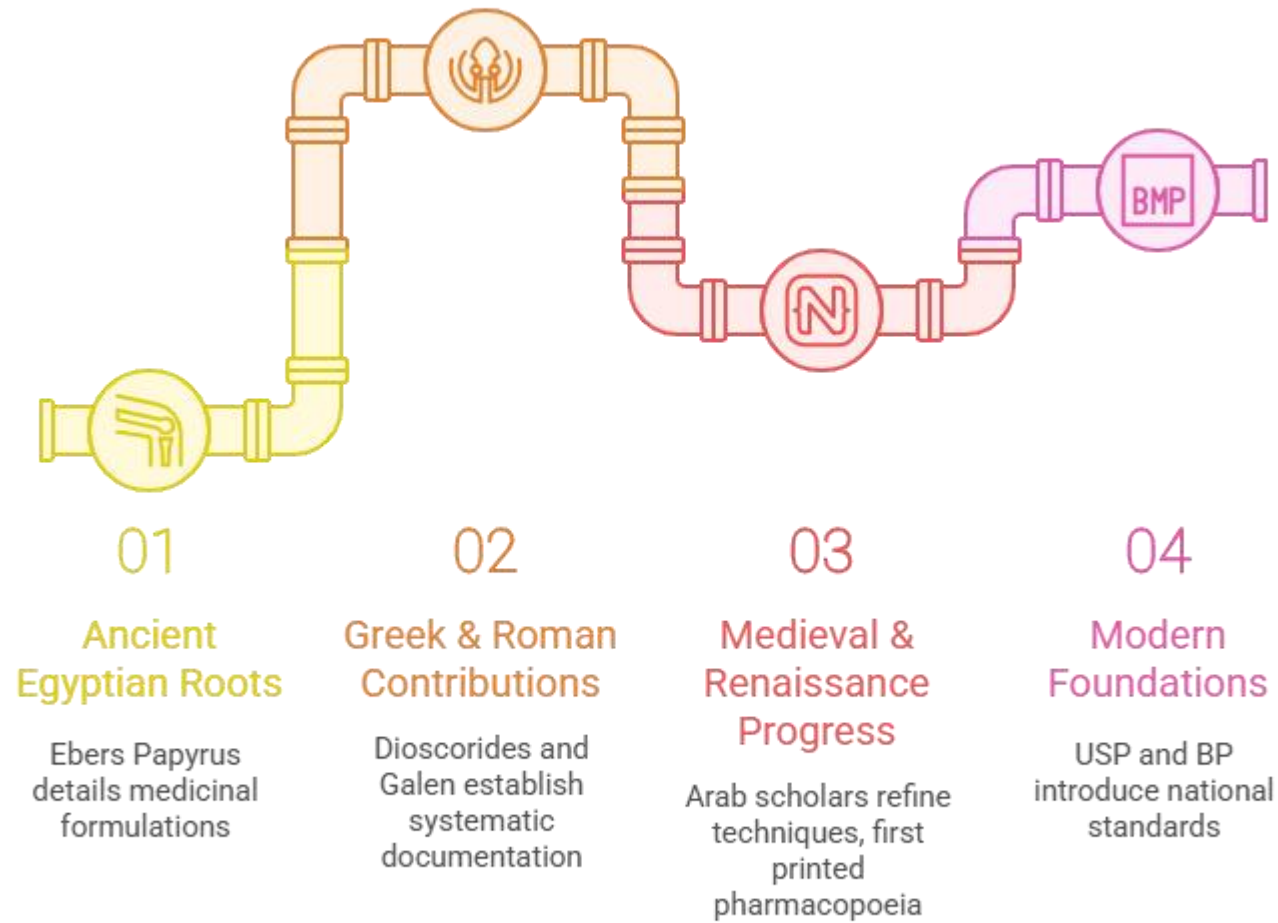
History of Pharmacopoeia:

Figure 1. Timeline indicating the year when many of the pharmacopoeias were created.



Key Takeaways

Evolution of Pharmacopoeia



1. What is the primary purpose of a pharmacopoeia as defined in the document?

- A) To provide recipes for home remedies
- B) To establish standards for the identity, quality, purity, strength, and packaging of pharmaceutical substances
- C) To list only ancient medicinal plants
- D) To regulate the pricing of drugs



Purpose of a Pharmacopoeia

What is the primary purpose of a pharmacopoeia as defined in the document?



To establish standards for the identity, quality, purity, strength, and packaging of pharmaceutical substances.




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2. Which ancient document, dating back to 1550 BC, is described as a 20m scroll containing 877 remedies and emphasizing ingredient freshness for purity?

- A) De Materia Medica
- B) Canon of Medicine
- C) Ebers Papyrus
- D) Kitab al-Mansuri



Ancient Remedy Scroll



Which ancient document, dating back to 1550 BC, is described as a 20m scroll containing 877 remedies and emphasizing ingredient freshness for purity?

C) Ebers Papyrus



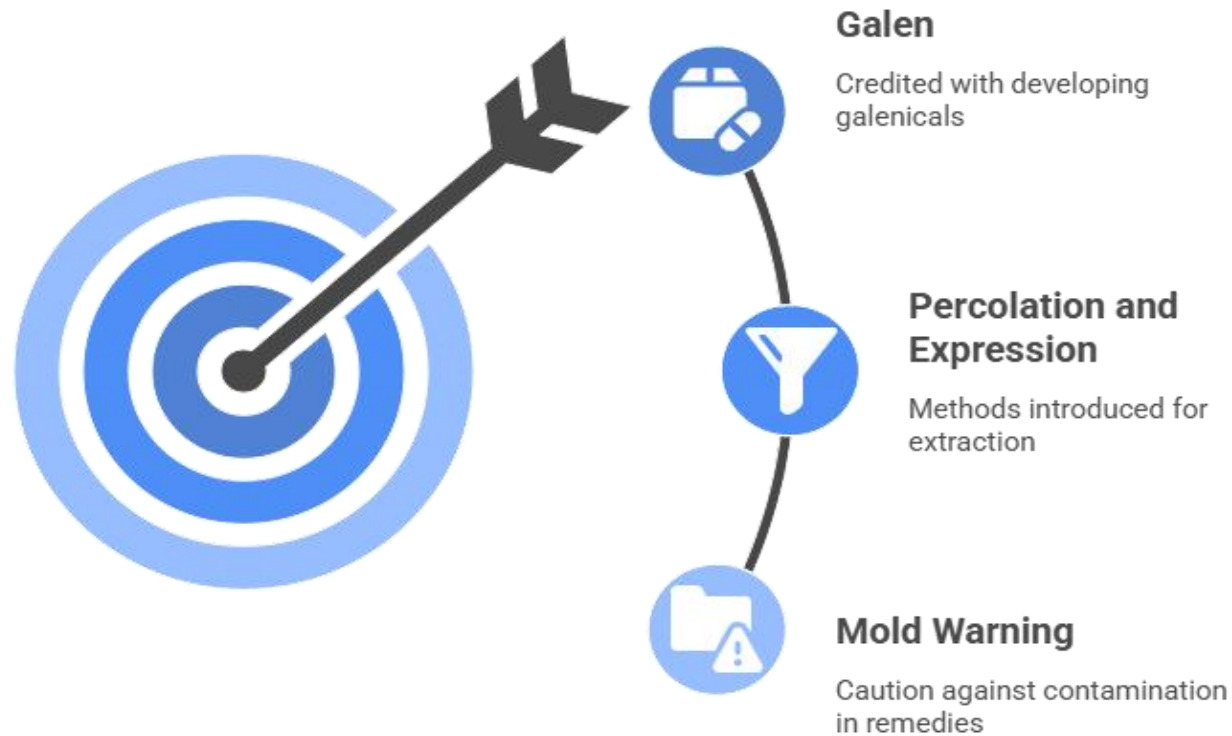
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3. Who is credited with developing "galenicals" and introducing methods like percolation and expression, while warning about mold in remedies?

- A) Hippocrates
- B) Galen
- C) Avicenna
- D) Dioscorides



Galen's Contributions to Pharmacy



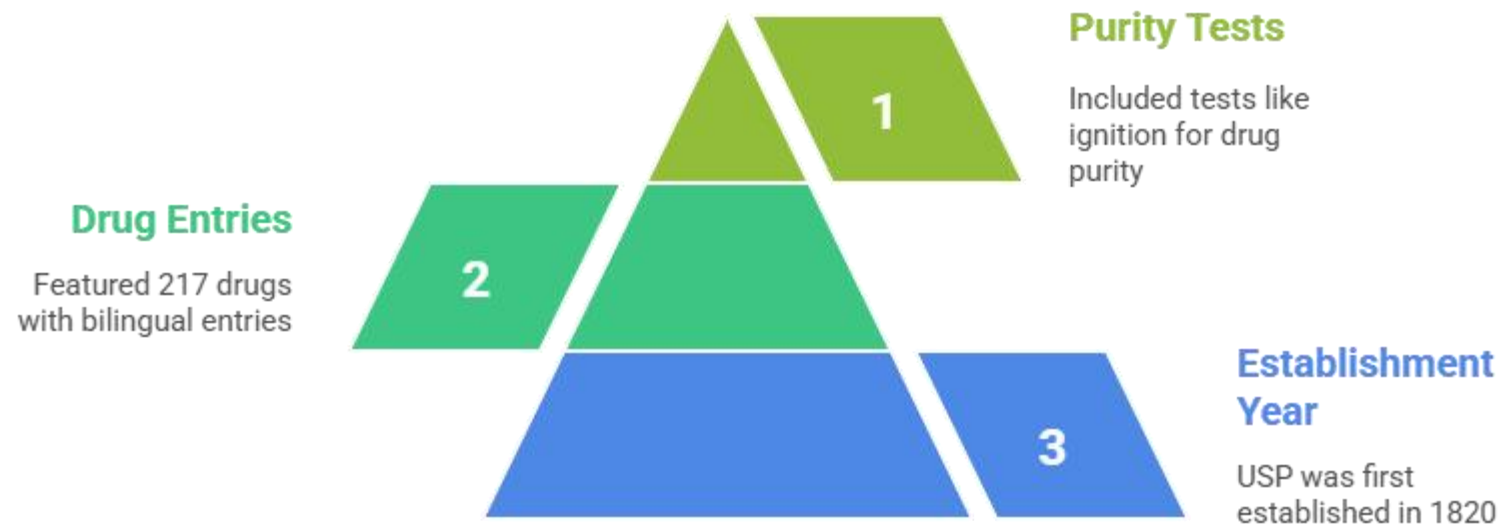
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4. In which year was the United States Pharmacopeia (USP) first established, and what was a key feature of its first edition?

- A) 1864; Unified regional standards with arsenic tests
- B) 1498; 168 standardized recipes
- C) 1820; 217 drugs with bilingual entries and purity tests like ignition
- D) 1618; 1,028 simples and 932 compounds

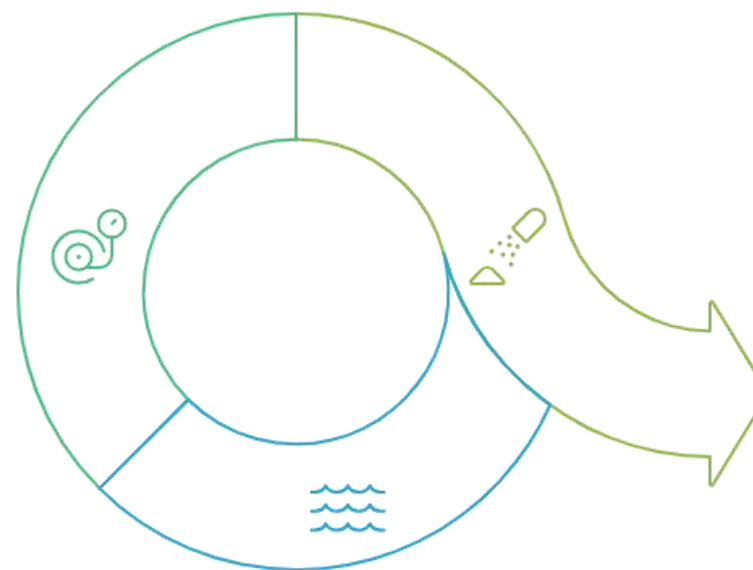


USP's Foundation and Key Features



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What is Osmotic-Controlled Drug Release Cycle?



1

Water Absorption

Water enters the system due to osmotic pressure.

2

Pressure Buildup

Osmotic pressure increases inside the system.

3

Drug Release

Pressure pushes the drug out through an orifice.

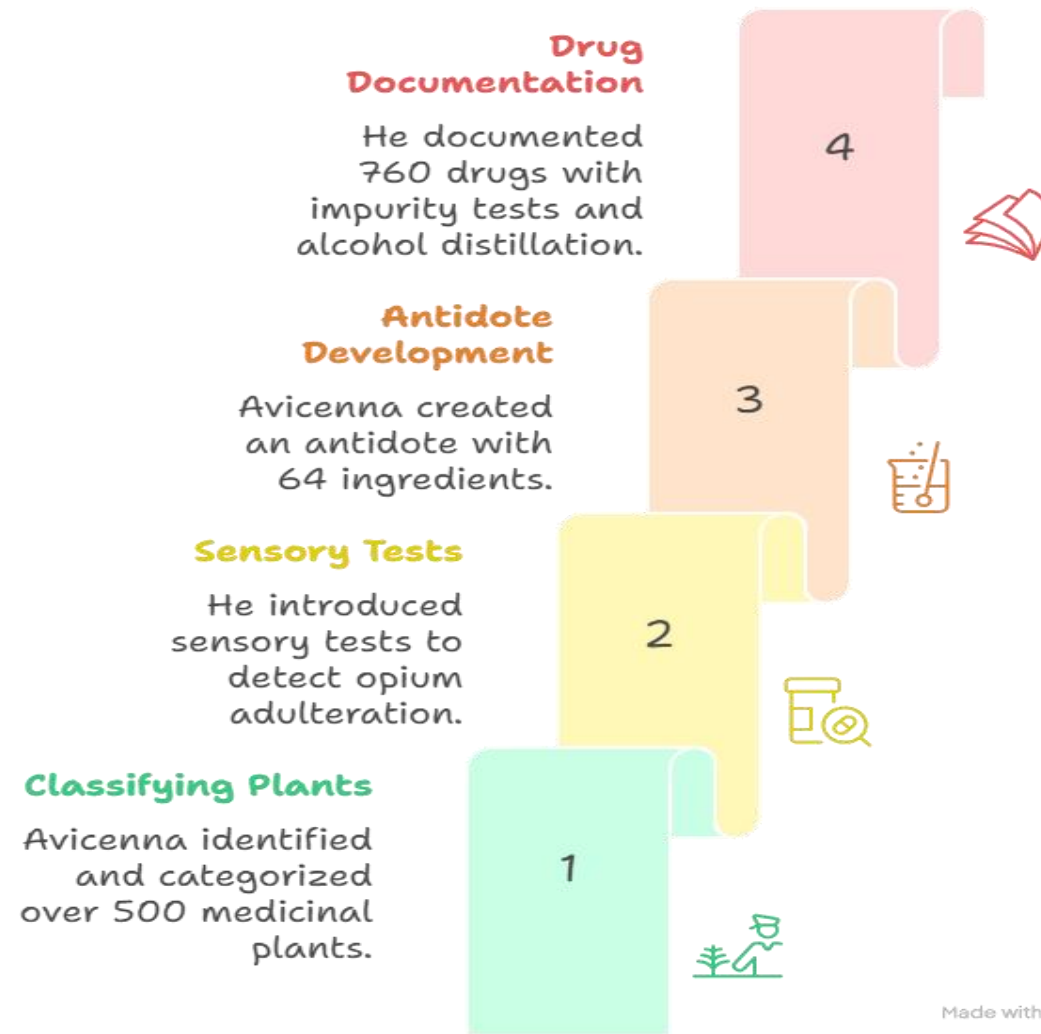
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5. According to the document, what significant contribution did Avicenna make in the medieval Arab world?

- A) Classifying over 500 medicinal plants
- B) Introducing sensory tests for opium adulteration
- C) Developing an antidote with 64 ingredients
- D) Documenting 760 drugs with taste/color impurity tests and alcohol distillation



Avicenna's Contributions to Medicine



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REFERENCES

☐ Textbook References

- 1.Ebers Papyrus (1550 BC, Egypt)** – Among the earliest medical records describing 877 remedies; established primitive purity standards through ingredient freshness.
- 2.Dioscorides' De Materia Medica (60–78 AD, Greece)** – Systematically classified over 600 plant-based drugs and introduced sensory tests for purity and adulteration.
- 3.Galen's Compounded Formulations (129–216 AD, Rome)** – Emphasized precise compounding, storage, and quality control—foundation for modern galenicals.
- 4.Avicenna's Canon of Medicine (980–1037 AD, Arab World)** – Introduced classification of 760 drugs with tests for adulteration and advocated purification by distillation.
- 5.United States Pharmacopoeia (1820) and British Pharmacopoeia (1864)** – Established national standards with defined assays, impurity limits, and analytical tests for consistent drug purity.



Thank You

