

Annalise Valdiviel

20653733

Midterm - INTD262

Dr. Jordan Hanson - Whittier College Dept. of Physics and Astronomy

December 6, 2024

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. Studies with withheld data had a higher rate of statistical errors.
 - b. 96% favored the authors who had refused to share data and desired outcomes.
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. Provides more opportunities for critical thinking and various viewpoints.
 - b. A board of professors when publishing research papers.
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. 1. Pons and Fleischman announced their discovery via a press conference instead of first submitting their work to peer-reviewed journal.
 2. They rushed paper into print
 3. Rejected due to errors
 - b. It took less than two months
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. Modern technical skills involved were mining/murcary, cartography, and sailors.
 - b. The primary profession is lawyers.
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 was to explore and document the northwest coast, study flora, fauna, and geography of the region. also map
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. He contributed to the study of botany, coca, and medicine.
 - b. Modern math/physics, expedición Botánica → Linnean classification
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.

Purposes

→ a. began early-mid 19th century 1800-1820. b. Francisco Jose, died for religious

Annalise

2 Unit 4

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

It was 15-20 years after Semmelweis's solution that germ theory was introduced.

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

Autopsies began in Paris. It allowed for people to confirm diagnosis.

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. The initial discovery was accidental but through continuous experiments it developed to something not accidental.

b. It means the need to capitalize.

c. I believe that experimentation and validation would have been necessary to confirm

4. What event catalyzed the formation of the Establecimiento de Ciencias de Médicas in 1833? and utilize its effectiveness
- The Mexican War for independence catalyzed the formation of the Establecimiento de Ciencias de Médicas in 1833.

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. Low productivity and population density in Nueva Granada.

b. José Celestino Mutis led the medical reform process.

c. It reestablished in 1802 at the Colegio de Rosario.

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 no medical schools. Doctors came to Brazil from medical schools. → Then one later.

b. in 1807 Dom João transferred the seat to Rio. It influenced a need for

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

The three institutions were: Associations, scientific publications, and private medical school tied to a hospital.

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?

$$d = \frac{1}{\tan(2.5^\circ)} \quad \theta = 2.5^\circ \times \frac{\pi}{180} = 0.043 \text{ rad} \quad d = \frac{1}{0.043} \approx 22.9 \text{ km}$$

The mountain is approximately 22.9 km away from starting point.

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?

a. $\frac{40,075 \text{ km}}{360} \approx 111.32 \text{ km/deg}$
 $0 = 0.5 \times 111.32 \text{ km} = 55.66 \text{ km}$

b. $111.32 \times \cos(45^\circ) = 111.32 \times 0.7071 \approx 78.7 \text{ km/deg}$
 $\text{longitude} = \frac{600}{78.7} \approx 7.63^\circ$

Análisis

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. Published in mid-19th century ex: (La Lanata 1852) (La Graceta médica de Colombia 1864).
 - b. Comentarios a las ordenanzas de minas → ^{Colombia 1864} ^{vasquez de leon,}
 - c. Antonio Vazquez connected Journals by sharing info and experience also promotes solidarity and unity
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 institutions were; facultad de medicina + Real y Pontifical Universidad de México = Real escuela de Cirugía de México.

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?

The humoral theory → anatomical and clinical mentality.

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. In 1808 the transfer of the Portuguese Court to Rio de Janeiro led to the creation of the first medical and surgical schools in Brazil.
 - b. They declared independence in 1822.
 - c. 7 years after, in 1829 Sociedad de Medicina was founded.
5. In Colombia, 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 implies that flexnerian reforms, originating from North America, played a pivotal role in ushering in a new era of "technological medicine".

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. The major driver was intense interest in epidemic diseases and tropical epidemics.
 - b. To debunk the notion that tropical regions were inherently unhealthy.
 - c. The bubonic plague entered in 1899.

The Brazilians → Dr. Oswaldo Cruz, led development of serums.
↳ vaccinating the plague