data-ppf.github.io 2021-02-02

lecture 4 of 14: statecraft and quantitative racism

chris wiggins + matt jones, Columbia

where are we?

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- 2021-01-19: setting the stakes

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- 2021-04-15: future solutions

this week's transition/development: From quantified self to quantified state

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- next week: from "Hereditary Genius" (1869) to intelligence + policy/causality,

student observations

```
79 galton/galton's
66 racist/race/racism/bias/biased
64 objective/objectivity/subjective/subjectivity
47 broca
36 desrosieres
29 eugenics
18 quetelet
12 bean
11 74
```

p74 of Gould

'scientific' racism —— if we define 'science' as many do who misunderstand it most profoundly: as any claim apparently backed by copious numbers. . . The allure of numbers, the faith that rigorous measurement could guarantee irrefutable precision

The leaders of craniometry were not conscious political ideologues. They regarded themselves as servants of their numbers, apostles of objectivity. . . 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?

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- How do we think about capabilities, intents, and how technology makes capability portable to new intent?. . . more specifically:

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- How do we think about capabilities, intents, and how technology makes capability portable to new intent?. . . more specifically:
- Gould ties the Victorian founders of statistics to " 'scientific' racism"; does this put in question the statistics we do today?

themes

- focus moves from average to variation

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- Bias *even at the gathering & selection of data*, e.g., in quantitative racism/Bean/Broca work
- Claims to truth + objectivity via data

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- precondition: Victorian (let's dig in to Desrosières)...

Vulgar and new statistics

long before the word `statistics` (from Desrosières)

- NB “census” implies

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- In England, earlier (17th c "political arithmetic" tradition)
- (the word `statistics` enters English in 1770 from German, but. . .)

precondition/transitions of quantified state 17th / 18th c

- German "statistics" had not been quantitative

from "German Statistics: Identifying the States":
the pole constituted by this German "statistics" (which has little to do with the statistics of today) is significant. It expresses a synthetic, comprehensive will to understand some human community (a state, a region, and later on a town or profession) seen as a whole, endowed with a particular power, and describable only through the combined expression of numerous features: climate, natural resources, economic organization, population, laws, customs, political system. For an analytical mind concerned with directly linking the tool it uses to a clearly identified question, this holistic view of the community being described offers a major drawback: the pertinent descriptive traits are present in a potentially unlimited number, and there seems to be no particular reason for keeping one rather than another.

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- however was holistic (cf. Wallach/Jordan ‘many columns’. . . ‘granular’)

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. . . vs British "political aritmetic" (17th c)

Identifying with that state, [German statisticians] are not prepared to conceive of a civil society distinct from the state, nor to adopt the oversight position implied by the creation and interpretation of tables. That is precisely what distinguishes them from the English political arithmeticians. In late seven- teenth-century England . . . monarchic state [was distinct from] aristocracy and middle class. In Germany, however, these distinctions only came about much later, and in other forms.

But political arithmetic, which focuses attention on a small number of estimates put to direct uses, can easily lay claim to legitimacy and social recognition. Mortality rates, for example, serve as a basis for annuities or life insurance premiums. Estimates of population in the various provinces were indispensable for levying taxes or conscripting soldiers.

see also Sec. "English Political Arithmetic: The Origins of Expertise"

"The dispute of the Göttingen School with the table statisticians (1806-11)"

opening:

> *Bis zum Erscheinen der Tabellenstatistik galt das Wort als das privilegirte Darstellungsmittel der Statistik, und nur subsidiär kam die Ziffer in Anwendung, wenn es sich darum handelte, einzelne Beschreibungen konkreter zu gestalten, Quantitätsverhältnisse bestimmter auszudrücken.*
> *Until the appearance of the table statistics, the word was considered the privileged means of representation of statistics, and only in subsidiary terms did the nomenclature apply when it came to making individual descriptions more concrete, expressing certain quantities more precisely.*

from "Der Streit der Göttinger Schule mit den Tabellenstatistikern (1806—11)."

more, ibidem

Allein die Zahlenmänner hatten bereits eine zu grosse Bedeutung erlangt. So.musste sich die „höhere“ Statistik schliesslich damit begnügen, anstatt sie für immer zu verdrängen, ihnen nur den gehörigen Platz anzuweisen und ihnen die nicht zu umgehende Vertretung der „gemeinen“ Statistik zu überlassen.

But the numbers men had already gained too much importance. Ultimately, the “higher” statistics would have to be content with this instead of displacing them forever, assigning them only the proper place and giving them the inevitable representation of “base” statistics.

From 1806 Göttingische gelehrte Anzeigen

```
You have here in some columns
   the number of square miles,
   the income,
   The residents,
   and dear cattle in mind,
So too is the conquest of the forces of the state;
For
   National Spirit
   Love of freedom,
   genius,
   and the character great or small of men at the top,
there are no columns.
```

transformation and tables

- Desrosières sees this as birth of tables (NB was data frame, “inclusion of numbers”)

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  - what to quantify (allowing ordering "comparison")

reaction

- vulgar statistics: data contests craft. . . “art” v “work. . . superficial” foreshadows

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  - “content” vs “clicks” (inc. journalism & truthiness)

summary of Desrosières on pre-Victorian understanding of quantified state

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- "statistics" meant the state
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- tables as example of "toolset->mindset" leitmotif

into this milieu, Sir Galton (1822-1911) (inter alia)

crisis of the modern era, e.g.,

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

- what even is `progressive`?

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- what even is `progressive`?
- contrary to political economy of day

fundamental anti-egalitarianism

- what even is `progressive`?
- contrary to political economy of day
- against rational in principal equal individuals

Galton from anecdote to stats

‘anecdotal’ evidence

Hereditary Genius

- study families and races

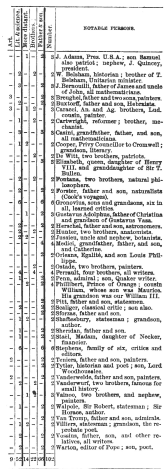
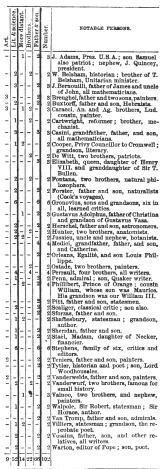


Figure 1: galton-talent-table

‘anecdotal’ evidence

Hereditary Genius

- study families and races
- generally hold that moderns lesser than ancient Greeks



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‘anecdotal’ evidence

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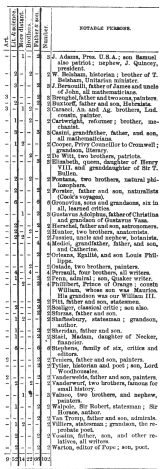
- study families and races
- generally hold that moderns lesser than ancient Greeks
- surprise surprise: Galton hold non European races lesser than European ones



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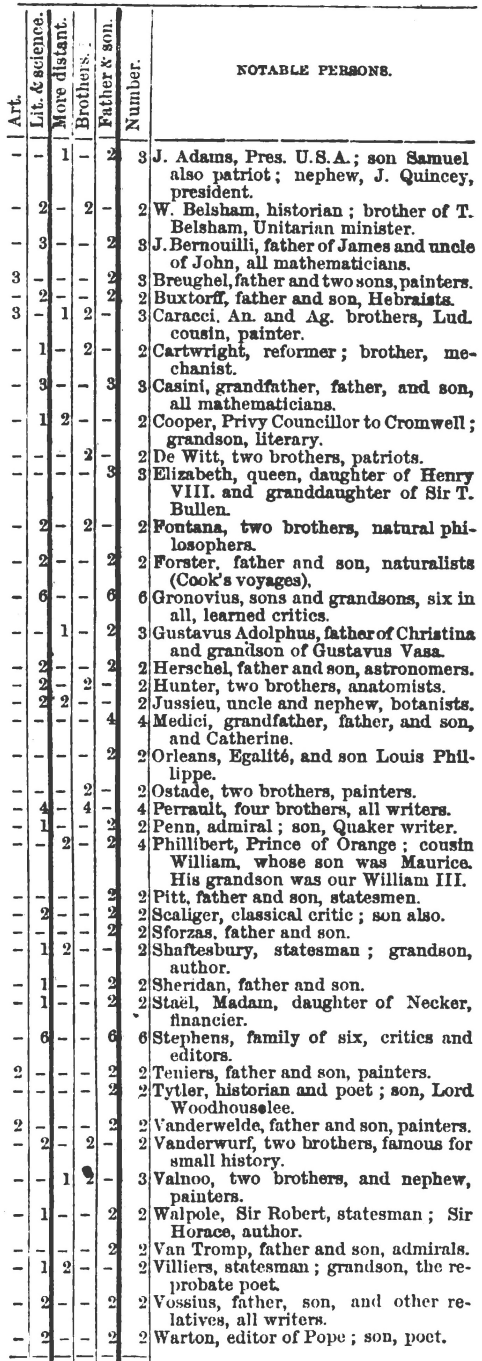
figure, larger



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

turn to statistics

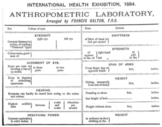
- Set aside debates over the *mechanism* of heredity in favor of mathematically characterizing it.

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"

transition: data hard to get -> surveys & stat labs

- data hard to come by without substantial funds and government support



INTERNATIONAL HEALTH EXHIBITION, 1884.

ANTHROPOMETRIC LABORATORY,

Arranged by FRANCIS GALTON, F.R.S.

Sex Colour of eyes	Date Initials
EYESIGHT. Greatest distance in inches, of reading "Diamond" type: right eye / left eye	SWIFTNESS of blow of hand in feet per second
Colour sense, goodness of	STRENGTH of squeeze in lbs. of right hand / left " ; of pull in lbs.
JUDGMENT OF EYE. Error per cent. in dividing a line of 15 inches: in three parts / in two parts	SPAN OF ARMS From finger tips of opposite hands: feet, inches.
Error in degrees of estimating squareness	HEIGHT Sitting, measured from seat of chair: feet, inches.
HEARING. Keenness can hardly be tested here owing to the noises and echoes.	Standing in shoes feet, inches. less height of heel.......... inches.
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Figure 3: form

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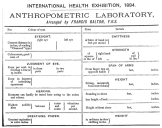
INTERNATIONAL HEALTH EXHIBITION, 1884.

ANTHROPOMETRIC LABORATORY,

Arranged by FRANCIS GALTON, F.R.S.

Sex Colour of eyes

EYESIGHT. right eye left eye

Greatest distance in inches, of reading "Diamond" type

Colour sense, goodness of

JUDGMENT OF EYE.

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Date Initials

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of blow of hand in feet per second

STRENGTH

of squeeze in lbs. of right hand left ,, of pull in lbs.

SPAN OF ARMS

From finger tips of opposite hands feet, inches.

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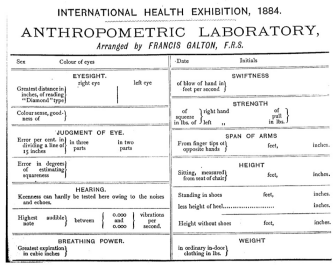

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Greatest expiration in cubic inches

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Rate of blow of hand in feet per second

STRENGTH

of squeeze in lbs. of right hand / left

SPAN OF ARMS

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HEIGHT

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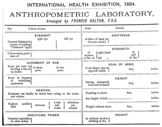

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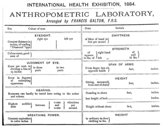
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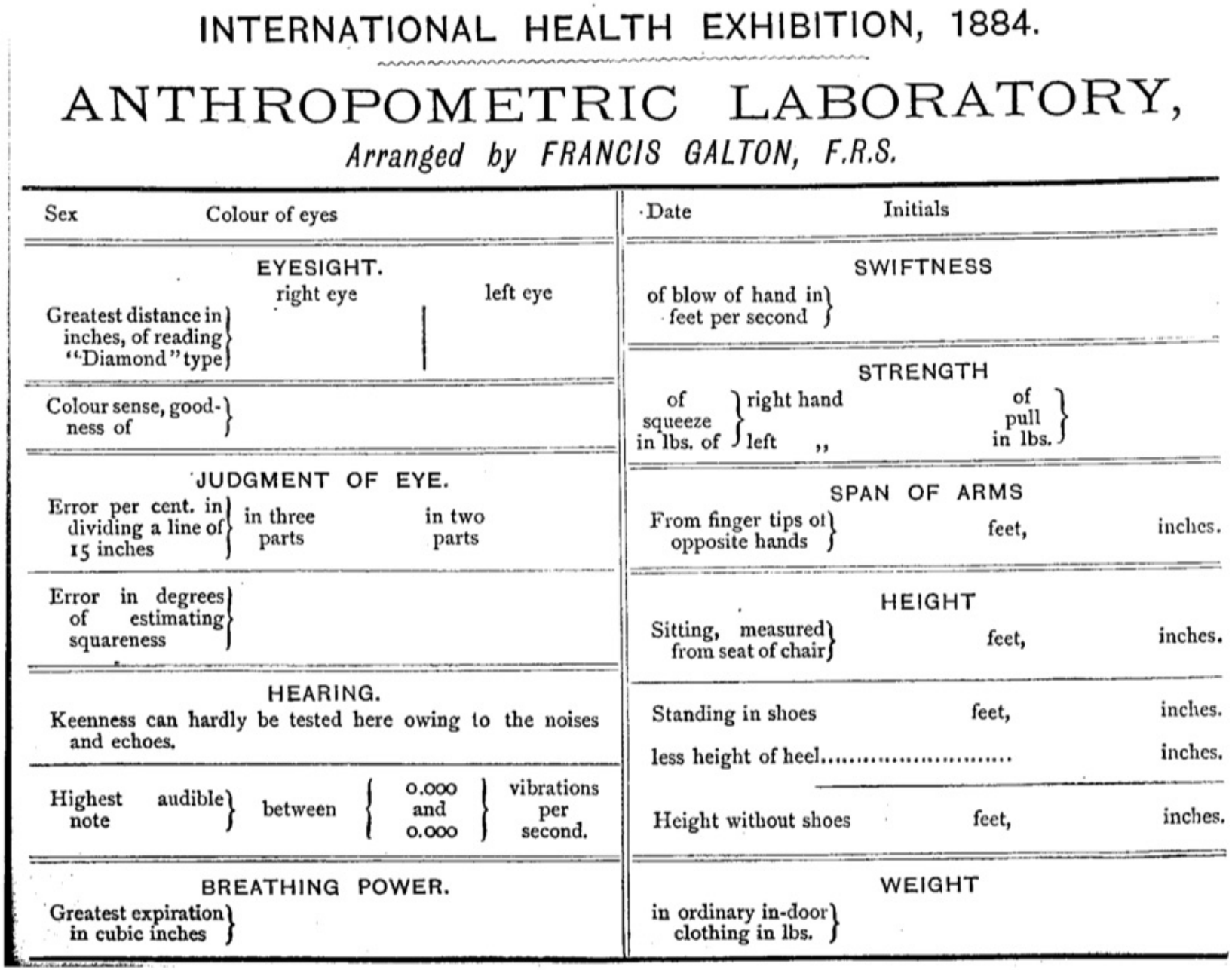
figure, larger



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transition: 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)

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

transition: 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]

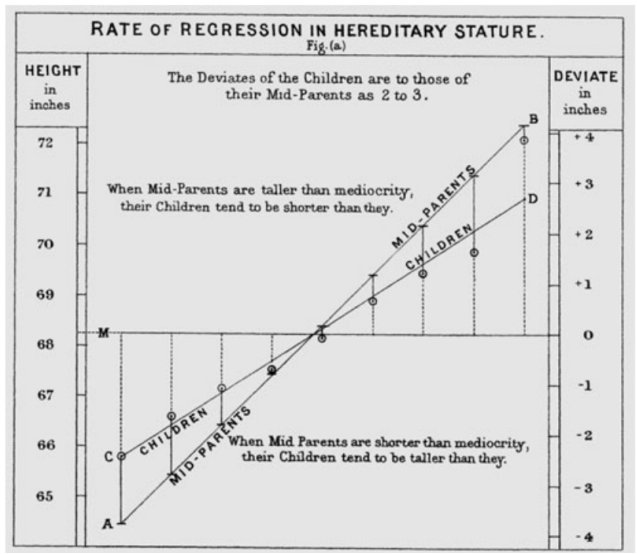
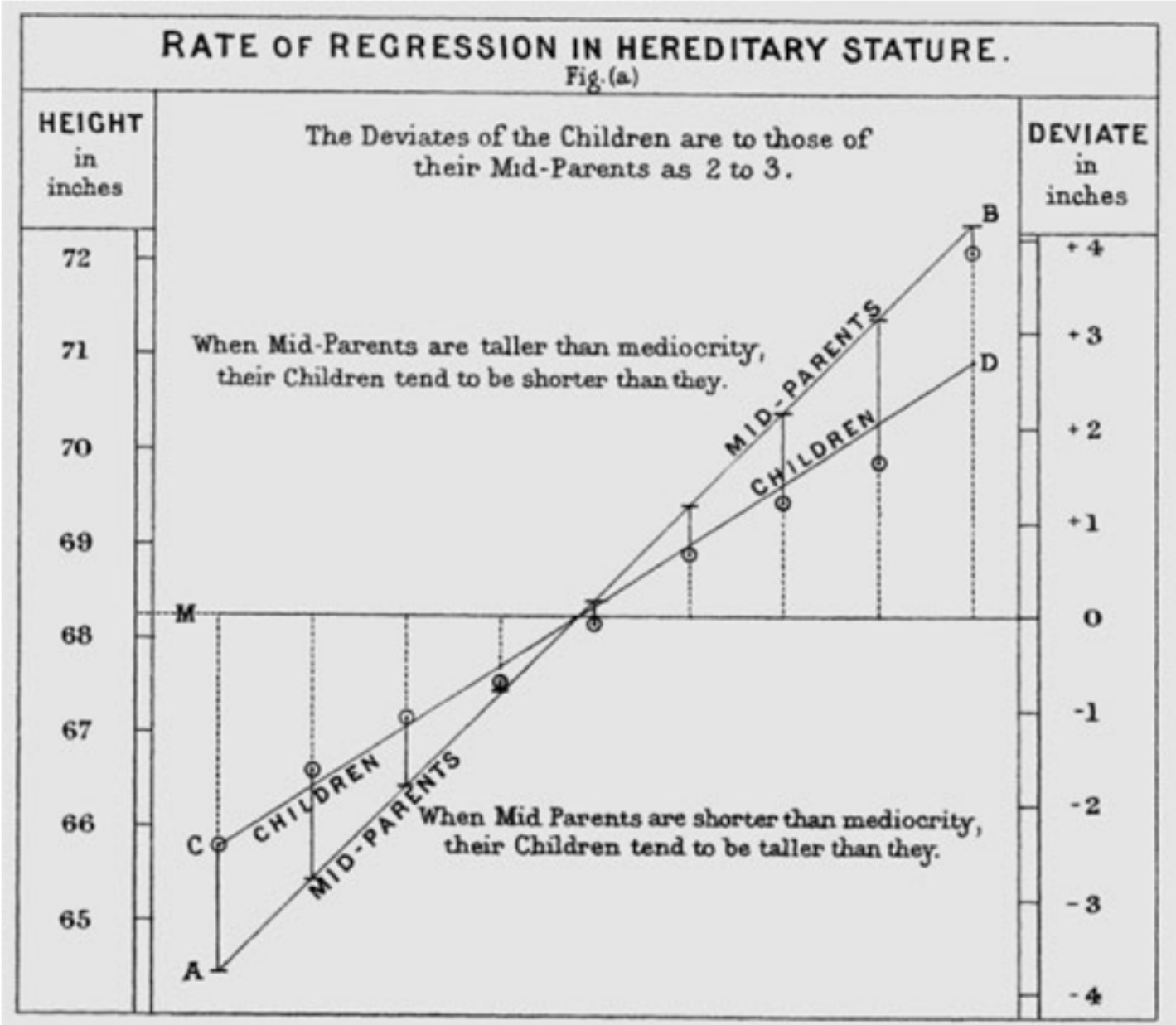


Figure 1. Galton's two regression lines (taken from Galton 1885b).

Figure 5: parent-child

figure, larger



transition: 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)

transition: Eugenics (explodes through middle of 20th century)

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- organization of policy on basis on what was taken to be best racial "science" of day

more context the Galton transition: Desrosières

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- the idea of assigning people to 8 ordered groups was already there

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    - G focus on the individual (esp. extremes) not the society

Other impacts of Galton: Eugenics

Gould 1/3

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- ranking alone is always not even wrong. cf USNWR

Gould, 2/3, things you might encounter today

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- subjective design choices in data cleaning
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- 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? . . . no one has ever surpassed [Broca] 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 transitions/themes/big main takeaways

this week's transition/development: From quantified self to quantified state

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  - ‘data’ vs. ‘truth’
- next week: from “Hereditary Genius” (1869) to intelligence + policy/causality,

themes

- Variation focus over average

themes

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- Regression

themes

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- Eugenics

themes

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- Bias *even at the selection of data*, e.g., in quantitative racism/Broca work

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

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