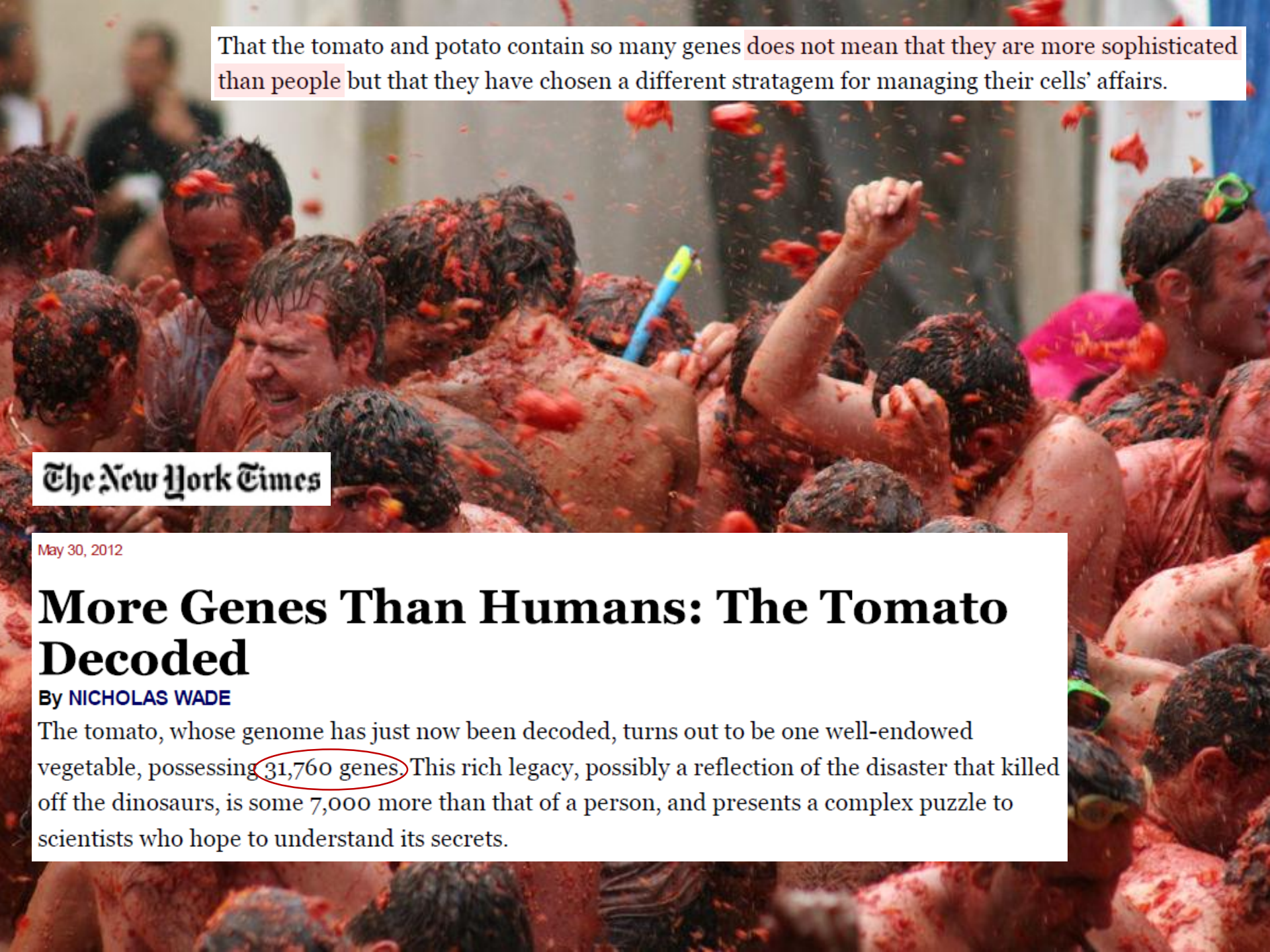
Graduate training in interdisciplinary population health

Thom McDade, PhD
Northwestern University, Anthropology and Institute for Policy Research

That the tomato and potato contain so many genes does not mean that they are more sophisticated than people but that they have chosen a different stratagem for managing their cells' affairs.



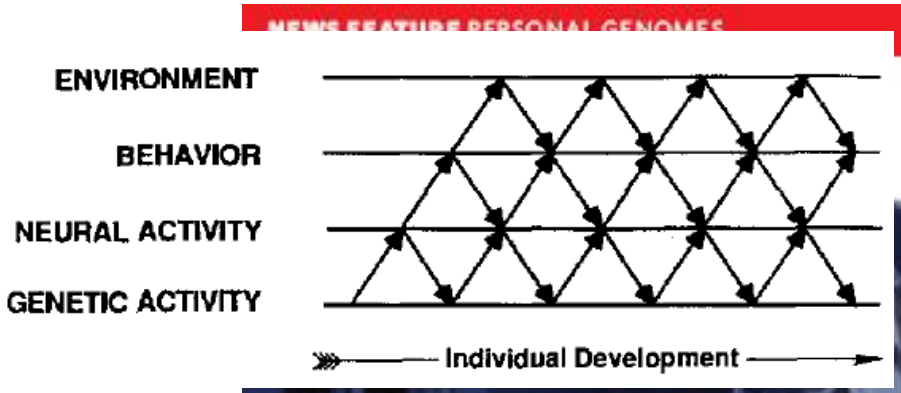
The New York Times

May 30, 2012

More Genes Than Humans: The Tomato Decoded

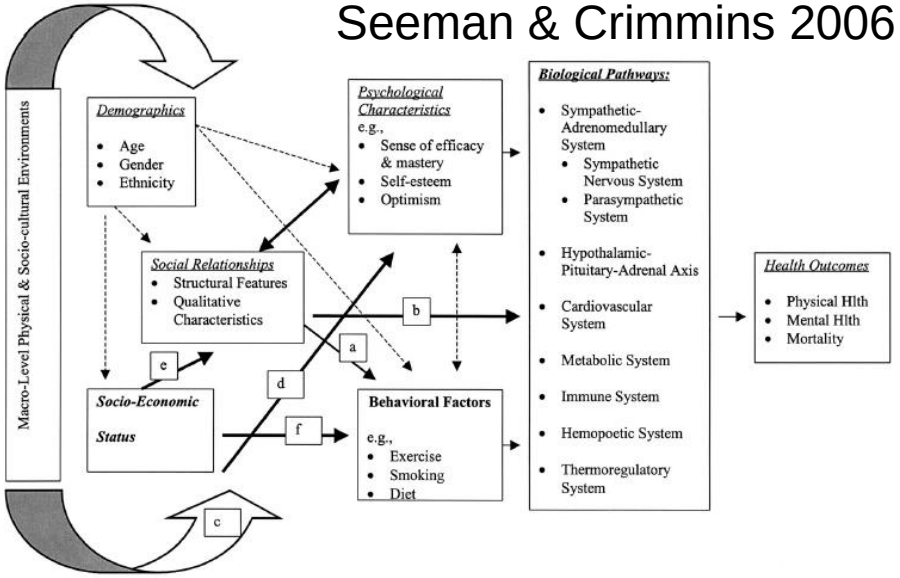
By NICHOLAS WADE

The tomato, whose genome has just now been decoded, turns out to be one well-endowed vegetable, possessing 31,760 genes. This rich legacy, possibly a reflection of the disaster that killed off the dinosaurs, is some 7,000 more than that of a person, and presents a complex puzzle to scientists who hope to understand its secrets.

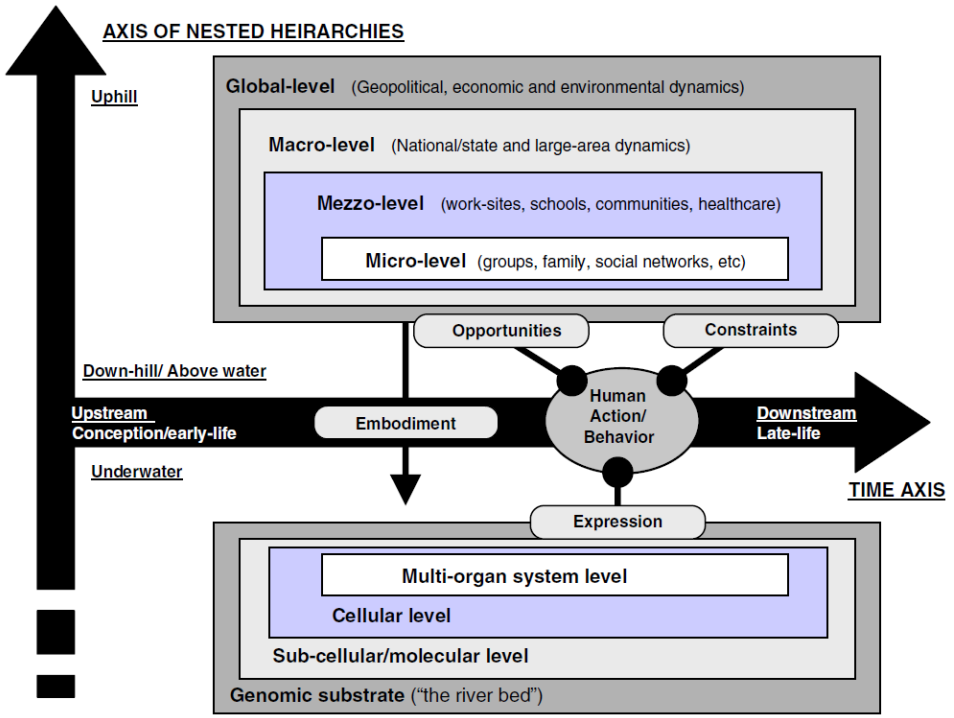


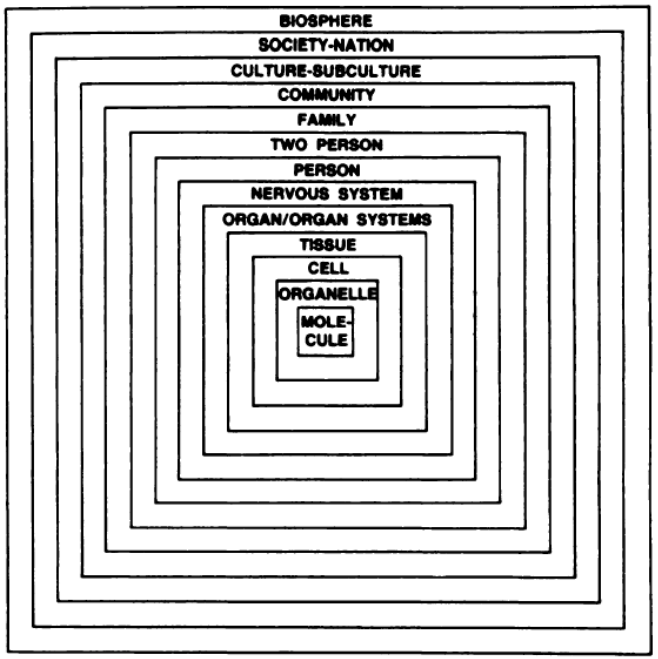
Gottlieb 1991

Seeman & Crimmins 2006



Glass & McAtee 2006





Engel 1980

Graduate training pipelines

- Programs in Public Health
- Degree programs in **Population** Health
- PhD programs in Social/Behavioral Sciences

Opportunities at the margins

- Minors/Certificates/Clusters in population health
- Graduate students in anthropology, demography, economics, human development, psychology, sociology, etc.
- Students can affiliate before or after beginning their graduate studies

Inputs

- Graduate students in social/behavioral sciences
- Students who . . .
  - . . . are smart
  - . . . have interests in health that transcend the borders of their discipline
  - . . . play well with others

Outputs

- **Knowledge** of foundational concepts in population health, and more specific competence in models, mechanisms, and methods of relevance to students' own research agendas
- Shared foundational knowledge, and socialization into an interdisciplinary mindset, that **facilitate conversation and collaboration** across disciplines
- Enhanced **communication skills** that promote collaboration and translation

→ *PhD graduate who is "pre-adapted" to purse additional training in population health, and/or to contribute centrally to collaborative, interdisciplinary research and training in population health*

Opportunities at the margins: Advantages

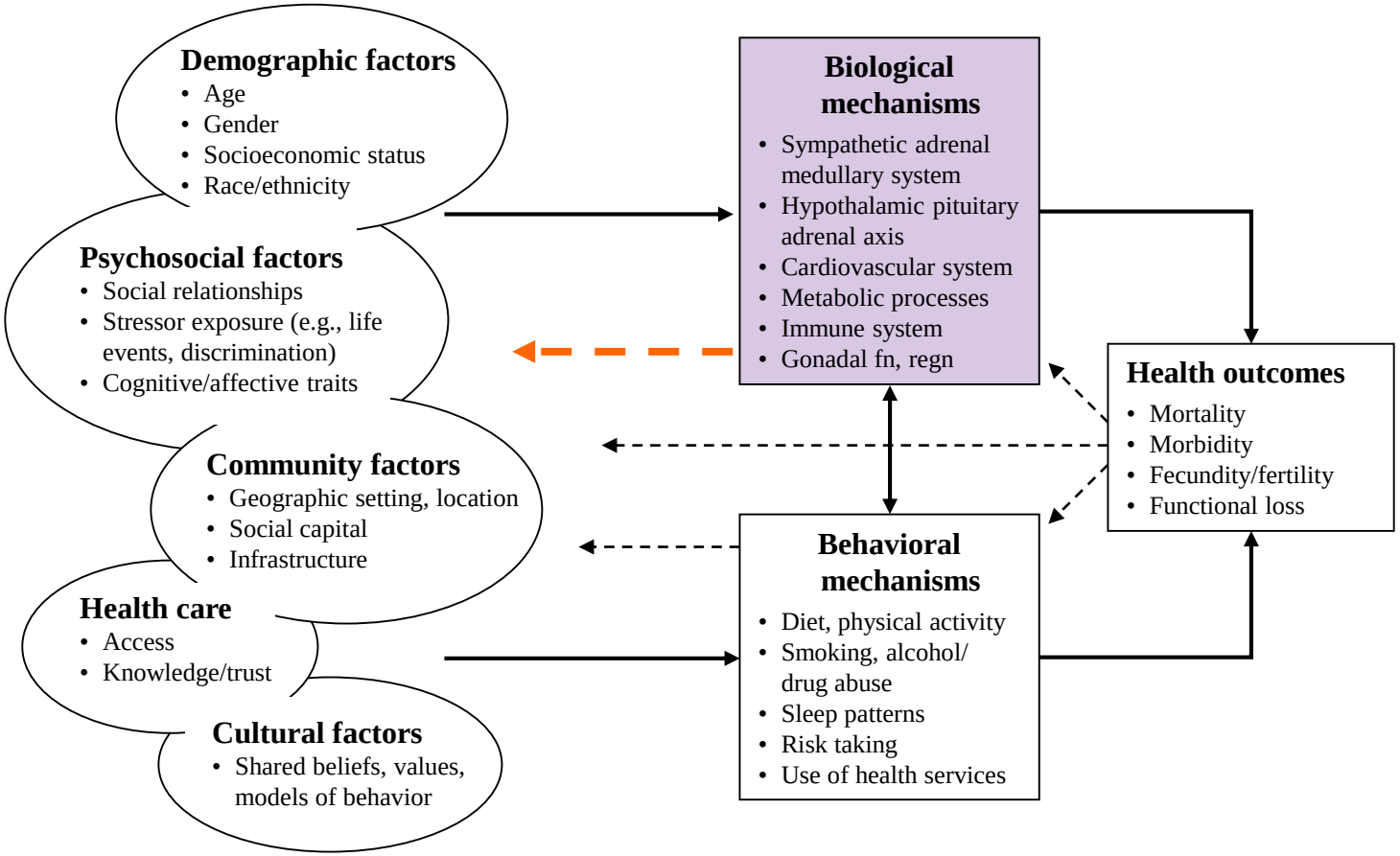
- Potentially low cost: use existing funding models as a foundation
- Students retain strong disciplinary identity, with established set of theoretical and methodological tools
- Students can affiliate after enrolling in PhD program

Opportunities at the margins: Disadvantages

- Adequate depth of knowledge in population health?
- Competing demands on limited time
- Potential for conflict with disciplinary home:
  - Is the additional training valued?
  - Can it fit with departmental requirements?

Graduate cluster in Society, Biology, and Health

Bringing biology to population-based research



- McDade et al. (2007) *Demography* 44: 899-925.

Society, Biology, and Health: Structure and funding

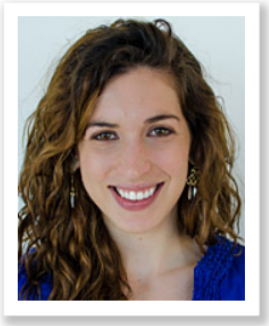
- PhD students in social/behavioral sciences apply at the end of their 1st year at Northwestern
- ~3 students receive fellowships for their 2nd year of study
- Previous cohorts remain active: 12-15 students involved in any given year
- Students have access to discretionary funds to support pilot research, training, travel to interdisciplinary meetings

Society, Biology, and Health: Requirements and activities

- Courses
  - Integrative seminar in society, biology, and health
  - Beyond nature vs. nurture: The impact of experience on biology across the life course
  - Genes and society
  - Statistics
  - >1 year undergraduate biology
- Monthly meetings: *Mentor* led
- Monthly meetings: *Student* led
- Attendance at IPR and C2S seminars

Society, Biology, and Health: Outputs

→ *PhD graduate who is "pre-adapted" to purse additional training in population health, and/or to contribute centrally to collaborative, interdisciplinary research and training in population health*



Lindsay Hoyt, Ph.D.

From social policy to biomarkers of development and stress

RWJF Health & Society Scholar:
2013-2015

Discipline(s):
Developmental Psychology, Social Determinants of Health

Area(s) of Expertise:
Adolescent Health, Positive Youth Development, Psychological Well-Being, Stress Physiology

From neuroscience to social determinants of health

Vani Mathur joins the department this fall

The Psychology Department is pleased to announce that Dr. Vani Mathur will be joining us in the fall of 2015.

Dr. Mathur's work focuses on understanding the sources of disparities in pain, and the specific mechanisms by which social and cultural factors alter pain experience and pain physiology. Her research targets the problem of pain disparities from two directions – investigating the different ways social factors may influence one's own pain, and also alter pain perception and empathy for others. To tackle these problems, her lab utilizes behavioral, psychophysical, and neuroimaging methodologies. In addition to her work on pain disparities, Dr. Mathur is also interested in individual differences in chronic pain and pain modulation, cross-cultural examinations of pain and empathy, and social environmental effects on health broadly defined.