

Midterm 2

Unit 3

1. A) Higher B) 96% of the errors were in the scientists' favor.
2. A) I believe this is the case, because while one individual may not notice any errors in their work, when that same work is reviewed by a group it's much more likely someone will notice a mistake that has been made.
B) One example of this is the case of cold fusion, it was initially not reviewed and was very flawed as a theory, when it was reviewed by other scientists, it was easy for them to point out the mistakes within and what made it a flawed theory.
3. A) Was not peer reviewed before publication, research was rushed and incomplete, theory was not backed up by data, data could not be reproduced
B) Two months.
4. A) Mining, cartography, sailing, physicians
B) Lawyers

Midterm... Continued

5. The purpose was to study the plants, minerals, animals and other resources of the area and figure out how to commercialize and make profit off of them.

6. A) He established the Colegio de Medicina y Cirugía. He supported and contributed to the Mercurio Peruano. He published "Observaciones sobre el clima de Lima y sus influencias en los seres organizados, en especial el hombre".

B) Mutis led the Expedición Botánica in Nueva Granada, spread Enlightenment era modern science in Latin America, spread Copernican viewpoints, and caused a lot of educational reform.

7. A) Around 1810. B) Francisco José de Caldas.

Midterm Continued

Unit 4

1. 15-20 years
2. The practice began in Paris. It fits the scientific attitude because they collect evidence from the body, do tests to determine how they died, and confirm cause of death based on the evidence they find.
3. A) I believe that the initial observation of the mold in the petri dish was an accident as it is a situation that happened by chance and which Fleming did not intend, but all the other steps done to make penicillin useable to treat infections were completely on purpose and used Fleming's initial discovery as a starting point.
B) He meant that while things may happen by chance, only a prepared mind is capable of properly reacting to and studying the reasons why it happened and how they can utilize that knowledge to make a difference.
C) I believe the discovery of cinchona was accidental, but the process of figuring out how to use it was scientific.
4. Reforms caused by the war for independence resulted in the Real Escuela de Cirugía de México being shut down and replaced by the Establecimiento de Ciencias Médicas.

Midterm Continued

5. A) Low population, poverty, Less educational institutions
B) José Mutis
C) It was reestablished in 1802 in the Colegio del Rosario. It was closed during the war for Independence and reopened after.
6. A) None B) Napoleon invaded, taking control of Portugal as the Portuguese Crown fled. With Napoleon in power, European systems and knowledge were brought to Portugal leading to much medical reform happening in the area as medical institutions were created.
7. Scientific publications, Academic / Medical Institutions, and Universities, Medical and Educational boards who decided on what standards needed to be met.

Midterm Continued

8. $d = 1 \text{ km}$ $\theta = 5^\circ$
 $\frac{1 \text{ km}}{2} = 0.5 \text{ km}$ $\frac{5^\circ}{2} = 2.5^\circ$

$$D = \frac{0.5}{\tan(2.5^\circ)}$$

$$D = 11.5 \text{ km}$$

9. A) Longitude = North-South
change = 0.5° lat earth radius = $6,378 \text{ km}$
 $S = R (0.5)$
 $S = (6378 \text{ km}) (0.5)$
 $S = 3189 \text{ km}$

B) 45° N 600 km

$$\frac{S}{R \cos \theta} = \phi \quad \frac{600 \text{ km}}{(6378) \cos(45^\circ)} = \phi$$

$$\phi = 4509.9$$

Midterm Continued

Unit 5

1. A) Circa 1850s - 1860s, such as La Lanceta (1852) and La Gaceta Médica (1864).
B) Medical journals were published significantly later, some mining, chemistry, and physics journals dating back to the mid 1700s.
C) They were connected through Dr Antonio Vargas Reyes.
2. Facultad de Medicina and Real Escuela de Cirugía merged to create Establecimiento de Ciencias Médicas.
3. Some other holistic forms of medical development included anatomy, herbal remedies, and lots of indigenous knowledge. These developments are still very much so medicine and are capable of helping cure diseases, even if not based in modern germ theory.
4. A) Invasion by Napoleon, Portuguese court moved to Rio de Janeiro in 1808.
B) 1822
C) 7-10 years later

Midterm Continued

5. "Flexnerian" refers to the Flexner report which was when Abraham Flexner visited medical schools across America and discovered that most were facades and did not abide by medical or academic principles, most not even having a lab. This sparked mass educational reform within medical schools and caused these schools to now be held to certain standards and have certain licenses to be considered a medical school, "Flexnerian" means it abides by those rules.
6. A) Epidemic diseases from tropical areas.
B) To treat and study tropical diseases, and also promote the health benefits of living in the tropics.
C) 1899. They responded by, led by Dr. Oswaldo Cruz, developing a vaccine for the plague.