James Mark Baldwin, the Baldwin Effect, Organic Selection, and the American "Immigrant Crisis" at the Turn of the Twentieth Century

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Abstract The "Baldwin Effect," named after the turn-of-the-twentieth-century American psychologist James Mark Baldwin, has experienced a revival over the last few decades, driven primarily by some cognitive scientists who think it might be able to solve problems related to the evolution of consciousness. Baldwin's own interests when he developed the theory, which he called "organic selection," were somewhat different from those of modern cognitivists, and his social context was enormously different. This chapter aims to recover the social challenges of Baldwin's time and explore how they might have been related to his proposal. Chief among these challenges was the widespread perception in the United States that the massive immigrant slums in New York and other cities posed a kind of existential threat to the American way of life. This perception, in turn, led to a number of radical and disturbing eugenic proposals for meeting the "immigrant problem." It is suggested here that, although Baldwin did not address the immigrant issue directly, it was in his mind as he developed his theory of "organic selection," and also that it offered a way out of the crisis that many Americans thought they then faced.

1 Introduction

In June 1953, George Gaylord Simpson published an article in the journal *Evolution* about a phenomenon that was, up to that time, known as "organic selection." He renamed it the "Baldwin effect" because he thought that the phrase "organic selection" had come to be used in too many different ways, and he wanted to focus on a single one—the one he associated with James Mark Baldwin. He characterized the "Baldwin effect" thus:

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> The effect may be analyzed as involving three distinct (but partly simultaneous) steps: (1) Individual organisms interact with the environment in such a way as systematically to produce in them behavioral, physiological, or structural modifications that are not hereditary as such but that are advantageous for survival, i.e., are adaptive for the individuals having them. (2) There occur in the population genetic factors producing hereditary characteristics similar to the individual modifications referred to in (1), or having the same sorts of adaptive advantages. (3) The genetic factors of (2) are favored by natural selection and tend to spread in the population over the course of generations. The net result is that adaptation originally individual and non-hereditary becomes hereditary. (Simpson 1953, 112)

He went on to conclude that, although possible, it was unlikely that just the correct confluence of events occurred often enough for the "Baldwin effect" to be an important factor in evolution.

Just six months later, however, Conrad Waddington (1953b) demurred, very nearly declaring that his theory of canalization (Waddington 1942) and the associated phenomenon of "genetic assimilation" (which had been announced in the same issue as Simpson's article; Waddington 1953a) are the mechanisms by which organic selection operates.

Although there had been previous mentions of "organic selection" in the evolutionary literature prior to Simpson's and Waddington's (most notably in Julian Huxley's monumental book, *Evolution: The Modern Synthesis*, 1942), the two 1953 articles are the primary basis of the modern interest in the Baldwin effect, as reflected by the fact that Simpson's phrase—"the Baldwin Effect"—is the one used nearly universally to denote it today.

Curiously, however, when we "moderns" go back to what is supposed to be the *locus classicus* of the "Baldwin effect"—James Mark Baldwin's 1896 article "A New Factor in Evolution"—we find a paper that is much more patchy and obscure than we might expect. Indeed the paper is intentionally patchy. As Baldwin himself said in the opening, it is mostly a compilation of passages from articles and one book he had previously published. It uses a vocabulary of technical terms with which most of us are unfamiliar. It seems unclear whether "organic selection"—the phrase that Simpson redubbed the "Baldwin effect"—refers to a process that goes on only in the learning of single individuals (sometimes in social interactions with other individuals) or whether it refers to the process by which such learning becomes congenital in future generations. Perhaps most frustrating, only the barest sketch of a mechanism is clearly outlined: *viz.*, that learning serves as a "bridge" to instincts that are required by environmental change but have not yet had time to evolve through natural selection. This seems easily refutable: if an animal has learned to do the things that will keep it alive in a changing environment, then it has simultaneously relieved the selection pressure that bore upon it to change its range of congenital instincts. (One can, of course, start speculating at this point about the additional resources that might hypothetically be required to learn and hold in memory new behavioral routines, compared to their (again hypothetical) instinctive equivalents, but in doing so one passes into the realm of shoring-up a flagging research program ad hoc.)

The intellectual reward that one gets from a first reading of Baldwin's "New Factor" article, when approached in this way, is often so meager that some have accused Baldwin of a variety of nefarious motives. Perhaps he was a closet Lamarckian. Perhaps he was trying to steal an idea from Conwy Lloyd Morgan and Henry Fairfield Osborn. Perhaps he illicitly attributed to his earlier writings ideas that only appeared in his later writings in order to snatch priority for himself. Perhaps he was an amateur, an academic unknown foolishly trying to play in the "Big Time" of evolutionary theory (see, e.g., Griffiths 2003).

Since the late 1980s, there has been a great deal of debate about whether the "Baldwin effect" is actually possible, what would count as evidence for a "Baldwin effect," and whether it might have played an important role in evolution, particularly in the evolution of humans (e.g., Hinton and Nolan 1987; Maynard Smith 1987; Dennett 1995; Deacon 1997; Weber and Depew 2003). I do not propose to add to that debate here.

Instead, I want to go back to Baldwin's time. I want to show that the issues that motivated Baldwin and his colleagues to propose and elaborate organic selection in the 1890s have been lost, and are sometimes misconstrued today. Few have come to Baldwin trying to find out what he was interested in, what he was concerned about, and what pressures—intellectual, social, and political—he had to contend with. Most come expecting to be able to scoop up a sizeable chunk of 'gold' and immediately spend it here in the modern world (or, alternatively, scoop up what appears to others to be 'gold,' and then show it to be naught but pyrite).

I aim to reconstruct the historical context in which Baldwin worked in order to show that Simpson's and Waddington's concerns were not well aligned with Baldwin's and that, as a result, the significance of organic selection has been distorted in many modern discussions of the "Baldwin effect." Baldwin's main interest was not in showing how learned behaviors could become congenital, though he did presume that the "bridging" principle would do the trick. "Organic selection" was intended to "*supplement*" (his term) natural selection by showing that many behaviors that Lamarckians presumed to have become congenital were, instead, inherited socially and "evolve" by way of a process that is analogous to natural selection but that does not involve the congenital "germ line" except in a very general and indirect way.

2 Some Background on Baldwin

James Mark Baldwin was born in the capital of South Carolina, Columbia, in 1861. It was the first year of the Civil War. He was the third of five children in the family of the prosperous businessman Cyrus Hull Baldwin and his wife Lydia Eunice Ford. Although Mark, as he was always known, was born in the South, his family had deep roots in Connecticut, having first settled there in the 1630s. After moving to South Carolina, Cyrus was known to buy slaves just so that he could set them free.

He headed north during the war to avoid being drafted into the Confederate army. The rest of the family, however, stayed behind for most of the war. Only after Columbia was burned in February 1865, following Sherman's "March to the Sea," was the Baldwin family moved north by the Union Army. The whole family returned to Columbia after the war, and Cyrus held a variety of appointments in the military government during Reconstruction, including mayor of Columbia (see Baldwin 1926, chap. 1). In 1878 Baldwin was sent to New Jersey for collegiate preparation. In 1881, bucking his family's Yale tradition, he opted to enter the College of New Jersey (not re-dubbed Princeton University until 1896). His initial intention had been to study for the ministry but philosophy caught his interest, and he was soon training under the prominent Scottish "common sense" philosopher, James McCosh, who was also president of the College. Although a Presbyterian minister, McCosh was open to evolutionary theory, and had, in some of his writings, worked to find an accommodation between it and Christianity (see, e.g., McCosh 1890).

Wilhelm Wundt had founded the world's first experimental psychology research laboratory in Leipzig just two years earlier and courses in Wundt's brand of "physiological psychology" were beginning to appear in American colleges, including the College of New Jersey. One of the young instructors from whom Baldwin learned the "new psychology" in 1883–1884 was Henry Fairfield Osborn,[1] with whom he would later co-develop the theory of organic selection (see Pearce, this volume). Upon finishing his undergraduate degree, Baldwin won a scholarship to study in Germany for a year. He spent some of his time in Leipzig hearing Wundt's lectures and serving as a subject in some of his students' experiments. Baldwin was most intrigued at the time, however, by the work of Spinoza, which he studied under Friedrich Paulsen in Berlin. Returning to Princeton in 1885, Baldwin wanted to write his dissertation on the thought of the Jewish idealist, but McCosh insisted that he write a refutation of materialism instead. He completed his doctorate the following year and took his first significant academic appointment at Lake Forest College, near Chicago, in 1887. After two tumultuous years at what he later recalled as a "narrow and mercantile" institution (at one point he had tendered his resignation; Baldwin 1926, 40), Baldwin escaped to a professorship in Metaphysics and Logic at the University of Toronto. There he founded his first experimental psychology laboratory (the first in the British Empire, he claimed), completed a two-volume textbook of psychology, and began conducting research on child development, using his two daughters as subjects. In 1893, after five years in Canada, he was called back to the College of New Jersey as a professor of philosophy and psychology, where he founded the school's first psychology laboratory, co-founded the *Psychological Review* with James McKeen Cattell of Columbia University, and began to work seriously on the relationship between mental development and evolution.

[1]For a recent account of Osborn's psychological research while at Princeton, see Young (2012) (and for more context, Young 2009).

3 Evolutionary Theory and American Psychology

Although it is not widely recognized today, evolutionary theory lay at the heart of the most influential movement in American psychology of the late nineteenth century, and Baldwin was laying claim to that already well-established tradition. As far back as 1870, the independent Cambridge, Massachusetts scholar, Chauncey Wright, had hypothesized that "our knowledges and rational beliefs result, *truly and literally*, from the survival of the fittest among our original and spontaneous beliefs" (Wright 1870, 301). Darwin himself saw Wright's work and cited it in his *Descent of Man* (Darwin 1871). A year later Darwin republished, at his own expense, another of Wright's (1871) articles on evolution. Finally he invited Wright to his home at Downe, where he commissioned Wright to compose an article on the evolution of consciousness that appeared the following year (Wright 1873). Now this would be of little significance to the history of psychology were it not for the fact that Wright was simultaneously heading a discussion group that called itself the "Metaphysical Club" and which included the young Charles Sanders Peirce and William James among its members.

By 1875 Wright was dead, at the age of only 45, but James was already carrying Wright's Darwinian message forward in his physiological psychology course at Harvard, and in his review ([James] 1875) of Wundt's 1874 textbook, *Grundzüge der physiologeschen Psychologie*. In 1878 James began publishing the material that would make up his landmark *Principles of Psychology*, which finally appeared in 1890. In this work, among other things, he steered American psychology away from the project that occupied the Wundt lab—that of distilling pure apperception from the rest of consciousness—and, instead, attempted to examine the person's (and the animal's) interaction with its environment more holistically: What evolutionary purpose might consciousness serve? What are emotions and what role do they play in life? How are habits acquired and maintained, and what are their functions? Although Baldwin was educated in the 1880s under McCosh, his whole generation was influenced by William James's effort to "re-found" scientific psychology on a broadly evolutionary basis.

It is important to keep in mind, however, that not all evolutionists were strict natural selectionists. Even Darwin himself had steadily ceded ground, over the course of the six editions of the *Origin of Species*, to those who believed that the fossil record could only be explained by allowing that characters acquired during the lifetime of an organism somehow become congenital and are transmitted to offspring: these were the so-called neo-Lamarckians. Darwin's hand-picked intellectual successor, the Canadian-born George John Romanes, gave over to neo-Lamarckism completely in the realm of instinct (Romanes 1877, 1882, 1888). Edward Drinker Cope, perhaps the leading American paleontologist of the era, was a staunch neo-Lamarckian (Cope 1887), and trained his star protégé in the theory—none other than Henry Fairfield Osborn, Baldwin's former teacher and the future co-developer of "organic selection."

The theory of natural selection was losing ground rapidly until the publication of the work of the German zoologist August Weismann on heredity and evolution.

Weismann declared that only natural selection accounts for evolution, and to make his point he chopped the tails off of several successive generations of mice to show that they became congenitally no shorter as a result. The experiment was a bit of a caricature, convincing almost no one, but it re-energized Darwinian theory, and a whole generation of young "neo-Darwinians" appeared, partly as a result. More seriously, Weismann put forward a new theory of heredity: that the germ cells that give rise to offspring are wholly isolated from the somatic cells and, thus, cannot transmit to the offspring any changes that occurred during the lifetimes of the parents (Weismann 1885, 1892). Between 1893 and 1895 Weismann engaged in a bitter debate with Herbert Spencer on the pages of *Contemporary Review*, a debate in which Romanes participated and, perhaps surprisingly, sided with Weismann on the question of the inadequacy of Spencer's critique, though remaining a Lamarckian himself (Weismann 1893, 1894; Spencer 1893a, b, c; Romanes 1893a, b, c). There can be no doubt that Baldwin was aware of all of this and was assessing where best to throw in his own lot (see Pearce 2010, chap. 2).

4 The Social Context

Although the formal debate about natural selection was carried on mostly in terms of arcane biological questions (e.g., how does the rest of a stag's body adjust to accommodate the increasing size of its antlers?; how can the transmission of acquired characters account for neuter organisms such as worker bees and soldier ants?), behind all of this loomed the most pressing social question of the age: What was to become of the wave of destitute immigrants then pouring into New York, Boston, Chicago, and other American cities, straining not only the resources, but also the ethical imaginations, of the American people?

The debate over what to do with, to, or about the legions of the impoverished, who were literally stuffed into the slums of America's cities, dated back to *before* the flood of a million Irish Catholic refugees, and perhaps a million more German Catholics, who came to America in the 1840s and 1850s. There was another wave of African-American migrants from the South to northern cities in the aftermath of the Civil War as well. But the so-called "new" immigration—mostly of southern and eastern Europeans: Italians, Jews, Russians, Poles, Greeks—starting around 1880 and the unprecedented crowding and poverty it created led to a renewed sense of crisis, and even of catastrophe. The numbers *remain* truly staggering. Hundreds of thousands of immigrants entered New York City alone *each year* between 1880 and 1920, peaking at over one million in 1907 alone (this at a time when entire population of Manhattan was 2.3 million).[2] Between a quarter and a third of these

[2]Exact figures vary somewhat from source to source. Two particularly accessible and reliable sources are the Ellis Island Foundation's own timeline (http://bit.ly/3fYIo6) and the Fordham University website on New York City History (http://bit.ly/zJpFnb).

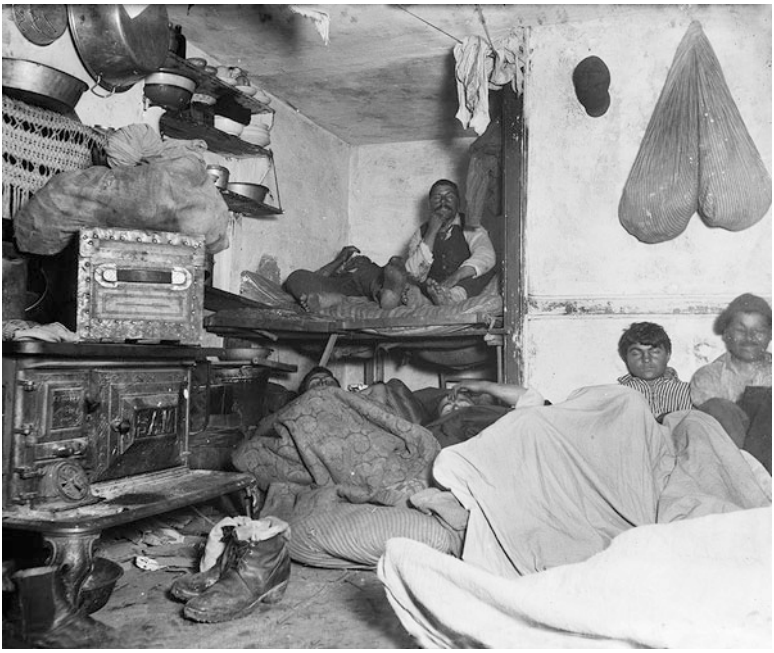

Fig. 1 "Lodgers in a crowded Bayard Street tenement" (Photograph by Jacob Riis, ca. 1890, from the collections of the Museum of the City of New York (90.13.1.158). Reproduced with permission. A sketch based on this photograph was included in Riis (1890, 69).)

stayed in New York City to live out their lives. By the first decade of the twentieth century, 40 % of New York City's residents were immigrants. In the public schools, more than 70 % of the students had at least one foreign-born parent.[3] As the New York newspaperman Edwin C. Hill put it, "every 4 years, New York [City] adds to itself a city the size of Boston or St Louis. . . . It is the whirlpool of the races."[4]

Numbers so vast as these made it easy to regard the newcomers as a kind of horde—a deindividuated mass that had to be dealt with on a mass scale. However, the photographs published in Jacob Riis's book, *How the Other Half Lives* (1890), of the filth and misery of the urban slums—photographs which were only made possible by the invention of the magnesium flash just three years earlier—served to humanize and individualize those who had previously been seen by much of the public merely as a problematic swarm and infestation (e.g., Figs. 1 and 2). The book was a sensation, going through eleven editions in just the first five years after its initial publication. The photographs spurred a widespread movement to

[3]See Camille Avena's essay "Progressive education in New York City" on the Fordham University website on New York City history (http://bit.ly/oyGTs2).

[4]Cited in Ric Burns' (1999) "New York: A Documentary Film," Episode 4, 34:00 http://www.pbs.org/wnet/newyork/.

Fig. 2 "Yard in Jersey Street" (Photograph by Jacob Riis, ca. 1897, from the collections of the Museum of the City of New York (90.13.1.102). Reproduced with permission.)

do something to alleviate the suffering of these people by improving the quality of their housing, the sanitation of their neighborhoods, and the conditions of their employment. The movement was led by New York's Civil Service Commissioner: one Theodore Roosevelt.

Although Riis's work led to better conditions in the notorious Five Points slum and tenement ghettoes elsewhere in the city, it would be a mistake to think that Riis or most of his followers believed that mere situational poverty was the new immigrants' only problem. Like much of the American population, he believed southern- and eastern-European immigrants to be mentally and morally inferior to those of northern-European ancestry. They were seen as being unable to govern themselves. And this, note, was from the "progressive" end of the political spectrum. So, the question faced by American social thinkers, such as Baldwin, was whether anything could be done to improve the newcomers' lot on a permanent basis, or whether these newcomers and their descendants would, forever more, be dependent on the good graces of their presumed "betters."

In this matter, the neo-Lamarckians offered a much more optimistic and "progressive" vision of the future than did the neo-Darwinians. If acquired characteristics could be transmitted to offspring, then it might be possible to raise the mental and moral status of lowly immigrants through education, and those improvements would be passed on to future generations congenitally. And then

they could be improved further, which would in turn be passed on again, and so on, until the descendants were indistinguishable from Americans of northern-European stock. If it were not the case, however, that improvements to one generation would be passed on to the next, as the neo-Darwinians held, then efforts to educate poor, indigent immigrants would, at best, be only a very partial and very temporary solution. Even if some could be taught—through strenuous remedial training—to fend for themselves in the hurly-burly of modern urban life, the next generation would simply fall back to where the parents began, and the whole expensive, labor-intensive process would have to begin again, on into the future indefinitely. One can see how people with so dark a vision of the future might feel themselves driven toward eugenic schemes to limit the number of offspring that such people might produce, as a means of limiting the ultimately unsustainable burden that would fall to society at large, generation after generation, should this dreary cycle not be broken. David Starr Jordan, the newly-installed president of Stanford University, for instance, observed that neo-Lamarckians "who see the key to the elevation of the human race in the direct inheritance of the results of education, training, and ethical living" viewed neo-Darwinism as the "Gospel of Despair" (Jordan 1892, 244).[5] Bolstered by widespread disapproval of the newcomers' "alien" ways and a palpable fear of how they were transforming America's cities, the pressure to do something—even something radical—became nearly irresistible.

5 Baldwin's Contribution

Baldwin, however, offered a third option—a way in which neo-Lamarckism and the lingering problem of its actual mechanism could be abandoned but one could still hold out hope that future generations could benefit from the achievements of previous generations. At its most basic level, it was little more than learning by imitation, which would hardly have been a revolutionary proposition, but when combined with the process of natural selection—though pitched at the social level rather than at the biological level—it held new promise for both the world of science and for the world of social policy.

The idea is sketched in Baldwin's 1896 article, "A New Factor in Evolution," which, as noted above, is usually taken to be the *locus classicus* of the "Baldwin effect." But, as was also already mentioned, that article is little more than a series of previously-published passages, stitched together so roughly that it is often difficult to make out exactly what Baldwin is claiming and—just as important—what he is not.

[5]Jordan himself did not take this to be a "just criticism," however, because, essentially, whatever is true is true, whether it lead to despair or no. He also noted that Osborn was predicting the rapid decline of Weismann's influence in 1892. Of course, it was Osborn's Lamarckism that rapidly declined, and Osborn himself became a eugenicist before long.

In order to understand clearly what Baldwin was after, one has to look at the three books he wrote on the topic between 1895 and 1902: *Mental Development in the Child and the Race* (1895c), *Social and Ethical Interpretations in Mental Development* (1897c),[6] and *Development and Evolution* (1902). These books formed a series on the topic of mental development taken, respectively, from the psychological, the social, and the biological perspectives.

It is true that Baldwin believed that an organism that is able to learn strategies for dealing with a changing environment would give itself evolutionary "breathing space"—the time required for natural selection to gradually produce an instinct to handle the environmental change. The learned behavior was to serve as a "bridge" between where the animal starts congenitally and where it has to get to in order to continue to survive and reproduce in the new environment.

There are two things to be said about this. First, it is not clear that natural selection would, in fact, produce the relevant instinct once the animal had solved the problem through learning. Having learned to solve the problem, the selection pressure is removed, unless the process of learning is somehow so arduous that random variations that are even slightly in the "right" direction ("partial" instincts, Baldwin called them) actually provide selective advantage for organisms by making the learning required of future generations slightly less arduous. But, of course, if the learning process is so arduous that the species is effectively teetering on the brink of extinction for an extended period of time, it is a wonder that the species survives the hundreds or thousands of generations that would be needed to get a "full instinct" in place. Where the question of the evolution of the congenital germ line did exercise Baldwin, it was not in the matter of developing new instincts but in the evolution of ever-greater mental and behavioral plasticity. Greater plasticity allows for a greater range of learning capacity, which, in turn, allows for more rapid and effective responses to whatever challenges the environment brings forth.

Second, as has been pointed out by many Baldwin-bashers, the mechanism he sketched by which learning might eventually become congenital is not spelled out in any detail—hypothetical examples are few and actual biological examples are practically non-existent in his published writings. It is possible, however, that the reason for this is that the "congenitalization" of learned responses was not the primary aim of Baldwin's work (contrary to what almost everyone today is led to believe they will find in Baldwin). He thought he had a little mechanism to handle what he regarded as the *preliminary* problem of explaining away phenomena that seemed to support the neo-Lamarckian position. And two other prominent evolutionists, on opposite sides of the debate, no less (Henry Fairfield Osborn and Conwy Lloyd Morgan), seemed to agree with him about that. But what Baldwin saw

[6]It is easy to become distracted by the inclusion of the term "ethical" in the title of the second book, but the matter is explained in Baldwin's autobiography (Baldwin 1926, 66–67). Essentially he added the term to the title at the last minute in order to make it more appealing to the Danish Royal Academy of Sciences awards committee. Originally the book was subtitled just "A Study in Social Psychology."

as the real prize was an application of the structure of natural selection to mental and social processes that would render moot the whole argument about whether adjustments in congenital instincts were the products of natural selection or of the transmission of acquired characters. Accounting for new instincts was not Baldwin's main goal.

Learning from the environment, and then transmitting that learning to new generations through a process he dubbed "social heredity" was where the action really was for Baldwin. The process was thought to go like this: at root, the young organism learns, through trial and error, to solve challenges posed by the environment (e.g., moving oneself around, picking up objects, etc.). This process has exactly the same structure as natural selection: an action is attempted in the effort to solve a particular challenge; multiple variants of this action are tried out (Baldwin called this the "circular reaction"—each unsuccessful attempt calls out for an approximate repetition of the action). Those variations that are unsuccessful are "selected out." Those that are successful, or that approximate success better than previous efforts, are retained and become the basis of future variations. Eventually a successful action pattern "evolves," so to speak, to address the particular environmental challenge at hand. The successful variation is stored as a "habit," to be used again in the future. It is important to note that, thus far, none of this is really original to Baldwin. It is, rather, a case of Baldwin adopting the application of natural selection to the mental and behavioral realms that had been put forward earlier by Chauncey Wright and William James.

Baldwin's real insight occurred when he noted that, if every single organism had to go through this entire process from scratch, learning every non-instinctive behavior in its repertoire through trial and error, not many would survive the process. They just wouldn't be able to learn everything they needed to know in the time available before a lethal environmental challenge presented itself. But Baldwin noted that children learn a great deal from imitating their parents (and other members of their immediate group). In itself, this was nothing new, but Baldwin was able to integrate it into a process that he called "social heredity," which also borrowed the structure of natural selection, but this time pitched at the social level of analysis: Most initial attempts at imitation (a kind of behavioral analog to "reproduction") will fail, and will quickly be selected "out." But, with repeated and varied attempts at imitation, the child will quickly discover a variation of the model that is successful at meeting the particular challenge s/he faces (e.g., getting a piece of food into the mouth), and this will be retained or selected "in." With further imitations and variations, that minimally successful version will be "perfected"—made as efficient as the model on which it is based. This version will be stored as a "habit." *Or*, some random variation will actually prove to be better (more "fit") than the model being imitated, and *that* version will be stored as a habit. And, as that "evolved" version is, in turn, imitated by the next generation (where a behavioral "generation" is defined by who *learns* from whom, rather than by who is borne of whom), it will gradually become the "standard" version of the behavior in that particular population. Individuals who use it will have a selective advantage over those who do not.

Now, will this learned habit somehow descend into the germ line and become congenital? This is the question that exercises pretty well everyone who considers the "Baldwin effect" today, but it does not seem to have much exercised Baldwin himself. As I said before, he thought that there was probably a non-Lamarckian mechanism by which it might do so. But he did not believe that this would be a wholly good thing for the growing organism, even if it happened through natural selection, because he feared that too many rigid instincts would block up the organism's ability to learn new things. He believed that the process of evolution worked more effectively if psychological and behavioral plasticity were kept at a maximum. Indeed, he believed that what had made humans superior to other animals was that their evolutionary history had given them a high degree of mental and behavioral plasticity rather than an extensive assortment of special-purpose instincts. As Baldwin put the matter,

> In the animals, the social transmission seems to be mainly useful as enabling a species to get instincts slowly in determinate directions, by keeping off the operation of natural selection. Social Heredity is then the lesser factor; it serves Biological Heredity. But in man, the reverse. Social transmission is the important factor, and the congenital equipment of instincts is actually broken up in order to allow the plasticity which the human being's social learning requires him to have .... The [human] child is the animal which inherits the smallest number of congenital co-ordinations, but he is the one that learns the greatest number. (Baldwin 1896a, 539–540)

Baldwin also thought that the process of social heredity might well have tricked investigators into thinking that they were witnessing a Lamarckian transmission of acquired characteristics when in fact they were witnessing the process of social heredity—what appeared to be a young individual having congenitally acquired a behavior that its parents had only learned through an effortful process of trial and error, was actually a simple act of imitation. (And this was elaborated by the possibility of new variations resulting in new versions that were even more "fit" than those the parents had originally learned.)

Baldwin repeatedly described this process as a "supplement to natural selection." *This* was the "new factor"—a kind of natural selection that operated in the psychological and social realms, rather than in the biological. Unfortunately, Baldwin applied the phrase "organic selection" rather indifferently to various parts of the larger process. Sometimes it included only the social and psychological parts of it. Later he turned to the phrase "functional selection" to denote just this part. Sometimes he used "organic selection" to cover the whole thing, including the possibility of learned behaviors "bridging" into new instincts. Because this was the version that most interested Simpson and the evolutionists who came after, this full version is the one most people take to be "organic selection," or the Baldwin Effect, today.

By the time of his 1902 book, *Development and Evolution*, however, Baldwin had come to the conclusion that a hard distinction between the physical, the psychological, and the social was untenable. Evolution, he declared, operates "psychophysically": "the organic and the mental are welded in the process of evolution" (Baldwin 1902, 29).

In an even later book, published in 1909 in honor of the centennial of Darwin's birth, Baldwin produced what is probably the most lucid and sophisticated description of his position. Unfortunately, it is one that is almost never cited today. Baldwin noted in 1909 that there is

> at every stage of growth, *a combination of congenital characters with acquired* [learned] *modifications*; natural selection would fall in each case upon *this joint or correlated result*; and the organisms showing the most effective combinations would survive. Variation plus modification, the joint product actually present at the time the struggle comes on, *this is what selection proceeds upon*, and not, as strict neo-Darwinism or Weismannism supposes, upon the congenital variations alone. (Baldwin 1909, 18)

That is to say, for example, having a long narrow beak doesn't do one any good unless one knows how to jam it into a crack in a tree in order to extract edible insects. Once one starts jamming it into trees, however, there arises a selective advantage for a longer, thinner beak. It is the *combination* of complementary physical and behavioral attributes that natural selection acts on. Having the physical basis of a solution to an ecological challenge without knowing how to use it is no better than a baby having a pencil.

So, one might well ask, what does any of this have to do with the crisis over the mass immigration to the United States of millions of people who were supposedly mentally and morally inferior? Baldwin's proposal blazed a trail out of the dilemma. Before, one either had to declare for neo-Lamarckism, and hold firm to the belief that the effects of education would be carried forward in future generations by the transmission of acquired characters, or one had to declare for neo-Darwinism, and thereby accept the dark implication that education, to the degree it was even possible, would have to be repeated with each successive generation indefinitely into the future; or, even more darkly, that we could not allow there to be many future generations of these putatively inferior people. Baldwin cut through this problem because his theory implied that if we educated a single generation, some of the fruits of that effort would be carried forward by the process of social heredity, just as it presumably already had in those of Western European descent from the time of their distant ancestors. Moreover, the very state of being better educated, and of being surrounded by others who were better educated, would change the kinds of environmental challenges that immigrants had to face and, by that very fact, change the course of biological evolution for those who had arrived here, in the modern cities of America, from very different environments that had posed a very different set of challenges.

I do not wish to imply that Baldwin was a thoroughgoing racial egalitarian. It is clear that he perceived differences in the mental and moral status of the races. He even wrote approvingly of Galton's program of positive eugenics from time to time. But his theory permitted a much wider potential for *social* amelioration of those differences than did many of the standard social views of the day. What made Baldwin different was that he did not believe the congenital and the social to be wholly distinct categories. He recognized that they shaded into each other and influenced each other to a much greater degree than was generally recognized.

So, if Baldwin's theory had major implications for the immigration crisis that America faced at the turn of the twentieth century, why didn't he say so explicitly, and why is he not now known as the man whose ideas solved it for us? There is any number of reasons. First, his arrest in a police raid on a Baltimore brothel in the fall of 1908 led to his being more or less erased from history. Although scandal was avoided in the months immediately following the incident, political enemies threatened to turn it into a public affair early the following year, when Baldwin was nominated to sit on Baltimore's school commission. Baldwin was forced to resign his professorship at Johns Hopkins. He was also forced to resign his presidency of the International Congress of Psychology, which was to have been held in 1910. He and his family left the country, moving first to Mexico and later to France, where he lived out most of the rest of his life. There, he became close friends with the famous psychiatrist, Pierre Janet, who likely passed some of Baldwin's ideas about development on to a later student of his: Jean Piaget, probably the pre-eminent child psychologist of the twentieth century.[7] During World War I, Baldwin wrote prolifically urging the US to come to France's defense, which it ultimately did.[8] In 1929, however, when E. G. Boring wrote the most influential history of psychology textbook of the twentieth century, he consigned Baldwin to a minor role in the discipline's past, and Baldwin was mostly forgotten by both psychologists and evolutionists until his "effect" was revived by G. G. Simpson, nearly 20 years after Baldwin's death in 1934.

Second, public policy statements were not Baldwin's *métier*.[9] During the mid-1890s, he wrote a number of articles for *The Inland Educator: A Journal for the Progressive Teacher*, which was edited by Francis Staler, an old Princeton school chum of Baldwin's who had since taken a position at Indiana State Normal School (Baldwin 1895a, b, 1896b, c, 1897a, b). These mostly focused on the problems of how to teach children who had what we would today call different "learning styles"—children who are more "sensory" vs. those who are more "motor"—and on the relationship between imitation and invention in children. Although these ideas held important implications for the issues posed by immigration in an era in which some races were widely regarded as being naturally more impulsive

[7]See Wozniak (2009) for a detailed account of the professional disaster that befell Baldwin in the wake of his arrest and resignation.

[8]There is little reason to believe that Baldwin's writings had much to do with that decision. Baldwin and Woodrow Wilson had despised each other when, respectively, professor and president at Princeton. Indeed, Wilson's high-handedness is one of the reasons Baldwin cites for having left Princeton for Hopkins in 1905. It was the "Zimmerman telegram" from Germany, urging Mexico to attack the US in exchange for a return of New Mexico and Arizona after the war that prompted Wilson to act in 1917. Incidentally, a ship on which Baldwin and his family were travelling across the English Channel, the *Sussex*, was torpedoed and sunk during WWI. One of his daughters was seriously wounded in the attack. A young Wilder Penfield, who would later become a leading neuroscientist in Montréal, was on the same ship, and became acquainted with the Baldwin family there.

[9]Though, see Baldwin's (1902, 144–148) comments on "Social Progress."

and less reflective than others, Baldwin never addressed the matter directly. In his autobiography, describing his episode in Mexico, he commented dismissively that "the more or less barbarous hordes, bound up in century-old customs or cults... must work gradually into the new freedom which rests on self-government and social continence."[10] But one finds very little explicit mention of contemporary social dilemmas in Baldwin's academic writings until, long out of the American academy, he took up the cause of US entry into World War I. It seems to have been just how he preferred to conduct himself as a scientist.

John Dewey's educational proposals for the schools were not far removed from the implications of Baldwin's ideas, though steeped much more weakly in evolutionary theory. And, unlike Baldwin, Dewey actually set up his famous laboratory school right in the heart a city that was notoriously suffering from the immigration crisis: Chicago. The model of Dewey's school was imitated (more or less) far and wide and, as a result, Dewey became known as the man who changed the course of American education. In short, Dewey was much more active on this front, and he continued as a prominent public intellectual for nearly half a century after Baldwin had been removed from the scene.[11]

To conclude, the faults and lacunae that modern philosophers and biologists find in Baldwin's writings are partly real, but are also partly the result of their attempting to find answers to modern questions in historical texts. If one approaches Baldwin's work with the issues that Baldwin faced in mind, many of the complications and obscurities fade away. Baldwin was more interested in transcending the neo-Lamarckian/neo-Darwinian dispute of his era than in adjudicating it. It is primarily in his later work—especially *Development and Evolution* (1902) and *Darwin and the Humanities* (1909)—which is now read by almost no one, that he brought the social, psychological, and biological aspects of his theory together in an interesting and sophisticated way—a way that, in this era of reductionist "evolutionary psychology," might still have a thing or two to teach us today.

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[10]Thanks to Robert Wozniak for directing me to this passage. He believes that by 'superstition,' Baldwin probably meant Catholicism and, if so, then he probably felt the same way about the Irish and German immigrants of the mid-nineteenth century, and the Italian immigrants of the late nineteenth as well.

[11]Dewey (1898) published a review of Baldwin's *Social and Ethical Interpretations*, but it did not touch on the present issues either, focusing mainly on what Dewey took to be a certain theoretical confusion in Baldwin's view between the process of developing a conscious self and the specific contents of that consciousness.

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