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Black Apollo of Science: The Life of Ernest Everett Just - Summarizing Timeline, Sumitography (Postage Stamp Description), and Concept Poster

Lillie R. Jenkins

May 9, 2021

This two-part chronology is based on Kenneth R. Manning's biography, *Black Apollo of Science: The Life of Ernest Everett Just* (1983). Part 1 presents an overview of Just's work life, the various locales in which he worked, and information about his research ideas, including research funding applications and outcomes. Part 2 offers a description of the E.E. Just postage stamp (1996). Throughout the timeline, headers correspond to page numbers, work location, and the year. Events listed are representative, not all-inclusive of Just's work. Like other such timelines (Black Heritage Stamp Series, 1996; Mangal, 2018), this one displays Just's life and pioneering research work. Additionally, and distinctively, this timeline lays out Just's fund-seeking and his work with female co-researchers, arguing that these practices are also historic.

Just's success in fund-seeking is unique for an African American scholar of his day. Manning examines how Just acts strategically to win funds when seeking support for himself and for Howard University. Just initiates and nurtures relationships with individual donors and with philanthropic organizations. Successful fund-raising enables him to develop a career as a professional scientist, a first among American blacks in science.

Just also identifies capable female students in his classes, then mentors them in research. Advising females to practice pure science is also new among African Americans who, in that era, are routinely educated to pursue medical or teaching careers. One of his female students becomes his lab assistant and collaborator, but Manning shows that this, along with Just's search for permanent funding, is part of his thwarted plan to initiate and develop a community of researchers studying pure science at Howard University.

This chronology sets Just's administrative practices alongside his historic research in biology. We take a wholistic approach to Just's life and work. These two administrative activities are set within Just's ongoing routine of family responsibilities, experimental research, and his professorial and other administrative activities at Howard University. Here are entries about Just's teaching load at Howard University and time devoted to community work: advising medical and dental students and the Howard administration, founding Omega Psi Phi Fraternity, working on committees, advising a dramatic group; conducting experiments, prepping slides, preparing articles for publication and for national and international conferences; traveling to conferences, to European laboratories, to give speeches, and to accept awards.

In addition to and interspersed with these activities; Just writes letters, completes applications, manages meetings (and personalities), and submits proposals to secure funding for research and teaching. Given the scope and volume of his administrative work; Just's remarkable level of biological research seems all the more stellar. This summary of Manning's *Black Apollo of Science* re-frames Just's fund-seeking and advising practices to paint a clearer picture showing that these administrative ideas were, arguably, as path-breaking and far-reaching as his research in biology.

Part 2 of this timeline presents a brief description of the United States postage stamp (1996) honoring E. E. Just's achievements as a biologist. The *sumitography* collates the information found on the stamp, listing the subject, year, issuing country, value, etc. With this nineteenth commemorative stamp in the *Black Heritage Series* (Black Heritage Stamp Series, 1996), the United States government celebrates Just's contributions to biology. At the end of this piece, the author presents a poster that is a first step toward advocacy for a second postage stamp that will recognize and honor Just's administrative innovations. The timeline and *sumitography* are useful as reference tools. Each document pays a modest tribute to E.E. Just and to Kenneth R. Manning for their excellent work.¹

Part 1 – Administrative, Professorial, and Research Funding Timeline

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, SC	1883	14 August, EEJ born in Charleston, to Mary Mathews Cooper Just and Charles Fraser Just [p. 5] EEJ's birth in 1883 coincides with the period in the South called "White Redemption" following the years of Black Reconstruction (roughly 1866-1877) in which American blacks "took a share in the political power... began to vote and to enjoy public education." Reconstruction ends when President Rutherford B. Hayes orders United States troops, who are in the South to secure the safety, rights, and property of black citizens, to stand down. Jim crow, a new trend of political and social oppression emerges through which whites "[usurp] power." Blacks are disenfranchised and lose political power [p.5]
	1887	20 June, Charles Fraser Just, Ernest's father dies at age thirty-two. A month or so later, Charles Just, E.E. Just's 80-year-old grandfather, dies [p. 13] Mary Just moves her family back and forth between her teaching job in Charleston and James Island to earn much-needed income. On James Island she works in the phosphate mines and teaches. [pp. 14-16] Barely 4 years old, Ernest falls seriously ill with typhoid fever which affects his memory and robs him of his "unusual way of excellence" in reading and writing at that young age. He teaches himself to read, again, and the "moment seemed miraculous" [p. 15]
	1892	EEJ 9 years old, Mary Mathews Just gives up teaching in Charleston and moves her family to James Island, SC. Mary devotes the next decade to teaching on the island, including organizing tailoring and millinery classes and establishing herself as a religious leader [pp. 16-18]
	1893	Mary helps the local farmers establish a cooperative to maximize profits in moss fiber curing and selling. She sells her own property to found Frederick Deming Jr. Industrial School, "one of the first industrial schools for blacks in the state." She is Ernest's teacher until he reaches the age of twelve when he leaves to attend "an industrial school for blacks in Orangeburg." Mary pays the tuition for Ernest's study [p. 17, 18]
	1895	Mary helps found the town of Maryville, "one of the first purely black town governments in the state" [p. 15-16]
	1896	EEJ enrolls in The Colored Normal, Industrial, Agricultural and Mechanical College (South Carolina State College) in Orangeburg. He wins "special praise from the faculty" for his speaking and writing abilities, completing the course in three years [p. 19]
	1899	Spring, Just receives the Licentiate of Instruction at South Carolina State at 15 years of age, and is eligible to teach at "black public schools in South Carolina." He returns to Maryville in summer [p.19] Late fall, the school in Maryville burns to the ground taking Mary's "work, hope, and dream." [Mangal (2018) asserts this occurs in 1897.] The Justs decide that Ernest has no future in teaching at Maryville. [pp. 19-20]
US, NH	1900	April, Just leaves for Kimball Union Academy working on board a ship bound for New York [p. 20]

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, NH	1900	September, EEJ begins his studies at Kimball Union Academy, Meriden, NH where he receives a scholarship set aside for deserving students. He chooses the “rigorous classical course” and has time to participate in numerous activities. His favorite theologian during this time is Adolf von Harnack whose work extends “beyond theology into science” [pp. 20-23]
US, SC	1901	Winter, Mary Mathews Just dies [p. 24]
	1902	Just develops a journalistic interest and is elected editor-in-chief of the <i>Kimball Union</i> in 1902-1903 where he discovers and hones administrative and organizational skills similar to his mother’s [p. 25]
	1903	EEJ completes the 4-yr course at Kimball Union Academy in 3 years becoming a stand-out in the debating society and presenting at the commencement service during his third year. [pp. 22, 25]
US, NH		Autumn, EEJ matriculates at Dartmouth College – Hanover, NH. He is the only black student in the entering class with 287 white students, and at the end of the first year distinguishes himself by earning the highest grades in Greek by a freshman in Dartmouth’s history [pp. 27-29]
	1904	Sophomore year, Just is introduced to the field of science and takes biology with Professor William Patten, Head of the biology department who is also a Harvard graduate. Impressed by Patten’s teaching and by his publications, Just earns his highest grade of the semester in Patten’s course, and decides to major in biology. He declares “two minors, Greek and history” [pp. 31-32]
	1906	Professor Patten inspires Just to “achieve academic excellence” and to consider the possibility of “a career in science.” During spring Patten puts Just and A.O. Kelly to work on a section of the book he is writing. Just’s research on frog development is exemplary. Patten includes that research in his book, acknowledging Just’s work in a footnote [pp. 32-33] Just is the only junior to be awarded Dartmouth’s highest academic title for an undergraduate, The Rufus Choate Scholar, because he earns an “overall average above 92” [p. 33] Wilbur P. Thirkield becomes the ninth president of Howard University [pp. 37, 117] President Thirkield plans to make Howard the premier school for blacks migrating to the cities, by developing study of the sciences there. Adhering to the Flexner report, Thirkield decides to hire fewer practitioners who work part-time and more researchers who can work as full-time professors. Thirkield’s vision leads him to seek large grants from the federal government and from private donors to construct a “science center” and to “recruit scientists for the faculty” [p. 117]
	1907	26 June, EEJ graduates in Dartmouth College’s 138 th commencement exercises. He is the only honor student to attain <i>magna cum laude</i> in a class of 182. Although he ranks tenth in the class, he wins eight honors due to his “superior grades.” Just is Rufus Choate Scholar “for the second consecutive year”; he receives the Grimes Prize for General improvement (with a \$70 monetary prize); he is elected to Phi Beta Kappa; he is given a commencement mark for maintaining an 85 or above average all four years; he receives honorable

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		mention in sociology as one of only three students; he is awarded honors in three subjects “botany, history, and sociology;” he and one other student are awarded special honors – Just’s is in zoology “his favorite field;” and he graduates <i>magna cum laude</i> [p. 35]
US, DC		Dean Kelly Miller recruits Just to teach at Howard University after he leaves Dartmouth. EEJ moves to Washington, DC accepting “his first real job” at Howard University. Just begins teaching in the Teachers College and the Commercial College at Howard in an era when teaching or preaching are the only professional options available to an educated black person. President Wilbur P. Thirkield of Howard University hires EEJ to teach English citing a need to “exalt English in the curriculum.” [pp. 37-38]
	1908	Just transfers to Howard’s prestigious College of Arts and Sciences where he teaches more advanced courses [p. 38] Recalling his involvement in forensics and drama at Kimball Union Academy, Just organizes a drama club that goes on to achieve excellence and acclaim. He will work with the club until the 1920s [p. 40]
	1909	Spring, President Thirkield has plans to emphasize scientific education at Howard and will open a new science building in 1910. Thirkield also plans to put together “a new faculty to increase black scholars in the school’s science departments,” and sees Just as “well-equipped” in biology. [p. 39] Just accepts the dual title - Instructor of English and Biology, taking the first step toward making a career in science [p. 39]
US, MA		MBL - Research summer at Woods Hole – Just begins work at the Marine Biological Laboratory (MBL) as Frank Lillie’s research assistant and is assigned to study cell cleavage in marine eggs. This work lays the foundation for Just’s lifelong study of marine eggs. [pp. 41-43; 69]
US, DC	1910	Late June, EEJ takes invertebrate zoology at MBL with W.C. Curtis [pp. 41-42] Encouraged by President Thirkield, EEJ transfers to Howard’s Department of Biology and Geology, completing the transition from teaching English. He teaches zoology under his new title, Assistant Professor of Biology [p. 39]
US, MA		MBL - Research summer at Woods Hole – Just enrolls in embryology under Gilman A. Drew. [p. 41-42]
US, DC	1911	Howard University promotes EEJ to the Associate Professor position [p. 40] 15 December, Alpha chapter of Omega Psi Phi Fraternity organized at Howard University with EEJ as faculty advisor [pp. 40-41] EEJ begins work for the PhD at the University of Chicago, <i>in absentia</i> [p. 42]
US, MA		MBL - Research summer at Woods Hole – EEJ makes important discovery on cell cleavage which becomes the basis of his first scientific publication [p. 43]
US, OH	1912	26 June, EEJ marries Ethel Highwarden, a bi-lingual teacher of German from Ripley, OH and a graduate of Ohio State University [p. 45]
US, DC		Accepts appointment as Professor of biology in the college, and Professor of physiology in the medical school at Howard University [p. 40] EEJ elected first honorary member of Omega Psi Phi Fraternity [p. 41]

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US, MA		<p>MBL - Research summer at Woods Hole – EEJ promoted to position of beginning investigator [p. 44]</p> <p>Just discovers that the MBL is a place for families. Scientists bring their spouses and families with them to Woods Hole. Several of the couples are scientist teams who work “together during the day, [socialize] with other couples in the early evening, and often [resume] work at night.” Just envies the Schraders and the Harveys because all are scientists, and he notes that couples can accomplish more work as collaborators. Just experiences both an emotional and financial drain. He identifies the need for an assistant, a scientist colleague who can help him accomplish his work [pp. 74-75]ⁱⁱ</p> <p>Just publishes his first scientific article, “The Relation of the First Cleavage Plane to the Entrance Point of the Sperm” in <i>Biological Bulletin</i> [p. 43] Manning finds references from 1912 to 1979 for Just’s article in major international and domestic scientific journals [pp. 345-346, note 19]</p>
	1913	MBL – EEJ publishes first article as Lillie’s co-researcher [p. 44]
	1914	<p>MBL – EEJ publishes second article reporting independent research. His MBL research and independent publications are foundations for EEJ’s graduate study at the University of Chicago [pp. 44-45]</p> <p>Just meets his first real friend at MBL, L.V. Heilbrunn [p. 71]</p>
US, NY	1915	<p>12 February, Gov. Charles Whitman (NY) presents EEJ with the first Spingarn Medal award. Several white southern newspapers, including <i>The Courier-Journal</i> of Louisville, Kentucky, comment extensively and favorably on Just’s scholarly research and scientific achievements in biology, a pure science. [p. 54-55]</p>
US, IL		<p>EEJ begins academic year (1915-1916) in residence for the PhD at the University of Chicago, on leave from Howard. His hosts there are his relatives, the Bentleys, who are members of the “vanguard of black social and professional life in Chicago.” Mr. Bentley is “one of the original members of the Niagara Movement and one of the founder-directors of the NAACP.” [pp. 58-59]</p> <p>Just is inspired by the prosperity, status, and activism of professional blacks, and by the overall vibrancy of the university’s scientific community with its up-and-coming zoology department [pp. 56-61]</p> <p>EEJ is exposed to the physiological approach to embryology in coursework. His appreciation for the international character of scientific study expands [p. 63]</p>
US, IL	1916	<p>Tuesday, 6 June, EEJ earns the PhD from the University of Chicago, graduating <i>magna cum laude</i>, gaining technical training – his “union card” and “official stamp of approval” – for a career in science [p. 66]</p>
US, MA	1917	<p>MBL – Research summer at Woods Hole</p> <p>Summer, 1917 - EEJ begins career as professional scientist. For the first time at the MBL he feels himself “equal in every way.” He is a full professor, an independent researcher and holds the PhD. [p. 73]</p> <p>He joins social activities and opens up to new acquaintances [p. 73]</p> <p>Just deepens his friendship with A.H. Sturtevant. The junior scientists muse about their “dream zoology department” during evenings, calling administrative work “dirty work.” Just is noticeably absent from the picture because blacks do</p>

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		not teach at white universities, at that time. The budding scientists make their plans without bringing up this thorny political issue [pp. 77-78]
US, DC	1918	EEJ begins path-breaking research on the cortical response of the egg to insemination and the role of fertilizin in fertilization [pp. 78-79]
US, MA	1918	James Stanley Durkee becomes the 10 th president of Howard University. His new policies centralize authority, removing it from the various deans [p. 119]
	1919	MBL – Research summer at Woods Hole - EEJ continues research that leads to several major publications [p. 77]
	1919	MBL – Research summer at Woods Hole - EEJ gains notoriety for rigorous experimentation at Woods Hole and is beginning to have a reputation as the authority on the correct methods for handling most marine invertebrates [p. 83]
		Fall – Following up on Lillie’s reference about the possibility of a fellowship through the National Research Council, EEJ applies for foundation funding to support his research in “pure science” [p. 120]
		Funding a career in science requires support from universities, scientific societies, philanthropic foundations, or private benefactors. Blacks do not receive long term support for their work because they exist in a double-bind situation: they cannot attend the white universities for training, nor can they aspire to jobs at white universities even if they do complete the training. Teaching at a black college is the only path available to black people. The “philanthropic establishment” is advised by the white scientific community that black colleges are not good investments for training scientists nor for producing “high-quality research.” E.E. Just and American black fund-seekers face this climate each time they apply for support. As a result, few black colleges have thriving science departments and few black students pursue careers in science [pp. 115-116]
		EEJ pursues foundation support keenly and skillfully, convincing donors of the value of his research “for himself, Howard, science, the black race, and mankind.” Just wins support and keeps his dignity at a time when getting fellowships in the world of “American science”, wherein both private and foundational donors prefer to “support established scientists” with “high quality” reputations. Blacks are new to scientific study and there are few opportunities for them to prove themselves, so most donors are not willing to “gamble” on their viability. Just’s success as a PhD who establishes a career in pure science by garnering philanthropic funding is, therefore, historic and path breaking [pp. 120-121]
		Just’s fund-seeking requires tenacity which he exhibits in pursuit of funding in 1919. Just arranges an interview with R.S. Woodward at the Carnegie Institution because the Carnegie supports pure research. The funds are depleted. Just’s request for funding is denied. Woodward sends a letter of refusal out to Lillie. Undeterred, Just continues his fund-seeking, applying directly to William Henry Welch, “the source of power in American medical and dental education” outlining his scientific research and “stressing the importance of his work for black medical education.” Welch brings Just’s proposal to Abraham Flexner’s attention at the General Education Board. Abraham consults with his brother,

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		Simon Flexner, at the Rockefeller Institute for Medical Research who agrees that Just's work should be funded, but there are no funds available. In Simon Flexner's opinion, Just needs funding, and would also benefit from having "an assistant to relieve him of routine experimental and administrative work." The Flexner brothers look to Julius Rosenwald, wondering if he might do something, although the Rosenwald Fund supports students, not faculty or researchers. Rosenwald funds Just's work, as a three-year, personal grant, starting in July, 1920. If Just succeeds by producing the desired results on the Rosenwald grant, this might be the test case that convinces the philanthropic community that blacks in science are viable investments. That will make finding backing easier for other scientists. [pp. 123-125]
US, MA	1919-20	<p>MBL – Research summer at Woods Hole</p> <p>Publishes four major articles in <i>Biological Bulletin</i> challenging Jacques Loeb's work on artificial parthenogenesis [p. 82-83]</p> <p>Around this time, Just observes and describes "the wave of negativity" associated with a fertilized egg "from which point the egg now rejects other spermatozoa along the wave. ... Embryologists immediately [take] up the observation as fundamental to work on fertilization" [p. 260]</p> <p>Just's work on fertilization reaction establishes him as an outstanding scientist and brings him to the attention of funding officials, from whom he wins support for himself, for his students and for Howard University. [p. 84]</p> <p>As a result of his work, Lillie invites EEJ to collaborate with him on the fertilization section of Cowdry's comprehensive work, <i>General Cytology</i> [p. 84]</p>
	1920	<p>Just experiences a high level of professional recognition. He is elected to scientific societies: The American Society of Naturalists, The American Society of Zoologists, The American Association for the Advancement of Science, The American Ecological Society, and the <i>Société nationale des sciences naturelles et mathématiques de Cherbourg</i> [p. 78]</p> <p>February – Julius Rosenwald begins to fund Just's research, awarding \$2000 per year for 3 years with Abraham Flexner as liaison between Howard University and the National Research Council as the administrator. [p. 125]</p> <p>The \$2000 grant allows Just to spend time on research and includes funding of \$1500 with \$500 to cover summers at Woods Hole. [p. 125]</p> <p>Howard University's President Durkee accepts the grant and Just's teaching arrangements (half day of research followed by half day of teaching) brokering a \$250,000 award to Howard's medical school from the General Education Board. [pp. 125, 127]</p>
US, MA		<p>MBL – Research summer at Woods Hole</p> <p>Just approaches Lillie about the possibility of renting a house for him to bring his family to Woods Hole next summer, in 1921. Lillie does not respond, but Just does not give up on this idea [p. 75]</p> <p>Mid-June – EEJ spends "day and night" in his laboratory observing the starfish fertilization process which takes as long as 30 hours from insemination to maturity. He is pleased with the slides he makes that show promise for furthering the theory of the role of the cortex in fertilization. [p. 127]</p>

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US, DC		<p>1 July, Rosenwald Fund grant goes into effect for first year – 1920-1921 [pp. 125-126]</p> <p>Mid-September – Just begins new schedule, spending 4 hours in the laboratory in the morning and 4 hours teaching in afternoon. Just’s schedule includes teaching 750 students, mentoring/counseling 300 prospective medical and dental students, advising Howard’s administration on science matters, helping to meet the requirements of the science curriculum. He takes on more administrative and committee work. Just sits on committees and spends time thinking about “pedagogical questions” [p. 127]</p> <p>Just squeezes in more work - teaching large classes and involving himself in university affairs - to offset criticism at Howard because under the Rosenwald grant he teaches fall and winter quarters and conducts research during spring term [p. 129]</p> <p>EEJ and other scientists look far and wide for publication opportunities in the face of cutbacks in expenditures among American journals</p> <p>Just’s grueling pace of work and his responsibilities at home lead to periods of physical and mental exhaustion [p. 130]</p>
US, IL		<p>December – Owing to his newly-acquired authority and publications in the field, EEJ travels to Chicago to participate in a “rather unique invitation” the symposium on fertilization at the meetings of the American Society of Zoologists and the American Association for the Advancement of Science [p. 84]</p>
US, DC	1921	<p>EEJ describes a disparity between the strength of his reputation as a scientist in Europe compared to his “relative obscurity” in the United States [p. 77]</p> <p>President Durkee recognizes Just’s administrative, instructional, and research contributions by allowing him to take off for Woods Hole early in spring, before the school year ends [p. 127]</p>
US, MA		<p>MBL – EEJ enjoys a firm professional reputation at Woods Hole, and refers to the Summer of 1921 as his “happiest [and] most productive” [p. 76]</p> <p>Early May-September, EEJ works hard at his research and that summer becomes one of the most productive in his career, as of that date. Just, Lillie, Durkee, and the National Research Council report to Julius Rosenwald that his foundation’s support to Just is well-deserved [p. 127]</p>
US, DC	1922	<p>Just makes direct contact with Julius Rosenwald through “long thank-you letters” that Rosenwald “treasured.” Just gives Rosenwald insight into his life, his ambitions for Howard. Just tells him why he chose to pursue pure science and his hope “to contribute to mankind” [p. 137]</p> <p>South Carolina State College, Just’s first alma mater, awards him an honorary doctorate [p. 137]</p> <p>EEJ on the verge of publishing ten research papers, with a further four others in the final stages of preparation [p. 131]</p> <p>Requests and is granted permission to list himself officially as, “Julius Rosenwald Fellow in Biology, National Research Council.” Just publishes under this title for the next decade [p. 137]</p>

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		Taking note that Just's hard work and level of productivity bring on periods of exhaustion, W.C. Graves (Rosenwald's secretary), fears that this process will compromise Just's health [p. 131]
US, MA		MBL – Spring, EEJ presents a series of guest lectures in H.B. Goodrich's embryology course. The invitation indicates that Just now receives the same recognition as other researchers of his caliber [p. 101] Mid-April, EEJ at Woods Hole where his experiments are underway. He cuts, mounts, stains and examines 635 sections of twelve stages of <i>Arbacia</i> eggs. He works every day, including Sundays, for four months completing experiments on sixteen separate research problems [p. 131]
US, DC		End of May, EEJ at Howard for end-of-term duties
US, MA		Early June, returns to Woods Hole
US, DC		Mid-August, Just leaves MBL before the end of the session for a much-needed rest [p. 131] EEJ passes up an opportunity to conduct research at zoologist F.A. Potts' seaside laboratory at Cambridge due to lack of funds [p. 155]
US, MA	1923	MBL – Research summer at Woods Hole Beginning investigator Herman Beerman consults with EEJ seeking his expert advice on <i>Echinodermata</i> [p. 102-103]
US, DC	1924	Summer, following a breakdown, Just takes two months of "complete relaxation" to recover his health [p. 131] EEJ invited to join European scientists to help compile a comprehensive treatise on fertilization. This was the first such invitation ever extended to a black American. EEJ contributes a monograph on the physiology of fertilization – his " <i>magnum opus</i> as Rosenwald Fellow." [p. 137] Selected as one of a few contributors to the definitive text in the field of cytology, E.V. Cowdry's <i>General Cytology</i> . [p. 138] Fall, Just applies to Carnegie Institution. George Streeter reports that the institution has "a fixed budget", "no openings" telling Just to contact John C. Merriman at the head office in DC. Streeter repeats Carnegie's policy to "help programs rather than individuals." He advises Just to apply for his institution, "not for himself." Just sees a need to change his fund-seeking strategy. [p. 133] After two rejections from Carnegie and the Rosenwald fellowship nearing expiration, Just applies to the General Education Board and Abraham Flexner asking for "an adequate grant of a more permanent nature [with a] sufficient term of years..." [p. 134] After gathering recommendations from Carnegie affiliates, Flexner does not extend funding. [p. 135]
US, DC	1925	Just's research is cited eighteen times in the classic text, <i>The Cell in Development and Heredity</i> by E.B. Wilson. [p. 137] Rosenwald considers renewing Just's grant, having supported him for five years. He funds Just for the year 1925-1926, only [p. 139] Several scientists and administrators want Just to have a career in research and think it unfair that his funding is so uncertain. They come up with a plan to seek out sources other than Rosenwald, but the targeted foundations do not offer

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		<p>permanent support. Worries about funding and seek funding constantly make Just “less productive” [p. 138]</p> <p>Just outlines for Flexner his vision for an endowed research center at Howard University, through which “the Rockefeller or some other foundation” might establish funding on a permanent basis. The center would train blacks in scientific method and increase social awareness. Flexner does not agree to permanent funding [p. 140]</p> <p>Maynard M. Metcalf, Chair of the National Research Council’s Division of Biology and Agriculture, pushes through a resolution that recognizes Just’s research acumen and recommends continuing support for his research indefinitely. [p. 139]</p> <p>Responding to the National Research Council’s resolution to recommend permanent funding for Just, Rosenwald explores options to fund Just at Howard University. Rosenwald tells Just to write a “brief resume of past achievements, a statement of his future work, and an evaluation of his work.” In that effort, Rosenwald also asks Lillie to evaluate Just’s research in terms of its value to humanity [pp. 148-149]</p> <p>EE Just establishes a national and international reputation in the five-year period he receives funding from Rosenwald via the National Research Council fellowship [pp. 149-150]</p> <p>EEJ’s funding situation highlights a problem shared by black scientists in America, generally. [p. 139]</p>
US, MA		<p>MBL – Research summer at Woods Hole – EEJ meets Curt Stern, the eminent geneticist from the <i>Kaiser-Wilhelm-Institut</i> located in Berlin-Dahlem for the first time. The two men talk freely about racial conditions in the United States with Stern later stating that the larger MBL community did not accept Just socially due to his race. Just’s circle of friends try to protect him from the larger community’s sentiments, as possible [p. 104-105]</p>
US, DC	1926	<p>Just is elected to honor societies in France and appointed to editorial boards for German journals [p. 155]</p>
US, MA		<p>MBL - Research summer at Woods Hole – continues to develop friendship with geneticist, Curt Stern from the <i>Kaiser-Wilhelm-Institut</i> [p. 104-105]</p>
US, DC		<p>August, Just attempts to find more permanent funding by submitting a proposal to the National Research Council to study a more “practical problem” – treating wood to prevent shipworm infestation [p. 145]</p> <p>Just toys briefly with the idea of becoming an administrator, but decides that his real problem is that he needs “money, equipment, and staff ... assistants in his laboratory” so he won’t have to be “janitor, technician, typist, and experimenter all rolled into one.” As he has “never had any graduate students to help him carry on his work” he starts thinking about ways to do something “on a limited basis about the lack of support services and colleague relationships.” Just hits upon the idea of “training and encouraging” a former undergraduate student toward a career in biology, Roger Arliner Young.</p> <p>Just’s rationale for training Young to become a scientist is evident in his lament that “men competent in zoology [pursue] medicine as a career” but, as a</p>

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		woman, Roger Young has “little hope of a medical career, since [a] woman’s place was in the classroom... definitely not in the operating theater.” Although Young’s only professional choice is teaching, she is unique as a black woman “teaching science at the university level.” This fact makes Young one of the “first black women to go into science” as a career [pp. 146-147]
		Young becomes Just’s protégé, helping “with the mechanical and some of the theoretical aspects of his work” gaining his respect as “a skillful worker of merit” and showing “real genius in zoology.” One of Young’s studies receives widespread acclaim, and “notice alongside Nasonov’s [Dmitriy Nasonov - an imminent Russian cell physiologist] in several European journals” [p. 148]
		European colleagues read Just’s work with interest calling it far-reaching [p. 155]
		Fall, Howard University welcomes the first black, and its 11 th president, Mordecai Wyatt Johnson [pp. 152-153]
US, PA		December, EEJ gives presentations on water and ultraviolet at the meeting of the Society of Zoologists in Philadelphia [p. 154]
US, DC	1927	Just is listed in <i>American Men of Science</i> with a star, the only black scientist to receive this distinction – among the top thirty-eight American zoologists [p. 138]
		EEJ’s Rosenwald Fund grant for research ends, and the General Education Board provides a first-time fellowship of \$2500 per year for five-years. The General Education Board later adds \$1700 for Just to purchase an apparatus to use studying the effects of ultraviolet rays on marine egg cells [p. 154]
		EEJ invited to speak at meetings of zoologists in Berlin, Budapest and Rome, but lacks funding to attend [p.155]
		EEJ requests Rosenwald’s support for five years to pay a research assistant. Rosenwald offers Just a three-year grant increasing from \$500 (first year) to \$650 (second year), maxing at \$750 (third year). This grant is for Roger Young to support herself doing research during summers at Woods Hole. [p. 155]
US, MA		MBL – EEJ continues research work during summer and brings his wife and family to Woods Hole but has to relocate them to Oak Bluffs on Martha’s Vineyard due to racist treatment they experience. His family “never went to Woods Hole again” [p. 107] He also brings his female assistant Roger Arliner Young to Woods Hole for the first time. [p. 148] Young is one of the first black women to seek a career in pure science [p. 147]
US, MA		December, Just meets and befriends Edwin R. Embree at an informal conference to discuss the issues of contemporary Negro life and interracial relations organized by the Laura Spelman Rockefeller Memorial at Yale University [p. 156]
US, DC		Embree and Lillie advise Just to further his reputation by developing “a strong set of disciples” through a “graduate program to bring blacks into the field to carry on his tradition” [p. 158]
		Just revises the plan he presented to Flexner about “setting up a Rosenwald Institute of Zoology at Howard.” It is practical as proposals go, asking for funds to acquire basic items routinely found at white colleges. Just wants to provide a congenial atmosphere where graduate students feel like “part of one

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		happy family, bound together into a working unit” where they can come together in “perfect comradeship” as “mutual seekers of truth.” He describes a utopic setting in which he finds “intellectual comradeship within the black community.” Embree does not approve the funding for Just’s plan to build an institute at Howard [p. 159]
US, DC	1928	Summer, Just presents a scaled-back version of his plan to establish the Julius Rosenwald Institute of Zoology at Howard University. The Rosenwald Fund headed by Edwin Embree pledges \$80,000 over five years (1928-1933) to fund Just’s research and to train advanced zoology students, calling Just’s full proposal “too grandiose” [pp. 162; 211] This grant represents substantial backing and calls attention to Just’s work on a nationwide scale. Research funding of this amount is a first among blacks in science. [pp. 162-163] ⁱⁱⁱ
US, MA		Research summer at Woods Hole – research assistant, Roger Arliner Young accompanies EEJ for the second year [p. 148] Just walks out of a seminar given by a German biologist, then sequesters himself in his laboratory for three days after the lecturer uses racial slurs. This protest shows his growing perception of “racial hatred in the scientific community” [p. 108] EEJ begins publishing his methods in the <i>Collecting Net</i> , the MBL’s weekly paper Two publishers, Blakiston’s and Darwin, compete to publish EEJ’s methods articles as a handbook or laboratory manual [p. 112]
US, DC		Elected to the editorial board of <i>Physiological Zoology</i> – EEJ is the first American black to receive this honor for “pure scholarship” or work that does not pertain to the Negro question [p. 138] Just plans first transatlantic trip to spend 6 months conducting research at the invitation of the <i>Stazione Zoologica</i> in Naples, Italy [p. 163] The Rosenwald Fund’s backing, Just’s board election, and his planned trip to Naples receive extensive news coverage. The <i>New York Times</i> prints the article, “A Negro Biologist Has Won Distinction in his Field.” Mary Church Terrell interviews Just and writes a long article for the <i>Washington Post</i> [p. 213]
US, DC	1929	January, Roger A. Young, EEJ’s assistant, takes on the role of acting head of the Department of Zoology at Howard University during Just’s 6-month research leave at the <i>Stazione Zoologica</i> in Naples [p. 179]
FR, Paris		18 January, EEJ and daughter Margaret travel to Paris, then to the <i>Stazione Zoologica</i> [p. 169]
IT, Naples		Just is the first black American scientist to work at the <i>Stazione Zoologica</i> , where he meets scientists from all over Europe, like John Ronnstrom of Stockholm, Sweden and sees Curt Stern of Berlin, Germany, again [pp. 169, 171, 173] The striking poverty that Just witnesses in Naples reminds him of Charleston and James Island in his childhood [p. 170] EEJ meets Margret Boveri, the daughter of Theodor Boveri, noted embryologist, and Marcella Boveri, a noted zoologist. She is Reinhard Dohrn’s secretary at the <i>Stazione Zoologica</i> . Boveri and Just’s business relationship develops into one of “special intimacy” [pp. 171, 173, 179]

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		Just and Dohrn share an appreciation for discussing the human condition, the arts and music. To Just, Dohrn and other scientists seem “wonderful” - sophisticated and refined. [p. 172]
Austria, Graz		mid-April, Just sets himself the task of establishing contacts in the European scientific community. He and his daughter visit Friedl Weber, professor of botany at the University of Graz in Austria. Due to his schedule, Just foregoes invitations to visit the zoology department at the University of Cambridge and the Oceanographic Institute in Monaco [p. 174]
	1929	
IT, Naples		9 May, Just’s daughter, Margaret, leaves Naples for New York. [p. 176] Just’s colleagues take an interest in him as well as in his work leading Just to feel very comfortable at the <i>Stazione Zoologica</i> [p. 172] EEJ begins to consider the metaphysical import of his work, thanks to Dohrn, observing that his research is “a beautiful mixture of reality and idealism.” [p. 177]
		22 June, Just postpones his departure from Italy due to illness, extending his leave until August. He makes his affair with Margret Boveri public – despite disapproval from her family, the couple live together in Switzerland while Just recovers. [p. 179]
US, DC		Early August, Just leaves Italy for Washington, DC [pp. 179-180] Fall – EEJ at Howard University, after 8 months in Europe [p. 180] Roger Arliner Young has acted as head of the zoology department at Howard University during Just’s eight-month absence. She passes up a General Education Fellowship during this time. When Just returns Young takes leave for one year to further her studies at the University of Chicago [pp. 179, 217] September – Just flexes his administrative muscles, first concentrating on getting the graduate program in zoology underway. He realizes that he needs to hire another staff member to lead seminars. He courts first-rate scientists, L.V. Heilbrunn and John Runnstrom to “help establish the reputation of the Howard graduate program.” Heilbrunn goes to the University of Pennsylvania, and Runnstrom receives “substantial backing” to fund a laboratory in Sweden from the Rockefeller Foundation. Just locates T.C. Byerly, a zoologist working with the federal government who can begin teaching 2-3 seminars in the evenings in January 1930 [pp. 214-215] September – November, Just expends a lot of time and energy pursuing funding with his contacts and other American donors on behalf of the <i>Stazione Zoologica</i> . Neither foundation responds favorably, especially in the face of the stock market crash. One idea involves perhaps providing general publicity about the <i>Stazione</i> , in the form of a review of the article on the facility that Margret Boveri published in one of the German journals [pp. 180-182] Just petitions the Rosenwald Fund on behalf of the <i>Stazione Zoologica</i> , championing the cause of “European science” but to no avail [p. 182] Max Hartmann, the eminent German embryologist, invites Just to be guest professor at the Kaiser-Wilhelm-Institut from January to June 1930, one of a few

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		Americans, and the first American black, to go to the Institut. Just confers with Embree of the Rosenwald Fund, then consults the Howard administration [pp. 183, 188]
		November or early December, E.P. Davis, Dean of the College of Liberal Arts gives his permission for Just to take the invitation. [p. 183]
		Just cancels his appearance at the annual meeting of the Society of American Zoologists [p. 183]
DE, Berlin	1930	2 January, Just sails from New York going to Berlin. Margret Boveri meets him at the station in Berlin, after the train ride from Boulogne [pp. 183-184]
US, DC		10 January, Roger Arliner Young takes and fails her comprehensive exam at the University of Chicago and is not accepted in the doctoral program [p. 218]
DE, Berlin		January-June, EEJ lectures and does research at the <i>Kaiser-Wilhelm-Institute</i> – Berlin, Germany [pp. 185-190, 217]
		T.H. Morgan, renowned geneticist and Nobel laureate, cites Just’s first article, “The Relation of the First Cleavage Plane to the Entrance Point of the Sperm” in <i>Biological Bulletin</i> as <u>the</u> “fundamental and authoritative study on the subject.” [p. 43]
		EEJ spends up to twelve hours each day at the Kaiser-Wilhelm-Institut working and meeting other scientists. He meets Otto Meyerhof and Otto Warburg, both Nobel laureates at the Kaiser-Wilhelm-Institut [p. 185-186]
		EEJ feels honored by the position and respect he receives for his work from his colleagues in Berlin, although the story that circulates in America is that his work is becoming “speculative and philosophical” [p. 189]
		Late January, Adolf von Harnack, personally, invites Just to be a live-in guest at Harnack Haus. This arrangement provides Just a chance to meet more scientists and to do more work. A surprising result of living at Harnack Haus is that Just and von Harnack spend many evenings together talking over tea. They develop a close friendship. Von Harnack tells Just that solving the great philosophical questions necessitates bringing “spiritual belief” and science into “greater harmony.” Just’s discussions with von Harnack form the basis of a new philosophical outlook that later informs Just’s scientific work. [pp. 189-190]
IT, Naples		Mid-March, Just leaves Berlin for a break in Naples, meets Dohrn [p. 192]
		Late April, Just visits the former crown prince of Germany in Potsdam [p. 193]
		He meets Grethe Alter and promises to help her get monies to publish a book on the art of African music [p. 194]
US, IL		Roger Arliner Young postpones her PhD work at the University of Chicago after performing poorly in coursework, prepares to return to teaching duties at Howard [p. 219]
US, DC		Early June, EEJ sails to US to attend Lillie’s 60 th birthday celebration [p. 194]
DE, Heidelberg		10 June, Adolf von Harnack dies in Heidelberg, Germany [p. 199]
US, MA		27 June, at Lillie’s reception Just tells those gathered that he experienced more “fraternity and assistance” in one year at the Kaiser-Wilhelm-Institute than in all of the years he has come out to conduct research at Woods Hole. He leaves without telling Lillie or anyone else goodbye, never to return. From that time, he conducts all of his research in Europe. [pp. 194-195] ^{iv}

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, DC		July, Just returns from Berlin to hear that both Johnson and Embree want to see more progress made in the zoology department [p. 221] August, Just receives an invitation to be one of the keynote speakers at Padua conference [p. 195]
IT, Padua		4-11 September, Padua – Just attends the Eleventh International Congress on Zoology, as a keynote speaker. [p. 195] 8 September, Padua – Just speaks for the first time, publicly, on his new theory concerning the importance of the ectoplasm, capturing the crowd’s interest and gaining a newspaper write-up summarizing his talk [p. 196]
DE, Hofen		Just meets Margret Boveri in Hofen, Germany only to discover her increasing interest in German domestic politics, an interest Just does not share [p. 199]
DE, Berlin		26 September, EEJ boards train for Bremen where he sails for the United States [p. 199]
US, DC		Fall, Just invites Helgo Culemann, one of Max Hartmann’s assistants at the KWI, to lead a seminar in physiology for Howard graduate students. Culemann works in the laboratory at Howard on fertilization experiments, an interest he and Just share [p. 201]
US, DC	1931	EEJ receives letters frequently from Margret Boveri and from his KWI colleagues, keeping thoughts of Europe fresh on his mind. Just’s Woods Hole colleagues try to bring Just back into “their orbit” by involving him in various ways [p. 200] March, Howard University administration refuses EEJ permission to leave for Europe. [p. 200]
DE, Berlin		Mid-May, Just and Culemann sail for Europe and return to the Institute and Just’s <i>Amoeba</i> research. Just again lodges at Harnack Haus. He becomes friendly with his colleagues and they include him in invitations to spend time outside of work. Just feels a “new sense of belonging” [p. 201] EEJ identifies differences between a pure scientist and a social scientist that he attributes to the increasing distance he feels between himself and Margret Boveri. EEJ tries to “keep away from extreme politics” while Margret looks to “right the wrongs of the world” – EEJ drifts away from the relationship [p. 202 - 203] Just agrees to look for funding to help Grethe Alter mount an “expert and scientific” anthropological study of all facets of African influences of American blacks’ culture – not only music and the arts, similar to the way he had “encouraged [Melville] Herkovits’ work” among the Gullah people [p. 203]
US, DC		June, Just’s General Education Board funding ends [p. 231]
IT, Naples		Mid-June, EEJ spends time with the Dohrns in Naples [p. 203]
DE, Berlin		Late June, EEJ returns to research in Berlin at <i>Kaiser-Wilhelm-Institute</i> . [p. 203] Just meets Hedwig Schnetzler, a PhD candidate writing a dissertation in philosophy on President Woodrow Wilson’s policies during World War I. Just notes that she has the “knowledge and intelligence to shine alongside the best minds of the day.” Hedwig’s fluency in five languages is advantageous when she becomes Just’s research assistant. [p. 252] They spend the remainder of the summer

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, DC		<p>together [pp. 203-205] Hedwig sees her interactions with Just as an opportunity to learn his field and “infuse” it with “philosophy and politics.” [p. 240]</p> <p>10 September, Just sets sail for America [p. 205]</p> <p>Back at Howard University, teaching and committee work keeps Just on campus up to fourteen hours a day [p. 206]</p> <p>Howard University’s President Johnson engages in open conflict with certain department heads which sinks morale among faculty members. Just concentrates on teaching, spending up to seven hours each day with graduate students in the laboratory.</p> <p>Four of the six graduate-level students whom Just describes as producing work “worthy of publication in any one of the best zoological journals either here or in Germany” are female: Leona Gray, Caroline Silence, Dorothy Young, and Helen Smith. Their “diligence and enthusiasm” inspire Just. Due to their performance, Just considers “expanding the graduate program to include as many as twenty degree candidates” [p. 233]</p> <p>Just is anxious lest the quality of his and his students’ work be judged by the “shabby appearance” and lack of facilities at Howard, such as outdated laboratories, old microscopes and not enough electrical outlets. He “thinks twice about inviting outsiders to come in and see [their] work...” Just pushes past this feeling so that his “students can benefit from the visits of important people” who offer funding opportunities or who are contacts at scientific research organizations [p. 233]</p> <p>Just remains ambivalent about encouraging students toward careers in science, but when he sees their enthusiasm; he decides to let each student “go into whatever line of work that [gives] him or her the greatest intellectual satisfaction.” To that end, he helps establish his students in research jobs and works to get funds for their research, “going out of his way to help Chase, Gray, Silence and Dorothy Young” [p. 234]</p> <p>Just exposes his students to the best minds in science and tries to establish the students in research careers or arrange scholarships and fellowships for them despite limitations exacerbated by the Depression [p. 234]</p> <p>To provide instruction in the graduate program, Just calls upon Herbert Friedmann and Benjamin Schwartz, able government scientists [pp. 232-233]</p> <p>EEJ publishes scientific article on the cortex that he thinks summarizes his years of research under the Rosenwald grant in the German publication, <i>Naturwissenschaften</i>. Margret Boveri translates Just’s article, with great attention to detail, from English to German for the publication. Just sends a copy to Embree, the head of the Rosenwald Fund. [p. 235]</p> <p>The Depression deepens and funds for research dry up. [p. 206]</p> <p>The Rosenwald Fund decides to stop funding Just and his department after the initial five-year period. Just looks for funding again, with foundations (Carnegie and Rockefeller) and with wealthy and powerful individuals. Just’s enthusiasm for European ways of work and life, and his move away from experimental research cause his fund-seeking efforts to meet with “severe opposition” [p. 206]</p>

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, IL	1932	6 January, Julius Rosenwald dies [p. 234]
US, DC		Between 1929 and 1932, while supported by the Rosenwald Fund grant, Just publishes 15 research articles and is making headway on several other projects [p. 236]
DE, Berlin		Just wants to leave Howard University's depressing atmosphere [p.237] 20 March, EEJ leaves for <i>Kaiser-Wilhelm-Institute</i> – Berlin, Germany [p. 240] Works with Hedwig throughout the spring and summer. As she learns embryology, she and Just work to complete a book detailing "his new theory of vital phenomena" [p. 240]
IT, Naples		August-September, EEJ at <i>Stazione Zoologica</i> – Naples, Italy – as primary investigator with Hedwig as his research assistant [p. 240] Hedwig helps Just to put together a more comprehensive and strategic plan for long-term research funding, to apply to the Rockefeller and Carnegie Foundations and even to seek out individual donors among the wealthy [p. 241]
US, NY		October, Just contacts the Rockefeller Foundation about securing support and meets with Warren Weaver on 28 October in New York [p. 243] Just corresponds with Weaver over the course of the winter about funding, and although he seems sympathetic; Weaver asks Lillie for input. Lillie responds that "those who are able should attempt to aid [Just's] future development in the most friendly possible way, not only for his own sake but also for the sake of the race he represents." Weaver continues to collect information on Just [p. 243-245]
DE, Berlin	1933	21 March, EEJ travels from New York to Boulogne to Paris, to Berlin Spring, EEJ at <i>Kaiser-Wilhelm-Institute</i> – Berlin, Germany Just plans to finish some lab work, and spend most of the time writing his book. However, due to the radically different political climate, Just is "too upset to work productively at the lab" so he and Hedwig leave Berlin for Naples via Switzerland [p. 246] Just and Hedwig strategize for Just to remain on Howard's staff and work three months, spending the remainder of the year in Europe. The Rockefeller Foundation might fund Just's work in Europe, as a traveling fellowship. Just appeals to Lillie for help, but Lillie advises him to come back to the U.S. and to Woods Hole for part of August and September. [pp. 247-248]
IT, Naples		Mid-April, EEJ goes to <i>Stazione Zoologica</i> - Naples, Italy [p. 266]
IT, Tuscany		Mid-summer, EEJ and Hedwig work "ardently on his book" [p. 248]
US, DC		Mid-September, Just returns to the U.S., but does not go to Woods Hole. The Rockefeller Foundation denies funding, and Just applies to the Carnegie Corporation for support, appealing to the president, Frederick P. Keppel, directly. Just asked for \$10,000 for himself, alone - excluding Howard University from his request for support [pp. 248-249] December, Keppel hands down a positive response for funding, sending the decision to John C. Merriman, President of the Carnegie Institution for budgeting and administration [p. 251] The Rosenwald Fund grant to Just and his department at Howard University ends [p. 206]

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	1934	January, Just and Merriman meet to work out a budget and a research plan for the \$10,000 award from the Carnegie Institute, with George Streeter assigned as supervisor to keep Just on track [p. 251]
FR, Paris		End of fall semester, EEJ takes a 1-year research leave from Howard University 31 January, Just travels from New York to Paris, to Naples, meeting Hedwig in Paris [p. 252]
IT, Naples		20 February, Just arrives in Naples, and starts working on the book, that is finally called <i>The Biology of the Cell Surface</i> – an interweaving of a philosophy of biology and biological theory about the role of the cell surface, the ectoplasm, in the fertilization and developmental processes. For Just bringing these ideas about the role of the ectoplasm together in synthesis “is important at a time when others [do] not consider it so” [p. 253] Just’s work has potential to advance the field because the ectoplasm is a subject of controversy in that many scientists do not believe that it even exists [p. 258] Just, who has studied the ectoplasm closely for years before the invention of the electron microscope, speculates that “the boundary of the cell that communicates with the outside environment... [is] the cause of evolution” [pp. 255, 263] Following the Russian philosopher, Prince Peter Kropotkin, Just believes “mutual aid and cooperation to be the fundamental fact of the biological world” and hopes to someday elaborate on “biological principles”, “especially those on mutual cooperation in order to ‘seek the roots of man’s ethical behavior’” [p. 263]
		Summer-November, EEJ and Hedwig work together in Naples on research and on the book [p. 266]
IT, Venice		Just presents a lecture to the International Congress on Radiology held in Venice. He is listed on the program as ‘Research Associate of the Carnegie Institution of Washington.’ The conference is disappointing for Just [p. 266]
IT, Naples		Late November, Hedwig falls ill because “the work is too much of a strain, and [also] the climate” is adverse. Just nurses Hedwig “back to health” while keeping up “a rigorous schedule of experiments and writing” [p.267] Early January, Just and Hedwig work hard to complete the final details before leaving Naples [p. 267]
IT, Naples	1935	Just’s Carnegie grant has few funds remaining before it ends [p. 273] 23 January, Just leaves Naples for the United States and will return to teaching duties at Howard. Hedwig goes “to Zurich to continue bibliographical research for the book” [p. 267]
US, NY		31 January, EEJ returns to New York Harbor and travels to Washington, DC back from a year-long research leave at the <i>Stazione Zoologica</i> [p. 267]
US, DC		Ethel Highwarden Just agrees to a divorce [p. 268] February – March, Howard University’s President Johnson and members of the Howard staff come under investigation by the United States Department of the Interior. Abraham Flexner, Chairman of the Howard University Board of Trustees

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		is called in to investigate. President Johnson might be “dismissed for malfeasance and maladministration involving fiscal affairs.” [p. 269] February – June, Just’s schedule includes teaching, continuing work on the book, and canvassing for funds by contacting wealthy individuals, the Carnegie Corporation, The Commonwealth Fund and the Rockefeller Foundation [p. 268] Just finds it “difficult to work” at Howard during the fiscal inquiries, and the turmoil takes a physical toll on his health – he is “depressed and [loses] seven pounds.... His intestines [become] inflamed” and he experiences other adverse symptoms. Doctors’ diagnoses: colitis and “nerves.” EEJ is under “potentially deadly strain” [pp. 269-270]
	1935	18 March, Abraham Flexner tenders his resignation from the Howard Board of Trustees to focus on his research institution, The Institute for Advanced Study at Princeton, among whose recruits is the “intellectual giant” Albert Einstein [p. 270] Spring, the work association between Just and Roger Young continues to unravel. Roger Arliner Young confronts Just accusing him of, since 1932, “deliberately disrupting her work as a researcher and as a teacher.” Just now concentrates his attention and encouragement on Louis Hansborough and Hyman Y. Chase, the two male junior professors in the zoology department [p. 272] April, President Johnson is partially exonerated and re-elected to the Howard Board as Treasurer [p. 271]
Switzerland		5 June, EEJ travels to Switzerland to work with Hedwig. They do not go to Naples, but continue their work in Switzerland, revising the book, until September [pp. 273-274]
US, DC		Fall, EEJ returns to the United States to teach at Howard University, and to “send out his usual round of appeals to funding agencies” – to the Rockefeller Foundation and Carnegie Corporation, the Davis Foundation, The Chemical Foundation, The Guggenheim Foundation, The Oberlaender Trust and others. In his foray for funding Just launches a doomed attempt to become a permanent “research associate” for the Carnegie Institution. EEJ takes his proposal to The Oberlaender Trust, in person, on his way to Princeton for the annual American Society of Zoologists conference [p. 274]
US, NJ		Just writes to Hedwig sometimes as often as 5 times a day [p. 275] Mid-December, EEJ attends the American Society of Zoologists annual conference in Princeton, NJ – his first conference appearance in the United States since 1930. Just delivers two papers at the American Society of Zoologists conference, one with “practical applications” to get the attention of funding organizations. His second paper presents his gene theory – restriction – and tries to bring together “two opposing factions...the embryologists and the geneticists.” [pp. 276-279] Just’s paper on genetics, offers a “difficult and controversial” synthesis in which he seeks “some kind of unified approach” and reveals his “new line of scientific thinking” that will “lift his work from the experimental plane to the theoretical” producing what he calls a “revolution in science” [pp. 274-275]

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
		The younger scientists call Just's "interpretation" interesting – "imaginative and provocative" – admiring Just as someone who dares to put forth new ideas. Just self-publishes the second paper, later, bearing all financial responsibility [pp. 276-279]
		Frank R. Lillie, Just's early mentor, is elected president of the National Academy of Sciences [p. 283]
		Fascist Italy invades Abyssinia [p. 290]
US, DC	1936	Spring, President Johnson requires Just to rank the three junior professors in the zoology department in order of preference, forcing him to "fire Roger Arliner Young." Her future uncertain, Young considers pursuing graduate work at the University of Pennsylvania with L.V. Heilbrunn, her most recent mentor at Woods Hole [p. 284]
		The Oberlaender Trust awards Just a grant of \$1800 to work on "the German contribution to biological thought and its significance for a social theory of human behavior." Just is an Oberlaender Fellow, and is now "dependent on the Howard University payroll" for the first time since 1919 [p. 285]
		Just continues to solicit the foundations: the Julius Rosenwald Fund, the Rockefeller Foundation, the Commonwealth fund, the Carnegie Corporation, the Carnegie Institution and also individuals, especially Frederick Keppel of the Carnegie Corporation and Lessing Rosenwald, Julius Rosenwald's son [p. 285]
		Since pre-1936, Just has sought out millionaires to fund his research, spending "an enormous amount of time and effort ... setting up appointments and pouring out his story" – sometimes on transatlantic voyages. He meets Dorothy Norris who introduces him to Max Wolf, a Park Avenue physician with deep social ties among the wealthiest Americans. Wolf and Just map out a strategy to win \$50,000 for Just's research funding. In his search for private donors, Just emphasizes the practical connections between his work and the medical field [pp. 286-287] This plan is not fruitful.
Austria; Switzerland		Summer, Just and Hedwig travel in Austria and Switzerland on the Oberlaender Fellowship to gather data in "research, studies and surveys" among German-speaking people [pp. 285, 288]
		Just and Hedwig compose "letter after letter" in a futile effort to win financial support for Just's research. Their campaigning marks the zenith in Just's fund-seeking activities that include sending letters directly to John D. Rockefeller, Jr., and after numerous failed attempts to meet with the Italy's minister of education, Just sets "his proposal before the highest power in the land," Prime Minister Benito Mussolini [pp. 288-291]
US, DC		Fall, EEJ returns to Washington, DC for fall classes at Howard [p. 291]
		Just renews his fund-seeking efforts – asking Dorothy Norris and Max Wolf to join him at the annual meeting of the American Society of Zoologists in Atlantic City, NJ in December. The two come to NJ but promise nothing in the way of support [pp. 292-293]
US, NJ		December, EEJ presents his paper, "Ultra-violet Radiations as Experimental Means for the Investigation of Protoplasmic Behavior" at the American Society of Zoologists conference, Atlantic City. The paper is well received, "a distinct

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, DC	1937	success." After Just's presentation, he and Ross Harrison, the Yale University embryologist, discuss genetics until 2 AM next morning [pp. 292-293]
EN, London		June, Roger A. Young leaves Howard at the end of the academic year [p. 284]
IT, Naples		11 June, Just travels to Southampton to Paris to London to Naples and the <i>Stazione Zoologica</i> [p. 295]
FR, Paris		When he arrives in June, he finds that the affair with Hedwig has led to a strained relationship with her family, especially with her father. At the <i>Stazione Zoologica</i> , work becomes difficult due to inquiries about the affair. They leave Naples early [p. 294]
EN, London		Well-received by his friend, embryologist Raoul May and members of the scientific community in Paris, Just wonders if the Sorbonne will be a place to land and work – the only problem is compensation. There are offers to work in France and in the U.S., but none offer a salary. [p. 296]
US, DC		Following up Hedwig's London prospects, they meet with Lady Astor. Lady Astor advises Just not to resign from Howard University [pp. 296-298]. She contacts the British ambassador to the United States on Just's behalf who makes inquiries of the Rhodes Scholarship Trust. The Rhodes Trust turns to Abraham Flexner for a recommendation. Flexner's comments about Just are not supportive. No funds flow Just's way [p. 298]
		Fall, Just returns to Howard, and begins academic year in the zoology department sending a petition to the Dean that there should be no graduate program in 1938. The Dean reports that idea to President Johnson who sends it back to Just. [p 299]
	1938	Just requests a leave of absence to begin in February, at the end of the first semester, February 1938 [p. 299]
		Mid-January, Just makes a second request, this time for retirement and back pay [p. 299]
		Just appeals to President Johnson, twice, for retirement with a lump-sum payment of back pay in the amount of \$15,000. He arrives at this amount figuring Howard saved at least that much during the "nearly twenty years" he raises part of his own salary by his fund-seeking. Just receives no response. Just then asks Dorothy Norris for a loan which she cannot make to him [pp. 299-300, 302]
FR, Paris		Spring, nearly penniless, Just begins a "self-imposed exile in Europe" [p. 207, 303]
		EEJ goes to the Sorbonne (Paris) to reserve laboratory space and makes extensive use of the library "studying general philosophical problems important for the whole of biology" working toward a "synthesis of his past work." He has no funding in Paris, so he presses his case with Howard – again requesting retirement with a lump sum "payable immediately" [pp. 301-302]
		Winter, Just appeals through Ross Harrison "to obtain substantial funding" from the Julius Rosenwald Fund, headed by Edwin Embree. The National Research Council, that Harrison heads, is called in to act as "buffer." Harrison contacts Flexner and Lillie for recommendations. Flexner "declines to get involved" while Lillie harbors hope that Just will return to the U.S. [pp. 303-316]

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
US, DC		April, Board at Howard considers Just's petition, and is divided, so the issue remains "undecided." [p. 302] Mid-August, The Committee on Instruction and Research rejects Just's proposal, while telling him to come back to the United States to appear before the board in October. Just does not. [p. 302]
FR, Finistere		August, Just conducts experiments at the <i>Station Biologique</i> , a marine station at Roscoff connected to the Sorbonne. [p. 304] Just receives half pay for the spring semester, and in the October meeting the Howard board decides to grant Just a year-long sick leave paying him \$250 per month, half of which goes to support his family in Washington, DC [pp. 302-303] Just writes "few letters" to his wife and family. Alain Locke, one of Just's old friends is on hand to boost the family's morale when rumors that Just has gone mad circulate and newspaper reporters "bother Ethel constantly and the family [is] worried... not knowing whether the rumors [are] true or false" [p. 317]
	1939	24 January, Just publishes <i>Biology of the Cell Surface</i> . This book, Just's "crowning achievement" compiles experimental results spanning his career that are worked around his newly developed theories. He completes this book with Hedwig Schnetzler as his research associate. The book is his vindication, of sorts, showing all interested parties that his time and the foundations' support have been well-spent [pp. 207, 318] March, Germany invades Czechoslovakia [p. 324]
US, DC		April, Howard trustees restore Just to full-time active duty and full-time salary, allowing \$5,000 a year for "total disability," and refusing his petition for back salary and a one-time retirement payment [pp. 317-318]
Latvia, Riga		Late April, Just and Hedwig travel to Riga. They file Just's divorce papers, and anticipate being married in a few months [p. 320]
FR, Finistere		6 June, <i>Basic Methods for Experiments on Eggs of Marine Animals</i> published
Latvia, Riga		Early June, they go to work at the <i>Station Biologique</i> in NE France [p. 320] 11 August, EEJ marries Hedwig Schnetzler [p. 321] Conflict of World War II breaks out in France [p. 321]
FR, Finistere		Late October, <i>Station Biologique</i> closes to foreigners – Just and Hedwig remain in Roscoff conducting research and writing Just's contribution to an invited article for <i>Physiological Zoology</i> . Just is to publish an article synthesizing work in the field with colleagues Lillie, Heilbrunn, and B.H. Willier, and he does not want to "uproot himself ... in the middle of this important work." This invitation is a "call for collaboration between scientists" indicating that "his life work has been justified." He sees his role as "a statesman of science" and he thinks he will put others on a "productive track." Just entitles what is to be his "last full-length published paper, 'Unsolved Problems of General Biology'" [pp. 322-323]
	1940	Early June, Paris comes under siege by Germany [p. 323] Early August, EEJ spends time as a government detainee, in a concentration camp – Lillie and Harrison ask The American Red Cross and the US State Department to intervene. EEJ is released from internment [p. 324]

<u>Location</u>	<u>Year</u>	<u>Date and Event</u>
ES, PT		Early September, Ernest and Hedwig Just leave France for Spain, then go to Portugal. The Justs sail from Lisbon to New York [p. 324]
US, DC		Fall Semester, EEJ unwell but returns to Howard for classes [p. 325] Just's friends are all happy that he is back home, particularly Lillie and Harrison. Heilbrunn and Schrader welcome him, too. Just is anxious to get back to work. In the hurry to escape, "all his notes" taken during three seasons of research over two years are left in Europe [p. 326]
US, PA		mid-December, EEJ prepares three papers for the American Society of Zoologists conference held in Philadelphia, Pennsylvania [p. 326]
US, DC	1941	February, EEJ starts the 2 nd semester at Howard University suffering debilitating "stomach trouble" that he thinks is "liver trouble." He spends long hours in his lab and makes arrangements for summer work [pp. 327, 328]
US, ME		June, Ernest and Hedwig Just spend a month in Portland, ME [p. 327] EEJ writes to his old schools, sending \$100 to Dartmouth, and a \$25 contribution to Kimball Union Academy as he reflects upon their influence on his life and work [p. 328]
US, NY		Early July, they return to New York to consult doctors at Mt. Sinai Hospital. Just is diagnosed with neuralgia. He undergoes several surgeries, but still endures excruciating pain. He is later diagnosed with pancreatic cancer [p. 327] Early August, friends from Woods Hole drop in to see him on their way home from summer at the MBL, starting a campaign to "find him a position and some money." Among those who have this aim are Heilbrunn, Schrader, Lillie, Harrison, and Howard University economist Abram Harris [p. 328]
US, NJ		Early September, EEJ returns to East Orange, NJ with Hedwig and family, weighing less than 130 pounds. Heilbrunn visits Just again [p. 328] September, EEJ works on his last manuscript, "Ethics and the Struggle for Existence" later titled, "The Origin of Man's Ethical Behavior" [p. 327]
US, DC		EEJ returns to Howard University for Fall Semester, but is too unwell to go to campus [p. 330] 27 October, Ernest Everett Just dies from pancreatic cancer in Washington DC in the care of his sister, Inez, a registered nurse [p. 330]

Over the course of his fund-seeking life and work in the United States (roughly, 1920 – 1936),^v E.E. Just's efforts won approximately \$370,200 USD for research, teaching, and equipment. This amount includes a one-time award of \$250,000 USD from the General Education Board to Howard University's medical school that was accepted by President Durkee. The remaining \$120,200 USD is the dollar amount that Just brought in by submitting proposals to individuals and to foundations. Just applied to many foundations, philanthropic organizations, and individuals for support over the course of his career.

He received awards from: Julius Rosenwald, the Rosenwald Fund, the General Education Board, The Carnegie Corporation, and the Oberlaender Trust. Julius Rosenwald and the General Education Fund supported Just consistently. Using Friedman's calculator, the award amount, \$370,200 USD adjusted for inflation equals approximately \$5,407,416 USD, and the \$120,200 USD that Just received becomes \$2,317,314 USD. These funds allowed Howard University and E.E. Just to continue their work.

Part 2 - E.E. Just, Administrative Pioneer: A Postage Stamp Sumitography and Poster

A *sumitography* describes and summarizes the elements on the face of a postage stamp. The United States government recognizes and commemorates E. E. Just's research with its stamp in 1996, and recent citations show that Just's research has enduring value to the field of biology. The other half of Just's success is the story of his fund-seeking and mentoring practices. This *sumitography*, timeline, and concept poster celebrate the entire corpus of E.E. Just's work, and the concept poster represents the first stage in advocating that a second stamp be issued to commend his administrative initiatives.

Examining the role of funding completes the story of Just's work life. Manning shows that Just's research support enabled him a degree of autonomy within which to aspire to and pursue a career as a research scientist. However, Just also sought to establish a permanently-funded research institute where he could mentor his students and junior scientists. Just's need for an enthusiastic, talented, well-funded, and accessible research cadre fueled his persistent fund-seeking and his openness to attempt novel work options. Fund-seeking and the mentoring process each had implications for the other. When funds permitted, Just recruited and trained students for careers in pure science, thereby mentoring some of the first female, African American scientists.^{vi} The 1996 postage stamp honors Just's biological research excellence, and the concept poster draws attention to his work as an innovative administrator who implemented leading-edge fund-seeking and mentoring practices. A proposed second postage stamp would bring together and recognize the whole of E.E. Just's work.

Near the end of his life, Ernest and Hedwig Just co-author a synthesis of his theoretical work.^{vii} Manning lists the Justs' working title and their final title for the book as, *Ethics and the Struggle for Existence* and *The Origin of Man's Ethical Behavior*, respectively. E.E. Just was not able to find a publisher for this last and more theoretical treatise before his death in 1941. In 2018, Theodore Walker, Jr. and Lillie R. Jenkins identified manuscript pages preserved among E.E. Just's papers collected at the Moorland-Spingarn Research Center at Howard University and published the manuscript as an archival edition under the authors' second title, *The Origin of Man's Ethical Behavior* (2020).

The United States Postal Service's Stamp Celebrating E.E. Just's Achievements in Biology and a Sumitography



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[Image captured by T. Walker]

Subject/Image:	Ernest Everett Just
Year:	1996
Country:	USA
Face Value:	32 US cents
Stamp Description:	Vertical stamp. Sepia-toned, bust lithograph portrait by Robert Scurlock, African American photographer, fills the stamp frame
Inscription/caption:	Black Heritage, Biologist, Ernest E. Just
Stamp Designer:	Richard Sheaff, Norwood, MA
Cancellation:	Seven horizontal, wavy, black lines
Link to online image:	https://arago.si.edu/record_165677_img_1.html
Date accessed:	19 March 2018
Catalog Codes:	SN 3058

**Concept Poster Advocating a Postage Stamp Recognizing
E.E. Just's Administrative Initiatives**



Poster Copyright DEMC, 2021. All Rights Reserved.

Subject/Image: Ernest Everett Just
Year: 2021
Country: USA
Value: 55 US cents
Description: Vertical poster. Sepia-toned, lithograph portrait by Robert Scurlock, African American photographer, fills frame mid-ground. Photographs of Julius Rosenwald and Mary Mathews Cooper Just in background. A representation of E.E. Just's cohort of student researchers working in the lab in foreground. The poster depicts Just's major administrative initiatives: fund-seeking on the scale that allowed him to become the first African American research scientist, and his path-breaking work mentoring some of the first African American females to aspire to careers as professional scientists.
Inscription/caption: *Ernest E. Just, Administrator*
Poster Designer: D. Erik Montrose Chapman, GA

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End Notes

ⁱ This timeline follows closely, Kenneth Manning's biography, *Black Apollo of Science: The Life of Ernest Everett Just*. However, the summarizing process necessitates certain editorial decisions. Kenneth Manning and I had three, one-hour long advisory conversations as I sought to maintain the spirit of the portrait he paints so vividly in the original text. Manning renders certain of the events in Just's life in a few printed paragraphs that archival evidence shows to have had a profound impact upon E.E. Just's life and work. Indeed, Manning calls these events "turning points" in Just's life. I relay this idea in Manning's own words.

"Events work as turning points and can influence, even work against one's attitudes toward working. Thus, these events are not without consequence and are highly significant when examined in light of affecting his [Just's] mindset, supporting his ability to continue to work, and providing the physical space, time, equipment to get research work accomplished. Some things are professional but painful – I don't know if you're sanitizing or not. I would not do that – sanitizing his life to leave out the challenging aspects. The challenges show the harsh realities of his life in deeper detail making his accomplishments that much more astounding and monumental – hardship doesn't detract from his life." [Manning Interview with the author, July 7, 2020]

ⁱⁱ Explaining how researching Just's life brought to light certain facts that were personal, but impacted Just's work, negatively, Manning says

"[s]ometimes the rigidity of trying to separate personal from professional breaks down. The whole chapter is an example. [*Black Apollo of Science*, Chapter 3 – "The Expansion of Just's Scientific World: Woods Hole, 1909-29"] [Take, for example] the MBL. People come to do research during summer and bring their families. They work during the day and gather for dinner and evening events. Since Just's family was not welcome at those social gatherings, this great benefit of spending time doing research during summer days and spending time with family and friends at night, was not available to him. The racist order meant that he worked in isolation from the majority of researchers at Woods Hole and was separated from his family for the sake of getting work done. Having one's family on site increases the amount of work that you can get done in a short time if you have that kind of support. Woods Hole defines that or promised that if one were white." [Manning Interview with the author, July 7, 2020]

ⁱⁱⁱ When Just won \$80,000 over five years in funding from the Rosenwald Fund, it was a noteworthy occurrence. The hope was that following Rosenwald's largess, other black scholars might find donors from whom to win support.

"Julius Rosenwald's assistance was an important historical event. Funding is important. Just was the first to get a Julius Rosenwald Fellowship. This was an important moment for Just and for people who went through the Harlem Renaissance. Rosenwald was the only patron who identified and supported blacks. He began supporting Just in about 1919 and opened the way for support of [Langston] Hughes and [Zora Neale] Hurston. The awards were small, financially, but it [the funding] was very significant. [Manning Interview with the author, July 7, 2020]

^{iv} Manning links specific events from the biography to show how, in aggregate, they illustrate with greater detail how attitudes and actions within the scientific community in the United States circumscribed Just's work and life options. For example,

“[i]n the early 1920s, Just was under consideration for a position to conduct medical research at the Rockefeller Institute. That opportunity was squelched by [Jacques] Loeb. This moment in science is significant. How might that have affected Just’s career?”

Another hindrance to his work was the prejudice against his family. In 1927, he had to leave the MBL to take his family to Oak Bluffs on Martha’s Vineyard. This was not without consequence. [Just experienced] loss of support system, time, energy, financial resources, and morale. While other researchers had their support systems in place at the MBL with them, Just did not. Just had to work without his family.

[Also] there is a famous picture of Just pitching horseshoes during one of the Woods Hole social events. The biography recounts a story where one of the white men came out and forbade his daughter to watch Just participate in this harmless pastime. Similarly, when Just was invited to dinner at Harnack House [while at the Kaiser Wilhelm Institute in Berlin] this was a subterfuge to discuss his relationship with Margret Boveri. They didn’t want Just fraternizing with their daughters. This shows the kind of mindset [perpetual in the American environment] that Just struggled against as a professional scientist and it was such events as this that eventually drove him to seek Europe as a scientific refuge.

All these hindrances show a difference between what happened in the US as opposed to Europe. But some things were the same. The incident with Boveri’s uncle and von Harnack, for instance. But, some important differences were there, too. Just felt free when he went to the opera for the first time with Hedwig. He went to a public event as an equal with whites and escorting a white woman without fear of being lynched or jailed. This added to his desire to continue to live and work in that European context.” [Manning Interview with the author, July 7, 2020]

^v Speaking about the funding that enabled Just to become a professional scientist, Manning states,

“in 1928-1929 – Just got his first major gift from Rosenwald. This enabled him to go to Europe to do research and teach. It was a 5-year grant. However, funding reversed in the early 1930s ... due to the Depression.” [Manning Interview with the author, July 7, 2020]

^{vi} Ruth Smith Lloyd was one of E.E. Just’s former students. Manning interviewed her as he was writing *Black Apollo of Science*. “She went to Smith College then came back to Howard. Ruth was one of Just’s undergraduate students. Smith Lloyd got an MA and PhD at Case Western.” [Manning Interview with the author, Feb. 5, 2021]

^{vii} Responding to a question about Hedwig Just’s contributions to E.E. Just’s work, Manning comments, “All of the social aspects of the manuscript are definitely influenced by her thinking.” [Manning Interview, Feb 12, 2020]
“All the philosophy you will see [in the manuscript is] Hedwig’s influence, while Just brought the experimental science. The two came together. Just had a very classical education and was well read. They connected. All the philosophy, I think, as an overlay, is her influence.” ... “I know exactly what she added and how she added it. The philosophy and literary illustrations are Hedwig’s... Ethel and Hedwig had similar language abilities. Ethel was bi-lingual, English and German. Ethel would do his German translations.” [Manning Interview with the author, July 7, 2020]