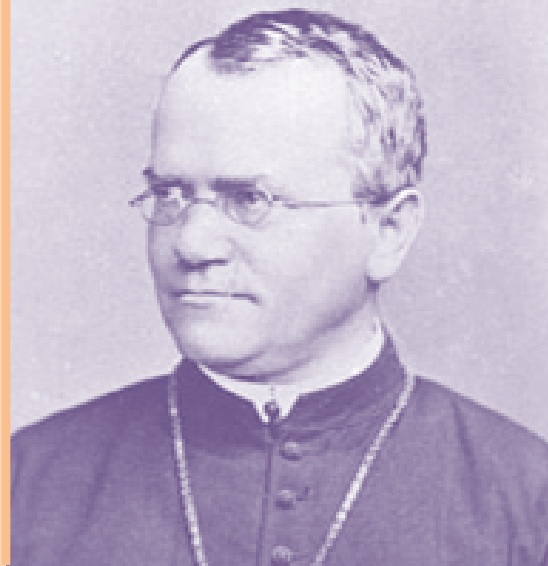


THE MENDEL NEWSLETTER

*Archival Resources for the History of
Genetics & Allied Sciences*



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Photograph of Gregor Mendel, ca. 1860, from the Curt Stern Papers, American Philosophical Society.
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Stephen Jay Gould Papers at the Special Collections and University Archives, Stanford University

Jennifer Johnson *and* Myrna Perez

STEPHEN JAY GOULD (1941–2002), notable American paleontologist, evolutionary biologist and historian of science was a prominent figure in the technical development and popular perception of evolutionary biology during the last quarter of the twentieth century. He passed away at the age of 60 after a career as a professor at Harvard and at New York University, a popular writer for *Natural History Magazine*, a scientific activist and an American public intellectual.

In 2004, the bulk of Gould's papers were donated to Stanford University's Department of Special Collections and University Archives by his widow, Rhonda Roland Shearer. Eight additional smaller accessions were transferred to Stanford between 2005 and 2011. To date, all of the materials received by Stanford University have been cataloged, and a published finding aid is available via the Online Archive of California: (<http://www.oac.cdlib.org/findaid/ark:/13030/kt229036tr/>).

Gould's extensive papers are as wide-ranging as his many scientific and intellectual interests. Any historian working on transformations in theoretical biology, the place of public scientists in American culture, race and science and the evolution-creation debate will find a wealth of rich material in the collection. Additionally, those interested in Gould's biography will be fascinated

by both the juvenilia series (containing Gould's school report cards and early family letters) as well as the artifacts, ephemera and memorabilia series. By the end of his career Gould was an enormously well-connected individual, corresponding with biologists, writers, fans and major political figures. His papers give a unique glimpse into the intellectual world of the last quarter of the twentieth-century and the ways in which his biological identity played into his interactions with other public thinkers, writers and his lay audiences. This article will not attempt to summarize the entirety of the collection (which would be nearly impossible). Instead, we will proceed thematically and roughly biographically through the collection in order to give a taste of what is available in the archive.

Additionally, it should be noted that Stanford also took in the entirety of Gould's personal library, which included his impressive rare and antiquarian book collection. Over 1,200 titles, including some dating back to the 1400s, have all been cataloged. While Gould's book collection was remarkable, he was not merely a collector of books-as-artifact. Used for his own research, many of these books contain Gould's annotations in the form of marginalia. The titles and topics in Gould's personal library are truly representative of his vast and varied scientific and intellectual interests. All of the rare books from the Stephen Jay

Gould collection are slated to be scanned and delivered online by the Stanford University Libraries (as of September 2012, approximately 80% of Gould's books have been scanned and reviewed for quality). As John Mustain, Stanford's Special Collections Rare Books Librarian recently commented, "the scanning project was something of a pioneering venture: to scan an entire collection, containing books from different centuries, different sizes, different sorts of illustrations, different bindings, the only thing in common being a Gould book." Once this effort is realized, researchers from around the globe will have the ability to digitally leaf through Gould's prized rare book collection, which will provide yet another glimpse into Stephen Jay Gould's unique 'view of life.'

Childhood and Early Years

Gould was born on September 10, 1941 to Leonard and Eleanor Gould, in Queens, New York. Later in his life Gould would recount—in both personal correspondence and in public venues—the story of his father taking him to the American Museum of Natural History in New York. Gould often recalled throughout his life how viewing the *Tyrannosaurus rex* skeleton during this childhood trip marked the beginning of his lifelong passion for paleontology. His interest in paleontology continued to develop throughout his childhood and teenage years, and was encouraged by his family and teachers. In addition to steadfast support of their boy's academic pursuits, the Goulds were doting parents who sought to expose their child to a wide range of culture and activities, as well as a sense of civic responsibility. Though Gould's early childhood and teenage years were largely focused on his two prevailing passions, paleontology and the New York Yankees, he also sang in school and city choirs, and was a zealous advocate for civil rights and supporter of many progressive social issues of the day. The juvenilia series contains an array of materials from Gould's youth that document the development of many of his lifelong scientific interests, hobbies, and passions. The bulk of this series is made up of Gould's academic coursework

and notebooks from elementary school through college. Some items of note include Gould's early correspondence with his parents, with whom he had a very strong and nurturing relationship, and with Edwin H. Colbert of the American Museum of Natural History about his interest in exploring a career in paleontology. Other noteworthy items include drawings and paintings by Gould, baseball scorebooks, programs from choral performances, and newspaper clippings about desegregation efforts he followed closely and/or participated in while attending Antioch College and the University of Leeds.

Gould's papers from his student days reveal how keenly being a student activist shaped his academic life, his political orientation and his understanding of the relationship between science and society. He came from a New York family that was self-consciously left oriented,¹ a perspective which came to fruition during his undergraduate education at Antioch College, which he attended from 1959 to 1963. Antioch, a private liberal arts college located in Yellow Springs, Ohio, was considered a bastion of progressive thought, social activism and defense of free speech. It provided a holistic, liberal approach to education that emphasized small classroom settings and communal governance rather than competition and achievement.² The college administration considered it "very important in the process of education for students to involve themselves in matters of social action."³ As the materials in this series reveal, Gould's experiences during this period were very influential throughout many aspects of his life and career.

Leftist Activist

This perspective of civic engagement and leftist sensibilities were carried with Gould into his career at Harvard. Throughout his career he wrote on the relationship between science and society, and the proper role of science in social policy. Gould was deeply immersed in the philosophy and history of science, and saw context as a constitutive part of scientific knowledge. Though Gould maintained that he was not a complete rela-

tivist when it came to scientific practice,⁴ he often used social context in his writings as an explanation for how scientists distort their knowledge for political and social aims. In *The Mismeasure of Man* (1981), for instance, Gould argued that the science behind the biologically deterministic understandings of intelligence were motivated by cultural racism.⁵ And his contributions to the sociobiology debate in the 1970s and early 1980s also hinged on his repudiation of anything he perceived as advocating biological determinism.⁶ Gould's writings on race and science, as well as his participation in the sociobiology debate can be explored through the correspondence series, as well as in his subject files. The subject files series is comprised of the records Gould maintained on his many scientific research interests, including biological determinism; creationism; evolution; the history of science and scientists (particularly Charles Darwin); the intersection of art and science; the intersection of science and religion; mollusks; paleontology; punctuated equilibrium; race and intelligence; and sociobiology, to name only a fraction. Included are grant projects and proposal files; original bibliographic research and notes; subject index cards; a collection of letters to and from notable scientists; and an amassed collection of evolution related iconography, often clipped or saved from popular culture sources. Other files include research materials for Gould's many books, book reviews, and *Natural History* columns.

Popular Writer

A prolific writer, Gould authored 300 consecutive essays for his monthly column *This View of Life* that appeared in *Natural History*, the journal of The American Museum of Natural History, from 1974 to 2001. He also authored over 20 best-selling books, and wrote nearly a thousand scientific papers. Many of Gould's *Natural History* essays were reprinted in collected volumes, such as *Ever Since Darwin* and *The Panda's Thumb*. Popular treatises included books such as *The Mismeasure of Man* (1981), *Wonderful Life* (1989), and *Full House* (1996), and his landmark work

The Structure of Evolutionary Theory (2002). Gould was also a lifelong baseball fan, and often referenced the sport in his essays. Many of his baseball essays were anthologized in his posthumously published book *Triumph and Tragedy in Mudville* (2003).

Although the correspondence held in the Stanford collection documents Gould's entire career, it is particularly rich in relation to Gould's publishing career. The correspondence series is made up of incoming and outgoing letters, as well as files containing his correspondence with publishers. Included are letters, postcards, and other documents sent to Gould by colleagues, editors, publishers, and a considerable number of letters from the public. Letters from fans and laypersons include both praise and criticism of Gould's books, scholarly articles, popular science works, and involvement in the fields of evolutionary biology, paleontology, and the history of science. Gould routinely kept copies of outgoing letters for some time. Primarily these consist of letters to professional colleagues, though there are some responses to fan mail, typically replies to children who wrote letters to Gould about their interest in science and to fans who wrote to Gould in regards to their battles with cancer.

Captured in this series is the correspondence between Gould and his first editor at *Natural History*, Alan Ternes. Gould was approached by Ternes in the summer of 1973, who was looking for a few new regular columnists. Writing to Ternes, Gould proposed a column "firmly based in evolutionary theory and its implications but trying to synthesize under that rubric my divergent interests in the history and philosophy of science, social and political questions bearing upon scientific issues, and the phenomena of life's history on a grand scale."⁷ Ternes was amenable and told Gould to "try a couple."⁸ After Gould had written a draft of the first three, he told Ternes that he had had enough fun to be willing to continue writing them on a monthly basis.

And, of course, these columns were transformed into ten highly successful edited antholo-

gies. Gould had established a following at the magazine and everyone connected with the project hoped this would translate to successful book sales. There was only so much work to be done on the editorial front, as the columns had already been edited once. Gould noted, with some surprise and pleasure, that the columns went together remarkably well, as he wrote to his publisher at Norton, Inc.

I just had the most unexpected and satisfying experience of discovering how coherent a set these apparently disparate essays form—coherent to me at least . . . whether or not they cohere for anyone else, I leave to your judgment. But since I have never once, in three and a half years, given the slightest thought to balance or connection . . . I was surprised and delighted when they fell into eight “natural groupings, each with four or five essays.”⁹

Researchers can trace the progress of Gould's publishing career through the manuscript series. This series consists of drafts and related materials from Gould's many books and publications, as well as many unpublished writings. Included are typed and handwritten manuscripts, research notes, galleys, design proofs, promotional material, reviews of publications, and related correspondence. Research materials and correspondence related to individual pieces remain with each work. The manuscripts series contains several discrete subseries. The “books” subseries includes works arranged by volume title. The subseries, “*Natural History* magazine column: *This View of Life*,” contains published articles; typescripts and galleys; correspondence; and other miscellany related to Gould's column. The “articles, essays, and other writings by Gould” subseries includes works that are listed by title. A significant amount of this subseries includes partial, unlabeled, or unidentified works. Working titles often vary from published titles. The “book reviews” subseries consists largely of reviews written for the *New York Review of Books*, though there are a substantial number of reviews written for other publications. Publications in the “reprints & articles by Gould” subseries are ordered

by year of publication. Lastly, the “figures” subseries includes illustrations, charts, diagrams, graphs, and other visual works used in Gould's various books and articles.

Paleobiology and Neo-Darwinism

Throughout his scientific career, Gould was often regarded as a representative of evolutionary theory to a public audience while simultaneously being at odds with many other evolutionary thinkers. Although Gould considered himself to be a strict Darwinian, his rejection of gradualism, adaptationism and gene-centered understandings of evolution were often portrayed (in both technical and popular writings) as revolutionary. Gould's criticisms of the Neo-Darwinian synthesis¹⁰ were often focused on what he considered to be the central premise of the modern synthesis—that natural selection orders random variation by selecting for adaptive features in organisms. He believed that this rigid view of evolution assumed an understanding of human consciousness that was entirely adaptive. Under this view human beings were only able to act according to principles derived from adaptation itself. In other words, Gould perceived a direct connection between the 'central logic of the synthesis' and a biologically deterministic understanding of human nature. Gould's published disagreements with various aspects of the Neo-Darwinian synthesis raised the issue of whether internal debates among evolutionary theorists should be aired to the public.¹¹

There are several series in the collection of particular relevance to Gould's scientific career. In the correspondence series there is a smaller subcategory of incoming letters from prominent figures, which is a discrete collection of letters from scientists and public figures that Gould maintained separately from his other letters (many of them major figures of evolutionary biology, including Francisco Ayala, Ernst Mayr, G.G. Simpson and G. Ledyard Stebbins). Series eleven contains Gould's conference, lecture, and symposia materials. Gould presented throughout his career at conferences, lectures, and symposia around

the world. Series ten focuses on Gould's work in various organizations, on numerous committees and boards. Gould was a longtime fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science (AAAS), the National Academy of Sciences (NAS), and the Royal Society of Edinburgh. Gould was the recipient of many prestigious fellowships throughout his career; in 1981 Gould was among the first group of recipients of the MacArthur Foundation Prize fellowship. He served as an officer and advisor on numerous boards for organizations such as the Bermuda Biological Station, the Rockefeller Foundation, and the Smithsonian Institution. Files in this series are listed in alphabetical order by organization.

Conclusion

Here we have attempted only to provide an intriguing glimpse into the rich array of materials available in the Stephen Jay Gould papers. We have not even touched on Gould's active role in the public controversy with American creationists, his work as an expert witness before the US Senate, or the details of his technical work with *Cerion*. Indeed, it would be nearly impossible to convey the vast array of materials produced and collected by Stephen Jay Gould during his prolific and varied career as a biological writer and thinker. The archival material collected by the Stanford University Special Collections Department will go far to enriching our understanding of the work of this intriguing and provocative evolutionary thinker.

Organization of the Gould Papers

The Stephen Jay Gould papers consist of 564.5 linear feet of material, which includes over 850 boxes of textual, photographic, and artifactual materials; approximately 450 audiovisual items; and 1,180 computer media files (52 megabytes). The papers were processed largely in two phases over the span of approximately two years. The first phase was focused primarily on a detailed processing of the three main series: his corre-

spondence, manuscripts, and juvenilia; while the second phase consisted of basic arrangement and description of the remainder of the collection. In addition to these textual materials, Gould's computer files, audiovisual materials, and personal book collection were all cataloged/processed in separate efforts by various Special Collections staff members.

The Stephen Jay Gould papers and artifacts were processed by Jenny Johnson, with assistance from Laura Williams and Beth Goder. Born digital files were imaged, assessed, and processed by Peter Chan. Gould's born digital files were among the first to be handled by Stanford's nascent Digital Archives program, and were used as a test case for the Andrew W. Mellon Foundation funded "Born Digital Collections: An Inter-Institutional Model for Stewardship (AIMS)" project. Audiovisual materials were inventoried by Crystal Rengal. The cataloging and handling of Gould's rare and antiquarian books was capably handled by Janet Sakai, John Mustain, and Peter Whidden. The scanning of Gould's books is being carried out by Stanford's Digital Library Systems and Services (DLSS) group, and will be made available via Searchworks, Stanford's online catalog system.

Collection Contact Information

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Stanford, CA 94305

<http://www-sul.stanford.edu/depts/spc/uarch/>
Email archivesref@stanford.edu



- ¹ Gould, Stephen Jay. *The Structure of Evolutionary Theory*. 1ST ed. Belknap Press of Harvard University Press, 2002.
- ² Algo Donmyer Henderson, *Antioch college: its design for liberal education* (Harper & brothers, 1964).
- ³ Antioch College Community Council in Antioch Notes Vol 38, May 191, Number 8 in Stephen Jay Gould Papers, M1437. Box 122, Folder 10-12 Dept. of Special Collections, Stanford University Libraries, Stanford, Calif.

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- ⁴ Gould was explicit on his reflections about scientific realism and relativism. See particularly Stephen Jay Gould, “Deconstructing the ‘Science Wars’ by Reconstructing an Old Mold,” *Science*. 287 (January 14, 2000): 253-261
- ⁵ Gould goes through the measures of the biological determiners of intelligence: craniometry and IQ tests. He argues that such researchers as Samuel George Morton, Louis Agassiz, and Paul Broca committed the fallacy of using their expected racist conclusions as part of their reasoning.
- ⁶ The most famous example of this—Allen, Elizabeth et al. (1975) “Against Sociobiology” (letter) *New York Review of Books* 22 (Nov. 13): 184-186.
- ⁷ Letter from Stephen Jay Gould to Alan Ternes 25 June 1973 in Box 230, Folder 3 in Stephen Jay Gould Papers, Stanford University.
- ⁸ Letter from Alan Ternes to Stephen Jay Gould August 17, 1973 in Box 230, Folder 3, Stephen Jay Gould Papers, Stanford University.
- ⁹ Letter from Stephen Jay Gould to Edwin Barber 20 December 1977 in Box 149, Folder 8 in Stephen Jay Gould Papers, Stanford University.
- ¹⁰ The terminology for the “modern synthesis,” “evolutionary synthesis” and “neo-darwinism” is a moving target, according to Vassiliki Betty Smocovitis, *Unifying Biology: The evolutionary synthesis and evolutionary biology* (Princeton University Press, 1996). By this terminology we most generally mean both the theoretical articulation that combined genetic variation with natural selection, but also the research and institutional programs that arose from the 1940s onward to constitute “evolutionary biology,” with the understanding that these are historically and intellectually complicated terms.
- ¹¹ For a summary of the ideological, disciplinary and institutional aspects of the public understanding of science: Brian Wynne. “Public Understanding of Science” in Sheila Jasanoff and Society for Social Studies of Science, *Handbook of Science and Technology Studies* (SAGE, 1995).
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The Amram Scheinfeld Papers at Columbia University

Nathan Q. Ha

ARAM SCHEINFELD (1897–1979) was a scientific journalist and professional cartoonist, based in New York City. After high school, Scheinfeld worked as a newspaperman before he learned about genetics and became a vocal advocate and popularizer of the discipline. He sold hundreds of thousands of books, including: *You and Heredity* (1939), *Women and Men* (1944), *Why You are You* (1959 children's book), *Your Heredity and Environment* (1965), and *Twins and Supertwins* (1969). These books represent Scheinfeld's enduring fascination with the hereditary basis of human difference, especially the origins of sex, race, and talent. Scheinfeld also meditated upon these themes in the numerous articles that he wrote for major American magazines, such as *Reader's Digest*, *Collier's*, *Ladies' Home Journal*, and *Cosmopolitan*. Most of these articles are preserved in the Scheinfeld papers. The papers also include his correspondence with intellectual luminaries grappling with the questions of sexual and racial difference, including Ashley Montagu, Alfred Kinsey, and Theodosius Dobzhansky. The Scheinfeld collection is a rich resource that offers historians an opportunity to examine scientific popularization and to explore a crucial period in American history when biologists, social scientists, and journalists challenged and reformulated scientific discourses about sex and race.

From Cartoons to Genetics

Scheinfeld was born in Louisville, Kentucky but grew up in Milwaukee, Wisconsin, where his father was a rabbi. Upon graduating high school in 1914, Scheinfeld began working as a cartoonist and journalist for several Milwaukee newspapers. Local editors quickly recognized Scheinfeld's talents as a cartoonist, satirist, and writer; they rewarded him with steady assignments and promotions that ferried him to America's eastern seaboard and, ultimately, to New York City. By the late 1920s, however, Scheinfeld had grown restless with his profession. After some soul-searching, he realized that his work as a journalist had exposed him to a broad cross-section of society that left him wondering about the ultimate causes of human achievement and difference. Scheinfeld then turned to genetics for the answers to these burning questions.

During the early 1930s, he read voraciously in the field and even took a genetics class at New York University. First and foremost a dramatist, Scheinfeld wrote a play, "Chromosome," about his newfound passion. When he finished the draft in 1935, however, he realized that audiences might not appreciate his clever jokes about fruit flies and chromosomes. Indeed, he had struggled a great deal to master the technical language and details of genetics in textbooks and professional articles, the only available sources on the subject. Inspiration struck: Scheinfeld resolved to write a book that could present the latest findings of ge-

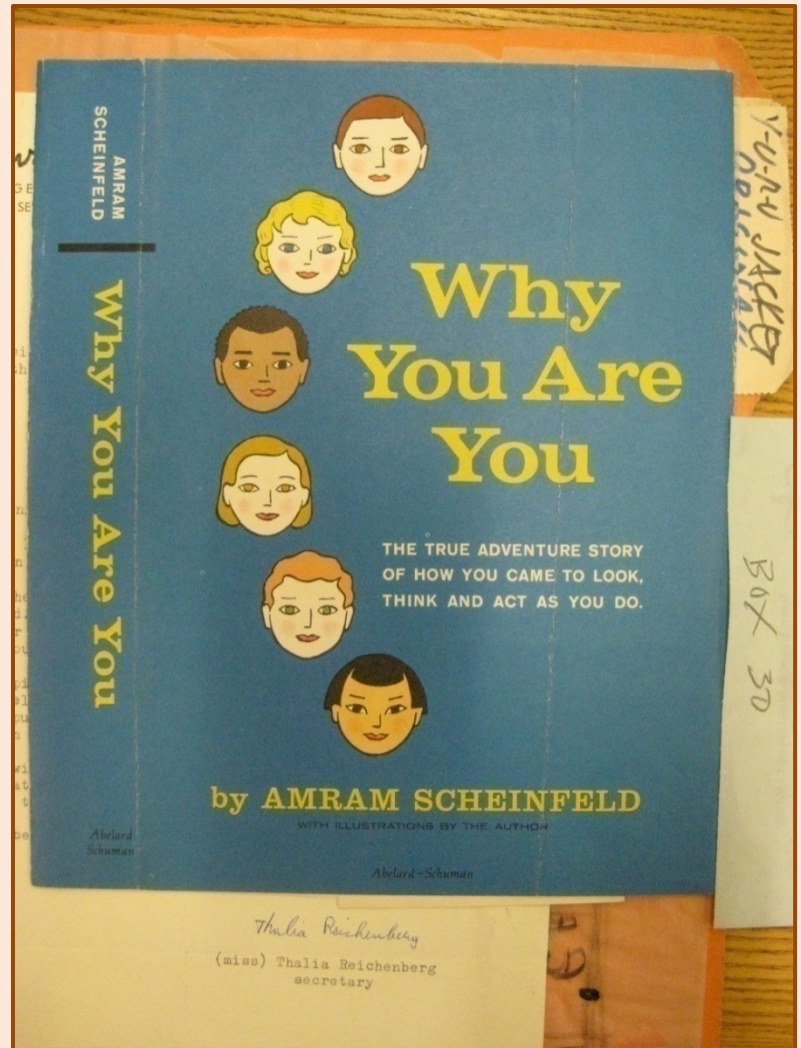
netics in a format that would be accessible and compelling to a general audience.¹

You and Heredity

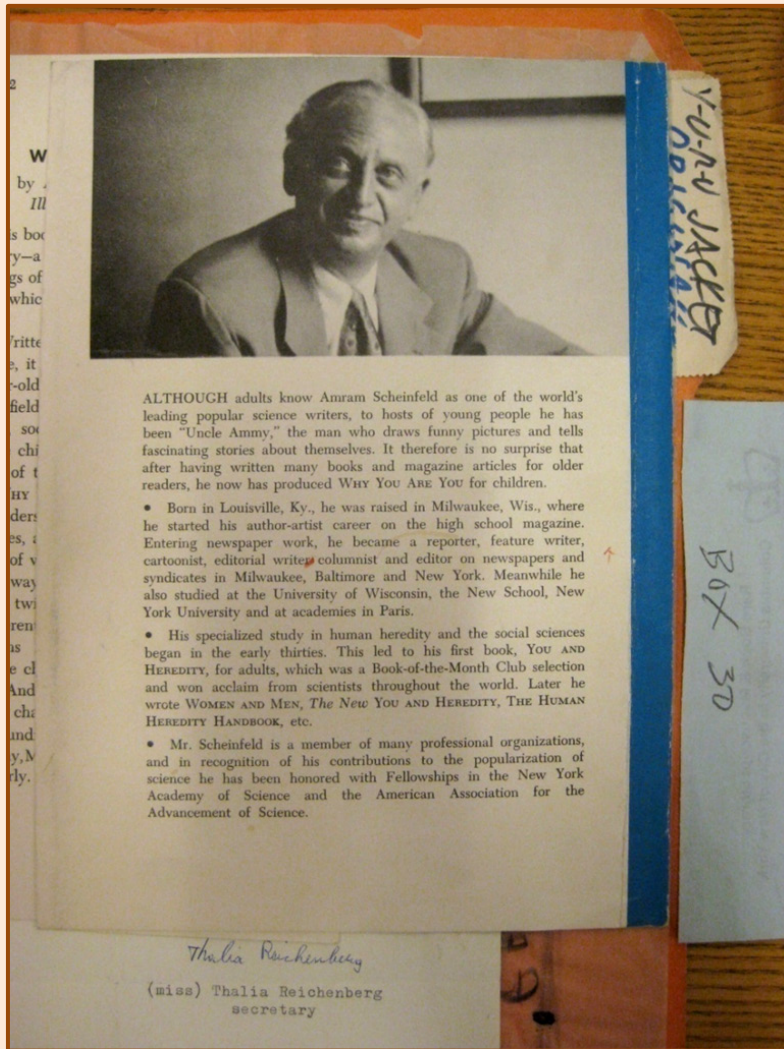
Published in 1939, *You and Heredity* explained basic genetic concepts in plain language and was rich illustrated. The book proved a commercial success and earned Scheinfeld immediate notoriety. *You and Heredity* made the Book-of-the-Month Club list, sold over 150,000 copies, and was lauded by professional biologists and lay readers, alike. It established Scheinfeld's credentials as a scientific journalist and encouraged him to spend the rest of his life writing books as well as newspaper and magazine articles that popularized recent biological and psychological studies about human behavior.

For the next forty years, Scheinfeld revised *You and Heredity* several times in an effort to keep to keep the book current and his income steady. He also produced other books, most notably *Women and Men*, which sold thousands of copies, but did not achieve the same widespread distribution as *You and Heredity*. Scheinfeld continued to maintain a respectable career as a free-lance writer for magazines. His articles in *Collier's* and *Ladies' Home Journal* borrowed material from his books, disseminating the "facts" about the biological bases of differences between men and women. From 1951–1965, he also authored a column in *Cosmopolitan* called "Looking into People," which provided a digest of psychological, biological, and medical studies about the hereditary and environmental components of human preferences and peccadilloes.

At the same time, Scheinfeld garnered credibility in the circles of professional science. He published articles in specialist journals such as *Psychoanalysis*, *Eugenics Quarterly*, and *Today's Health*, a newsletter of the American Medical Association. In these publications, Scheinfeld contributed to efforts to rebrand the study of human heredity, by distancing it from the past abuses of



eugenics and highlighting how the "new" human genetics could be useful for treating diseases, especially mental illness.² He gave lectures at Yale University and Cornell University where he was introduced as a doctor or professor. And by the end of his life, he was a member of the American Association for the Advancement of Science, American Psychological Association, American Society of Human Genetics, New York Academy of Sciences, American Sociological Association, and the Eugenics Society (of England). In 1974, Hebrew University in Jerusalem opened the Scheinfeld Center for Human Genetics, a behavioral genetics center named for Scheinfeld and his brother, Aaron, a successful entrepreneur who had endowed the center.³



Genetics, Sex, and Race

In the writings he produced throughout his life, Scheinfeld advocated the science of genetics as the exemplary source of knowledge for information about differences in human physicality, psychology, and behavior. As his book explained to children, genetics told them: "Why you are you." Scheinfeld's biologically essentialist position, however, was being challenged at the time. During the middle decades of the twentieth century, social scientists, following the leads of anthropologist Franz Boas and psychoanalyst Sigmund Freud, gained much traction by arguing that culture and early childhood experiences produced the most salient differences in human behavior. Ra-

cial and sexual differences, according to the social scientists, were socially constructed, not biologically preordained.⁴

Scheinfeld's papers reveal his ambivalent relationship with this thesis and its proponents. His correspondence with physical anthropologist Ashley Montagu,⁵ for instance, demonstrates Scheinfeld's mixed thinking about the biological basis of race and sex. Both Montagu and Scheinfeld rejected biological theories of racial difference, but the two did not follow other social scientists, such as Margaret Mead, in dismissing biological theories of sexual difference as well. In fact, both Montagu and Scheinfeld wrote books emphasizing the differences that did exist between male and female. Scheinfeld went so far as to allege that his book, *Women and Men*, prompted Ashley Montagu to write, *The Natural Superiority of Women* (1952). But Scheinfeld made it clear that he did not agree with the thesis of Montagu's book. Women and men, according to Scheinfeld, possessed unique strengths and weaknesses, and it did not make sense to argue that one was superior to the other.⁶

Alongside his correspondence with intellectuals and experts, Scheinfeld's vast collection of magazine articles and the occasional letters that he received from his general readers shed light on the kinds of questions that interested Americans at the time. "With your vast knowledge of human genetics," one reader wrote, "would you encourage or discourage intermarriage between Negro and white or Mongolian and white?" Scheinfeld responded that racial intermarriages were not biologically detrimental: "The problem was purely a social one." Other readers wanted to know more about paternity tests, especially when a dark-skinned baby was born to white parents. Race, sex, and miscegenation in other words, were topics that figured prominently in the minds of Americans during the middle decades of the twentieth century. By examining Scheinfeld's papers, we can learn about how some Americans, including Scheinfeld, vacillated between biological and social scientific explanations of human differ-

ences, as they struggled to resolve their concerns about sexual and racial transgressions.⁷

The Scheinfeld Collection

Most of Scheinfeld's papers are located at Columbia University's Rare Books and Manuscript Library, although some are held at Milwaukee Public Library. Only the Columbia University papers, consisting of four sections, are discussed here. The first section is a box of catalogued correspondence with individuals that Scheinfeld deemed significant, especially Montagu. Also noteworthy is his brief correspondence with Mary Calderone, in which he claims to have suggested the name "Planned Parenthood" to her.

The other three parts of Scheinfeld's papers are far more extensive. Part I consists of eight boxes that contain manuscripts for his most famous books. The richest materials, however, are contained in Part II (18 boxes). This part holds manuscripts of his articles, stories, and cartoons, as well as published copies of his periodical articles. These boxes are not organized chronologically, and the available finding aid does not detail their contents so I will cover the highlights here. Transcripts of his interviews on radio and television reside in Box 9. Boxes 15, 17, and 19 hold high school memorabilia and newspaper articles that Scheinfeld wrote for the *Milwaukee Free Press*, *Wisconsin News*, and Baltimore-area newspapers. They might be especially useful to those looking for material about the angst and concerns of teenage life during the 1910s and World War I.

Cartoons and comic strips, drawn during the 1920s and 1930s, are held in Boxes 12 through 14. The cartoons poke fun at the trials and tribulations of the publishing industry, while the comic strips depict the urban lives of poker players, "Eddie's Friends," and modern women such as "Plain Katie Smith, an orphan making it in the big city." Box 18 contains nearly all of the "Looking into People" columns that Scheinfeld wrote for *Cosmopolitan*. Boxes 19–21 are full of materials related to his research about sex, including correspondence with John Money and Alfred Kinsey.

In 1953, Scheinfeld actually spent time at Kinsey's Institute for Sex Research. Ultimately, however, Scheinfeld ended up publishing articles that were somewhat critical of Kinsey's work. Boxes 22 and 23 contain his research on twins, especially the Dionne quintuplets, biologically identical sisters whose lives took drastically different trajectories.

Finally, Part III contains business correspondence with Scheinfeld's publishers. These files were helpful for getting a sense of the sales and distribution of his books, as well as his struggles with particular publishing houses.

For those interested in the history of scientific journalism and popularization, the Scheinfeld papers present a rare opportunity to investigate the career of an individual who had no formal scientific training, but still managed to serve as a successful intermediary between the worlds of professional science and the mass media. In addition, Scheinfeld's lifelong commitment to genetics and hereditary explanations of human behavior allows for potentially rich explorations of the relationship between sex, race, and science during the middle decades of the twentieth century.



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¹ Amram Scheinfeld, "Notes for Biography", January 1939, 3–6, Box 19, Folder Biography A.S. Old, Amram Scheinfeld Papers, Rare Book and Manuscript Library, Columbia University, New York City, New York; Amram Scheinfeld, "Chromosome", 1935, Box 10, Folder "Play Chromosome," Amram Scheinfeld Papers, Rare Book and Manuscript Library, Columbia University, New York City, New York.

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- ² Amram Scheinfeld, "Changing Attitudes Toward Human Genetics and Eugenics," *Eugenics Quarterly* 5, no. 3 (September 1958): 145–153. For other papers, see Box 16 of the Scheinfeld papers.
- ³ Scheinfeld, "Notes for Biography"; Ernie Meyer, "From Cartoonist to Geneticist," *The Jerusalem Post*, May 10, 1974.
- ⁴ Joanne Meyerowitz, "'How Common Culture Shapes the Separate Lives': Sexuality, Race and Mid-Twentieth-Century Social Constructionist Thought," *Journal of American History* (March 2010): 1057–1084.
- ⁵ See also Adam Najarian, "The Ashley Montagu Papers at the American Philosophical Society," *The Mendel Newsletter*, n.s., No. 18 (August 2010), pp. 3-9.
- ⁶ Ashley Montagu to Amram Scheinfeld, January 12, 1945, Folder Montagu, Ashley, Box 1 "Catalogued Correspondence," Amram Scheinfeld Papers, Rare Book and Manuscript Library, Columbia University, New York City, New York. For Scheinfeld's critique of feminine "superiority" and women's liberation, see Amram Scheinfeld, "The Sex Differences and 'Women's Liberation'", 1973, Folder "Science Looks at W's Lib," Box 20, Amram Scheinfeld Papers, Rare Book and Manuscript Library, Columbia University, New York City, New York.
- ⁷ Ernest Pettinger to Amram Scheinfeld, January 6, 1953, Folder "Corresp. Heredity," Box 9, Amram Scheinfeld Papers, Rare Book and Manuscript Library, Columbia University, New York City, New York. Other correspondence with readers can also be found in Box 9.
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The Walter M. Fitch Papers in the American Philosophical Society

Charles Greifenstein

Associate Librarian & Curator of Manuscripts, American Philosophical Society

WALTER MONROE FITCH (1929–2011) was born in San Diego. He received both an AB in chemistry (1953) and a PhD in biochemistry (1958) from the University of California, Berkeley. From 1962 until 1986 he was professor in the Physiological Chemistry Department at the University of Wisconsin, Madison, then, after a few years at the University of Southern California, became Distinguished Professor and Chair, Department of Ecology and Evolutionary Biology at the University of California, Irvine in 1989.

After an initial investigations into rat metabolism, Fitch's interest shifted to analysis of nucleotide sequences. In 1967, he and Emanuel Margoliash published their ground breaking paper in *Science*,¹ "The Construction of Phylogenetic Trees: A Generally Applicable Method Utilizing Estimates of the Mutation Distance Obtained from Cytochrome c Sequences." A mitochondrial protein, cytochrome c shows little change in its sequencing across species (is said to be "highly conserved") and thus proves useful in studying speciation.

The Fitch Papers have research notes from the time the paper was being written. *Figure 1* shows some of the complex calculations needed to develop genetic relationships (including a proposed theorem). Phylogenetic relationships are only made clear by sorting through large

amounts of data, a task made much easier by the 1980s with the widespread use of computers. Yet, at its heart, a phylogenetic relationship is simple: species x and species y have a common ancestor as demonstrated by the sharing of a protein, DNA, or RNA sequence.² *Figure 2*, undated but found with the 1966–67 research notes, shows the speciation process in its simplest form. (Note the questioning of the third step, in red.) Fitch's and Margoliash's paper demonstrated conclusively that gene sequences could be traced molecularly over time and across species.

Much of Fitch's work thereafter explored the burgeoning field he helped create. For instance, in 1971 he developed the Fitch Parsimony Algorithm,³ designed to determine which possible phylogenetic tree shows the least evolutionary change—that is, is the most parsimonious, and thus most likely the best tree constructable with the available data. Perhaps most importantly, he, along with Masatoshi Nei, founded *Molecular Biology and Evolution*. Fitch served as first editor-in-chief. To say he was a rigorous and demanding editor is not an overstatement. He worked hard, set high standards and expected contributors to meet them.

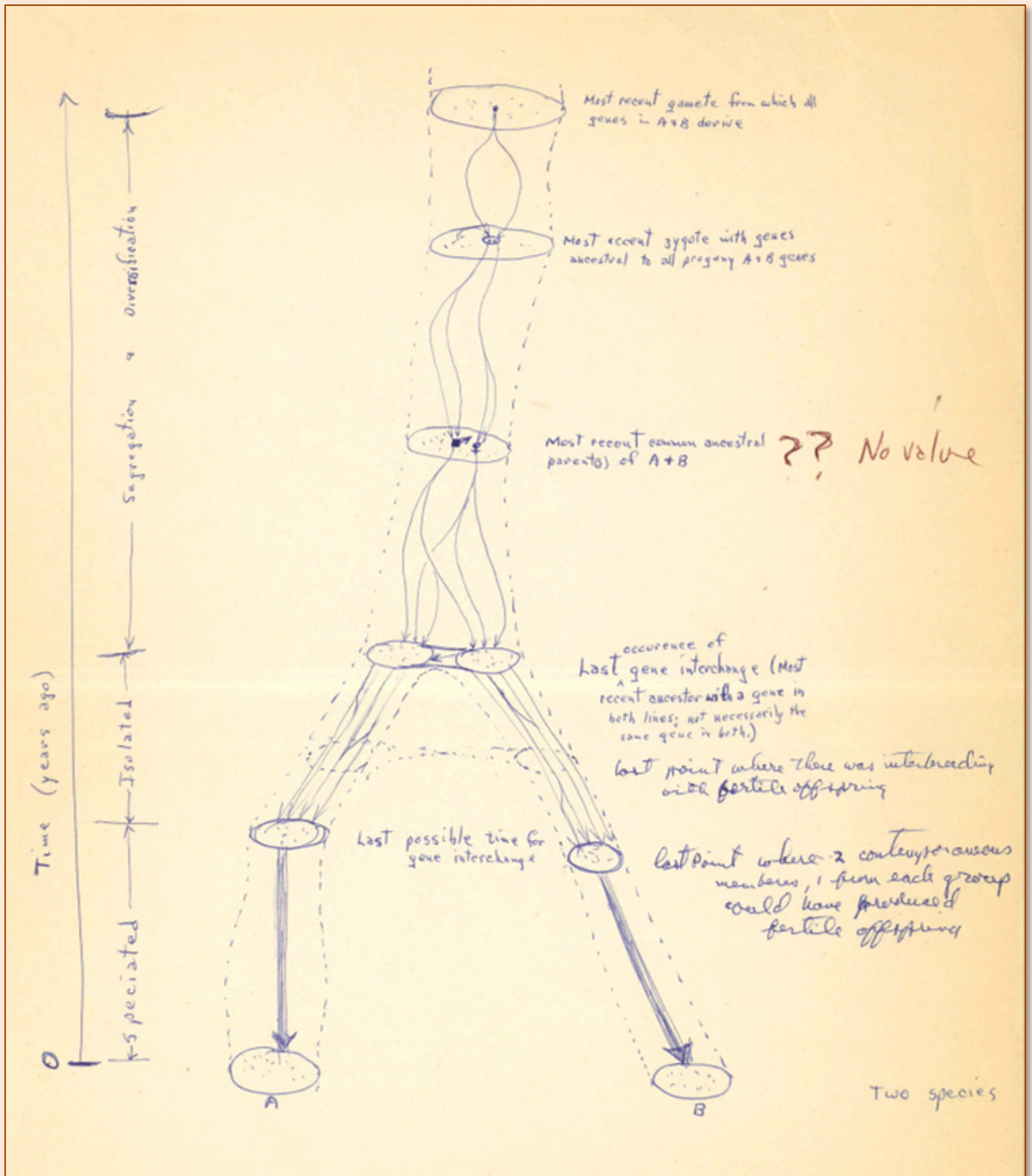
The papers contain relatively little that is directly about his ten years as editor, but his rigor, attention to detail, and professionalism are evident in a letter he wrote Motoo Kimura dated August 11, 1983. Kimura had complained to Nei about changes made to the manuscript of an article that would

$E[W \ni E(m^{-n} W_n)^2] \rightarrow 0$

Theorem
 Assum $EZ^2 < \infty$ & $m > 1$ Then (i) $W_n \rightarrow W$ in mean & \bar{c} prob 1
 (ii) $EW = 1$, $\text{var } W = \frac{\sigma^2}{m^2 - m}$ (> 0 since $m > 1$) $\sigma^2 = \text{var } Z$
 (iii) for large m , W approx like Z in dist \approx

show $E(W_{n+k} - W_n)^2 \rightarrow 0$ as $n \rightarrow \infty$
 $= E W_{n+k}^2 - 2 E W_{n+k} W_n + E W_n^2$
 $E W_{n+k} W_n = E_{W_n} E(W_{n+k} W_n | W_n) = E_{W_n} W_n E(W_{n+k} | W_n)$
 (this is a martingale $\therefore W_n$)
 $\therefore = E_{W_n} W_n^2$
 $\therefore E(W_{n+k} - W_n)^2 = E W_{n+k}^2 - E W_n^2 = \frac{\sigma^2}{m^k(m^k - m)} (1 - \frac{1}{m^k}) = O(m^{-k})$
 $\rightarrow 0$ uniformly in k
 $\Rightarrow E[W \ni E[W_n - W]^2] \rightarrow 0$ which proves the mean of convergence part

prob & compact. Let $k \rightarrow \infty$ & $\sin m^k \rightarrow \infty$
 $E[W - W_n]^2 = \frac{\sigma^2}{m^k(m^k - m)} \frac{1}{m^n}$
 $\sum_{n=1}^{\infty} E[W - W_n]^2 = E \sum_{n=1}^{\infty} [W - W_n]^2 < K < \infty$
 $\Rightarrow P\{\sum_{n=1}^{\infty} [W - W_n]^2 = \infty\} = 0$
 $\therefore P\{W_n \rightarrow W\} = 1$
 $X_n \xrightarrow{m \rightarrow \infty} X \Rightarrow E X_n \rightarrow EX \quad \therefore \text{var } X_n \rightarrow \text{var } X$
 $(a+b)^2 \leq 2(a^2 + b^2)$
 $E W_n^2 \rightarrow E W^2$
 $E \frac{Z}{m} = 1 = E W$
 $\text{var } \frac{Z}{m} = \frac{\text{var } Z}{m^2} \sim \frac{\sigma^2}{m^2 - m} = \text{var } W$ $m = \text{mean}$
 as m gets large
 $W_n = \frac{Z}{m^n}$
 $f(s) = \sum p_n s^n = E s^Z$
 let $\phi(s) = E e^{-sW} = \int_0^{\infty} e^{-sx} dF_W(x)$ Laplace transform
 $\phi_n(s) = E e^{-sW_n} = E e^{-s \frac{Z}{m^n}} = E (e^{-\frac{s}{m^n}})^Z = f_n(e^{-\frac{s}{m^n}})$
 Show prob if $W_n \rightarrow W$ then $\phi_n \rightarrow \phi$ (reverse)



appear in the first issue of MBE.⁴ Addressed “Dear Motoo,” the letter is worth quoting at length:

Masatoshi has, as you wished, conveyed to me your complaint and I am frankly dismayed at your attitude. I’ve never pretended to be a population geneticist; indeed, I have never taken a genetics course. Nonetheless I suspect I know at least as much genetics as you know about biochemistry. But what difference does it make that neither of us knows everything except that we should try to help each other? Help is what I was trying to give you and what I wrote in rephrasing your words was intended partly to show what you could seem to be saying. If that rephrasing was wrong, it means you had not been sufficiently clear. Most changes, however, were simply to improve the English. What I am dismayed about is that, instead of using my efforts as a basis for improving your manuscript so that non-population geneticists may more easily understand your important contributions, you simply ignored all of them on the grounds that I am ignorant (“lacks knowledge”), that I am careless and that I am immodest. The fact is that “who” is a pronoun used for persons and “which” for non-persons and the noun “number” take a singular, not a plural, verb. Those are hardly important items in a Japanese scientist’s life but when I quietly make those corrections on the manuscript, and you ignore them, who is more lacking in modesty?

I think you need greatly to understand better what Masatoshi’s and my role is. We want good scientists publishing good work that is read by the widest spectrum of scientists that would profit from understanding that work. You are a good scientist doing good work and Masatoshi and I are well aware of that. To accept a manuscript showing such good work does not, however, mean that it is incapable of improvement. We both try very hard to help every author make his paper more easily understood to a wider audience. We are not so arrogant as to believe that all our suggestions are correct but every author would profit from trying to understand why we might think there is a problem and trying to solve it.

At the beginning of his editorship, Fitch knew exactly how he would proceed. And the founding and success of the journal proved more fruitful than bringing forth better papers. The community brought together by the journal evolved into the Society for Molecular Biology and Evolution, becoming a separate entity in

1992, with Fitch as first president and Nei as president-elect.

Two other aspects of Fitch’s work deserve mention. Fitch was concerned with the spread of Creationism and its effect on the teaching of evolution. Among his activities promoting science education were developing a class on creation and evolution at Irvine for undergraduates and as a member of the working group of the National Council for Science Education that produced *Evolution, Science, and Society: Educating a New Generation* (1998). The title of his last work, *The Three Failures of Creationism: Logic, Rhetoric, and Science*, pithily sums up where he stood. (The book was just published by University of California Press.)

Finally, Fitch investigated the construction of phylogenetic trees for the human influenza virus. It is a great concern of the scientific and health establishments about both the appearance of new influenza strains and if any emergent strains could be as deadly as the strain that killed 20 to 50 million people 1918–19. Fitch published a number of papers with other on about the influenza virus, including “Predicting the Evolution of Human Influenza A” (*Science*, 1999) and “Effects of Passage History and Sampling Bias in Phylogenetic Reconstruction of Human Influenza A Evolution” (*Proceedings of the National Academy of Sciences* (U.S.A.), 2000).

There is at least one folder with material relating to Fitch’s influenza researcher. The whole collection is about 25 linear feet of material. The collection is roughly organized, and shows there to be, for example, classwork, research data (about two linear feet), work on the *Proceedings of the National Academy of Science*, work with the Centers for Disease Controls, material covering campus life at Irvine, and about four linear feet of correspondence dating back to 1958, with other correspondence found throughout the collection.

Thanks to the assistance of Walter Fitch’s friend and colleague Francisco Ayala and to the generosity of Prof. Fitch’s wife Chung Cha Ziesel-Fitch, Walter Fitch’s papers have been deposited at the APS.

Collection Contact Information

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¹ Vol. 155, 279-284.

² This is a simple overview. Gene ancestry can also be tracked within an organism; such ancestral genes are called paralogs. Genes in speciated organisms with a common ancestor are called orthologs.

³ "Toward Defining the Course of Evolution: Minimum Change for a Specific Tree Typology," *Systematic Zoology*, **20**, 406-16.

⁴ "Rare Variant Alleles in the Light of the Neutral Theory" (1)1: 1983, 84-93. Motoo's original does not appear to be in the papers.

Collections at the Center for Biology and Society, Arizona State University

Nathan Crowe *and* Stephanie Crowe

THE CENTER FOR BIOLOGY AND SOCIETY (CBS) at Arizona State University maintains a small collection of archival holdings in the history and philosophy of biology. The Center's collections include materials from four prominent scholars: David Hull, Richard Jeffrey, Philip Pauly, and Alfred Sturtevant. In all but Pauly's case, the collections at CBS supplement these scholars' personal papers at other archives around the country.

David Hull (1935–2010) was an important philosopher of biology whose work became foundational for much of the discipline. After being awarded the first PhD in the history and philosophy of science from Indiana University in 1964, Hull took a position at the University of Wisconsin–Milwaukee, where he taught until 1984. From 1985 to his retirement in 2000, Hull was the Dressler Professor in the Humanities at Northwestern University. Hull published prolifically throughout his career on a range of subjects, many of which are reflected in the papers he donated to CBS in 2009.

The David Hull collection at CBS consists of mainly of books, reprints, and professional materials, as well as a smattering of correspondence. As a leader in the field, Hull reviewed many manuscripts and related materials, many of which he saved. Hull also served as president of the Philosophy of Science Association and Society for Systematic Zoology and editor of *Systematic Zoology* (now known as *Systematic*

Biology). The collection contains records relating to his work in these positions, which provide rich details about Hull's professional life and about the workings of these groups. The collection also includes valuable correspondence, both professional and personal. The remainder of the David Hull Papers can be found in the Archives of Scientific Philosophy at the University of Pittsburgh.

Richard Jeffrey (1926–2002), whose family donated his collection to CBS in 2003, was an influential probability theorist. He worked at UC–Irvine and several other institutions before spending the majority of his career as a professor of philosophy at Princeton University. Jeffrey was a prolific scholar who wrote five books (including his influential *The Logic of Decision*), edited or co-edited six others, and authored or co-authored 67 articles. His collection at CBS consists of approximately seven cubic feet of reprints and articles by a variety of philosophers on a wide range of philosophical topics. Many of Jeffrey's own articles are also included in the collection. His personal library of books on philosophy, which is twenty-nine three-foot shelves in extent, is also located at the Center for Biology and Society. Jeffrey's collection at CBS is a useful supplement to the Richard C. Jeffrey Papers, which are, like Hull's, in the Archives of Scientific Philosophy at the University of Pittsburgh.

The Center for Biology and Society also maintains a collection of papers from historian Philip Pauly. Pauly (1950–2008) graduated from Catholic University in 1971, received his M.A. from the

University of Maryland in 1975, and worked under Donna Haraway at Johns Hopkins University where he was awarded a PhD in 1981. Soon after receiving his PhD, Pauly began his long career at Rutgers University, where he distinguished himself as an outstanding historian of science, publishing three books and numerous articles. He was also professionally active, serving on committees and editorial boards throughout his career.

The Pauly Papers at the Center for Biology and Society consist of eighteen cubic feet of his research and teaching materials. The vast majority of the collection contains copies of primary and secondary sources and research notes, reflecting the scope and breadth of his intellectual pursuits throughout his career. Many of the articles and notes relate to his three books: *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology* (1987), *Biologists and the Promise of American Life: From Meriwether Lewis to Alfred Kinsey* (2000), and *Fruits and Plains: The Horticultural Transformation of America* (2008). Along with numerous primary sources that Pauly collected from both print sources and archives, his materials concerning Jacques Loeb include a transcript of an oral history that Pauly did with Loeb's brother Leonard, as well as Pauly's notes from interviews with B. F. Skinner and Ivan Pavlov.

Though much of the Pauly collection revolves around research connected to his three largest monograph projects, several boxes contain research and materials related to other aspects of his career. There are many folders associated with his work on alcoholism and prohibition, for instance. Pauly also dutifully kept many of the history of science papers he wrote throughout his education, from undergraduate through graduate school. In addition, the collection includes approximately 0.5 cubic feet of Pauly's professional correspondence

from 1979–1996. The correspondence files in particular provide an intriguing glimpse into the professional life of an extremely significant historian of biology from the late twentieth century.

Finally, CBS maintains the Alfred H. Sturtevant Collection of Reprints, sixty cubic feet in extent. Sturtevant, one of the founders of genetics, was a long-time associate of T. H. Morgan in his fly lab at Columbia University and later at Cal Tech. The collection is an extremely detailed and well-organized collection of reprints in a wide variety of biological fields, including genetics and heredity, agriculture, and cancer research, among others. The vast majority of reprints are in English, but other languages represented include French, German, Russian, and Japanese. The Sturtevant reprints were donated to CBS by colleague Edward Novitski (and Novitski, a former student of Sturtevant's and also a *Drosophila* researcher, added some of his own reprints to the collection as well). They offer a look at the mind and interests of one of the most prominent biologists of the twentieth century and provide a wealth of associated publications that would be difficult to pull together even in today's digitized library environments. The remainder of Sturtevant's papers are available in the archives at the California Institute of Technology.

Finding aids for each of the collections are in process. All of the collections are available to researchers.



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References

Maienschein, J. (2012). Eloge: Philip J. Pauly, 3 September 1950–2 April 2008. *Isis* 100: 369-371.

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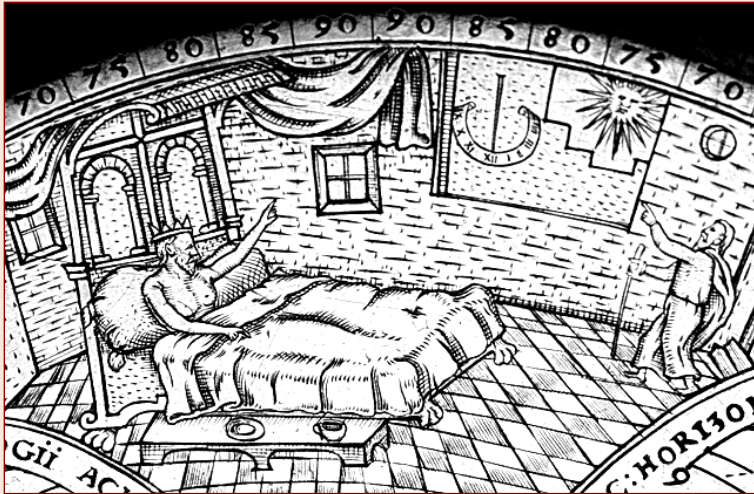
<http://www.northwestern.edu/newscenter/stories/2010/08/david-hull-philosophy-obituary.html>

Center for Biology and Society. Collections Descriptions.

<http://cbs.asu.edu/library/collections/index.php>

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The American Philosophical Society began specifically collecting manuscripts and books relating to the history of genetics in the early 1960s at the instigation of the mouse geneticist L. C. Dunn, but it was the project conducted by H. Bentley Glass between 1977 and 1985 that led to truly outstanding growth. Funded by the Mellon Foundation, Glass surveyed and indexed the existing collections at the library and prepared a printed guide to them for researchers. This was the original basis for the comprehensive guide to the American Philosophical Society's own collections in genetics, which include the papers of L. C. Dunn and H. Bentley Glass, among numerous others.

See the web version of Glass's guide to the APS holdings at

www.amphilsoc.org/library/guides/glass

This online guide contains links to the collection descriptions prepared by Glass, to abstracts of some collections acquired since, and, when available, the complete finding aids. Researchers must also examine our comprehensive, up-to-date online finding aids for all collections through our main page at www.amphilsoc.org/library (and there see the drop-downs under "Library").

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