could have a human nature welcoming racial minorities within the fold. I was a little surprised that Edward O. Wilson's seminal work *On Human Nature* (1978. Cambridge (MA): Harvard University Press) did not get a mention. The 1980s intensified this aspect of the debate, particularly as gay and lesbian philosophers objected to a notion they saw excluding sexual minorities.

Second, there was an attack on essentialism in biology—the idea that species are a bit like Platonic Forms with clearly defining necessary and sufficient conditions. This charge was led by the late Ernst Mayr, ornithologist and a founder of the modern synthetic theory of evolution. As part of his drive to establish the autonomy of biology against the physicalist reductionism he saw threatening, he insisted that biological concepts are essentially different and the gradualness of Darwinian evolutionary change shows that biological species cannot be defined in the way we might define a square or a circle.

Third, the whole concept of human nature got caught up in the nature-nurture debate. Is a notion like sex—male and female—purely biological or is it all a matter of gender construction and hence basically cultural? It will not escape readers that this, as with the other reasons, is not entirely independent. Debates about sexuality, for instance, get you right into moral issues—transgender troops in the military, to take a contemporary example—as well, obviously, into matters to do with evolution and essentialism.

For the rest of *What's Left of Human Nature?*, the author spends most of her time drawing out consequences of these three attacks. Can we, for instance, find a way to endorse a kind of moderate essentialism in the light of evolution? I will say, as is too often typical of philosophical analyses, I found things a little bloodless. Scientists seem to find things to say about human nature and argue in interesting ways. Are we essentially killer apes, as Konrad Lorenz suggested, or are we much nicer, as someone like Frans de Waal argues? I could have used more discussion of actual issues.

Few will want to agree with the conclusion of this book, that the notion of human nature is outdated and should be dropped. If I hear of parents raising their children in a dark basement with no freedom to leave, I think them not only immoral but unnatural. And I know—and you know—that this means they are not behaving as normal, natural human beings. The author does not convince. Perhaps that is no small virtue of a book. You want to write a refutation.

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THE ORIGINS OF CREATIVITY.

By Edward O. Wilson. New York: Liveright Publishing Corporation (W. W. Norton & Company). $16.95 (paper). x + 243 p.; ill.; index. ISBN: 978-1-63149-485-7. 2017.

BIOLOGY IN TRANSITION: THE LIFE AND LECTURES OF ARTHUR MILNES MARSHALL.

Curated and Annotated by Martin Luck. Exeter (United Kingdom): Pelagic Publishing. $95.00. xiv + 384 p.; ill.; index. ISBN: 978-1-78427-166-4 (hc); 978-1-78427-167-1 (eb). 2018.

Arthur Milnes Marshall (1852–1893) was a biologist at the University of Manchester. He clearly had a gift for public outreach, and his lectures on topics ranging from embryology to Darwin's theory and paleontology are lucid and accessible. The lectures were originally shared with different audiences in Manchester: with Marshall's own students, with the Manchester Microscopical Society, and as part of a Sunday afternoon lecture series for residents of a working-class neighborhood.

If you have never heard of Marshall, you are not alone. One reason for that is that the lectures collected here sat largely unnoticed for over a century. Marshall's brother originally published them in 1894. The editor of the present volume, Martin Luck, recounts his own unlikely and entirely serendipitous rediscovery of an original copy in a collection of donated books rescued from a flooded laboratory. Luck has curated and republished Marshall's lectures here, with careful annotations and helpful introductions to each one.

This unusual volume offers a remarkable snapshot of a particular moment in the history of biology (roughly 1884–1893). At this point, Darwin's theory had become established, although in several of the lectures, Marshall goes to great pains to adduce evidence for evolution and to address potential objections and worries. Indeed, his exposition and defense of Darwin's theory is so clear and straightforward that these lectures would provide an excellent introduction to Darwin's thought for readers today. But we also see Marshall engaging with then-current work in embryology and cell biology, and with the work of other contemporaries such as Haeckel and Weismann. For historians of biology, this book offers a chance to get inside the mind of a committed Darwinist who was absorbing lots of new findings from embryology and cell biology, but still working without a full understanding of the mechanisms of inheritance.

The lecture on inheritance—which is one highlight of this volume—affords a look at the state of the science in the decades after *On the Origin of Species*, but before the rise of Mendelian genetics and

the modern synthesis. In that lecture, Marshall contrasts Darwin's theory of pangenesis with Weismann's germ plasm theory, and finds both wanting. He worries that Darwin makes implausible assumptions about the transportation of gemmules through the body: How are such vast numbers of gemmules supposed to get from every cell in the body to their proper destination in the sex cells? On the other hand, he takes Weismann to task for failing to explain how exactly the germ plasm is supposed to carry hereditary information. Marshall seems to set the table for further work that we, with hindsight, know was just around the historical corner, with the rediscovery of Mendel's work only around a decade after Marshall's untimely death.

Overall, this is a valuable resource for historians of biology interested in gaining perspective on this transitional period. Marshall's lectures are also a wonderful exemplar of public science outreach at the end of the 19th century.

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The Correspondence of Charles Darwin, Volume 26 (1878).

Edited by Frederick Burkhardt and James A. Secord. Cambridge and New York: Cambridge University Press. $125.00. xliv + 768 + 1 pl.; ill.; index. ISBN: 978-1-108-47540-2. 2018.

The Correspondence of Charles Darwin has now arrived at Volume 26, covering the year 1878. The first volume appeared back in 1985 and so, since Darwin died in 1882, I presume it will have taken just under 40 years to produce this remarkable series, edited as always to the highest possible standards. Is it worth it? Well, let me quote just one hitherto-unpublished letter to Darwin, from one A. B. Farn, who was a minor civil servant, mainly notable as a sportsman, having shot 30 birds in 30 shots on the estate of Lord Walsingham, thus establishing a record which, according to one enthusiast, "has probably never been equaled."

> My dear Sir,
>
> The belief that I am about to relate something which may be of interest to you, must be my excuse for troubling you with a letter.
>
> Perhaps among the whole of the British Lepidoptera, no species varies more, according to the locality in which it is found, than does that Geometer, Gnophos obscurata. They are almost black on the New Forest peat; grey on limestone; almost white on the chalk near Lewes; and brown on clay, and on the red soil of Herefordshire.
>
> Do these variations point to the "survival of the fittest"? I think so.
>
> It was, therefore, with some surprise that I took specimens as dark as any of those in the New Forest on a chalk slope; and I have pondered for a solution. Can this be it?
>
> It is a curious fact, in connexion with these dark specimens, that for the last quarter of a century the chalk slope, on which they occur, has been swept by volumes of black smoke from some lime-kilns situated at the bottom: the herbage, although growing luxuriantly, is blackened by it.
>
> I am told, too, that the very light specimens are now much less common at Lewes than formerly, and that, for some few years, lime-kilns have been in use there.
>
> These are the facts I desire to bring to your notice.
>
> I am, Dear Sir, Yours very faithfully,
>
> A. B. Farn
>
> (Letter from Albert Brydges Farn on November 18, 1878; p. 440).

As far as I can see, Darwin neither replied nor showed interest. Had I been he, I would have at once brought out a new edition of *On the Origin of Species* with Farn's letter opposite the title page. This rather confirms what I have long suspected. As a professional scientist, Darwin was not much of a Darwinian. His major work had been on barnacles, where adaptation can conceal important similarities and, of course, the major work after the *Origin of Species* of professionals such as Thomas Henry Huxley likewise found natural selection unimportant and rather irritating. It was the collectors, like Henry Walter Bates, and the amateurs, such as Farn, who were doing the exciting Darwinian science and, naturally, in that class-ridden society of Victorian Britain, they were downgraded and ignored. Darwin appreciated Bates's seminal work on mimicry, even finding him a job at the Royal Geographical Society. But Bates on mimicry never appeared up front in the later editions of the *Origin of Species*. Always in the penultimate chapter.

Disagree with me if you like. Agree that this collected correspondence is a wonder of scholarship that will go on giving for years to come.

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