

Southern Methodist University

SMU Scholar

Perkins Faculty Research and Special Events

Perkins School of Theology

Summer 7-20-2019

The 'Law of Environmental Dependence' - Biology and Ethics in the Work of Ernest Everett Just: + Found – some 251 mostly typed pages

Theodore Walker
twalker@smu.edu

Follow this and additional works at: https://scholar.smu.edu/theology_research



Part of the [Biology Commons](#), [Cell Biology Commons](#), [Ethics and Political Philosophy Commons](#), [Evolution Commons](#), [History of Philosophy Commons](#), [History of Science, Technology, and Medicine Commons](#), [Marine Biology Commons](#), [Microbiology Commons](#), [Other Ecology and Evolutionary Biology Commons](#), and the [Philosophy of Science Commons](#)

Recommended Citation

Walker, Theodore, "The 'Law of Environmental Dependence' - Biology and Ethics in the Work of Ernest Everett Just: + Found – some 251 mostly typed pages" (2019). *Perkins Faculty Research and Special Events*. 21.

https://scholar.smu.edu/theology_research/21

This document is brought to you for free and open access by the Perkins School of Theology at SMU Scholar. It has been accepted for inclusion in Perkins Faculty Research and Special Events by an authorized administrator of SMU Scholar. For more information, please visit <http://digitalrepository.smu.edu>.

20 July 2019

The ‘Law of Environmental Dependence’ - Biology and Ethics in the Work of Ernest Everett Just: + Found – some 251 mostly typed pages

Theodore Walker Jr.

Abstract- “The Origin of Man’s Ethical Behavior” (circa October 1941) by Ernest Everett Just and Hedwig A. Schnetzler Just - is an unpublished book manuscript about the biological origins and evolution of ethical behavior, and about “the law of environmental dependence.” Missing since Just’s death in October 1941, it was found and identified in May 2018 among the collected papers of Ernest Everett Just preserved at the Howard University Moorland-Spingarn Research Center in Washington, DC. In addition to the 1996 US postage with the caption “Ernest E. Just, Biologist,” we now have reason to add two new postage stamps with captions “Ernest Everett Just, evolutionary bioethicist” (ethical behavior evolves) and “Ernest Everett Just, environmental bioethicist” (law of environmental dependence).

Key words: Ernest Everett Just, evolutionary bioethicist, evolutionary bioethics, environmental bioethicist, environmental bioethics, “law of environmental dependence”

Biological Origins and Evolution of Ethical Behavior: From Cells to Humans

I referenced 400 typed pages in “Bioethics in the Work of Ernest Everett Just: + Missing – some 400 typed pages” (28 January 2017). Since then, archival work using epistolary and sumitographic methods (searching postage-stamped-government-delivered letters) has revealed 251 mostly typed pages.

These are manuscript pages for a book about the biological origins and evolution of ethical behavior, and the law of environmental dependence. This book was not printed because Just died in October 1941 before persuading a publisher to print it. It was first titled “Ethics and the Struggle for Existence” in April 1941, then retitled “The Origin of Man’s Ethical Behavior” (Kenneth R. Manning 1984: 327, 385 note 12), and therefore dated around October 1941.

“The Origin of Man’s Ethical Behavior” (circa October 1941) by Ernest Everett Just and Hedwig A. Schnetzler Just was found and identified on 25 May 2018 by ethicist Theodore Walker Jr. and sumitographer Lillie R. Jenkins. It was among the collected papers of Ernest Everett Just preserved at the Howard University Moorland-Spingarn Research Center. Since May 2018, these pages have been photocopied, transcribed, and indexed by Walker and Jenkins, and co-edited by Walker, Jenkins, and biologist Malcolm W. Byrnes. And, in consultation with biologist Stuart A. Newman, a newly identified-photocopied-transcribed-edited-indexed-saved-as-a-Word-document edition is being created by Walker, Jenkins, Byrnes, and Newman, and tentatively called “‘The Biological Origins of Ethical Behavior: From Cells to Humans’ (2019, Word document [originally 1941, ink-on-paper]) by Ernest Everett Just and Hedwig A. Schnetzler Just.”

At the Howard University Moorland-Spingarn Research Center, in box 125-19, folder 382 contains (typed on onion-skin paper [donated by Just's faculty colleague, and former student, Louis A. Hansborough]) most of the following:

17 pages – [Chapter 1]	THE PROBLEM STATED (pp. 1-17)
18 pages – [Chapter 2]	EVOLUTION: OF FORM AND OF FUNCTION (pp. 18-35)
16 pages – [Chapter 3]	EVOLUTION: THE HUMAN NERVOUS SYSTEM (pp. 36-51)
40 pages – [Chapter 4]	EVOLUTION: THE NERVOUS SYSTEM OF INVERTEBRATES (pp. 52- 91)
9 pages – [Chapter 5]	THE PRIMORDIUM OF NERVOUS STRUCTURE AND FUNCTION (CONTINUED) (pp. 92-100)
23 pages – [Chapter 6]	MAN AND THE OUTSIDE WORLD (pp. 101- 123)
26 pages – [Chapter 7]	THE HUMAN MIND (pp. 124-149)
27 pages – [Chapter 8]	FEELING, REASON, AND WILL (pp. 150-176)
27+ 6 pages [Chapter 9]	HAPPINESS (pp. 177-203 + pp. 204-210 from handwritten pages 23-28 in box 125-21, folder 396)
33 pages – [Postscript]	MUTUAL AID AND ETHICS (pp. 211-243)

Also:

4 pages –	from box 125-9, folder 162: “Concerning various problems. Letter to P.U. 10.XI.33” [10 Nov 1933] by “m.” (pp. 244-247)
3 pages –	from box 125-21, folder 396: “Paris, March 39” [March 1939] by Just and Just. (pp. 248-250)
1 page –	from box 125-21, folder 396: “Roscoff, 28.IV.39 [28 April 1939] What is the <u>original</u> in our idea?” by Just and Just. (p. 251)

Still awaiting discovery are 149 typed pages of annotated bibliography, research notes, and graphic illustrations.

Ernest Everett Just, Biologist

Ernest Everett Just (born 1883, died 1941) taught biology in the department of zoology at Howard University in Washington DC from 1909 to 1941. He is famous for his work in cell biology. Even if we do not recognize his name, all of us have learned what Just first observed and described: when a fertilizing spermatozoon penetrates the egg cell surface, a “wave of negativity” radiates from the point of penetration sweeping around the cell surface, thereby repulsing all other sperm (Byrnes 2010). Just authored more than seventy published research articles, and co-authored with F. R. Lillie the chapter on “Fertilization” in *General Cytology: A Textbook of Cellular Structure and Function for Students of Biology and Medicine* (1924) edited by Edmond V. Cowdry; and he authored two published books: *The Biology of the Cell Surface* (1939a), and *Basic Methods for Experiments on Eggs of Marine Animals* (1939b).

Today, many reputable research biologists describe Just as a “pioneer” because of his discoveries in cell biology, and because many biologists are following research paths and methods, including “cell surface” studies, that were pioneered by Just (Byrnes 2009, 2010; Byrnes and Eckberg 2006; Crow 2008; Dover 1954; Grinnell 1975; Mangal 2018; Manning 1983; Newman 2013; Williams et al. 2013).

In his award-winning biography *Black Apollo of Science: The Life of Ernest Everett Just* (1983) MIT historian of science Kenneth R. Manning reports that, during the 1920s and 1930s,

Just was “*the* current authority on fertilization” with a national and international reputation (1983: 149). Manning’s book inspired many to celebrate Just’s work. And in 1996, the US Postal service issued a Black Heritage postage stamp honoring Just. The postage stamp caption is “Ernest E. Just Biologist.”



[author-captured image]

Subject/Image: Ernest Everett Just

Year: 1996

Country: USA

Face Value: 32 US cents

Description: Vertical, multi-colored and lithographed portrait fills the stamp frame. Black Heritage Series, caption: “Ernest E. Just, Biologist”

Link to online image: https://arago.si.edu/record_165677_img_1.html

Date accessed: 19 March 2018

Catalog Codes: Sn **3058**

Sumitography by Lillie R. Jenkins

Ernest Everett Just, Evolutionary Bioethicist (ethical behavior evolves)

Ernest Everett Just, Environmental Bioethicist (law of environmental dependence)

The next postage stamp honoring Just should be captioned “Ernest Everett Just, Evolutionary Bioethicist” or “Ernest Everett Just, Environmental Bioethicist.” This is because Just made pioneering advances in *evolutionary bioethics* by advancing the theory that ethical behavior evolved from primitive cellular origins, and because he made pioneering advances in *environmental bioethics* by developing a bioethical “law of environmental dependence.”

Evolutionary bioethics and environmental bioethics were briefly advanced within some of Just’s publications in cell biology (Just 1932; 33, 1939a, 1939b, 1940), and fully developed in

“The Origin of Man’s Ethical Behavior” (circa October 1941, unpublished) where, for perhaps the first time, Just and Just formulated the *law of environmental dependence* (pp. 157, 159, 160, 162, 165, 168 [also 166, 174]).

References

Byrnes, W. Malcolm. (2009). “Ernest Everett Just, Johannes Holtfreter, and the Origin of Certain Concepts in Embryo Morphogenesis” in *Molecular Reproduction & Development*, 76: 912-921.

Byrnes, W. Malcolm. (February 2010). “Ernest Everett Just: Experimental Biologist Par Excellence,” via the American Society for Biochemistry and Molecular Biology, online at <www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=5878>.

Byrnes, W. Malcolm and William R. Eckberg. (1 August 2006). “Ernest Everett Just (1883-1941) – An early ecological developmental biologist” in *Developmental Biology*, 296 (1): 1-11, online at <<http://dx.doi.org/10.1016/j.ydbio.2006.04.445>>.

Crow, James F. (August 2008). “Just and Unjust: E. E. Just (1883-1941)” in *Genetics*, 179: 1735-1740.

Dover, Cedric. (June 1954). “The Significance of the Cell Surface (The Work of E. E. Just).” *Journal of the Zoological Society of India*, 6 (1), 3-42.

Grinnell, Frederick. (August 1975). “Cell attachment to a substratum and cell surface proteases.” *Archives of Biochemistry and Biophysics* 169.2: 474-482. Online at <[https://doi.org/10.1016/0003-9861\(75\)90190-3](https://doi.org/10.1016/0003-9861(75)90190-3)>.

Jenkins, Lillie R. (19 March 2018). Ernest Everett Just - Sumitography, 1996 USA postage stamp, 32 cents, Black Heritage Series, Catalogue Code: Sn 3058 [postage stamp caption: “Ernest E. Just Biologist”].

Jenkins, Lillie R. (10 April 2018). “A Sumitography: A Listing of Postage Stamps Celebrating Contributions to Civil and Human Rights by Martin Luther King Jr. and Associates” in *Perkins Faculty Research and Special Events*. 16. https://scholar.smu.edu/theology_research/16

Just, Ernest Everett. (1932). “On the Origin of Mutations” in *American Naturalist*, 66, no. 702: 61-74.

Just, Ernest Everett. (1933). “Cortical Cytoplasm and Evolution” in *American Naturalist*, 67, no. 708: 20-29.

Just, Ernest Everett. (1939a). *The Biology of the Cell Surface*. Philadelphia: P Blakiston’s Son [New York: Garland Publishing, 1988 reprint].

Just, Ernest Everett. (1939b). *Basic Methods for Experiments on Eggs of Marine Animals*. Philadelphia: P. Blakiston's Son.

Just, Ernest Everett. (April 1940). "Unsolved Problems of General Biology" in *Physiological Zoology*, 13 (2): 123-42.

Just, Ernest Everett, and Hedwig A. Schnetzler Just. (circa October 1941) "The Origin of Man's Ethical Behavior." Unpublished (as of July 2019).

Lillie, Frank R. and E. E. Just. (1924). "Fertilization," a chapter in *General Cytology: A Textbook of Cellular Structure and Function for Students of Biology and Medicine*, edited by Edmond V. Cowdry. Chicago: University of Chicago.

Mangal, Mélina. (2018). *The Vast Wonder of the World: Biologist Ernest Everett Just.*, illustrated by Luisa Uribe. Minneapolis: Millbrook Press.

Manning, Kenneth R. (1983). *Black Apollo of Science: The Life of Ernest Everett Just*. Oxford: Oxford University Press.

Newman, Stuart A. (2013). "Evolution is not mainly a matter of genes" (pp. 26-33; 288-290) in *Genetic Explanations: Sense and Nonsense*, edited by Sheldon Krimsky and Jeremy Gruber. Cambridge, MA: Harvard University Press.

Walker, Theodore, "Bioethics in the Work of Ernest Everett Just: + Missing - some 400 pages" (28 January 2017). *Perkins Faculty Research and Special Events*. 9. https://scholar.smu.edu/theology_research/9

Williams, Katelyn M. with Bryan A. Wilson, Wendi G. O'Connor, and Monte S. Willis. (2013). "Ernest Everett Just, PhD: Pioneer in Ecological Developmental (Eco-Devo) Biology" in the *Journal of the South Carolina Academy of Science*, volume 11, issue 1: article 5.