

**Sutton, M. & Griffiths, M.D. (2023). The ‘Patrick Matthew Effect’ in science. In: Curtis, G.J. (Ed.). *Academic Integrity in the Social Sciences: Perspectives on Pedagogy and Practice* (pp. 213-229). Springer.**

*Robert Merton (1968) coined the term “The Matthew Effect in Science” to explain by biblical analogy how famous scientists are sometimes credited more than those who are lesser known but more deserving. Leading Darwin scholars have admitted Patrick Matthew (1831) originated the theory he uniquely called the “natural process of selection”, which Charles Darwin (1859) re-named “process of natural selection”. The current consensus among many Darwin scholars is that Matthew cannot have priority for his theory because he failed to influence anyone. According to Darwin and all Darwin scholars thereafter, neither he nor anyone else read Matthew’s theory before 1859. However, new research has shown, contrary to what has been taught, that Matthew’s book in fact was read and cited by at least 30 scholars before Alfred Wallace’s and Darwin’s replications of 1858 and 1859. These included (i) Robert Chambers (Wallace’s admitted greatest influencer) who met and corresponded with Darwin pre-1858, (ii) John Loudon, an associate of Darwin’s associates, and (iii) Prideaux John Selby, Chief Editor of Wallace’s 1855 Sarawak paper on evolution of species. With a focus on the story of Matthew, Darwin and Wallace, this chapter addresses the ethics of taking the step to reveal errors of fact in the publication record that have been used to misinform history.*

## **Introduction**

This chapter addresses the little-known fact that the Scottish apple farmer, pomologist, forester and arborist, Patrick Matthew’s (1831) book *On Naval Timber and Arboriculture* has been recognized by leading experts such as Darwin (1861), Wallace (1879), de Beer (1962), Mayr (1982), Dawkins (2010), Ford (2011, 2020) and Rampino (2011) as being the first publication to originate the full theory of evolution by natural selection. And the reason they did so is because Matthew (1860a, 1860b) laid claim to his priority for it, over Darwin’s. The ethics of the fact Matthew has been illicitly and unjustly denied priority over Charles Darwin for the theory Darwin and Alfred Wallace (1858) and Darwin (1859) replicated and which Darwin called “my theory” thereafter is examined. The full and most up-to-date story of Matthew, Darwin, and Wallace, and the origination of the theory, can be found in the first author’s book *Science Fraud: Darwin’s Plagiarism of Patrick Matthew’s Theory* (Sutton, 2022). Important elements of the subject, specifically focusing on some of those naturalists Darwin knew – and who we now know read Matthew’s (1831) book because they cited it in their writings – have been outlined elsewhere (see Sutton, 2015).

## **The Matthew Effect**

In relation to ethics in science, Robert Merton (1968) observed how psychosocial processes manifest in what he and Zuckerman coined the ‘Matthew Effect’, which influences the scientific establishment, working as a social system, to reward and bestow prestige upon some scientists more than others who are equally or more deserving. The effect is named after a tract in the Christian Holy Bible’s Gospel of Matthew: “*Therefore take the talent from him and give it to the one who has ten talents. For everyone who has will be given more, and he will have an abundance. But the one who does not have, even what he*

*has will be taken away from him. And throw that worthless servant into the outer darkness, where there will be weeping and gnashing of teeth."*

Although the Matthew Effect is often attributed to Merton (1968) alone, it is with irony that his wife Harriet Zuckerman was only in 1973 fully credited by Merton for inspiring him to coin it (see Farys and Wolbring, 2020) and for her own coining of the Matilda Effect, which she explained as the bias that has long existed by failure to acknowledge great achievements made by women scientists (Columbia University Libraries, 2022).

### **The Ethics of Action, Inaction and the Importance of Truth in History**

When individuals witness the publication of a falsehood they arguably fall into one of three categories of person: (i) someone who cares about truth and so dare to stick their head above the parapet, (ii) someone who for whatever reason does not want to be involved in any way, or (iii) someone with no interest in correcting the falsehood, and perhaps even active in knowingly perpetuating it even though they know it is wrong, because they are making an emotional, professional or financial gain from it. When social scientists discover falsehoods in the publication record, such as in the history of science and discovery, we argue that they have an ethical obligation to seek to set the record straight because our history should be based on empirical facts not falsehoods that create myths and fallacies.

Within the word limit of a book chapter, it is difficult to sufficiently convey the detailed information and reasoned arguments for why it is ethically important for people, particularly scholars of history, natural sciences, and the social sciences, to raise their head above the parapet to disseminate the empirical data-led story of Matthew, Wallace, and Darwin. In particular, it is ethically important to make wider society aware of how the new evidence of who read Matthew's (1831) book and cited it in the literature before Darwin or Wallace wrote a word on the topic is being unethically suppressed in the scholarly literature, social media, and on popular websites such as *Wikipedia* (see Wikipedia, 2022).

To try to convey as much information as possible to introduce this complex and detailed subject, this chapter pays homage to the style of the influential publication *Men of Ideas* (BBC, 1978), to present truncated (and conservatively edited for exactness and clarity), conversational excerpts from an interviewed debate between the chemist and science podcaster Myles Power (2014) and the present chapter's first author, about the new data on who read Matthew's book before 1858 and what it means for the history of scientific discovery, research, teaching, and publication ethics.

POWER            The talk you've just given was about Charles Darwin and how you don't believe he was the first to come up with the idea of natural selection. What evidence do you have that he might not have been the first?

SUTTON           There is a lot of evidence and published explanations are available in the orthodox history of science that Matthew fully articulated the complete theory of evolution by natural selection. Probably the most powerful of those explanations is from Richard Dawkins (2010) in Bill Bryson's edited collection *Seeing Further*, where Dawkins fully admits the only person who could be attributed with having the full theory of natural selection, prior to Darwin, is Matthew.

POWER            Who was Matthew?

SUTTON Patrick Matthew in 1831 wrote a book called *On Naval Timber and Arboriculture*, which many of the few historians of science writing on the specific topic fully admit articulated the entire theory of natural selection, 28 years before Darwin wrote *Origin of Species*.

POWER And did it definitely have the theory for natural selection in it?

SUTTON Well, both Darwin and Wallace when confronted by Matthew in 1860 admitted it had the full and entire theory of natural selection. Subsequent to that, many experts have said he is the only person with the full precursory explanation for natural selection.

POWER In the talk you just gave, you kind of said Darwin knew about it.

SUTTON Well, the current explanation for how Darwin and Wallace came up with natural selection independently of Matthew and independently of each other is that they were all unique originators of the theory of natural selection. In other words all three were supposed to have come up with it independently of each other. The reason Darwin is on the back of the £10 note and it is his statue in the Museum of Natural History in London is because he came up with so many confirmatory examples. And the story is that Matthew in particular never influenced anyone with his ideas. Darwin wrote in his defence after being challenged by Matthew [1860a, 1860b] in the *Gardener's Chronicle*: "*Neither I nor any naturalist known to me read Matthew's book.*"

POWER You in your talk said that's not the case. You even cited people who cited Matthew's book. Is that correct?

SUTTON What Matthew couldn't do that we can do now in 2014 using *Google's Library Project* is to look prior to 1858, when Darwin and Wallace (1858) both had their papers presented before the Linnaean Society, and a year before the publication of Darwin's *Origin of Species*, to see whether anyone cited Matthew's book in the literature. Whilst the current story is that nobody did, in fact we find now that it was cited by 25 people [Note: in Sutton [2022] this has now been updated to 30]. This is new information. Seven naturalists cited it. Did Darwin and Wallace know any of them? Yes! They knew three.

POWER They cited the book, but did they cite anything in it that had anything to do with natural selection?

SUTTON John Loudon [1832] wrote a review of Matthew's book that literally said Matthew had something "*original to say on the origin of species.*" That is not a new discovery by me. That is in a small amount of the literature written by others. But what people don't know is that Loudon went on to both edit and publish [Edward] Blyth's papers that were influential for Darwin's work on natural selection, some of which Darwin admitted influenced him.

POWER Darwin had published his *Origin of Species* in 1859, right? So that is well before.

SUTTON Darwin published 29 years later than Matthew. That was 28 years after Loudon's review. So we must ask next, who else cited Matthew's book who was known to Darwin and Wallace? Robert Chambers [1832] cited Matthew's book. Unlike Loudon, Chambers did not write about Matthew's book containing the theory of natural selection. He only cited

what Matthew wrote about the pruning of trees. But Chambers [1844], who was a geologist, went on to publish *The Vestiges of Creation*, which is hailed by experts [e.g., see Secord 2000] as a major precursor to Darwin's *Origin of Species*, the most important book on evolution pre-Darwin. The book that is said to have "put evolution in the air." Chambers also cited Matthew's [1839] second book *Emigration Fields*. So we know Chambers was reading Matthew. Chambers knew Darwin. They met and corresponded long before 1858. And Wallace [1845] wrote that Chambers was his greatest influencer on the topic of the evolution of species.

A third person is Prideaux John Selby [1842] who cited Matthew many times in his book and he did write about Matthew's theory, about how he did not understand what Matthew wrote about trees being circumstance suited. Selby edited Wallace's [1855] Sarawak paper on the evolution of varieties and species which was a major influence on Darwin.

So out of only seven naturalists newly discovered to have read Matthew's book before 1858, three of them played major roles at the epicentre of influence on Darwin and Wallace. The question I ask is this: If contrary to where the newly unearthed data points, if somehow Matthew never influenced Darwin, are those citations of Matthew by Darwin's and Wallace's influencers and facilitators, and their influencer's influencers just an amazing tri-coincidence, even though such a multiple coincidence appears improbable as simple coincidence? Improbable beyond rational belief and reason?

POWER But anyway, you said in your talk that people like Richard Dawkins have dismissed Matthew by asking why he didn't sing his theory from the rooftops if he thought he came up with an interesting theory. So what is your take on that?

SUTTON First of all, to my knowledge Dawkins is not currently aware of the new data on who we now newly know did cite Matthew pre-1858. What Dawkins has written about is the fact some experts know and have fully admitted Matthew fully articulated the theory of evolution by natural selection before Darwin or Wallace. Dawkins is not writing about anything I have discovered. Dawkins admits Matthew got the full thing, but he says that does not matter because Matthew did not influence anyone. Dawkins says "Nobody read it." We now know that's not true. Dawkins asks: "Why didn't Matthew, if he knew what he had, trumpet it from the rooftops?" But there are books written about why Darwin delayed publishing the theory for over 20 years because he was supposedly afraid of being labelled a heretic and of being prosecuted for heresy. So, you can't have it one way and not the other. In 1831 there were riots. Matthew was a head of the Chartists. He provided a scientific explanation for why people were being kept out of their natural place by politics and the social class system. He was lucky his book wasn't burned.

POWER Does any of this really matter? And anyway isn't discovery always a wishy-washy topic?

SUTTON Unless we know who first discovered something, we cannot understand the process of its first discovery. It is veracity about discovery that interests me. One of the excuses given for Darwin's replication of Matthew's theory is by Michael Shermer (2002), head of the Skeptics Society. He writes that discovery is never a zero-sum game, because people

always improve upon other people's ideas and so there is no point in even discussing Patrick Matthew. But that is flim-flam because Darwin said: "*I never read Matthew and neither did anyone else.*" It is not that Darwin admits he built upon Matthew. He says Matthew had no influence at all on anyone with his prior published theory. So Darwin claimed Matthew's influence was zero! And it is that very claim that has led to Matthew being illicitly denied his priority over Darwin and Wallace.

Now, if we write Matthew out of the story, we don't really understand how natural selection was discovered. We need to know how Matthew's story fits the discovery of natural selection.

POWER For me, personally, theories stand up on their own. It doesn't matter who creates them. It doesn't matter about the history behind them. From a scientist's point of view, history is interesting, but it's always wibbly-wobbly. It is not set in stone. People see things through rose-tinted glasses. History, I guess, is written by the winners, isn't it? [Laughs].

SUTTON Well, then we are talking about PR and game playing rather than understanding how the most groundbreaking discovery of all time was really made. If we are not really interested in how Mathew discovered it....

POWER I wouldn't say we are not interested. I mean it is really interesting...

SUTTON Does it matter?

POWER Yes it does. Someone in the talk used the old analogy that you are just asking how many angels can dance on a pin. He was basically asking "*Does it matter?*" And I was thinking "*Yes of course it matters. We have to have an accurate history.*" That is why we have historians.

SUTTON If we can collect enough valid data about how all breakthroughs are made it might help us to make new ones. We can only do that with veracious data. We don't want wrong data.

So what we get to at the end of the day is the question "*Was Darwin influenced by Matthew?*" I think I've shown by way of the people we know influenced Darwin, who we now newly know read Matthew, that it is more likely than not that he was. Knowledge contamination seems to me, subjectively, to be more likely than not. We now need to look at Matthew in more depth in order to understand how he arrived at this discovery.

The other argument is justice. Let's put aside the legacy that descendant relatives of Matthew would have, if you just look at injustice. If we let people get away with science fraud by plagiarism, if they think they can get away with it for over 154 years and no-one will care, because it doesn't really matter, then their own legacy is secured. Is that not giving people a license to commit such science fraud so long as they can get away with it? As a criminologist, I think justice is important. Justice to Matthew.

We must simply take a look at the facts, it doesn't matter that I am not a biologist. Since the great enlightenment, facts must stand on their own. The veracity of them is not determined by who discovered them.

We now know for an empirical evidence-based fact it is not true that no naturalist read Matthew's book before Darwin and Wallace replicated the big idea in it. These are newly discovered facts. Darwin and Wallace said that no-one who they knew who was a naturalist read Matthew [1831] before 1858, we now know that is simply not true.

### **The Need for Honest Citation of Influencers**

In the case of searching on terms or phrases of more than one or two words, using the Internet Date Detection (IDD) Method (Sutton & Griffiths, 2018), provided the evidence that led to Sutton's (2022) book *Science Fraud* and all the new relevant data in it that followed from his initial finding that Robert Chambers not only cited Matthew in 1832 but was apparently the first-to-be-second in published print with Matthew's apparently original phrase "*natural process of selection*" (Chambers, 1859).

Such research and subsequent publications on Darwin's plagiarism and lies to cover it up would never have been necessary if Darwin had been honest about his influencers. He lied in the third edition of the *Origin* (Darwin, 1861) that he was unfamiliar with the work of Buffon on evolution and lied that neither he nor any other naturalists had read Matthew's theory before 1860 (see Sutton, 2022).

Darwin showed his unscientific propensity to wish to see less famous discoverers buried in oblivion so that newcomers could claim their discoveries as their own in his letters to Hugh Strickland, the *British Association for Advancement of Science* codification head on priority for discovery. Here, Darwin (1849a, 1849b) asked for a policy change so that lesser-known discoverers of species should lose priority to better known naturalists such as he who worked out more details about those discoveries. Strickland (1849) absolutely declined to support Darwin's unethical campaign.

However, Darwin was not alone in his self-serving machinations, forgetfulness, disingenuity or dishonesty. It may not have been an outright lie told by one who knows the truth and wishes to convince the recipient that the truth is otherwise, or it may have been, when Matthew, who is guilty of not referencing his sources and of failing to tell us who his influencers were for his theory of evolution, informed Darwin by way of a published letter (Matthew 1860b):

*"To me the conception of this law of Nature came intuitively as a self-evident fact, almost without an effort of concentrated thought. ...with me it was by a general glance at the scheme of Nature that I estimated this select production of species as an à priori recognisable fact—an axiom requiring only to be pointed out to be admitted by unprejudiced minds of sufficient grasp."*

Matthew's account of his breakthrough would be true if it occurred to him as a self-evident fact while necessarily grafting artificially selected slips from weak nursery-cultured trees bearing new types of desirable fruit onto hardy naturally selected crab tree root stock (Sutton, 2022). But even then, what if it did occur only because he had previously read something important and original that triggered it at the time of its conception? Whether or not that 'triggered moment' occurred to Matthew, we think we know what such a trigger something might have been for Matthew. And there are others too, but we do not have space to discuss them here. However, we highlight next what we suspect might have been a major influence on Matthew's 'eureka' moment.

### **The Origin of Darwin's "Four-word Shuffle" of Matthew's "natural process of selection"**

Arguably, Darwin (1859) had no choice but to four-word shuffle, in order to try hide, his plagiarism of Matthew's unique original term 'natural process of selection' to his own re-generated term 'process of natural selection', because the theory is that, analogously different to human artificial selection for breeding, evolution occurs in nature by 'selection', which is both 'natural' and is a 'process' (see Howard 1982, p. 21). If evolution of varieties and the emergence of new species by natural selection was not described as happening by a natural 'process' then the way would be left open for creationists to understand selection to be made by divine supernatural miracle creation of new species and extinction of other species.

We now think the same four absolutely essential words of the theory lead us to how Matthew possibly came to his 'Eureka' moment and so coined the essential explanatory term 'natural process of selection'. While Matthew's 'natural process of selection' can only be grammatically re-arranged correctly into Darwin's 'process of natural selection' there are synonyms that can be substituted. And these IDD-facilitated findings that follow are presented here for the very first time.

The substituted words that identified the book written by the prolific Scottish writer Sir John Sinclair (i.e., *The Code of Agriculture: Including Observations on Gardens, Orchards, Woods and Plantations* [1818]) that we think most importantly influenced Matthew's unique breakthrough. The term we used in the IDD method search was 'nature's process of selection'. We searched between 1500 and 1830 using the IDD method to locate any publication with the terms 'nature's process' and 'of selection'. This led us to page 401 of the first American edition of his book (Sinclair 1818) that distinguishes between artificial selection by humans and natural selection occurring in a "wild" state of nature (underlining by the chapter authors):

*"... effects may follow in breeds formed by selection. The selector may have begun with an individual, having some radical defect in form, constitution, or quality; and if he want judgment or opportunity, to correct such defect, by employing other cattle of the same breed, free from such, his cattle will degenerate, as before explained. In the case of selection from a small number, it is also to be observed, that the selector too often chooses the weakest male, because such appears of the most delicate form, and nearest approaching to female symmetry; and if this be continued for a few generations, it may easily be supposed, that such a breed will dwindle, compared to one, left to the process of nature, in which the strongest males, driving off the weakest, are exclusively employed for the propagation of the kind."*

Just like Patrick Matthew, Sinclair was a Scot and his note on the explanatory analogy between artificial and natural selection was in the Appendix of his book. Matthew (1831) put many (although by no means all) put his most heretical ideas on evolution in an appendix. The information Sinclair gave came by way of an answer from an eminent breeder named C. Mason Esq. of Chilton in Durham to the question of whether the system of in-breeding by means of artificial selection, to achieve a desired trait, and then perhaps breeding resultant offspring with those closer to the variety found in nature is a good idea. In short, the question is really asking whether breeding in and out is advisable.

Furthermore, in his book, Sinclair (1818) mentions the small area where Matthew's orchards were located (the Carse of Gowrie) on five pages. He mentions 'orchards' more than 100 times and 'naval timber' six times! Moreover, the full title of his book (*The Code of Agriculture Including Observations on Gardens, Orchards, Woods, and Plantations*) most certainly would have attracted Matthew's interest

The 1818 edition (the American edition) was found by using IDD. When we next examined Ockerbloom's (2022) list of books by Sinclair that are archived by the Hathi Trust we found Sinclair's (1819) British edition to see if the same text is in a copy Matthew would have been more likely to have read. In that edition, we found the same explanatory analogy of differences between artificial selection and selection by nature (although in this edition, it is on page 99 of the book, not in an appendix, and the example given references sheep rather than cattle). However, a footnote in this edition attributes the information to a remark by C. Mason Esq of Clifton. Here, as in the American edition, we must be clear that Sinclair is writing only about the differences between the same species of animal selected by nature as opposed to those selected by humans, not the emergence of new species by natural selection, which is what Matthew uniquely did with the essential explanatory analogy of differences between natural and artificial selection before Darwin (1859) and Wallace (1855) replicated it.

Matthew never cited Sinclair. Neither did he cite the important earlier work of others that most likely influenced his thinking on evolution – naturalists such as Georges-Louis Leclerc Buffon, Jean-Baptiste Lamarck, and John Hunter to name but a few. Importantly, Darwin never cited Sinclair either. Had Matthew done so, it might have been much harder for Darwin and Wallace to claim (like Matthew) that they independently originated the theory of evolution by natural selection.

### **The Patrick Matthew Effect in Science: Does it Matter?**

Merton (1968) described how already eminent scientists are given disproportionate credit in genuine cases of independent multiple discovery. He wrote that this behaviour by the scientific establishment negatively impacts the growth of new centres of scientific excellence. However, an exact opposite conclusion was arrived at by Strevens (2006), who later examined the Matthew Effect further to understand why it exists and concluding that it is a good thing. Strevens argued that the Matthew Effect allocates credit fairly because the reputation of an initial obscure independent "co-discoverer" (as Strevens terms them) is enhanced by the extension shone retroactively upon them following confirmation of their prior work by someone more famous than they are. However, Strevens fails to take account of ignorance, blindsight, and other psychological 'states of denial' (see Cohen 2001) and/or the publication of willful fact denial, other misinformation, and fake news by plagiarists and their supporters. Moreover, Merton failed to recognize another great irony. Namely, that in coining his 'Matthew Effect' he never addressed the case of the replication without attribution of Patrick Matthew's (1831) theory of the natural process of selection by Charles Darwin (1858, 1859) and Alfred Wallace in (1855, 1858). Additionally, Strevens's argument only holds up in that very particular case if Matthew is duly credited with full theory origination priority over Darwin, which to date has not happened.

The Matthew Effect is further critically exposed by what might be termed "The Patrick Matthew Effect". This is in relation to how some writers have done even more to deny Patrick Matthew his priority by now, suddenly pivoting in light of new data on who we now newly know did read and then cited Matthew's book, containing the full theory is a significantly different theory altogether (e.g., Dagg, 2018; Weale, 2015). In other words, these scholars have done so to make a new claim that Darwin and Wallace could not have plagiarized the work of Matthew. They now argue this in order to propose that Matthew does not now (but only in light of their new arguments that the theories are now different) have priority for his prior published theory that the new data would otherwise establish. They do so to seek to claim Darwin was not a plagiarist because he could not have been influenced by Matthew if the theories were different. This "theory difference argument" is only now being made because the old excuse has been disproven.

That now debunked old excuse being that no naturalist known to Darwin or Wallace, or to any of their friends and influencers, had read Matthew's book and the theory in it. Importantly, we must point out that these writers, in making this new argument, conveniently ignore the fact that the most renowned and leading experts on the topic (i.e., de Beer, 1962; Mayr, 1982; Dawkins, 2010; Ford 2011, 2020; and Rampino, 2011), all wrote that in all important respects the theories are the same.

Charles Darwin's wealth, combined with the same powerfully superior *Royal Society* scientific friendship networks enjoyed by his grandfather, his father, and his sons meant that he was better able than Patrick Matthew (a scientific outsider and bankrupt farmer) to be researched, promoted, and maintained as the originator of natural selection and as a great thinker and influencer on the topic. The X-Club was formed specifically to build up Darwinist sway within the *Royal Society* and the *British Association for the Advancement of Science* (Desmond et al., 2007). Matthew, with no such champions, never stood much chance of being awarded the rightful respect and priority he sought through his various published complaints in newspapers and in the *Gardener's Chronicle* (see Sutton, 2022, for a full detailed account). But Matthew was first to publish the full theory of natural selection. Therefore, under the recognized rules of the Arago convention on priority (see Biagioli [2010] for a full explanation of the origination and naming of Arago rule), he did all that the institution of science officially deems necessary for him to be awarded full and complete priority publication of his original theory. Merton (1957) explained that this rule existed in 1858 and remains the norm today. As Strevens (2003, p. 4) explains in no uncertain terms:

*"... here concerns the extreme literalness with which the priority rule is enforced: if the same fact is discovered twice, Merton notes, the first discoverer garners all the rewards no matter how slender the margin by which it edges out the second."*

In blatant disregard for the rules and conventions of priority, influential Darwinists such as Dawkins (2010) and Bowler (2013), insist that Matthew, at least according to them, should have further trumpeted, expanded, and promoted his original ideas ahead of Darwin's and Wallace's replication of them in order to be awarded full priority and to be considered a great originator, thinker, and influencer in science. His failure to do this is seen as rational justification for the scientific community's promotion of Darwin and Wallace over him. But this Darwinist rationalisation raises a most telling question. Namely, why then is it not hypercritical and biased of Darwinists to justify the fact their namesake delayed publishing on the topic of natural selection for 21 years on grounds that he feared being prosecuted and ostracized for heresy and sedition (Desmond et al., 2007), and that Robert Chambers was compelled to publish his 1844 book *Vestiges of the Natural History of Creation* anonymously until the day he died, because of the social stigma attached to publishing books that questioned natural theology on the origin of species (Secord, 2000). Why then is Matthew, who never had the powerful scientific connections that Darwin enjoyed, or the esteem in which he was held, required to have done what Darwin, and Chambers, quite reasonably, could not do for so long, and to be required to do so at an earlier time when it was even more dangerous and difficult? It seems only recognition of the Patrick Matthew Effect can explain this unethical and extreme Darwinist bias.

The meaning of the ancient term '*Palmas Qui Meruit Ferat*', translates essentially into the principle "*let whoever earns the palm bear it.*" The principle is used in scientific circles to mean achievement should be rewarded to the person who most deserves it. However, 'just deserts' for such 'earning' is a broadly subjective assessment, which does not help us decide whether the person who is first with a scientific discovery deserves the laurels more than the one who does more work to confirm the veracity and

importance of that prior breakthrough, and by so doing, convince others of its significance, as Darwin undoubtedly did.

To labour the essential point already made, how the lesser-known prior published ideas and words of others spark a breakthrough by those influenced by them is fundamental to our understanding of how great breakthroughs are made in science. Can anyone rationally deny the huge influence Rosalind Franklin had on Francis Crick and James Watson's work on the structure of DNA? Furthermore, Howard Florey and Ernst Chain made no secret that it was an obscure published note by Alexander Fleming that led them to take forward his ideas about using penicillin mould as a topical medicine to develop its use by them as arguably the most important systemic medicine of all time (Fletcher, 1984). It was only because they were adamant of his influence on them in that obscure text that led to Fleming jointly receiving the Physiology or Medicine Nobel Prize in 1945 with them. Explaining this story in great detail, Macfarlane (1984) notes that Fleming discovered a unique strain of penicillin and published several papers on its value as a topical treatment. Fleming kept the strain alive and supplied it to laboratories as a reagent. But he failed to see the significance of his data. The discovery that Fleming's unique strain was capable of becoming a systemic wonder drug, and the process of improving its production was Florey's and Chain's.

The 19<sup>th</sup> century case of Marc Dax versus Paul Broca for the discovery that the left hemisphere of the brain as the seat of articulate language has many parallels with that of Matthew versus Darwin and Wallace. Dax articulated the discovery in an 1836 paper, which was expanded by his son and re-submitted to the *French Academy of Medicine* in 1863 and then published in 1865. Six weeks after the publication of that 1865 paper, Broca published a far more famous paper containing the same discovery, which failed to cite Dax's prior published discovery. Buckingham sums up the situation, after citing evidence, gathered by others, that Broca knew many scientists who would have had access to Dax's original findings (see Buckingham, 2006). This is the exact same issue of the known existence of routes for prior knowledge contamination and most likely science fraud by glory theft that we are faced with in the case of Matthew and Darwin. Such cases are shamed by the story of Fleming, Florey, and Chain.

### **Romance and lies of icons and institutions v painful enlightenment by empirical data driven facts**

Irish physicist and historian of science John Benal (1954, pp. 22-34) explained that universities interested in attaining prestigious reputations and advertisement for the expertise of its staff "*...will only want results to be sufficiently spectacular and not too disturbing.*" This raises – indeed begs – the question in the true philosophical sense, of the ethics of institutional censorship and the self-censorship of facts that it generates. Schama (2022) said in a recent television documentary: "*What we all needed [need] to live truly human lives is a sense of belonging, a connection to the traditions of our own tribe ... The more modern we become the more we need anchorage in memory, in dreams, in ancestry, in myth, in the universe of the connected imagination.*" What Schama refers to as a "*community of belonging*" is something that is as powerful as any religion, and Schama (2022) said it is "*so viscerally powerful it can also bring with it a dangerous state of mind*".

We know dangerous minds can engage in and create dangerous behaviour. More specifically, that can mean engaging in academic misconduct such as misrepresentation of data, brute censorship, and even criminal malicious harassment for those who dare to put their head above the parapet (see Sutton [2022] for fully evidenced examples of such behaviour by others following his naming of the scientists who cited Matthew pre-1858, vindictive, prolific and systematic workplace harassment behaviour that both authors of this chapter have been subject to because of their published work on this topic). We have been

subjected to this disgraceful behaviour for daring to put our heads above the parapet by going into print to more widely disseminate empirical data that seriously questions the honesty and originality of Charles Darwin, arguably the world's most beloved scientist.

The cultural resistance of the science community to researching this area, or indeed towards others doing so, is manifested by what Merton (1973) called "*studied neglect of systematic study of multiples and priority.*" Merton (1973 pp. 391-392) explains why this is so:

*"...charged with blemishing the record of undeniably great men of science; as though one were a raker of muck that a gentleman would pass by in silence. Even more, to investigate the subject systematically is to be regarded not merely as a muckraker, but as a muckmaker."*

It follows, we must not be forced by unethical bias and fear of embarrassing exposure of earlier ignorance of wrongdoing by proclaimed experts to ignore important empirical data, because empirical data are necessarily what defines science (Stevens, 2020).

### **Discussion on the way forward**

Separating the muck from the facts with the rake of systematic inquiry led to independently verifiable disconfirming evidence for unevidenced mere wishful thinking beliefs in the story of Matthew, Darwin, and Wallace. If Patrick Matthew is to be celebrated as a great thinker and influencer in science, his work and life will be subject to academic scrutiny approaching at least some useful fraction of that focused on Darwin. From such detailed expert enquiries, lessons for facilitating advances in future breakthroughs might follow. Useful things might then be learned also about the context of the process of discovery, and the influence upon others of one of the most important ideas of all time.

Encouragingly, along these very lines, this idea has been anticipated by over 100 years by Zon (1913), who offered some tantalizing suggestions for why Matthew's interest in forest trees might have led him be first to discover natural selection. Matthew's profession as an award-winning hybridizing fruit farmer may also present a rewarding line of systematic inquiry. Science fraud by plagiarism is explicable with Merton's theory of discovery, but it cannot help us perceive its presence. For that we need to focus on the evidence supporting and questioning individual cases of claimed independent multiple discoveries.

The many years of failure of the academic community to systematically investigate Darwin's and Wallace's replications of Matthew's ideas, has been obfuscated in no small part because pseudo-openness has been permitted to masquerade as honest enquiry. This subtle characteristic of the concealment culture of evolutionary biologists may stem from Darwinist cultural concealment of what precisely was written in Matthew's 1860 published letters in the *Gardener's Chronicle*

Myth creation in all societies allows believers to cope with the unknown by filling in their knowledge gaps with comforting stories (Maranda, 1972). The myth that Matthew's ideas were unread by any naturalists before 1860 enabled the scientific community to believe in Darwin's and Wallace's accounts of how and why theirs were independent discoveries. But it is universally accepted in science that before proceeding to explain or interpret any phenomenon, individuals should first establish that it actually exists (Merton 1987). The phenomena of Darwin and Wallace's independent conceptions of Matthew's original ideas never existed, other than as a now debunked science supermyth. We know that fact was discoverable in 1860, because Matthew (1860a, 1860b) informed Darwin in print in the *Gardener's Chronicle* that John Loudon cited him, that an unnamed eminent university professor was afraid to discuss his heretical

breakthrough for fear of pillory punishment and that the public Library of Perth in Scotland banned his book on the same grounds.

## **Conclusion**

The notable absence of discussion of Loudon's (1832) review, or discussion of the existence of other such disconfirming evidence for Darwin's and Wallace's separately claimed and then jointly agreed by them and their admirers to be independent conceptions of Matthew's prior published theory, is underpinned in the Darwinist literature by an insistent and unambiguous (yet illusory) denial that any other naturalists read the unique ideas in Matthew's book. Consequently, since 1860, evolutionary biologists have successfully promoted Darwin and Wallace over Matthew on the grounds that the originator's ideas went unread by naturalists and therefore could not have influenced the replicators Darwin or Wallace. Contrary to that belief, the published literature shows that Matthew's book and the original ideas in it on the origin of species, in fact, were read by other naturalists. Importantly, after citing it, those naturalists interacted with Darwin and Wallace and with their associates, known influencers and editors, which means there are now clearly several identifiable routes of possible pre-1858 Matthewian knowledge contamination of the work of Darwin and Wallace.

Even in absence of evidence of plagiarism, the rules and conventions are that priority for a discovery in science is awarded to those who are first to publish it. On these grounds, Matthew has priority over Darwin and Wallace. As for deciding the question of Matthew's status as a great thinker and influencer in science, the new data allows those empowered to decide such things to see and understand why for the first time the evidence spins in more than just Darwin's direction. The rules of priority for discoveries, supported by weight of new evidence that disconfirms the beliefs that informed earlier judgment on this issue, requires a review of Matthew's status as both discoverer and influencer in science.

When new empirical data prove errors of fact, as Merton (1987) explained, a new hypothesis is required, arrived at by a process of abduction, suggested by the new facts, which would predict those newly observed facts and account for them by way of the simplest and most likely explanation. From that cause, a hypothesis can be proposed, based on the premise that the newly highlighted knowledge contamination routes to Darwin and Wallace make it likely that such extensively networked scientists would have learned of Matthew's ideas from those they met and corresponded with who read them, or else from others who read them, or those who knew those who did, who were part of those networks. Let us name this testable proposition as the "New Data-Led Smoking-Gun Hypothesis", which is based on a non-guaranteed premise, that a note or letter will next be found, which proves Darwin and/or Wallace were aware of Matthew's ideas pre-1858.

To seek to confirm or disconfirm this hypothesis, the archives of those newly shown to have cited Matthew's 1831 book pre-1858, and of those who were apparently 'first-to-be-second' - indeed second- and third-to-be-second - with apparently unique Matthewisms (see Sutton, 2022) should be examined to see if they contain any 'smoking gun' letters or private journal entries that prove either Darwin or Wallace or their closest friends (Charles Lyell, Joseph and William Hooker, William Bateson, Thomas Huxley or Leonard Jenyns) read Mathew's book.

With regard to the way forward, beyond the specific story of Matthew, Darwin, and Wallace, we should no longer resist the importance of the issue of "multiples", priority and science fraud as a topic worthy of systematic research. Inquiry into this field is crucial if we are to add to the sum of knowledge about how

best to improve the conditions and create the circumstances favourable to great breakthroughs in scientific discovery.

## References

BBC (1978). *Men of ideas. Some creators of contemporary philosophy*. London: British Broadcasting Corporation.

Benal, J. D. (1969). *Science in history: Volume 1. The emergence of science* (third edition) Penguin Books. Harmondsworth: Pelican publication.

Biagioli, M. (2012). From ciphers to confidentiality: Secrecy, openness and priority in science. *British Journal for the History of Science*, 45, 213–233.

Buckingham, H. W. (2006). The Marc Dax (1770-1837) Paul Broca (1824-1880) controversy over priority in science: Left hemisphere specificity for seat of articulate language and for lesions that cause aphemia. *Clinical Linguistics and Phonetics*, 20 (7-8), 613-619.

Bowler, P.J. (2013). *Darwin deleted: Imagining a world without Darwin*. Chicago: University of Chicago Press.

Chambers, R. & Chambers, W. (1832). William Orr: On the training of plank timber. *Chambers's Edinburgh Journal*, Saturday, March 24, p. 63.

Chambers, R. (1844). *Vestiges of the Natural History of Creation*. New York: Wiley and Putnum.

Chambers, R. (1859). Charles Darwin on The Origin of Species. *Chambers's Journal of Popular Literature Science and Arts*, 311, 388–391.

Cohen, S. (2001). *States of denial*. Cambridge: Polity.

Columbia University Libraries (2022) Archival collection. Harriet Zuckerman papers, 1887-2014, bulk 1963-1992. [https://findingaids.library.columbia.edu/ead/nnc-rb/ldpd\\_10825294](https://findingaids.library.columbia.edu/ead/nnc-rb/ldpd_10825294) Archived: <https://archive.ph/AMImk>

Dagg, J.L. (2018). Comparing the respective transmutation mechanisms of Patrick Matthew, Charles Darwin and Alfred Wallace. *Biological Journal of the Linnean Society*, 123(4), 864–878

Darwin, C. (1849a). Darwin, C.R. Letter to Strickland, H.E., 29 January. Darwin Correspondence Database: <http://www.darwinproject.ac.uk/entry-1215> Accessed 7 May 2013. Archived: <https://archive.ph/Z1dU1>

Darwin, C. R. (1849b). Letter to Strickland, H.E., 4 February. Darwin Correspondence Database: <http://www.darwinproject.ac.uk/entry-1221> Accessed 17 May 2013. Archived: <https://archive.ph/zKFTR>

Darwin, C. R. & Wallace, A. R. (1858). On the tendency of species to form varieties; and on the perpetuation of varieties and species by natural means of selection. *Zoologist*: 16: 6293-6308.

<http://darwin-online.org.uk/content/frameset?itemID=F350&viewtype=text&pageseq=1>. Accessed 2 December 2022. <https://archive.ph/ABLYX>

Darwin, C. R. (1859). *On the origin of species by means of natural selection: Or the preservation of favoured races in the struggle for life*. London: John Murray.

Darwin, C. R. (1861). *On the origin of species by means of natural selection: Or the preservation of favoured races in the struggle for life* (3rd Edition). London: John Murray.

Dawkins, R. (2010). Darwin's five bridges: The way to natural selection. In Bryson, B. (Ed.) *Seeing further: The story of science and the Royal Society*. London: Harper Collins.

de Beer, G. (1962). The Wilkins Lecture: The origins of Darwin's ideas on evolution and natural selection. *Proceedings of the Royal Society of London, Series B, Biological Sciences*, 155(960), 321–338.

Desmond, A., Moore, J., & Browne, J. (2007) *Charles Darwin*. Oxford: Oxford University Press.

Farys, R., & Wolbring, T. (2021). Matthew effects in science and the serial diffusion of ideas: Testing old ideas with new methods. *Quantitative Science Studies*, 2(3), 505–526.

Fletcher, C. (1984). Why one man became the world hero. Review of Macfarlane, G. (1984) *Alexander Fleming: The man and myth*. *New Scientist*, March 22, p. 30.

Ford, B. J. (2011), Darwin the microscopist who didn't discover evolution. *The Microscope*, 59(3), 129-137.

Ford, B. J. (2020). *Nonscience returns*. Great Yarmouth: Curtis Press.

Howard, J. (1982). *Darwin*. Oxford: Oxford University Press.

Loudon, J.C. (1832). Matthew Patrick On naval timber and arboriculture with critical notes on authors who have recently treated the subject of planting. *Gardener's Magazine*, VIII, 703.

Macfarlane, G. (1984). *Alexander Fleming: The man and The myth*. Cambridge MA: Harvard University Press.

Maranda, P. (1972). *Mythology*. Harmondsworth: Penguin.

Matthew, P. (1831). *On naval timber and arboriculture; With a critical note on authors who have recently treated the subject of planting*. Edinburgh: Adam Black.

Matthew, P. (1839) *Emigration Fields: North America, the cape, Australia, and New Zealand (describing these countries and giving a comparative view of the advantages they present to British settlers)*. Edinburgh: Adam and Charles Black

Matthew, P. (1860a). Letter to the Gardeners' Chronicle: Nature's law of selection. *Gardeners' Chronicle and Agricultural Gazette* (7 April), pp. 312–313.

Matthew, P. (1860b). Letter to the Gardeners' Chronicle: Nature's law of selection. *Gardeners' Chronicle and Agricultural Gazette* (12 May), p. 433.

Mayr, E. (1982). *The growth of biological thought: Diversity, evolution, and inheritance*. Cambridge, MA: Harvard University Press.

Merton, R.K. (1957). Priorities in scientific discovery: A chapter in the sociology of science. *American Sociological Review*, 22(6), 635–659.

Merton, R. K. (1968). The Matthew Effect in Science: The reward and communications systems of science are considered. *Science*, 159(3810), 56-63.

Merton, R. K. (1973). *The sociology of science: Theoretical and empirical investigations*. Chicago: University of Chicago Press.

Merton RK (1987). Three fragments from a sociologist's notebooks: Establishing the phenomenon, specified Ignorance, and strategic research materials. *Annual Review Sociology*, 13, 1-28.

Ockerbloom, J. M. (2022). The Online Books Page. *Online Books by John Sinclair*. <https://onlinebooks.library.upenn.edu/webbin/book/lookupname?key=Sinclair%2C%20John%2C%20Sir%2C%201754%2D1835> . Archived: <https://archive.ph/ZS7o4>

Rampino, M. R. (2011). Darwin's error? Patrick Matthew and the catastrophic nature of the geologic record. *Historical Biology: An International Journal of Paleobiology*, 23(2/3), 227–239.

Power, M. (2014). Nullius in Verba - Darwin's greatest secret - TLoNs Podcast #046: <https://www.youtube.com/watch?v=V2uBn-gUU4c>

Schama, S. (2022). The romantics and us. Series 1. Episode 3. BBC <https://www.bbc.co.uk/programmes/m000mv1h>. Archived: <https://archive.is/UdVgi>

Secord, J. A. (2000). *Victorian sensation: The extraordinary reception, and secret authorship of Vestiges of the Natural History of Creation*. Chicago: University of Chicago Press.

Selby, P.J. (1842). *A history of British forest-trees: Indigenous and introduced*. London: Van Voorst.

Shermer, M. (2002). *In Darwin's shadow: The life and science of Alfred Russel Wallace: A biographical study on the psychology of history*. Oxford: Oxford University Press.

Sinclair, J. S. (1818) *The code of agriculture: Including observations on gardens, orchards, woods and plantations*. Hartford: Hudson and Co. and Cooke and Hale.

Sinclair, J. S. (1819). *The code of agriculture: Including observations on gardens, orchards, woods and plantations*. London: Sherwood, Neely, and Jones.

Stevens, M. (2006). The role of the Matthew Effect in science. *Studies in History and Philosophy of Science Part A*. 37(2), 159-170

Strevens, M. (2020). *The knowledge machine: How an unreasonable idea created modern science*. Allen Lane.

Sutton, M. (2015). On knowledge contamination: New data challenges claims of Darwin's and Wallace's independent conceptions of Matthew's prior-published hypothesis. *Filozoficzne Aspekty Genezy*, 12, 167–205

Sutton, M. (2022). *Science fraud: Darwin's plagiarism of Patrick Matthew's theory*. Great Yarmouth: Curtis Press.

Sutton, M. & Griffiths, M. D. (2018). Using date specific searches on *Google Books* to disconfirm prior origination knowledge claims for particular terms, words, and names. *Social Sciences*, 7(4), 66.

Strickland, H. E. (1849). Letter to Darwin. January 31. *Darwin Correspondence Project*. <http://www.darwinproject.ac.uk/entry-1216>. Archived: <https://archive.ph/vomE7>

Wallace, A. R. (1845). Letter to Bates, December 28. *Wallace Letters Online*. Natural History Museum. Unique WCP identifier 346.346: <http://www.nhm.ac.uk/research-curation/scientific-resources/collections/library-collections/wallace-letters-online/346/346/T/details.html>

Wallace, A. R. (1855). On the law which has regulated the introduction of new species. *The Annals and Magazine of Natural History*, Series 2, 16, 184–196.

Wallace, A. R. (1879a). Letter to Samuel Butler, May 9. Unique WCP identifier: WCP1586. Wallace Letters Online. Natural History Museum. Archived: <https://archive.is/Ql3cc>

Weale, M.E. (2015). Patrick Matthew's law of natural selection. *Biological Journal of the Linnean Society*, August, 115(4), 785-791.

Wikipedia (2022). Patrick Matthew. Archived. <https://archive.ph/2ZNKo>

Zon, R. (1913). Darwinism in forestry. *American Naturalist*, 47, 541-546. <https://wellcomecollection.org/works/tbtebj2r/items?canvas=6>