

Midterm - INTD262

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1 Unit 3

1. Recall the fascinating story about psychological research, in which the author shares that 67 percent of psychologists who were asked to share their data did not share it. (a) Were the rates of error higher or lower in the studies for which the authors did not share data? (b) In whose favor were the errors?
 - a) the rates of error were higher in the studies for which the authors did not share ~~data~~
 - b) the errors were in favor ~~of~~ of the authors (by the 96% of confirmed data)
2. "Recent research in behavioral economics has shown that groups are often better than individuals at finding errors in reasoning." (a) Why do you think this is the case? (b) Can you give an example of the wisdom of crowds thus far in our study of Latin American science?
 - a) I believe this is the case because in group settings, people are able to share different perspectives and bounce ideas off of each other rather than one individual only being able to offer their point of view.
 - b) An example of this is wisdom crowds, AKA groups are smarter than an individual
↳ Scientists created settings such as peer review to create group settings
3. Recall the story of cold fusion. (a) List three facets of the peer review process that went wrong in this episode. (b) How long, from start to finish, did it take for the scientific community to sort out the errors in the cold fusion research?
 - a) three facets of the peer review system that went wrong were the methods and data were not shared, they held a press conference about the data before it was peer reviewed, and the reproducibility of heat was a failure. They also published it twice and the first was not peer reviewed.
 - b) It took the scientific community 2 months to sort out the errors in the cold fusion research.
4. Note that we encountered several examples of viceregal engineers becoming Latin American leaders. (a) What are some examples of professions that involved modern technical skill in Río de la Plata and Perú? (b) What is the primary profession of modern US leaders, for example, elected to The United States Congress?
 - a) Some examples of ~~professions~~ professions that involved modern technical skill in Río de la Plata and Peru are mining with mercury, cartography for borders/maps, and sailing with longitude and latitude.
 - b) the primary profession of modern US leaders are lawyers, doctors, and economists.
5. José Mariano Mociño and others were ordered by the Mexican viceroy on an expedition to Nootka Island. What was the purpose of the expedition? (Take INTD255 to learn more!)
the purpose of the expedition was to study animals, minerals, and plants. They also discovered a use for whale oil in lamps.
6. In Perú, we must take note of the work of Hipólito Unanue. (a) What are some of his other scientific contributions? (b) In Nueva Granada, we must take note of the work of José Celestino Mutis. What are some of his main contributions?
 - a) Hipólito Unanue also contributed to the modernization of anfiteatro anatomica (medicine in Peru), botany (coca) and he was the secretary of several vice royalties.
 - b) José Celestino Mutis contributed to teaching modern math and physics, his expeditions botánica in Nueva Granada, and a Linnaean classification system
7. (a) When did Latin American wars of independence begin, approximately? (b) Give some examples of scientists and engineers who fought and died for their countries.

1) Latin American independence began in the 1800s-1820s during King Ferdinand's reign of Spain

2 Unit 4 b) a few scientists that fought were Francisco Jose de Caldas, the botanist, expeditioners, and Hipolito Unanue

1. How long after Semmelweis's solution to childbed fever was germ theory introduced?

It was about 15 years after Semmelweis's solution to childbed fever was the germ theory introduced.

2. Where did the practice of autopsies begin? In what way does performing an autopsy fit with the scientific attitude?

Paris, France is where the practice of autopsies began. It fits with the scientific attitude because it tests whether or not someone's initial diagnosis is correct, thereby testing a theory.

3. (a) Do you think the discovery of penicillin was an accident? Why or why not? (b) Louis Pasteur is quoted as saying "chance favors the prepared mind." What did he mean by this? (c) In light of (a) and (b) do you regard the discovery of cinchona as accidental or scientific?

a) no, I do not believe the discovery of penicillin was an accident because although his observation was chance, he was still performing a test and testing a theory

b) He is stating that for those that are intelligent and have scientific background in order to perform tests, will discover things by chance.

c) I do believe this was accidental because to me it seems his mind was less "prepared" and more just unaware

4. What event catalyzed the formation of the Establecimiento de Ciencias de Médicas in 1833? more just unaware
the Mexican War of Independence catalyzed the formation of the Establecimiento de Ciencias de Médicas
because there had to be a large social/political reform in order to spark one
in order to spark a medical one

5. (a) List some reasons the authors give to explain why medical reforms were slow to materialize in Nueva Granada, relative to the struggle for reform in Nueva España. (b) Who led the medical reform process in Nueva Granada in the 18th century? (c) When and where was the Facultad de Medicina reestablished in Nueva Granada, and what happened next?

a) they tried to regenerate la lancha and because there was a transfer of information, (from paris) it was slow to materialize. It was also because they brought back standards (AMA)

b) Jose Celestino Mutis led the medical reform process in Nueva Granada because he was trying to save lives with his new found knowledge

c) it was established in 1802 in Bogotá and it quickly came to an end

6. (a) How many medical schools were there in Brazil in the eighteenth century? (b) What happened to the Portuguese Crown in 1807? What influence did this have on medical reform?

a) there was only one and it was introduced in the late 1700s, Hospital Real de San José Lisboa

b) the royal family went to Brazil after taking the court to run from the napoleonic wars. They then funded more medical schools and sparked more medical learning. This was a huge

~~influence and example of medical reform~~

7. As the generation of doctors in Colombia returned from France in the late 19th century, what three cultural institutions did they establish to enhance medical practice?

the three cultural institutions they established to enhance medical practice were the return of medical standards, regenerating medical journals, and replace medical schools from the colonial and enlightenment with more modern facilities (thought viruses were)

8. Triangulation Suppose you observe a distant mountain from a flat plain. Suppose you walk a baseline of 1 km, perpendicular to the direction towards the mountain. The difference between the compass headings to the mountain at either end of the baseline is 5 degrees. How far away is the mountain?

$$\begin{array}{l} \text{Diagram showing a right-angled triangle with a horizontal base of } 1 \text{ km. The angle at the top vertex is } 5^\circ. \\ \text{The formula used is } d = \frac{b}{\tan \theta}, \text{ where } b = 1 \text{ km and } \theta = 5^\circ. \\ \text{Calculation: } \frac{1}{\tan 5^\circ} = \frac{1}{0.087} = 11.49 \text{ km.} \end{array}$$

9. Latitude and Longitude (a) Suppose two cities lie along a constant line of longitude. If we measure a change of 30 minutes (0.5 degree latitude) between them, how far apart are they, in km? (b) Suppose two cities lie along a constant latitude of 45 degrees North. If they are 600 km apart, what is the change in longitude between them?

$$\begin{array}{l} \text{a) } S = r \Delta \theta \rightarrow S = 6,371(0.5)\pi \rightarrow \frac{10,002.4\pi}{180} \approx 55.6 \text{ km} \end{array}$$

$$\begin{array}{l} \text{b) } 600 \text{ km} \cdot \frac{\pi}{180} = \theta \cos 45^\circ = 0.133 \text{ radians} = 7.63^\circ \end{array}$$

3 Unit 5

1. (a) When were the first medical journals published in Columbia? (Give a few examples). (b) Compare this time frame to the publication of the first mining, chemistry, and physics journals in Mexico. (c) How, or through whom, were these journals connected to medical schools in Columbia?
 - a) The first medical journals published in Columbia were *La Lanceta*, *La Graceta medica de Columbia*, and *Columbia medica*.
 - b) the Mexican publications were in the 1700s, whereas Colombian medical journals were published in the 1800s.
 - c) they were connected through Dr. Antonio Vargas Reges because he made the journals into curriculum for schools.
2. In 1833, two Enlightenment period institutions were merged into the beginnings of a modern medical school in Mexico. What were the three institutions?

the three institutions were Facultad de medicina, real escuela de cirugia (merged) and de Ciencias medicas.
3. Consider our major in kinesiology and nutrition science (KNS). To what extent would we consider this medicine, in the absence of modern germ theory? That is, are there other holistic forms of medical development we encountered in Latin American history besides vaccines and drugs that fight bacteria and viruses?

I believe this would become a hugely important field in the absence of the germ theory. There are other holistic forms of medical development such as cupping, acupuncture and chiropractic medicine in Mexico. Also, cinchona root became a natural cure for malaria founded in the absence of germ theory. This all proves these practices are vital not only with modern considered but also in the absence of germ theory.
4. (a) What historical event in 1808 led to the creation of the first medical and surgical schools in Brazil (b) When did Brazil declare independence from Portugal? (c) How long after independence did the Brazilians introduce modern reforms into the medical schools in Bahia and Rio de Janeiro?
 - a) Dom João and the rest of the Portuguese court moving to Rio Brazil led to the creation of the first medical and surgical schools in Brazil.
 - b) Brazil declared independence from Portugal in 1822.
 - c) It was 7 years after independence that the Brazilians introduced modern reforms into medical schools in Bahia and Rio de Janeiro.
5. In Columbia, the Escuela de Medicina was founded in 1865. It was centered on hospital-based anatomy and physiology. Consider the following quote from the text: "The second phase is notable for the slow progress of laboratory-based medicine, especially etiopathological procedures. Its final stage, starting in the 1950s, is defined by the introduction of Flexnerian reforms from North American technological medicine." What does quote mean by Flexnerian? Think back to our reading in The Scientific Attitude.

The quote mentions Flexnerian due to Abraham Flexner who ~~had~~ read reports on American medical schools to see if they were following guidelines or not. He went on to lead reforms which is why it is in relation to the quote.
6. (a) What was a major driver of modern epidemiology in 19th Century Brazil? (b) What was the purpose of the Tropicalist School of medicine? (c) When did the bubonic plague enter Brazil, and how did the Brazilians respond?
 - a) ~~there~~ a major driver of modern epidemiology in the 19th century Brazil was disease that caused epidemics (specifically malaria)
 - b) the purpose of the tropicalist school of medicine was to tackle tropical epidemics and tuberculosis.
 - c) the bubonic plague entered Brazil in 1899 through rats on a ship carrying the disease. The Brazilians responded by developed a vaccine in Brazil for the bubonic plague. This was developed by Dr. Oswaldo Cruz.