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Bioethics in the Work of Ernest Everett Just: + Missing - some 400 pages

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28 January 2017

Bioethics in the Work of Ernest Everett Just: + Missing - some 400 typed pages

Theodore Walker Jr.

Abstract –

Biology + ethics = bioethics. Here we see that Howard University biologist Ernest Everett Just (born 1883, died 1941) connected biology to ethics.

According to Just, various forms of specific biology (including especially cell biology) plus “general biology” are necessary for explaining adequately the origin of ethical behaviors. Social ethical behaviors, especially mutual aid and cooperative interactions with others and the environment, are essential to evolutionary advances among living creatures, ranging from humans to cells. Accordingly, theory of ethics (moral theory) should have roots in biology.

Also, Just wrote an unpublished book-length manuscript—“some 400 typed pages” (Just 1940)—on seeking the roots of ethical behavior via biology. Clues concerning the existence of this unpublished book are certain to be found at the Howard University Moorland-Spingarn Research Center. Now that the search has begun, I predict some vigilant researcher will find Just’s unpublished 400-page manuscript.

Key words: biology, ethics, bioethics, general biology, theoretical biology, moral theory

BIOLOGY

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 did field work at the Marine Biological Laboratory at Woods Hole, Massachusetts, and at various locations in Europe. He worked mainly in experimental and observational biology, especially cellular biology focused on marine egg cells. Just was first to observe and describe the “wave of negativity” spreading around an egg cell from the entrance point of the fertilizing spermatozoon (thereby repulsing other sperm) and first to describe “fast and slow blocks to polyspermy” (Byrnes 2010).

He published plentifully. In addition to authoring more than seventy published research articles, and co-authoring 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, Just authored two books—*Basic Methods for Experiments on Eggs of Marine Animals* (1939a) and *The Biology of the Cell Surface* (1939b).

INCREASINGLY CELEBRATED

After several decades of relative obscurity, Just has become an increasingly celebrated figure. This trend started with the prize-winning biography *Black Apollo of Science: The Life of Ernest Everett Just* (1984 [c1983]) by Kenneth R. Manning, MIT historian of science. Manning reminded us that during the 1920s and 1930s, Just was “*the* current authority on fertilization” with a national and international reputation (1984: 149 [original italics on “*the* current authority”). In 1927 Just was listed as “among the top thirty-eight zoologists in America” (Manning 1984: 138). Manning inspired many to study and celebrate Just. Then, in 1996, the US Postal service issued a Black Heritage postage stamp honoring Just.

Biologists are now acknowledging that Just advanced “basic methods” (Just 1939a) rigorously attentive to the environment that is normal for living specimens. Prior to Just, marine biologists were habitually making uncritical use of specimens (often killed-and-fixed) extracted from their normal-natural environments. Just criticized and corrected findings and concepts derived from such faulty methods. He encouraged attention to development within normal-natural environments. Contrary to materialist reductions, Just held that adequate biological analysis must avoid separating a living organism from its “environment” because “they form together one inter-acting system” (1939b: 356). Today, in “systems biology” and “ecological development biology” (eco-dev biology), Just’s contributions are coming to be appreciated as pioneering.

[See “Ernest Everett Just, PhD: Pioneer in Ecological Development (Eco-Dev) Biology” (July 2013) by Katelyn M. Williams, Bryan A. Wilson, Wendi G. O’Connor, and Monte S. Willis in the *Journal of the South Carolina Academy of Science*, **11** (1): article 5; and see “Ernest Everett Just (1883-1941) – An early ecological developmental biologist” (1 August 2006) by W. Malcolm Byrnes and William R. Eckberg in *Developmental Biology*, **296** (1): 1-11. And in “Ernest Everett Just: Experimental Biologist Par Excellence” (February 2010) by W. Malcolm Byrnes in the *Annual Review of Microbiology (ASBMB Today [American Society for Biochemistry and Molecular Biology])*, Byrnes describes ecological developmental biology as focusing “on development in its natural environmental context.” Also, he emphasizes Just’s challenge to established views, a challenge that has “much in common with what is known today as integrative systems biology, in which a top-down view is just as important as a bottom-up view [the established reductionist view] for understanding the system” (Byrnes, February 2010). Just’s early advocacy of a non-reductionist/holistic approach is appreciated in “Just and Unjust: E. E. Just (1883-1941)” (August 2008) by James F. Crow in *Genetics*, **179**: 1735-1740. Also, in embryo morphogenesis, Just strongly influenced essential concepts (concepts usually attributed to Holtfreter) according to “Ernest Everett Just, Johannes Holtfreter, and the Origin of Certain Concepts in Embryo Morphogenesis” (2009) by W. Malcolm Byrnes in *Molecular Reproduction & Development*, **76**: 912-921.]

GENERAL BIOLOGY AND BIOETHICS

We follow contemporary biologists in acknowledging Just’s contributions to cell biology, ecological development biology, embryo morphogenesis, and systems biology. And now we acknowledge Just’s contributions to theory of life generally (to “theoretical biology” [Uexküll] and “general biology” [Just]) and to biology-based theory of ethics.

[*Bioethics* (biology + ethics) is one of many interdisciplinary convergences. Interdisciplinary convergences extend back in time to the early modern convergence of astronomy with theology in *Astro-Theology: Or, A Demonstration of the Being and Attributes of God, from a Survey of the Heavens* (1715) by William Derham. More recently, zoology and biology have been converging with sociology, anthropology, and history; as indicated in chapter 1—“Sciences of Life and Society in the Making of the Research University: Genetic Biology and Sociology, 1890-

1920s”—of *Undisciplining Knowledge: Interdisciplinarity in the Twentieth Century* (2015) by Harvey J. Graff, and in “Biology, social science, and history: interdisciplinarity in three directions” (2016) by Chris Renwick. Also, biology converges with philosophy (biology + philosophy = biophilosophy) in *Onto-Ethologies: The Animal Environments of Uexküll, Heidegger, Merleau-Ponty, and Deleuze* (2008) by Brett Buchanan. Biology converges with astronomy (astrobiology) and theology (including theological ethics) in *The Big Bang and God: An Astro-Theology - wherein an astronomer and a theologian offer a study of interdisciplinary convergences with natural theology...* (2015) by Theodore Walker Jr. and Chandra Wickramasinghe. Biology converged with cosmology when astronomer-cosmologist Fred Hoyle and astronomer-astrobiologist Chandra Wickramasinghe presented “The Case for Life as a Cosmic Phenomenon” (7 August 1986). Also see “Life as a Cosmic Phenomenon” (January 2014) by Chandra Wickramasinghe and Gensuke Tokoro. Biology was converging with various disciplines from as early as the 1890s (Graff 2015). Biology converged with ethics in the late twentieth century. Late twentieth century convergence—between biology and ethics—is implied by the graphic results of a Google Books “Ngram” English language book-title search for “bioethics.” My January 2017 search for “bioethics” in titles of books published between the years 1600 and 2009 with no smoothing produced a graph showing one spike above 0.0000100% shortly after the year 1950, and starting from around 1970 many taller spikes reaching above 0.0000800% just before 2000 and again after 2000. This implies that the idea of biology converging with ethics became increasingly topical in the last quarter of the twentieth century. Given his 1940 call for a biology-based theory of ethics, Just was among the pioneers.]

Just conceived that an adequate natural scientific theory of social ethical behavior must be a theory with roots in biology, including a “general biology” that identifies phenomena common to all life (April 1940) and an observational biology with evidence from study of cells, botany, and zoology. Accordingly, Just drew upon his own observations of cells (especially marine egg cells), and upon observations of various animals by others in zoology.

FROM ZOOLOGY

From zoology, Just drew upon a supplemental correction to West European Darwinism. The correction was offered by “the Russian Darwinists” (Kropotkin 1902: 13-14). The Russian Darwinists were influenced by an 1880 lecture “On the Law of Mutual Aid” by “zoologist, Professor Kessler, the then Dean of the St. Petersburg University” (Kropotkin 1902: 2-3, 12-26). And Professor Kessler’s ideas were advanced in *Mutual Aid: A Factor of Evolution* (1902) by Russian zoologist Peter Kropotkin (born 1842, died 1921).

According to Kropotkin, the hypothesis held by many West European Darwinists (that “the fittest” for survival are those best at competitive “mutual struggle”) is fatally inadequate. This hypothesis fails to explain zoological observations, including observations made by Darwin himself. Kropotkin argued that observations show that competitive “mutual struggle” and cooperative “mutual aid” are both essential factors in evolutionary advances; and that “mutual aid” has “far greater importance” (Kropotkin 1902: 12).

Under “the fresh impression” of Darwin (1859), both Kessler and Kropotkin started their zoological investigations looking for and expecting to see “keen competition between animals of the same species” with survival advantages for the most competitive (Kropotkin 1902: 13). Contrary to expectations, both observed that “those animals which acquire habits of mutual aid are undoubtedly the fittest,” having “more chances to survive” and “the highest development of intelligence and bodily organization” (Kropotkin 1902: 12). Moreover, Kropotkin predicted that evidence confirming the evolutionary importance of “mutual aid” would emerge from study of micro-organisms (Kropotkin 1902: 14).

FROM MICROBIOLOGY

From study of micro-organisms, evidence confirming the importance of mutual aid was presented by Just in *The Biology of the Cell Surface* (1939b), where he offers an account of the living ectoplasm. Here, Just supplements a Darwinian emphasis—upon struggle against the surrounding environment—by adding a Kropotkinian emphasis upon mutual aid and co-operation with the surroundings. Just says:

Life is not only a struggle against the surroundings from which life came; it is also a co-operation with them. The Kropotkin theory of mutual aid and co-operation may be a better explanation of the cause of evolution than the prevailing popular conception of Darwin's idea of the struggle for existence. [With individual cells] The means of co-operation and adjustment is the ectoplasm [the cell surface]. ... (Just 1939b: 367)

At cellular levels, “mutual aid” and “co-operation” with the surroundings [social ethical behaviors] are essential to explaining evolution (Just 1939b).

SEEKING THE ROOTS OF ETHICAL BEHAVIOR VIA BIOLOGY

Just observed that living cells normally develop within a living system (Manning 1984: 254-59). And Just's non-reductionist account of observations from throughout biology and zoology produced a theory of life maintaining that all living individuals are parts of a living interactive continuum embraced by “one interdependent unity.” Just wrote:

The living thing is part of the natural world, it grows and lives on the stuff of which it is made and whence it came. Then living thing and outside world constitute one interdependent unity, as evolution teaches, as the development of an animal egg reveals. ... (Just 1939b: 366)

The interdependence between individual and outside world is a postulate which has its sanction not from any abstract philosophical principle, but is true because of the biological basis here set for. The best system of philosophy, then, is that which recognizes living thing and outside world as one interdependent continuum. Instead of building our philosophical theories of life on the behavior of electrons, it is safer to erect them on a biological basis. ... (Just 1939b: 366-67)

“Here” among biological observations and biology-based theories of life (theories that do not reduce life to inert particles) is where “we may seek **the roots of man's ethical behavior**” (Just 1939b: 367 [bold added]).

Just's footnote says: "*In a forthcoming essay, I deal with this point at greater length*" (1939b: 367 footnote 2 [original italics]). Now we ask: What "*forthcoming essay*?" This "forthcoming essay" has not been published. What became of this unpublished essay?

ADDENDUM – WHAT BECAME OF THIS UNPUBLISHED ESSAY?

FIRST CLUE

The first clue comes from Manning's biography. Manning reports that in 1941 Just was working hard "on what was to be his last manuscript, '**Ethics and the Struggle for Existence**'¹²" (1984: 327 [bold added]). And Manning's endnote refers to a 15 April 1941 letter about this last manuscript, to preserved drafts, and to a changed title. It says: "See Just to J. W. Buchanan, 15 April 1941, EEJ(H), box 125-2, folder 39. Drafts of this ms., later titled '**The Origin of Man's Ethical Behavior**,' are preserved in the Howard collection: EEJ(H), box 125-21, folder 396" (Manning 1984: 385 note 12 [bold added]). Accordingly, this first clue leads to Howard University.

ANOTHER CLUE

At Howard University, in July 2016, I failed to find drafts of "Ethics and the Struggle for Existence" or "The Origin of Man's Ethical Behavior." But with help from Joellen ElBashir, chief librarian and curator at the Howard University Moorland-Spingarn Research Center, and Lillie R. Jenkins, MSIS, we did find another clue in another letter: a hardcopy of a typed 15 October 1940 letter from Just to W. C. Allee at the University of Chicago.

In this 15 October 1940 letter, after making brief mention of his dramatic escape from Nazi occupied France, Just confirms that he is "taking a shot at the problem of social instincts." This letter [bold type added] says:

October 15, 1940

Dr. W. C. Allee
The University of Chicago
Chicago, Ill.

Dear Allee:

Your letter of October 11 has just reached me. Thanks!

To the last possible moment I stayed on in France but it would have been stupid to remain. When I realized the complete collapse, moral and spiritual, of all the people to whom I talked, I came to the decision that what I wished to accomplish over there was no longer attainable. Until the end of May I worked, always with increasing difficulties: these became so great that the previous bad time since September last seemed in retrospect a fairy tale. My escape was plenty dramatic enough, I can

tell you. This too seems now a pretty tale; at the time it was all to strong stuff.

Sorry that my query disturbed you. My thought was that if you by chance had space available for a research paper, I should like to fill in. Far from my thought was to make a request which would in any wise cut in on your file of papers on hand. Am terribly glad that the journal is so far filled. As to the special paper: my thought was that you might not have got all such papers that you wish to have. I may send you yet the research thing, taking my chance as to date of publication. The other I can make use of in another direction.

(By the way, don't forget to send me the reprint from Scientia on animal societies).

Have much to talk about when we meet. As you may have gathered, I am taking a shot at the problem of social instincts. In fact, I have a manuscript of **some 400 typed pages** which I soon shall begin to try to get into print. Seems a bad time with the world what it now is to have such foolish idea. **May be I can't get it out.** The fact that I worked as never before on this manuscript and read an almost unbelievable number of French and German books and papers is no reason that the publishing people will look at the thing with the same enthusiasm that I had in working up the stuff. This writing and thinking together with some very nice work on my eggs kept me going and enjoying life in the last year as never before.

With the most cordial greetings to you and to Mrs. Allee,
Yours,

In this 15 October 1940 correspondence, Just reports having authored "a manuscript of some 400 typed pages" that he would soon "try to get into print."

Just anticipated that getting this manuscript into print would be a challenge because October 1940 seemed "a bad time with the world." Also, Just knew that publishers could be influenced by his American colleagues who were resolutely *not interested* in his theoretical work (Manning 1984: 206-07, 239, 253, 263, 274-79, 282-83, 289). Unlike with his experimental-observational works (around seventy articles, a co-authored book chapter, and two books); with regards to publishing this theoretical work connecting biology to ethics, Just wrote, "May be I can't get it out" (15 October 1940).

Before he could get this manuscript into print, he became very ill. Ernest Everett Just died on 27 October 1941.

SOME 400 TYPED PAGES

This unpublished manuscript of “some 400 typed pages” (Just 15 October 1940) is probably Just’s “forthcoming essay” dealing “at greater length” with seeking the roots of human ethical behavior via biology (Just 1939b: 367, 367 footnote 2). And it was probably first titled “Ethics and the Struggle for Existence” and later titled “The Origin of Man’s Ethical Behavior” (Manning 1984: 327, 385 endnote 12 ... Just to Buchanan 15 April 1941).

OTHER CLUES

Other clues concerning the existence of Just’s unpublished essay are certain to be found at the Howard University Moorland-Spingarn Research Center, perhaps in EEJ(H) boxes 125-2, 125-21, -22, and -23. Now that the search has begun, I predict some vigilant researcher will find Just’s unpublished 400-page essay.

[Just’s 400-page “essay” (1939b) reminds me of a 413-page “essay” also featuring a general biology: Alfred North Whitehead’s *Process and Reality: An Essay in Cosmology* (1927-28 Gifford Lectures in natural theology). Whitehead’s generalized “philosophy of organism” yields an organic cosmology that agrees with panentheism (Hartshorne and Reese 1953). Accordingly, my prediction is that if Just’s 400-page essay is found and it includes a general biology, that 400-page essay will also include an organic cosmology that agrees with panentheism and the neoclassical idea that reference to the comprehensive divine reality is necessary for adequate moral theory (Gamwell 1990). Then, Just’s general biology and bioethics will be found to converge further with cosmology, natural law ethics, and natural theology.]

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Author-captured image of 15 October 1940 letter from E. E. Just to W. C. Allee

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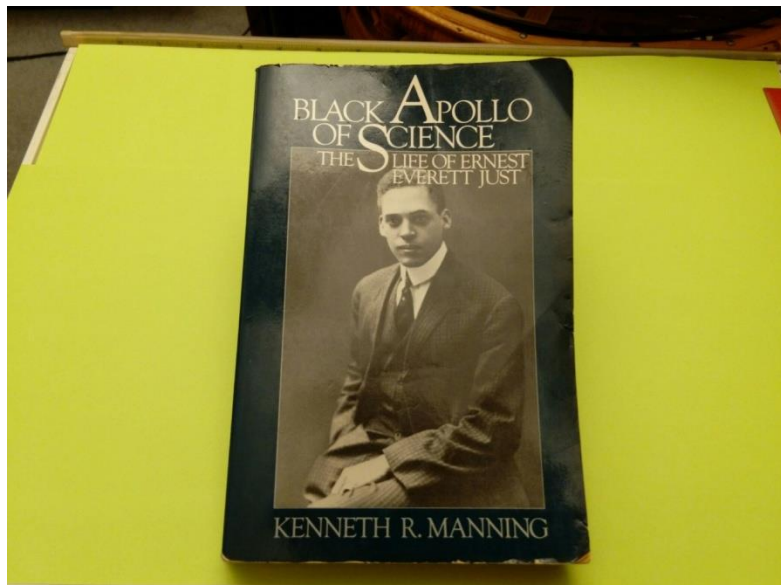
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Author-captured images



Book cover — Kenneth R. Manning’s biography—*Black Apollo of Science: The Life of Ernest Everett Just* (Oxford University Press, 1984 paperback, c1983)

Postage stamp – “Ernest E. Just, Biologist, Black Heritage, USA 32 cent” — issued in 1996.