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lecture 4 of 14: statecraft and quantitative racism

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student reactions

student reactions: some data on people

123 galton/galton's

95 gould/gould's

85 broca/broca's

34 desrosières

32 bean/bean's

24 quetelet

7 wallach

student reactions: some data on ideas

90 bias/biases
68 race/racism/racist/racial
44 brain/brains
30 white/whites
25 eugenics
24 prejudice/prejudices
19 german
19 black/blacks
13 power
8 "genetic worth" or "civic worth"
7 craniometry
6 vulgar
4 ethics

student reactions on race + bias

[readings] really made me question the supposed objectivity of science. "The allure of numbers, the faith that rigorous measurement could guarantee irrefutable precision" (Gould 74) . . . seen as objective science and led to racist public policy decisions. It was very interesting for me to read Gillham describe these thinkers as "well-meaning progressive types"

it was very hard for me to read the Gould chapter. . . without wanting to throw up.

student reaction on vulgar vs distinguished

The excerpt I found most intriguing in this week's readings on the history of statistics was on "Subtle and Distinguished Statistics" vs. "Vulgar Statistics" in the Desrosières essay, "Correlation and the Realism of Causes." . . . to recommend the use of precise figures rather than information expressed in literary terms" (19). . . "Subtle and Distinguished Statistics" vs. "Vulgar Statistics" came about. Critics said that vulgar statistics were the result of fools "'spreading the crazy idea that one can understand the power of a state simply by a superficial knowledge of its population, its national income, and the number of animals nibbling in its fields'" and the "efforts to express everything through figures. . . are ridiculous beyond words"' (22).

themes

- ▶ variation focus over average
- ▶ Regression
- ▶ Eugenics
- ▶ Bias *even at the selection of data*, e.g., in quantitative racism/Broca work
- ▶ Claims to truth + objectivity via data

guiding questions every week

- ▶ Scientific and mathematical development
- ▶ Technologies and engineering
- ▶ Driving forces: money, prestige, resources, Imperial competition
- ▶ how did new capabilities rearrange power? (who can now do what, from what, to whom?)

Vulgar and new statistics

precondition

- ▶ German “statistics” had not been quantitative
- ▶ however was holistic (‘many columns’), ‘granular’

transformation

- ▶ D sees this as birth of tables (nb was data frame, “inclusion of numbers”)
- ▶ even w/o math there is
“framework. . . nomenclature..terminology”;
“organizational. . . taxonomic”
- ▶ tension “precise figures rather than. . . literary terms”
- ▶ NB: subjective design choices
 - ▶ what to include; what not to
 - ▶ what to aggregate
 - ▶ what to quantify (allowing ordering “comparison”)

reaction

- ▶ vulgar statistics: “art” v “work... superficial” foreshadows
 - ▶ medicine
 - ▶ psychology
 - ▶ docimology
 - ▶ martians (politics)
 - ▶ vulcans (amzn story)
 - ▶ biologists vs molecular biologists
 - ▶ molecular biologists vs comp biologists

misc from D1

- ▶ NB “census” implies
 - ▶ 1) taxes
 - ▶ 2) military conscription

summary of Des1

summary of Des1

- ▶ “statistics” meant the state
- ▶ “vulgar” implies contested quantification leitmotif
- ▶ tables as example of “toolset->mindset” leitmotif

Galton

crisis of the modern era

We want abler commanders, statesmen, thinkers, inventors, and artists. The natural qualifications of our race are no greater than they used to be in semi-barbarous times, though the conditions amid which we are born are vastly more complex than of old. The foremost minds of the present day seem to stagger and halt under an intellectual load too heavy for their powers. (Galton, 'Hereditary talent and character', MacMillan's Magazine (1865) 12, p.166)

Darwin *Origin of Species* and Galton, 1/2

“made a marked epoch in my own mental development, as it did in that of human thought generally” [Galton, 287]

The power of man over animal life, in producing whatever varieties of form he pleases, is enormously great. It would seem as though the physical structure of future generations was almost as plastic as clay, under the control of the breeder's will. It is my desire to show, more pointedly than - so far as I am aware - has been attempted before, that mental qualities are equally under control. (Galton 1865, 157)

Darwin *Origin of Species* and Galton, 2/2

Let us, then, give reins to our fancy, and imagine a Utopia - or a Laputa, if you will - in which a system of competitive examination for girls, as well as for youths, had been so developed as to embrace every important quality of mind and body, and where a considerable sum was yearly allotted to the endowment of such marriages as promised to yield children who would grow into eminent servants of the State.

fundamental anti-egalitarianism

- ▶ contrary to political economy of day
- ▶ against rational in principal equal individuals (Radick)

Galton from anecdote to stats

'anecdotal' evidence

Hereditary Genius

Art.	Lit. & Science.				Number.	NOTABLE PERSONS.
	More distant.	Brothers.	Father & son.			
-	1	1	1	3	3	J. Adams, Pres. U.S.A.; son Samuel also patriot; nephew, J. Quincy, president.
-	12	1	1	1	2	W. Belsham, historian; brother of T. Belsham, Unitarian minister.
-	3	1	1	1	3	J. Bernouilli, father of James and uncle of John, all mathematicians.
3	12	1	1	1	3	Breughel, father and two sons, painters.
3	12	1	1	1	2	Buxtorff, father and son, Hebraists.
3	1	1	1	1	3	Caracci, An. and Ag. brothers, Lud. cousin, painter.
-	1	1	1	1	2	Cartwright, reformer; brother, mechanist.
-	3	1	1	1	3	Casini, grandfather, father, and son, all mathematicians.
-	12	1	1	1	2	Cooper, Privy Councillor to Cromwell; grandson, literary.
-	1	1	1	1	2	De Witt, two brothers, patriots.
-	1	1	1	1	3	Elizabeth, queen, daughter of Henry VIII. and granddaughter of Sir T. Bullen.
-	12	1	1	1	2	Pontana, two brothers, natural philosophers.
-	12	1	1	1	2	Forster, father and son, naturalists (Cook's voyages).
-	6	1	1	1	6	Gronovius, sons and grandsons, six in all, learned critics.
-	1	1	1	1	3	Gustavus Adolphus, father of Christina and grandson of Gustavus Vasa.
-	12	1	1	1	2	Herschel, father and son, astronomers.
-	12	1	1	1	2	Hunter, two brothers, anatomists.
-	12	1	1	1	2	Jussieu, uncle and nephew, botanists.
-	1	1	1	1	4	Medici, grandfather, father, and son, and Catherine.
-	1	1	1	1	12	Orleans, Egalité, and son Louis Philippe.
-	1	1	1	1	2	Ostade, two brothers, painters.
-	4	1	1	1	4	Perrault, four brothers, all writers.
-	12	1	1	1	1	Penn, admiral; son, Quaker writer.
-	12	1	1	1	12	Phillibert, Prince of Orange; cousin William, whose son was Maurice. His grandson was our William III.
-	1	1	1	1	12	Pitt, father and son, statesmen.
-	12	1	1	1	1	Scaliger, classical critic; son also.
-	1	1	1	1	12	Sforza, father and son.
-	1	1	1	1	2	Shaftesbury, statesman; grandson, author.
-	1	1	1	1	12	Sheridan, father and son.
-	1	1	1	1	12	Stael, Madam, daughter of Neckar, financier.
-	6	1	1	1	6	Stephens, family of six, critics and editors.
2	1	1	1	1	12	Teniers, father and son, painters.
-	1	1	1	1	12	Tytler, historian and poet; son, Lord Woodhouselee.
2	1	1	1	1	12	Vanderwelde, father and son, painters.
2	12	1	1	1	2	Vanderwulf, two brothers, famous for small history.
-	1	1	1	1	3	Valnoo, two brothers, and nephew, ministers.

turn to statistics

- ▶ Set aside debates over the *mechanism* of heredity in favor of mathematically characterizing it.
- ▶ Turn to investigation of “law of frequency of error”

data hard to get

data hard to get

- ▶ data hard to come by without substantial funds and government support
- ▶ Galton set up anthropometric Laboratory at International Health Exhibition of 1884 in South Kensington
 - ▶ measured 9337 people, 4726 men, 1657 women
- ▶ collect considerable amount of anthropometric data—essential for future efforts

INTERNATIONAL HEALTH EXHIBITION, 1884.

ANTHROPOMETRIC LABORATORY,

Arranged by FRANCIS GALTON, F.R.S.

Sex	Colour of eyes	Date	Initials
<div>EYESIGHT.</div> <div>Greatest distance in inches, of reading "Diamond" type</div> <div>right eye</div> <div>left eye</div>		<div>SWIFTNESS</div> <div>of blow of hand in feet per second</div>	
<div>Colour sense, goodness of</div>		<div>STRENGTH</div> <div>of squeeze in lbs. of</div> <div>right hand</div> <div>left</div> <div>of pull in lbs.</div>	
JUDGMENT OF EYE.		SPAN OF ARMS	

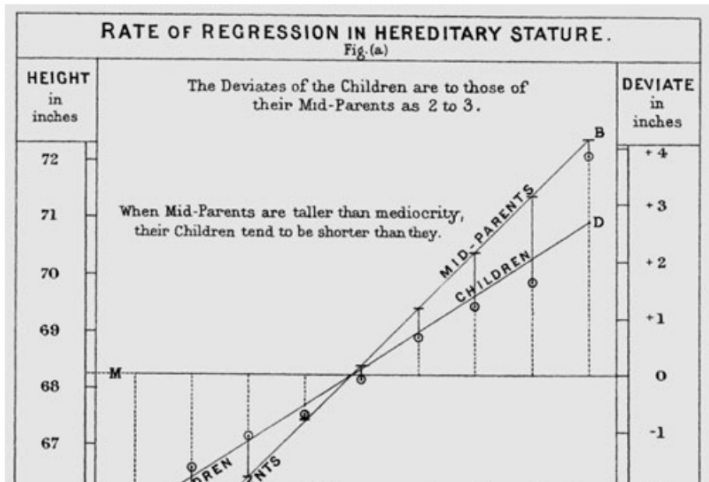
variation not average

Galton “used it as a law of deviation allowing individuals to be classified, rather than as a law of errors. The pertinent facts were henceforth deviations in regard to the mean—thus no longer parasites to be eliminated, as they had been for astronomers. It became increasingly important to classify individuals in accordance with orderly criteria” (Desrosières, 113)

- ▶ Quetelet: normal curve produced by panoply of causes
- ▶ Galton: isolate key cause *heredity*

reversion becomes regression 1/2

Reversion is the tendency of that ideal mean filial type to depart from the parent type, "reverting" towards what may be roughly and perhaps fairly be described as the average ancestral type. [1877, 291]



reversion becomes regression 2/2

The explanation of it is as follows. The child inherits partly from his parents, partly from his ancestry. Speaking generally, the further his genealogy goes back, the more numerous and varied will his ancestry become, until they cease to differ from any equally numerous sample taken at haphazard from the race at large. Their mean stature will then be the same as that of the race; in other words, it will be mediocre. (1885, 508)

Eugenics explodes through middle of 20th century

- ▶ not just Nazis
- ▶ strongly connected to “well-meaning progressive types”
- ▶ chairs of eugenics
- ▶ organization of policy on basis on what was taken to be best racial “science” of day

Desrosières on Galton

precondition

- ▶ “Victorian. . . problems of poverty”
- ▶ Galton “fascinated” by cousin Darwin’s “theory”; wanted to “apply it to the human race, with a view to the biological improvement of humanity”
- ▶ see Galton v Q quote
- ▶ the idea of assigning people to 8 ordered groups was already there

Galton overview

Galton overview

- ▶ enamored of cousin's theory
- ▶ obsessed with quantification as truthiness
- ▶ correlation and causation conflation
- ▶ leitmotif: scientifically proving one's privilege
- ▶ Q-vs-G:
 - ▶ Q focus on reification of the average v G focus on ordering individuals and class
 - ▶ G focus on the individual not the society

Gould 1/3

Gould 1/3

- ▶ “scientific racism... [science] as any claim apparently backed by copious numbers.”
- ▶ Galton
- ▶ Bean
- ▶ Mall, Bean's mentor
- ▶ “but race, sex, and class go together, and each acts as a surrogate for the others.”
- ▶ “3. Numbers and graphs do not gain authority from increasing precision of measurement, sample size, or complexity in manipulation. Basic experimental designs may be flawed and not subject to correction by extended repetition.”
- ▶ ranking alone is always not even wrong. cf USNWR

Gould, 2/3

Gould, 2/3

- ▶ subjective design choices in data cleaning
- ▶ leitmotif: scientifically proving one's privilege
- ▶ Gould's macro-message: IQ and g-factor (next week) and the general mismeasuring of man

Gould, 3/3: lesson for today

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Science is rooted in creative interpretation. Numbers suggest, constrain, and refute; they do not, by themselves, specify the content of scientific theories. Theories are built upon the interpretation of numbers, and interpreters are often trapped by their own rhetoric. They believe in their own objectivity, and fail to discern the prejudice that leads them to one interpretation among many consistent with their numbers. Paul Broca is now distant enough. We can stand back and show that he used numbers not to generate new theories but to illustrate a priori conclusions. Shall we believe that science is different today simply because we share the cultural context of most practicing scientists and mistake its influence for objective truth? Broca was an exemplary scientist; no one has ever surpassed him in meticulous care and accuracy of measurement. By what right, other than our own biases, can we identify his prejudice and hold that science now operates independently of culture and class?

power and principles

how did new capabilities rearrange power? who can now do what, from what, to whom?

role of rights, harms, justice?

foreshadowing data for Thursday

reminder of themes/big main takeaways

themes

- ▶ Variation focus over average
- ▶ Regression
- ▶ Eugenics
- ▶ Bias *even at the selection of data*, e.g., in quantitative racism/Broca work
- ▶ Claims to truth + objectivity via data

up next

appendix

appendix

- ▶ 2020-01-21 : 1 of 14 intro to course
- ▶ 2020-01-28 : 2 of 14 setting the stakes
- ▶ 2020-02-04 : 3 of 14 risk and social physics
- ▶ 2020-02-11 : 4 of 14 statecraft and quantitative racism
- ▶ 2020-02-18 : 5 of 14 intelligence, causality, and policy
- ▶ 2020-02-25 : 6 of 14 data gets real: mathematical baptism
- ▶ 2020-03-03 : 7 of 14 WWII, dawn of digital computation
- ▶ 2020-03-10 : 8 of 14 birth and death of AI
- ▶ 2020-03-24 : 9 of 14 big data, old school (1958-1980)
- ▶ 2020-03-31 : 10 of 14 data science, 1962-2017
- ▶ 2020-04-07 : 11 of 14 AI2.0
- ▶ 2020-04-14 : 12 of 14 ethics
- ▶ 2020-04-21 : 13 of 14 present problems: attention economy+VC=dumpsterfire
- ▶ 2020-04-28 : 14 of 14 future solutions