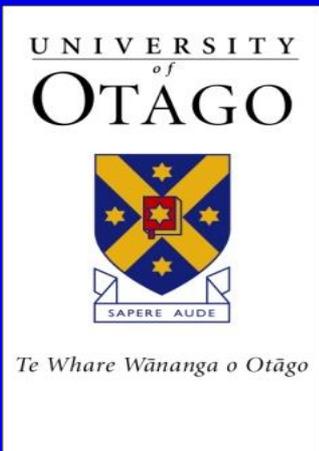
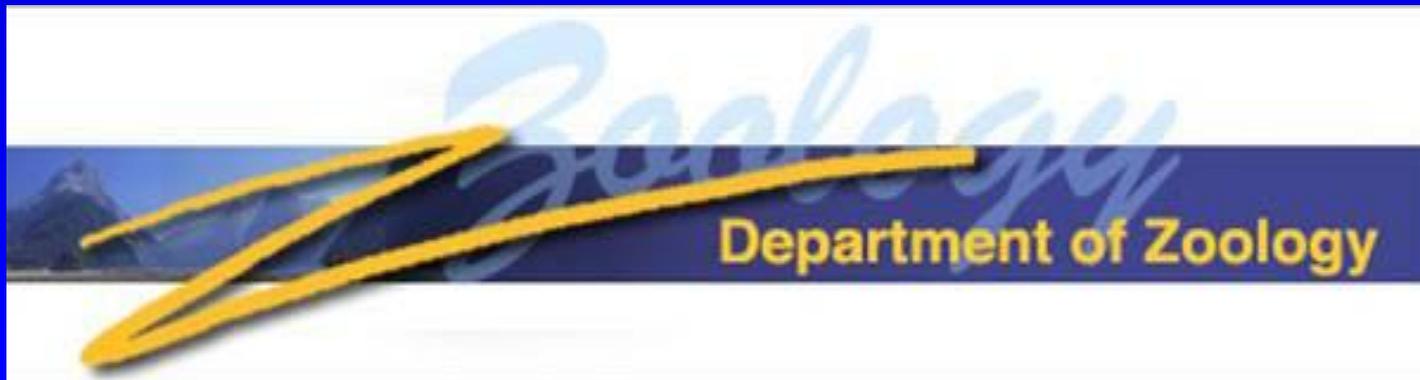


Did Eugenics Rest on an Elementary Mistake? Lessons From History for Today's Medical Genetics

Professor Hamish G. Spencer FRSNZ
Department of Zoology, University of Otago





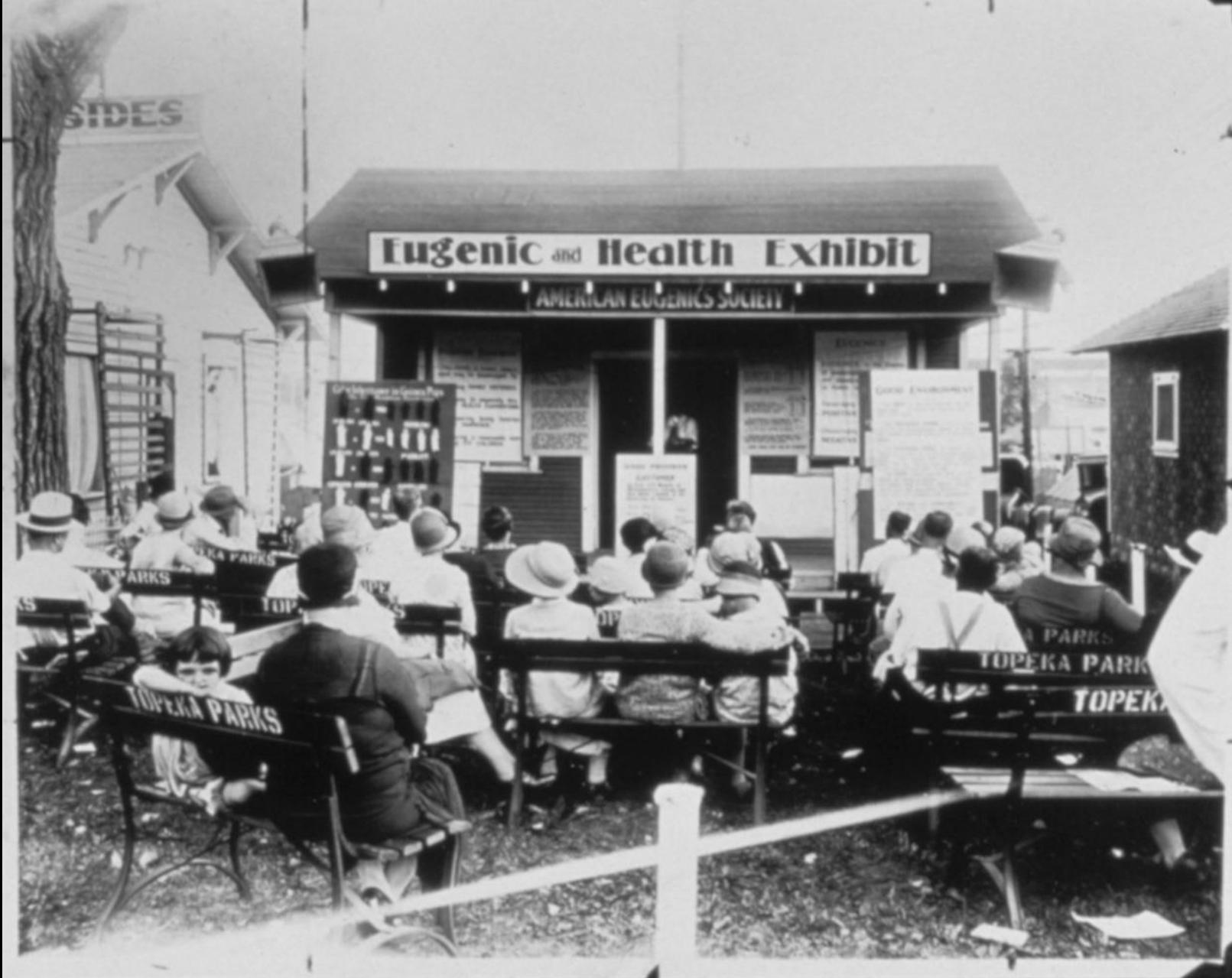
Prof. Diane B. Paul
University of
Massachusetts,
Boston;
Harvard University

Talk Outline

- What was eugenics?
- Why did eugenics fail?
 - Biology textbooks: Advances in genetic knowledge
- What really happened?
- What can we learn from all this?

What Was Eugenics?

- Social movement (1870-1950)
- Encouraged the “right” sort of people to have more children (positive eugenics)
- Ensuring the “wrong” sort had fewer or none (negative eugenics)
- Nazi Germany
- Many U.S. states
- Scandinavia



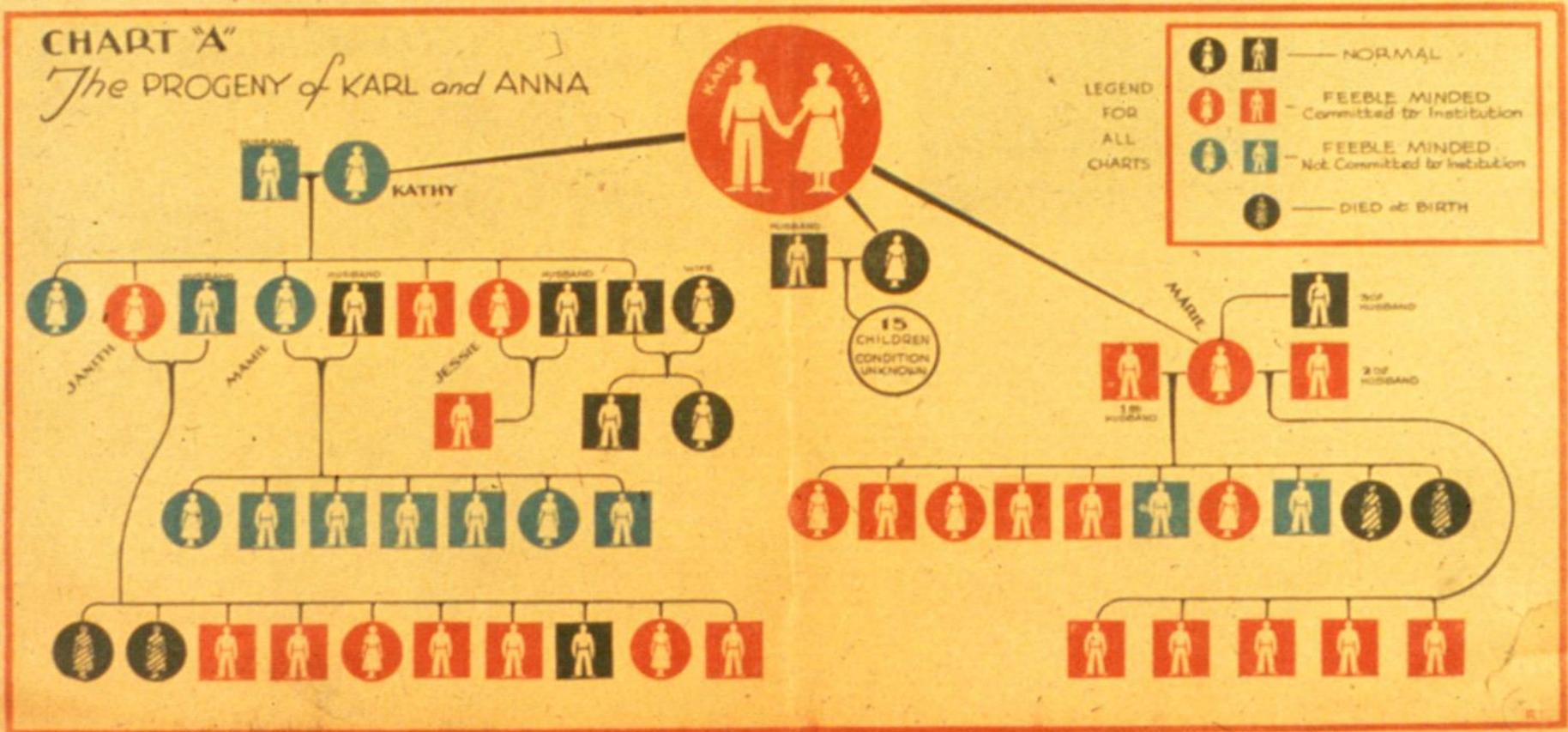
Eugenics Building - Kansas Free Fair, 1929

London Eugenics
Society poster,
c. 1935



Sterilization . . . The Situation in Oregon

A Survey of Some Unhappy Families . . . Plus an Accounting of the Efforts to Decrease the Spread of Feeble-mindedness in the State

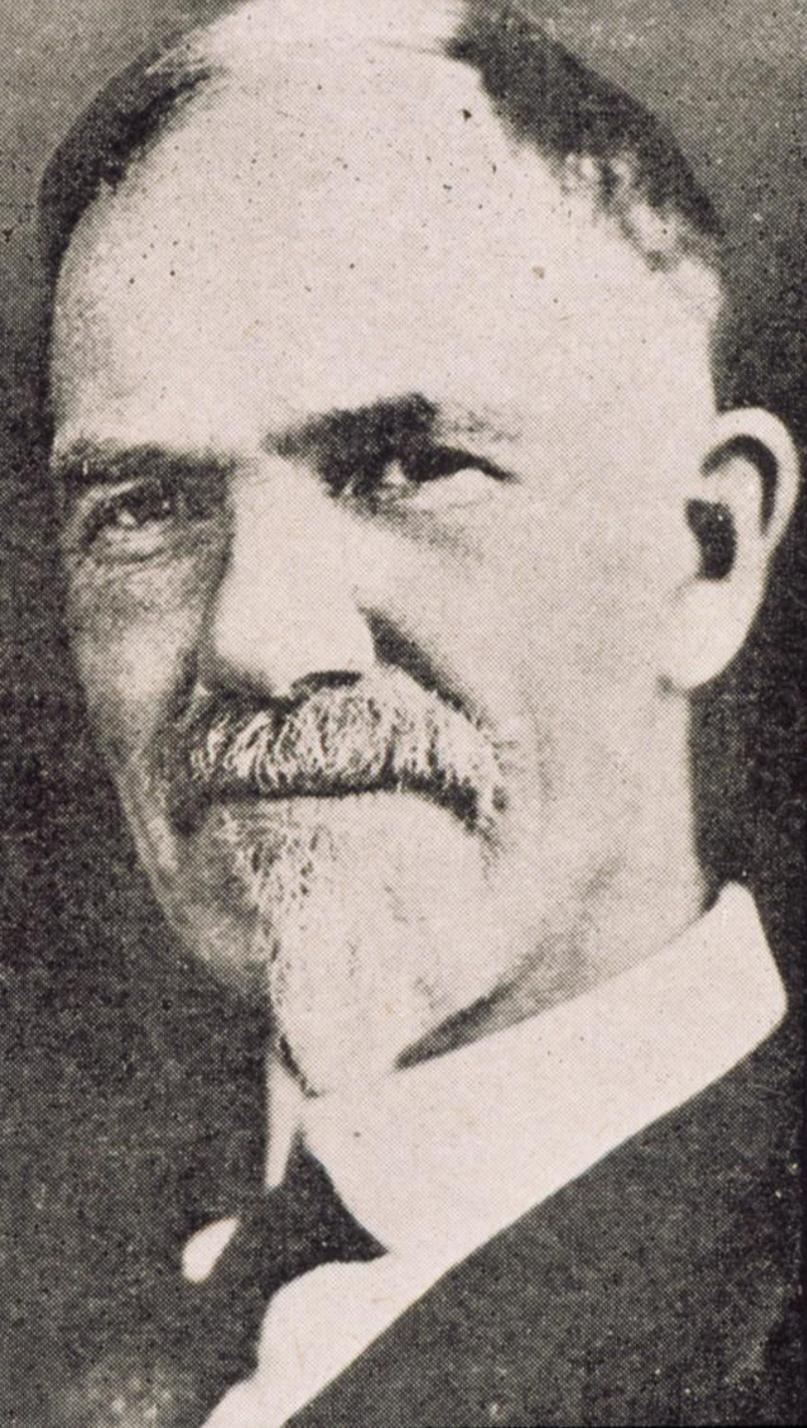


Feeble-mindedness

- A feeble-minded person is one who is “incapable of performing his duties as a member of society in the position of life to which he is born.”

Paul Popenoe, 1915

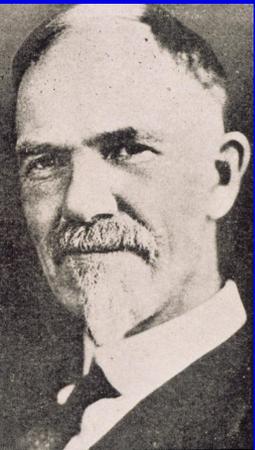
- Feeble-mindedness led to immorality, drunkenness, pauperism, and crime in general



Charles B. Davenport

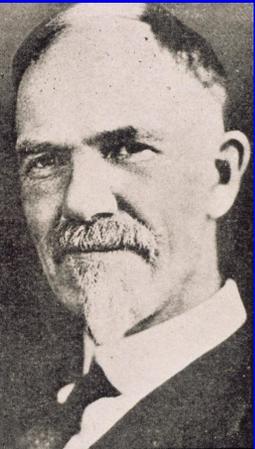
“Prevent the feebleminded, drunkards, paupers, sex offenders and criminalistic from marrying ... any person belonging to a neuropathic strain. ... Then the crop of defectives will be reduced to practically nothing.”

Davenport, New York, 1912

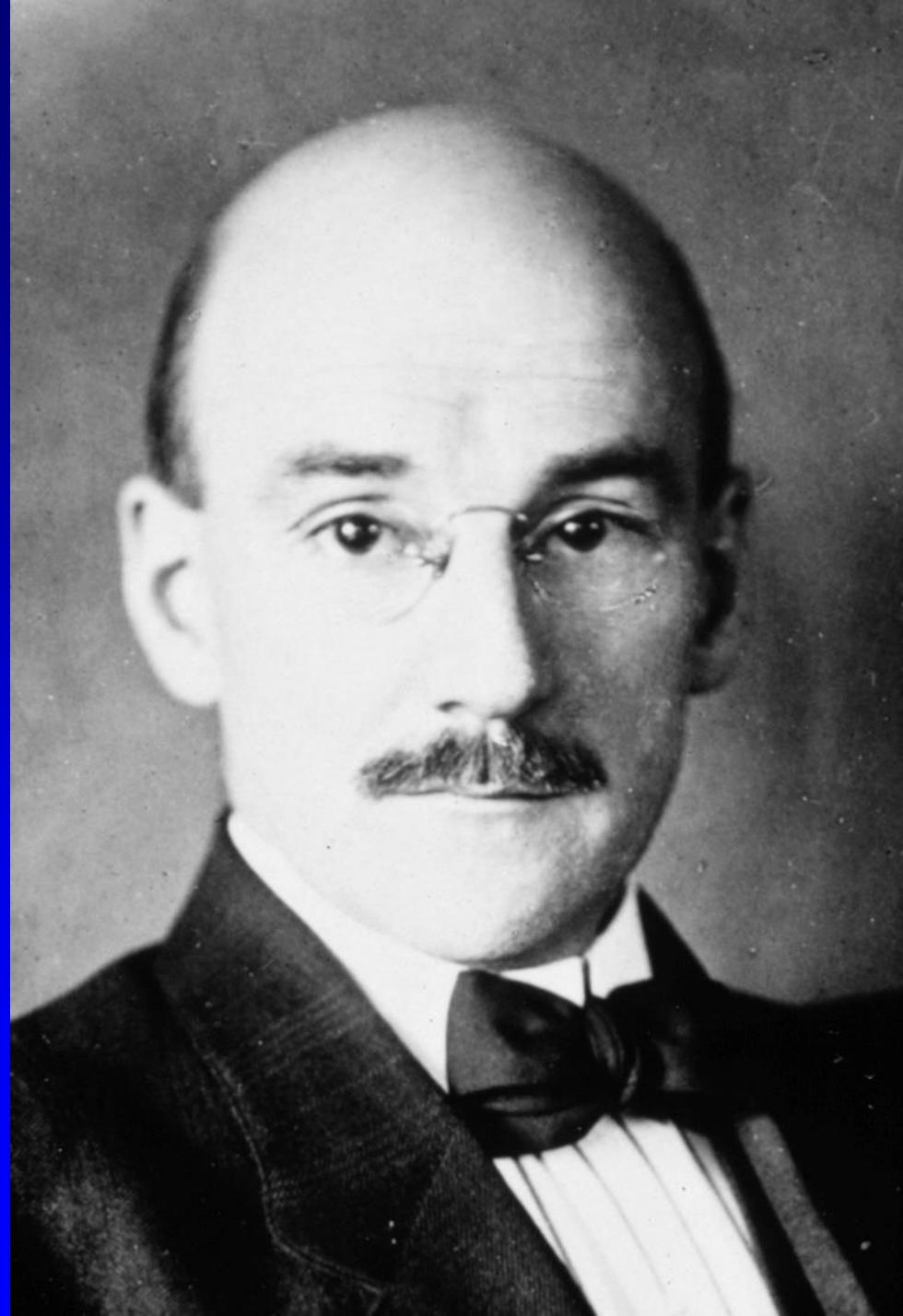


Davenport's Views

- Davenport believed eugenic progress would be immediate
- He soon changed his mind, as he became aware of the genetics apparently underlying feeble-mindedness



Henry H. Goddard



THE
KALLIKAK FAMILY

A STUDY IN THE HEREDITY OF
FEEBLE-MINDEDNESS

BY

HENRY HERBERT GODDARD, PH.D.

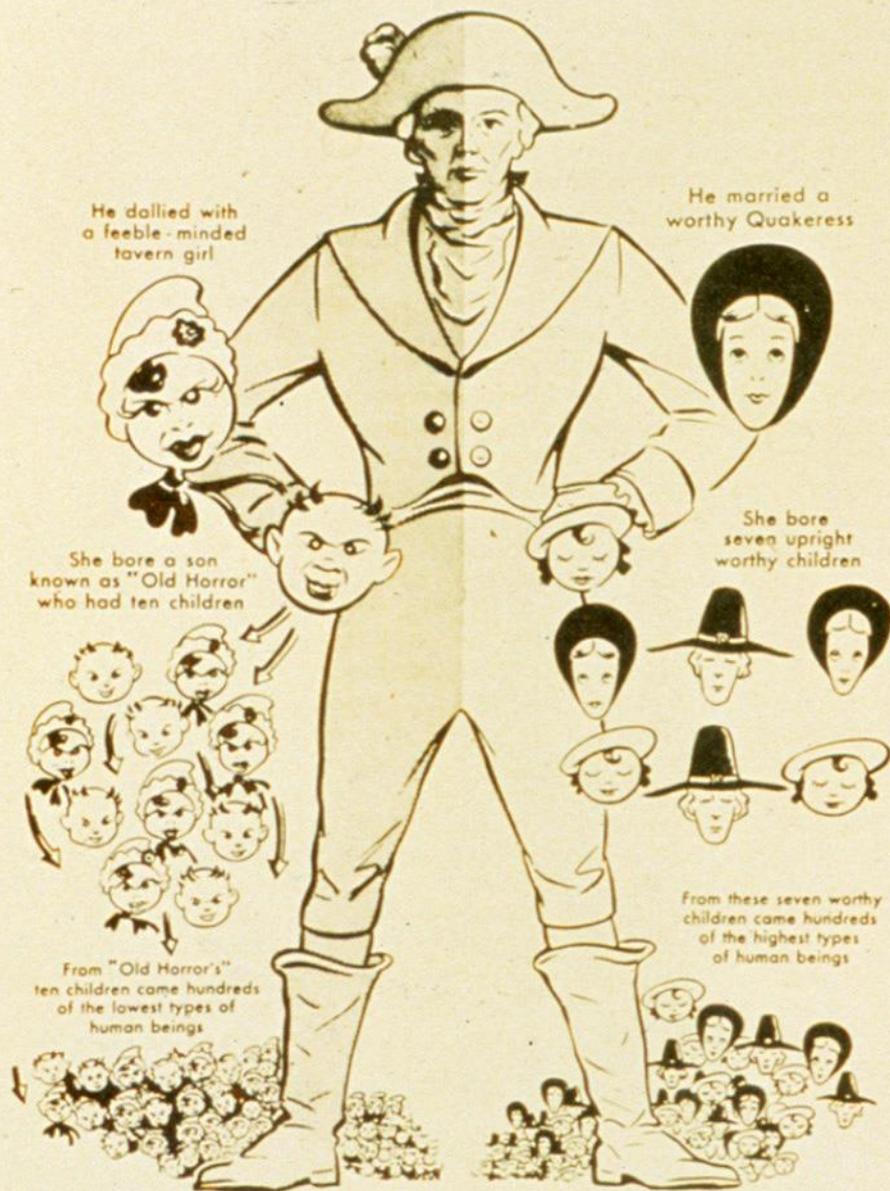
*Director of the Research Laboratory of the Training School
at Vineland, New Jersey, for Feeble-minded Girls
and Boys*

New York

THE MACMILLAN COMPANY

1914

All rights reserved



As late as 1961, this schematic visualization of the Kallikak myth was solemnly presented as a legitimate scientific concept in a widely used college textbook written in 1955 by the then chairman of the Columbia University Department of Psychology and revised six years later with the collaboration of psychology professor Hubert Bonner of Ohio Wesleyan University.

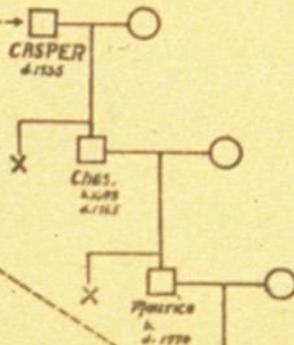
From Henry E. Garrett and Hubert Bonner, *General Psychology* (2d rev. ed., New York: American Book Company, 1961).

KALLIKAK FAMILY of NEW JERSEY.

NORMAL LINE

DEGENERATE LINE

CASPER - Large land owner and respected citizen - many upright and intelligent descendants in many parts of the United States & Canada.



At 41 years of age when enlisting for the Revolutionary War had illegitimate intercourse with the **FEEBLEMINDED E** and thus founded a degenerate family, which consorting with its kind produced, up to the present time (1911) the following progeny.

At 43 years of age *Martin Sr.* married a cultured woman of good family and founded a normal family of distinction. His descendants marrying into families descended from signers of the Declaration of Independence and the Constitution, from Colonial Governors and other families of sterling traits.

A splendid normal woman of good family.

Martin Kallikak, Sr.
b. 1745 d. 1837

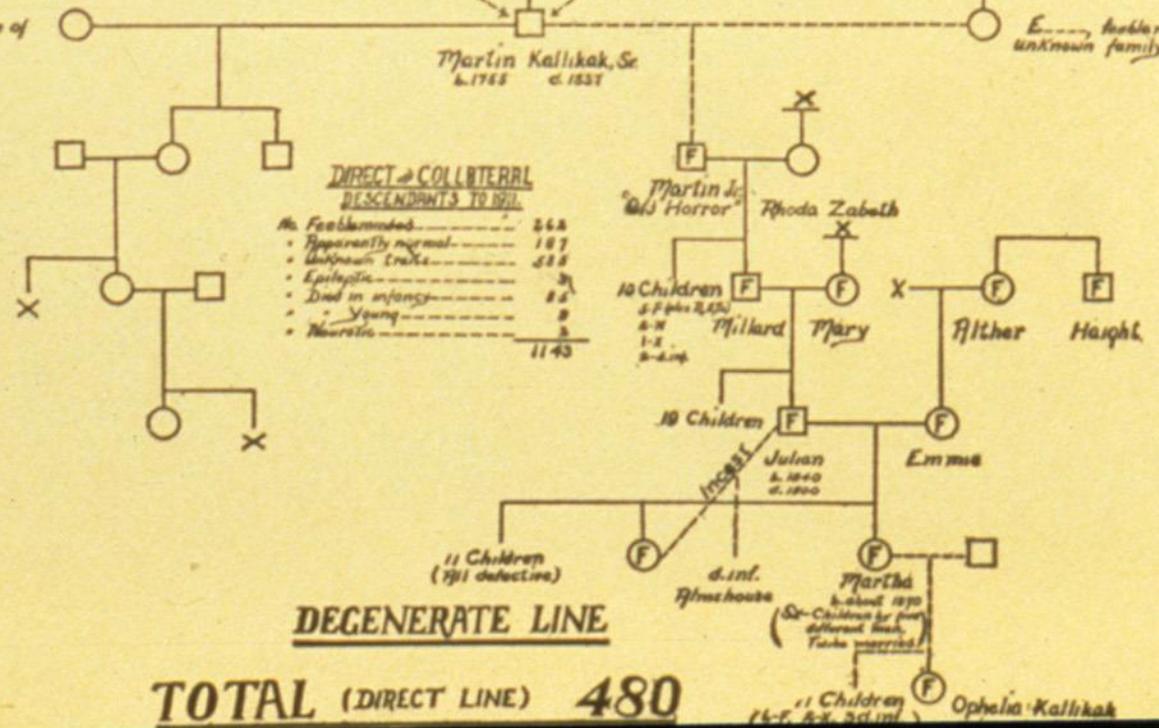
E - feeble minded girl of unknown family.

DIRECT DESCENDANTS TO 1911

No. Alcoholic	8
• Grossly imbecile	1
• Insane or neurotic	0
• Feeble minded or epileptic	0
• Criminal	0
• Died in infancy	15
• Apparently normal	478

DIRECT & COLLATERAL DESCENDANTS TO 1911

No. Feeble minded	568
• Apparently normal	187
• Unknown traits	588
• Epileptic	3
• Died in infancy	25
• Young	8
• Neurotic	5
Total	1143



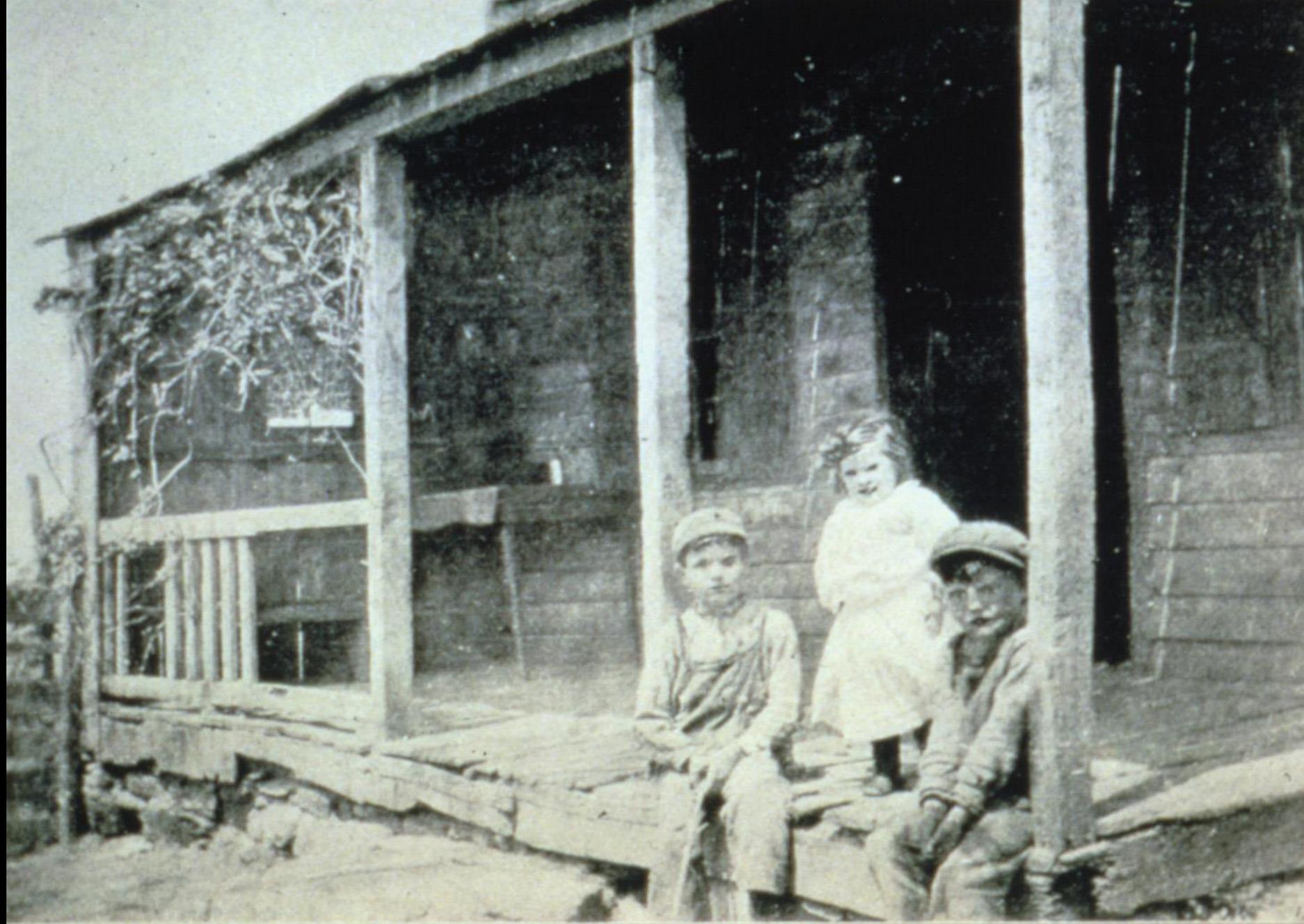
NORMAL LINE

DEGENERATE LINE

TOTAL (DIRECT LINE) 496

TOTAL (DIRECT LINE) 480

Martha b. about 1850
52 - Children by pure different blood
1 - 2
1 - 2
11 Children (14 F, 8 M, 25 inf.)
Ophelia Kallikak



GREAT-GRANDCHILDREN OF "OLD SAL."



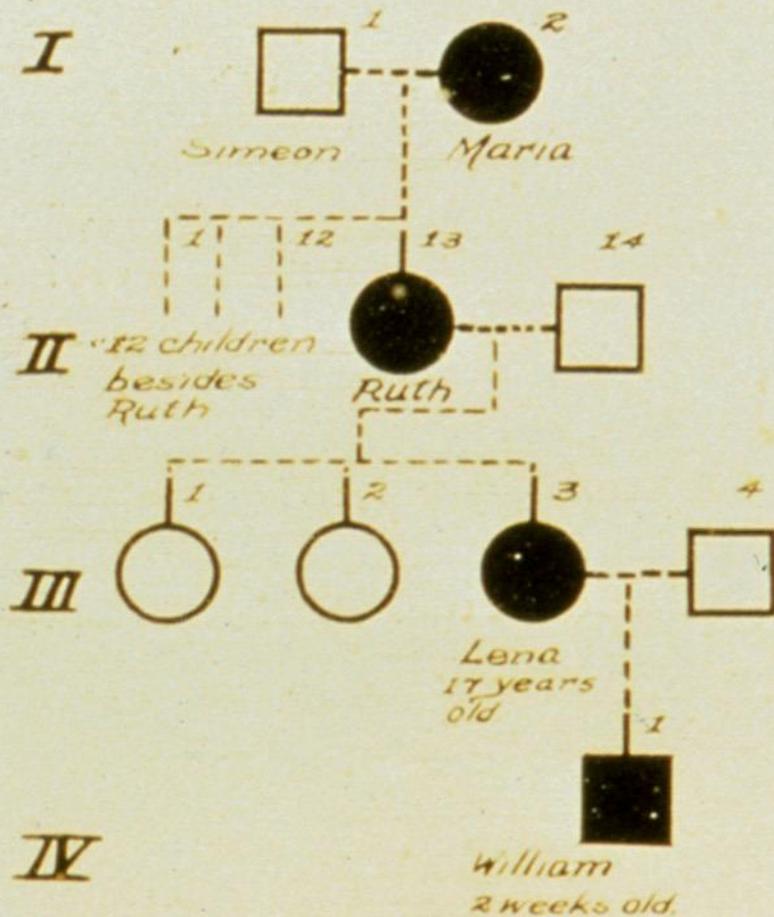
DEBORAH KALLIKAK. AS SHE APPEARS TO-DAY AT THE TRAINING SCHOOL.

*Four Generations in One Almshouse at One Time,
at Yaphank, Suffolk Co; N.Y. - July 27, 1917.*



*Lena Ruth Maria
William (infant)*

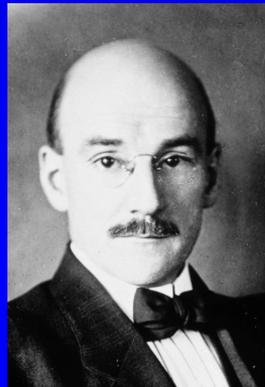
Pedigree



If border line family, in which illegitimacy runs high, not quite able to care for itself in organized society.

Goddard's (1914) Conclusion

- Feeble-mindedness was caused by a recessive single-gene defect
- Scientific support for genetic basis was all but universal

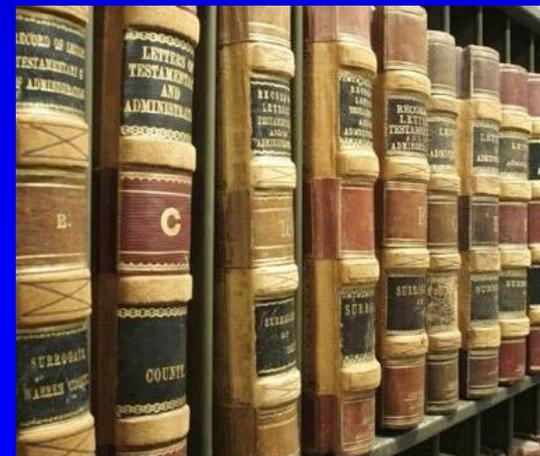


Feebleminded were Everywhere

- 300,000 - 1,000,000 Americans
(Paul Popenoe & R. H. Johnson, 1918)
- 2% New York schoolchildren
(Goddard, 1912)
- WWI American draft: 47.3% of whites,
89% of blacks
(Brigham, 1923)

Feebleminded were Prolific

- British Royal Commission on the Care and Control of the Feebleminded (1908)
 - Normal couples had 4
 - Defectives had 7 children



REPORT OF THE ROYAL COMMISSION
ON THE CARE AND CONTROL OF
THE FEEBLEMINDED, VOLUME 8

Reactions to Eugenic Data

- Feeble-mindedness would become commoner
- Even scientific critics of eugenics movement were worried
- Public concern was considerable

The Ford International Weekly

THE DEARBORN INDEPENDENT

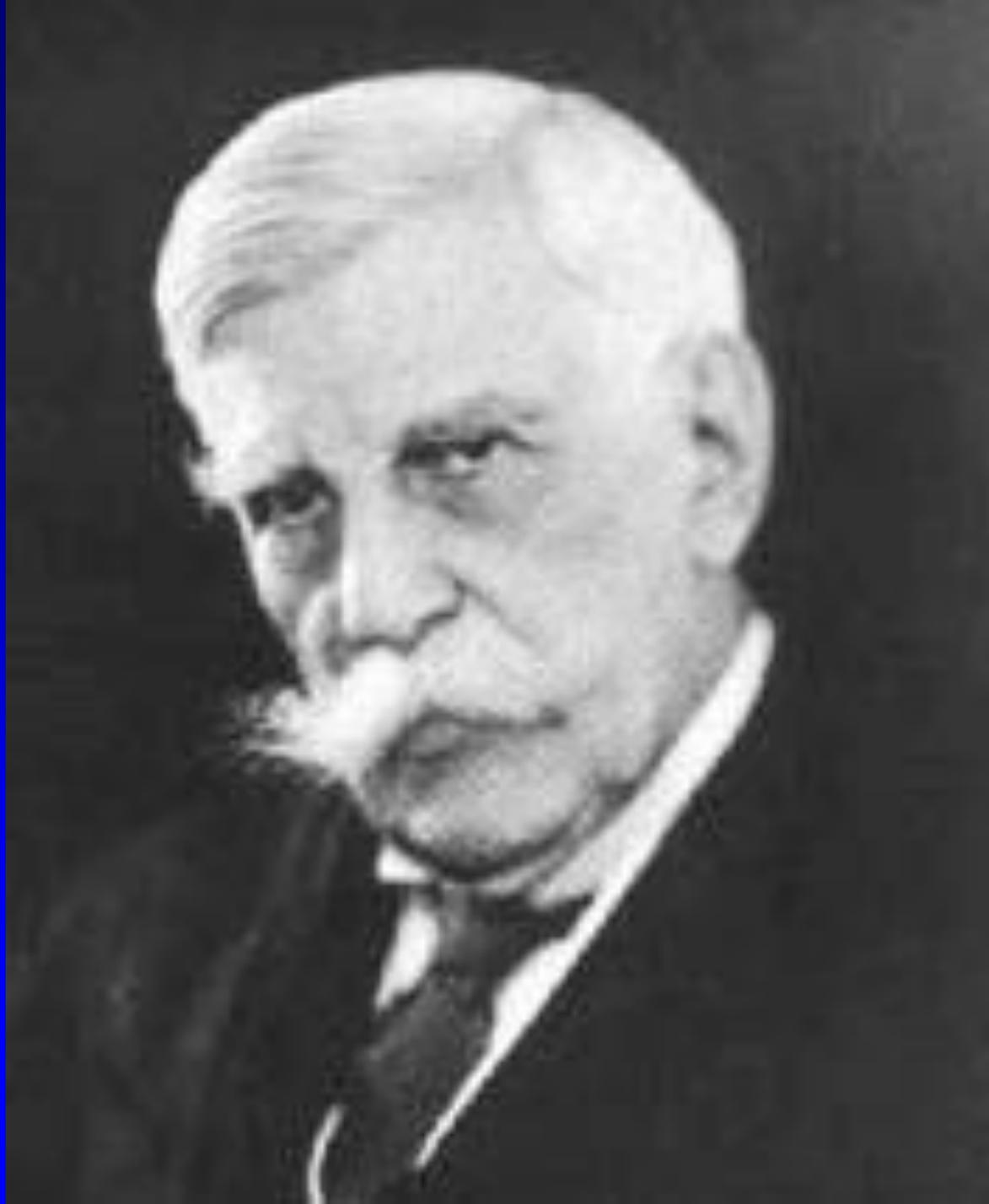
No. 51 50

Dearborn, Michigan, July 28, 1923

10¢ Ten Cents

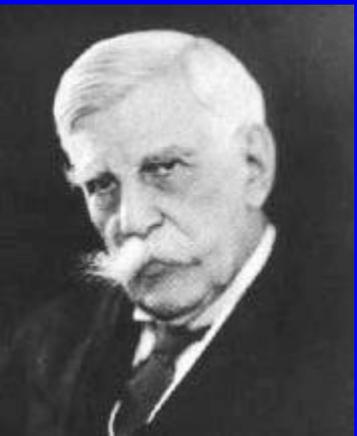
Melting Pot Dross Takes
Fifth of Tax Dollar

Oliver Wendell
Holmes, Jr.



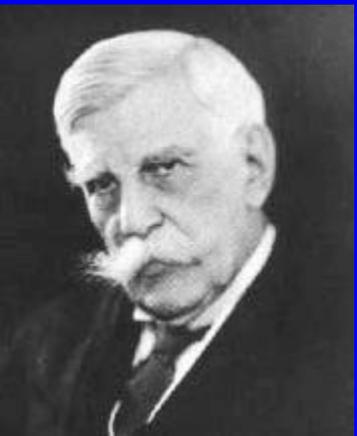
“We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices, ... in order to prevent our being swamped with incompetence.”

Buck vs Bell, 1927



“It is better for all the world, if instead of waiting ... to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. ... Three generations of imbeciles are enough.”

Buck vs Bell, 1927





Herbert S. Jennings

“A defective gene such a thing as produces diabetes, cretinism, feeble-mindedness is a frightful thing; it is the embodiment, the material realization of a demon of evil; a living self-perpetuating creature, invisible, impalpable, that blasts the human being in bud or leaf. Such a thing must be stopped wherever it is recognized.”

Jennings, Baltimore, 1927



Eugenics in Modern Textbooks

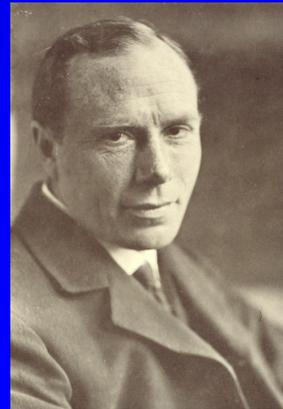
- Textbooks claim (negative) eugenics would not work
- Basic genetic knowledge (Hardy-Weinberg Principle) shows progress is very slow
- When a recessive gene is rare, most of these are in carriers, not affected individuals
- Sterilizing affected individuals removes very few of these genes



Reginald C. Punnett

Punnett's (1917) Calculations

- Eugenics would effect only a very slow decline in proportion of feebleminded:
 - 1% to 0.1% would take 22 generations
- This is the textbooks' “inefficacy of eugenics” argument



Edward Murray East



“Our modern Red Cross Knights have
glimpsed but the face of the dragon.”

East, Cambridge, Mass., 1917



The Problem with the Textbook Argument

- Implies early eugenicists were stupid
- But R.A. Fisher (for example) was ardently pro-eugenic
- Something is wrong with the textbook argument
- Let us return to 1920s

Ronald Aylmer Fisher



Fisher's Calculations

- Yes, but who cares about long-term effects?
- Eugenic progress is initially rapid
- 1% to 0.83% in 1 generation
- That is a 17% reduction!



Textbooks' Inefficacy Argument is Wrong

- Eugenecists were concerned about a common trait
- Initial progress would be rapid
(assuming genetic basis was simple; indeed, even if it were not)

Inefficacy Argument was Irrelevant

“To stop the propagation of the feebleminded, by thoroughly effective measures, is a procedure for the welfare of future generations that should be supported by all enlightened persons. Even though it might get rid of but a small proportion of the defective genes, every case saved is a gain, is worthwhile in itself.”

Jennings, Baltimore, 1930

“The prevention of propagation of even one congenitally defective individual puts a period to at least one line of operation of this devil. To fail to do at least so much would be a crime.”

Jennings, Baltimore, 1927



Even Genetics was Irrelevant

Even if the feebleminded did not inherit their defects, they were unfit to rear a family anyway,

“so sterilization of the mentally ill and deficient is justifiable both on social and biological grounds.”

H.R. Hunt, 1933

J. B. S. Haldane



“With mental defects as with physical defects, if you once deem it desirable to sterilize I think it is a little difficult to know where you are to stop.”

J. B. S. Haldane, London, 1938



Why Did Eugenics Really Fail?

- Nazi atrocities
- Patients' rights in medicine
- Feminism
- Reproductive autonomy



Ethical Views Have Changed

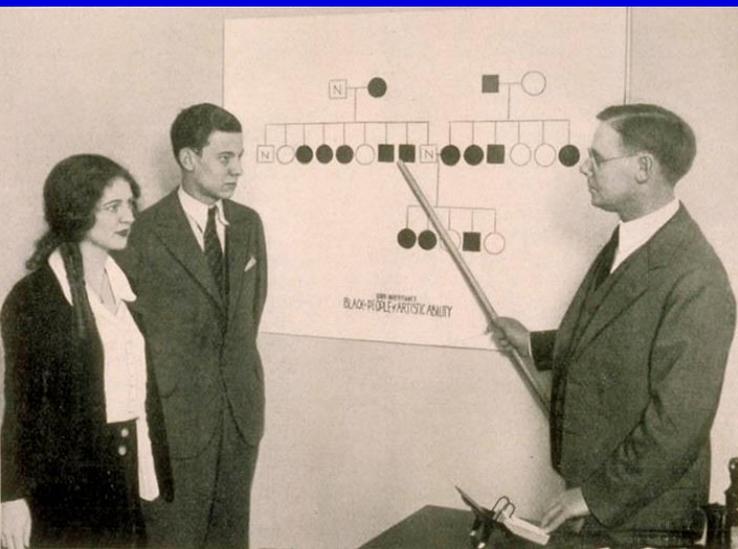
“Society must look upon the germ-plasm as belonging to society and not solely to the individual who carries it.”

H. H. Laughlin, New York, 1914



“So few people would now contend that two feebleminded or epileptic persons have any ‘right’ to marry and perpetuate their kind, that it is hardly worth while to argue the point.”

Popenoe & Johnson, 1918

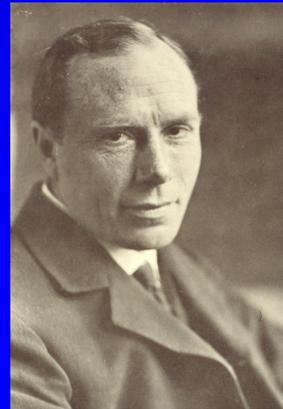


So what?

- If inefficacy is the *only* problem, then eugenics is OK in principle
- In particular, if we could detect carriers, eugenics would be fine

Punnett was Pro Eugenics

- Punnett closed his paper by advocating research to detect carriers of the defective gene
- Targetting carriers is very efficient (because most defective genes are in carriers)



True Concerns about Eugenics

- True concerns include
 - Involvement of state in reproductive decisions
 - Freedom of choice
- Examples:
 - Maternal Serum α -fetoprotein screening in California
 - World Federation of Neurology and International Huntington Association 1990 guidelines for Huntington's screening

MSAFP Screening in California

Californian legislators hoped that in offering MSAFP screening to all pregnant women “some of those found to have children with neural tube defects will choose not to bring them to term ... thereby preventing the state from having to bear the burden of their care.”



Arthur Caplan, Philadelphia, 1993

Huntington's Screening Guidelines

IHA & WFN deemed it acceptable to refuse to test women who

“do not give complete assurance that they will terminate a pregnancy where there is an increased risk [of Huntington's]”

Ethical Issues Policy Statement, 1990

Conclusion

To claim (as textbooks do) that eugenics is dead because of its failure to understand basic genetic principles is one way to dispose of deep social, political and ethical questions.

But it may not be the best one.



Further Reading

- Paul, D.B., and H.G. Spencer. 1995. The hidden science of eugenics. *Nature* 374: 302-304.
- Spencer, H.G., and D.B. Paul. 1998. The failure of a scientific critique: David Heron, Karl Pearson and Mendelian eugenics. *British Journal for the History of Science* 31: 441-452.
- Spencer, H.G., and D.B. Paul. 2002. Eugenics. Pages 317-322 in *Encyclopedia of Evolution*, M. Pagel (ed.). Oxford University Press, New York.
- Paul, D.B. 1998. *The Politics of Heredity : Essays on Eugenics, Biomedicine, and The Nature-nurture Debate*. State University of New York Press, Albany.
- Paul, D.B., and H.G. Spencer. 2008. “It’s ok, we’re not cousins by blood”: The cousin marriage controversy in historical perspective. *PLoS Biology* 6(12): e320.