

Selling's First 100 Cases: Diagnoses Left by the Wayside of History

Dale Davis, M.A., OHSU; Mentor: Peter Sullivan, M.D., OHSU

Background

- Dr. Laurence Selling (Figure 1A), the noted neurologist and emeritus professor of medicine at the University of Oregon Medical School.
- Was educated at Johns Hopkins and extensively in Europe, then returned to Portland in 1912 to open his own clinic in the Selling Building (Figure 1B).
- Made detailed reports of his first 100 cases (now held in the OHSU Archives) that allow investigation into diagnostic reasoning, historic diagnoses, and trends in treatments.

Studies in Diagnostic Reasoning

- Currently diagnostic reasoning is taught as a two-pronged approach: the dual process-theory of a fast, unconscious process followed by a slower, more deeply analytic one.

CASE 2.
D. No. 774.
Age 38. M. Mar. Referred by Dr. McMurdo.
Complaint. Headache.
P. I. Well up to 1914. At that time, on attempting to get out of bed, felt very nauseated, and vomited. In bed two days. One month ago, while on a car, was suddenly taken with an intense pain in the back of the neck. Following morning again a terrible attack of pain in the neck, extending down to the coccyx. Vomited several times. Yesterday again, a sudden pain in the spine, shooting into the head and neck.
P. E. Pt. unconscious. Breathing stertorous. Pupils miotic. L. R. absent. Eyegrounds show a haziness of the right disk margins, suggesting a beginning papillitis.
Spinal fluid. On puncture, bloody fluid spurts out under high pressure. After standing, the blood does not clot, but separates, falling to the bottom of the tube, leaving a flaky layer of yellowish fluid. This shows that the blood has been in the fluid for some time, and was not due to puncturing a vein.
I believe this case to have been one of luetic pachymeningitis, withorrhage into the arachnoid, the violent acute symptoms being due to theorrhage. The increased intracranial tension was evidenced by the pressure under which the fluid spurts out, and this was undoubtedly the cause he beginning choked disk.

DR. LAURENCE SELLING
NAME: [REDACTED] ADDRESS: [REDACTED] AGE: [REDACTED] SEX: M. CONDITION: [REDACTED] RACE: [REDACTED] DATE: [REDACTED]
OCCUPATION: [REDACTED] BIRTHPLACE: [REDACTED]
DIAGNOSIS: *Cerebro-Spinal Meningitis*
COMPLAINT: *Headache*
F. H. *He has no memory of the symptoms which he has had since he was 18 or 19 years of age. He has had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning.*
P. E. *He has no memory of the symptoms which he has had since he was 18 or 19 years of age. He has had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning.*
P. S. *He has no memory of the symptoms which he has had since he was 18 or 19 years of age. He has had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning. He has also had a headache for several years, which is worse in the morning.*

Figure 2. Examples of Selling's case reports (A) from a 1916 presentation at a local medical society and (B) Case 40 (1912) of the First 100 Cases. Note the similarities in organization.

- Selling educated before Flexner report but under Osler with education that resembles today's.
- Limitations to the analysis of historic records.
- Best "real-time" comparison from concurrent records (Figure 2).
- Contemporary hospital records provide additional data.
- Diagnoses "based on logic of internal consistency."

Methodology

- 81 extant cases remaining from original 100
- Each case assessed for basic demographics (Figure 3), history, laboratory tests, diagnosis, and treatments.
- Cases selected for historical interest and ability to comment on change in diagnosis over time.
- Primary objective was to research Selling's diagnostic technique both in and out of context.



Figure 1 (A). Selling's WWI ID and (B) Exterior of the Selling Medical Building at SW 6th and Alder.

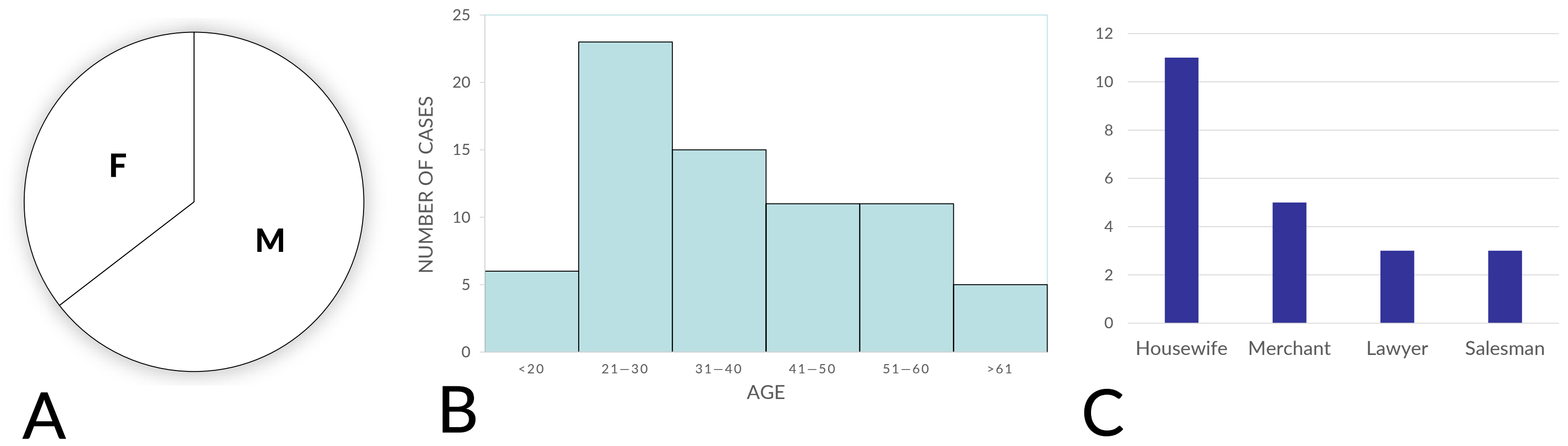


Figure 3. (A) Pie chart illustrating split between males and females in extant cases, (B) bar graph indicating distribution of ages, and (C) bar graph illustrating most common occupations.

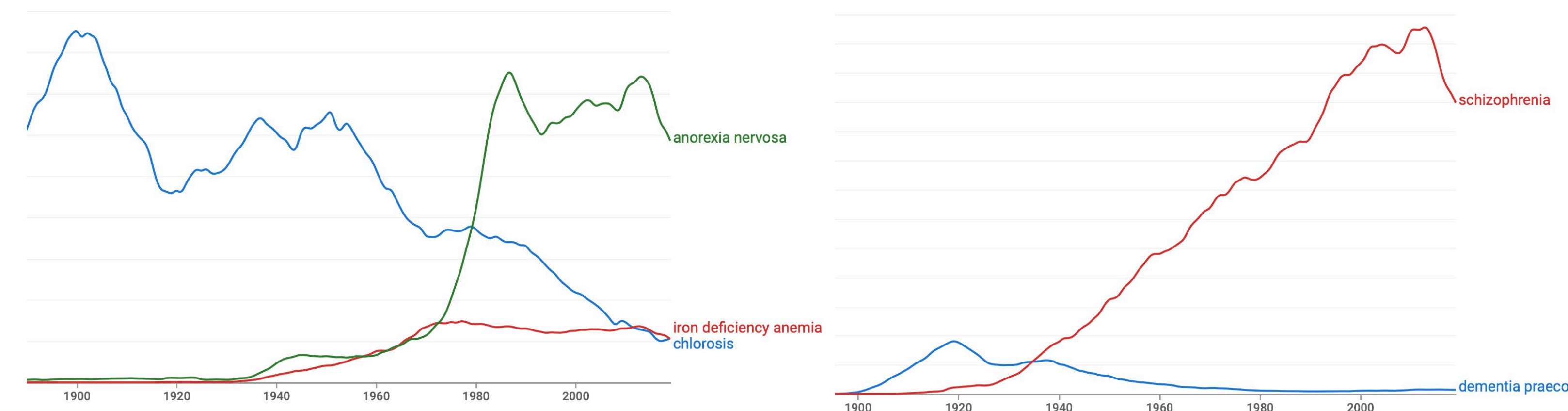


Figure 4. Google Books ngrams indicating relative popularity in usage over the last century for (A) chlorosis vs. anorexia & iron deficiency anemia and (B) dementia praecox vs. schizophrenia.



Figure 5. Widely different treatments in (A) stereotypical snake oil advertisement of 1902 (aadl.org) and (B) early meningitis antitoxin circa 1929 (si.org).

Past Diagnoses and Treatments & Current Correlates

- Diagnoses and treatments wax and wane over time (Figure 4) dependent on advances in medicine, number of journal articles, advertisements (Figure 5A), and other influences on popularity.
- Four selected diagnoses and treatments from Selling's Cases:
 - Chlorosis. Recognized for 400 years until falling out of favor in the 1920s. Considered related to both iron deficiency anemia and anorexia nervosa. Selling treated successfully with iron pills and a stay "in [the] country."
 - Dementia Praecox. Later known as schizophrenia. Selling studied under and conversed with Adolf Meyer, the psychiatrist who developed a biopsychosocial theory of its etiology which remains consistent with today's understanding of the disease.
 - Probiotics. Controversial both then and now. Selling prescribed Metchnikoff's lactic acid bacilli for a case of "intestinal putrefaction" that led to "decided improvement."
 - Meningitis Anti-Toxin. For a case of acute "cerebro-spinal meningitis," Selling tried an intrathecal administration of Mulford's antitoxin (Figure 5B).

Conclusions

- Selling ahead of his time with regard to the usual scant clinic records of the first decades of the 1900s.
- Diagnoses were based on laboratory testing in combination with the history given by the patient.
- Articles in local and national journals indicate his dedication to furthering accuracy.
- However, still limited by the knowledge of the time and lack of sensitivity and specificity of laboratory tests.
- Future directions are the many cases still to be explored and potential for a Human Dx-type app built of historic data.

References

DeVylder JE. The Fall and Rise of Adolf Meyer's Psychogenic Etiology of Dementia Praecox (Schizophrenia): 1903-1910 and Beyond. *Smith Coll Stud Soc Work* 2013;83:2-17.
Flexner A. Medical Education in the United States and Canada: A report to the Carnegie Foundation for the Advancement of Teaching. *Bull World Health Organ* 2002;80:594-602.
Loudon ISL. Chlorosis, anaemia, and anorexia nervosa. *Br Med J* 1980;281:1669-75.
Mackowiak PA. Recycling Metchnikoff: Probiotics, the intestinal microbiome and the quest for long life. *Front Public Heal* 2013;1:1-3.
OHSU Historical Archives. Invention and Innovation: The Founders of Neuroscience in Oregon. Pamphlet. 2013.
Selling L. The Eye in Relation to Syphilis of the Central Nervous System. *Trans Fourth Annu Meet Pacific Coast Oto-Ophthalmological Soc* 1912:68-77.
Stoeckle JD, Billings JA. A History of History-taking: The Medical Interview. *J Gen Intern Med* 1987;2:119-27.
Walker HK. The Origins of the History and Physical Examination. *Clin Methods Hist Phys Lab Exam* 1990.

Acknowledgements

Meg Langford, Steve Duckworth, Roman Block, Laura Zeigen, OHSU Historical Collections and Archives, OHSU Library, Natl Reg Hist Places.