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The Character of J.S. Mill

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Abstract

J.S. Mill introduces a new conception of a person's *character* as the control system governing choice of action in, as he thought of it, the human *deterministic* machine. Did this leave any room for him to think that a person was nevertheless essentially different from the 'automatons' of his time? Yes. Mill thought of the human 'machine' as featuring

‘feedback’: and, foreshadowing the electronic feedback circuits of early electronic computers, this allowed him to think of human beings as working their way automatically towards Utopia. Mill’s term for what he thinks of as the bit of human ‘machinery’ responsible for ‘deciding’ what action to take is: ‘*character’*.

The Millian ‘control system’ character was taken up widely in the 19th Century and beyond. Illustrative examples: William Temple, Thomas Arnold, Stowe, George Eliot,

The Millian sense of character is modified but hardly superseded in subsequent decades.

Main text

The character of J.S. Mill

Terence Ball, in his authoritative chapter in the 2017 *Companion to Mill,* ends with a haunting oxymoron: Mill, he says, “shows us how a robot might, by his or her own efforts, become fully and completely human.”[1]

I think this is true and exciting, but the more so if we say what we mean by a ‘robot’.

Human character as behaviour control system

At the turn of the 18th Century it was clear what a *machine* was at any rate. Whatever else, it was something made by human beings using materials which occupied space. Calculators were among the most sophisticated, and they mostly drew on techniques that had been developed in constructing clocks. Also based on clockwork, mostly, were what the 18th Century called ‘automatons’, which sought to mimic aspects of human and animal behaviour such as playing musical instruments, writing, praying, playing chess and defecating.[2] Mill was aware of these.[3]

I have indicated what I think a robot was at the beginning of the 19th Century. Did Mill think human beings were robots? He was certainly a determinist. He certainly thought that human beings were wholly ‘mechanical’ - wholly determined in their actions by what had gone before.[4]

It is true that at the same time Mill thought that human beings were equipped with *desires,* and of course desires have often been considered

to be ‘teleological’. Kant for example maintains that no desire identified as lying behind a human action is correctly to be understood in terms of any ‘*mechanical* principles of nature’ (my emphasis)[5].

But it is a clear that *Mill*’s belief is that everything that happens is caused to happen by events and conditions that happen or obtain beforehand.

Mechanical Utopia

When he first became convinced that determinism must be true, he tells us he was seized by despair. How could he carry on with his self-embraced mission of making the world a better place if the future had already been determined? [6]

Eventually, however, after recurrences of the depression, he had a moment of illumination. What was generated in that moment was the insight that there was a way, after all, in which his efforts, and the efforts of other people, might improve the world. It was by *improving their own ‘character’*. He had already acknowledged that a person’s character played the key part in determining their actions, so it followed that if he

could improve his character it was at least possible that he might by his efforts improve the world, and so could everyone else.

Did a person have the knowledge of how to make changes to his or her own character? Certainly, he reasoned. It was acknowledged that parents and schoolteachers had the power to improve the character of their charges. All a person had to do to improve themselves – once they had correctly diagnosed what changes to their character were called for - was to play the part of schoolteacher, or parent, to *themselves*.

This account of Mill's has been received with not a little puzzlement ever since. If everything is determined by previously existing circumstances, how can Mill think the 'choice' to improve his own character is *not* determined?

What he thought, I suggest, was that a machine with a *memory* is possessed of a very special capacity. On encountering a situation which calls for a choice of action, such a machine – a machine with a memory - can check whether it has encountered the same situation before, and it can check whether it was proud of the action then selected. And then decide how to act. Then if memory shows that it approved of its earlier choice of

action it can go ahead and do the same again: but if it found its previous choice wanting it could try something else.

Mill's term for the bit of machinery responsible for selecting an action is *character*. It is a child's *character* that you work on in the attempt to bring it up properly – the attempt to adjust it so that it chooses the right actions which different moral challenges demand. It is your own *character* you refine when you think about what you have just done and determine to do better next time.

Moral development then goes like this:

Act.

Review.

If you think you could have done better, edit your character, avoiding all the edits you have already tried.

Repeat.

Otherwise, character editing for this particular case of action-selection is as good as you can make it.

There is no 'free choice' in play here. The human being, according to Mill's conception, is born with the goal of making the best of themselves

morally speaking - they are born with the desire for 'self-culture' [7]. And that will lead them to do what they can to maximise 'happiness' in the world – they are born with the goal of maximising human happiness [8] . For Mill, dogged with recurrent depression brought on by the thought that the future is already determined, there is, I am suggesting, the flashing realisation that it doesn't matter! The prospect is of a perfect world emerging deterministically anyway. It emerges because people will all be striving to develop their characters – their action-selection - driven by the desire for self-culture Mill thinks we are born with. Suddenly the prospect of an ever-increasing sum of happiness for humankind explodes into view![9] If you posit a desire for self-culture, and a loop which tends to improve your behaviour every time you make a relevant decision, you have, well, in the end, *Utopia*. This is the point surely that the 'Owenites' failed to understand [10], and according to one of his accounts anyway, it is also the point that Mill thought cleared his own personal state of depression [11].

Central then to Mill's deterministic human machine is his or her 'character'. Desires register in the character, so do their respective degree of importance and their relative urgency, so do the circumstances the person faces: and a calculation is performed within the character – by

the character - which somehow arrives at a decision which does maximum justice to the problem posed – what to do.

Feedback in Babbage's new machine

The power that Mill was attributing to his human machine was of course not something actual 18th /early 19th Century robots were capable of. But a decade or so into the 19th century it was identified as the key requirement in taking *mechanical* calculators to a new level. In the year that saw Mill first assailed by dejection, 1826, Charles Babbage published an early paper developing a notation in which his plans for a new calculating machine might be expressed. Babbage's plan was for a machine capable of working out algebraic equations. The more complex formulae required the machine to proceed by performing a sequence of operations, each of which, except the first, requiring for its start point the value or values already calculated by earlier ones. That is to say, like Mill's deterministic human being, the Analytical Engine was to rely on 'feedback' - in the case of the Analytical Engine to perform its algebraic manipulations. Later sub-calculations had to take account of results obtained by earlier ones. Babbage is reputed to have described this feature as the machine 'biting its own tail' [12].

Mill reforms Associationism

Mill's total contribution to the theory of action that he was taught by his father, and also by the long tradition of empiricism running from Locke to Bentham, was more than a *frisson* of 20th Century Artificial Intelligence however. The theory of action the younger Mill took from his father and the 18th Century was based on Associationism. Bentham, as is well known, had been emphatic that there were just two possible 'motivators' of human action: the desire for pleasure and the desire to avoid pain. The younger Mill argued that the prospect of pleasure and the prospect of pain were *not,* except perhaps in the neonate, the only human motivators. The mechanism of 'association', at work in a particular human being, could itself generate, for that person, further ones. There was, he thought, a mechanism whereby you might be motivated to do such and such a thing by the prospect of the pleasure it held out; then, after repetitions of the action, in each case motivated by the prospect of pleasure, you would begin to perform the action motivated not by the prospect of pleasure but by the prospect of performing the action 'on its own' as it were. Your motivation, through habituation, would change, with pleasure dropping out of the equation.[13] Such a process would involve repeatedly acting on the

will to perform the action. And, he declares, where you have an action repeating from the same motivation over a period of time, you have "what is commonly called a *purpose."*[14]

The terminology that Mill uses in this context speaks of a new purpose, as generated by the association mechanism, creating a new 'desire' [15], so I will use this terminology of Mill's to spell out the implications as he sees them of the person facing a choice of action when they possess a multiplicity of 'desires'. In these terms, Mill's position must be that each desire newly generated by his revised Associationist mechanism will thereafter have to be taken account by whatever it is that selects what action to launch.

So if there is a deterministic system controlling a person's behaviour, it must 'remember' not only one or two competing desires – the prospect/s of pleasure and/or pain – but the multiplicity of desires Mill thought would normally be developed. Also, it must keep some record of the *degree of importance* of each desire. And when one adds differences in *urgency* of a desire, which may not be quite the same thing as its importance, and which may vary from moment to moment, the order of complication is further multiplied.

My suggestion is that, in view of the complicated, indeed often tightly tangled, calculations that have to be made by the human deterministic system in the course of deciding what to do – according to Mill's revised Associationist analysis - the term 'control system' may be allowed. And the more significant point of course is this: that what I am calling a control system is in fact the deterministic apparatus which Mill is identifying as the person's *character* [16].

The Millian character then turns out to be a complex, sophisticated structure. It has to do all the things we know that a person has to do in deciding from moment to moment how to act. It is a key feature of a person, but it is not simply the person him or herself. It is rather a determinate sub-system which a person *has*. A person has also a body, and a person has also a history which starts before the character is fully formed – and maybe, we might think, before it has made any kind of appearance. And the *person* may also be considered to survive even though the *character* might be pretty much destroyed by the quiet wrecking ball of dementia. The character, I interpret Mill to be thinking, is of the last importance to a person, because without it behaviour becomes chaotic: but it is not absolutely everything. It is in fact, he thinks, that component of the human deterministic system that governs its behaviour.

A person's character is for Mill, effectively, the control system for the deterministic system that they are. When it is 'fully formed' it is a person's character which determines, in context, what they do. It incorporates desires, (together with, in each case, its urgency and importance), and it has access to the information supplied by the senses, memories, beliefs, thoughts. It weighs conflicting motivations, calculates what action is indicated and puts it in train. And because among the system's top motivators is the desire to improve its own behaviour (which is to generate as much happiness in the world as possible), in virtue of memory and feedback the future is bright.

Such, I believe, is the *aperçue* expressed, with wild excess of concision, by Mill's italicization of his key realisation '*if we will*'.[17]

How does the 'control-system' account of a person's 'character' differ from the model Mill is rejecting? A person's character in the 18th Century is how a person habitually behaves: but in the 19th it is what *makes* a person act as they do. In both periods there were efforts to mould a young person's behaviour. In the earlier period the ruling theory was to instil approved behaviours through establishing appropriate *habits.* In the 19th

Century, though this principle was by no means fully abandoned, the principal objective of education became that of instilling appropriate *aims.*

Crudely put, generosity before Mill is how a person behaves: afterwards it becomes what makes a person behave generously. An educator in the 18th Century beats *habits* into a person while the modern 19th Century school seeks to instil desirable *goals*.

Mill's intellectual environment

What was there in Mill's intellectual environment that helped him in rethinking the potential of deterministic systems – such as, he thought, the human being?

1. Hegel promulgated analysis in terms of process rather than event.

Though this wasn't Mill's agenda, the pursuit of goals independently of human or indeed supernatural mentality was fundamental to some of the most influential thinking of the turn of the 18th Century. Hegel is best known for the vision of humankind moving through history towards

'fulfilment' of some sort. The Hegelian however appears to be thinking of history as escaping deterministic causality, which is exactly the thing Mill felt he could not accept. Mill's insight was to see that pursuing a goal might be possible for a wholly and unequivocally *deterministic* system, whereas what we read in Hegel is: '...purpose is the immediate, the undisturbed, the unmoved which is self-moving...'[18]

Hegel was also a pioneer however in understanding the significance of science shifting its focus from *event* to *process.* He was developing his 'dialectical' perspective on history and science during the early two decades of the 19th Century[19] – the perspective in which, as Engels later commented, 'for the first time the whole world, natural, historical, intellectual, is represented as a process, i.e., as in constant motion, change, transformation, development...' [20].

2. The emergence of (bare) process: chemistry, physiology, geology, astronomy; and industrial techniques.

The (bare) idea of 'process', a repeating sequence of events, was also attracting, at the turn of the 18th Century, a good deal of interest from students of chemistry and (emerging) physiology, attempting to understand

the chemical changes they thought must be taking place in animals and plants. First they thought of iterative cycles of chemical changes as replacing or restoring structures that had been damaged or destroyed. But as studies multiplied the picture began to emerge of the animal or plant as itself *nothing other* than a complex of chemical processes, of chemicals interacting with each other iteratively, 'a workshop of material and dynamic transformations, maintaining its physical and chemical constitution through a perpetual exchange of matter and force with the outside world.'[21] [22] [23]

And this was also the time when process thinking was making its impact on geology: extended iterations of events were proposed to explain geological change by Hutton in the 1780s [24]. A little afterwards, mid-19th century, Darwin and Wallace were also thinking of sequences of changes repeating over extended periods of time and their effect over millions of years on animal and plant life. In astronomy, the energy of the earth was hypothesised (by J.R. Mayer in1848) as deriving from the constant bombardment of the sun by meteorites [25]. And outside science, 'process' techniques in industry began, in the early 19th Century, to displace manufacture by the 'batch by batch' - 'paleotechnical'[26]- technologies which had ruled hitherto.[27]

In employing the idea of a process therefore Mill's thoughts were flowing with the times; and the special type of process, one which incorporates feedback, had begun to gestate.

3. Romanticism

And then Romanticism[28], and the anticipatory *Sturm und Drang* movement, mounting the first great challenge to the mechanical or quasi-mechanical outlook of Early Modern empiricism, had felt the need for a different way of thinking about the human being.[29] An individual's life was to be seen as a striving towards the realization of what was pointed to, 'presaged', in the infant. Mill makes little of it directly– he remains persuaded of the Associationism which sees the richness of mentality as developing entirely from a Lockean *tabula rasa.* Nevertheless, might there not be a conception[30] here that may indeed be said to anticipate the human 'character' of Mill's construction, the idea of something 'inside' which steers?[31]

4. Babbage's ideas for an 'Analytical Engine' provides a pioneering case of a feedback process in a machine.

Significant numbers of *machines* capable of pursuing goals, or of simulating goal-seeking, only began to be designed and built in the 20th Century. But there was one striking exploration underway as Mill struggled to recover a positive outlook on life in the 1820s. In the year that saw Mill first assailed by dejection, 1826, Charles Babbage published an early paper developing a notation in which his plans for a new *calculating* machine might be expressed[32]. Babbage's plan was for a machine capable of working out algebraic equations. The more complex formulae required the machine to proceed by performing a sequence of operations, each of which, except the first, requiring for its start point the value or values already calculated by earlier ones.[33] That is to say, like Mill's human being, the Analytical Engine was to rely on 'feedback' - in the case of the Analytical Engine to perform its algebraic manipulations. Later sub-calculations had to take account of results obtained by earlier ones. Babbage is reputed to have described this feature as the machine 'biting its own tail' [34] [35].

The Millian character in play

Archbishop Temple

One of the most accessible expositions of the ‘control-system’ character is offered by a theologian, Archbishop Temple (1881-1944), offering in his lecture series *The Nature of Personality* Christian apologetics for the lay person early in the 20th Century. Temple’s account is particularly interesting from the present point of view because he himself was no specialist psychologist or philosopher any more than his audience of young students were. He was appealing to the ordinary experience and ordinary ways of thinking and behaving of the young people in front of him. [36] [37]

For Temple, as for Mill, the character of a human being is the complex within the human being which, structured during their formative years, comes to determine what they do in response to the different circumstances they encounter. Education, Temple says, must bring order to ‘the mere mass of impulses’ [38] with which the child is born, and this is done by getting him or her to adopt aims. To begin with it is the parent or teacher who possesses the relevant aims – for example the parent or teacher's aim to get the child to 'concentrate' - as a prerequisite to learning anything else. But at the heart of the later educational process would be the aim of getting

the child to adopt appropriate aims *of their own*. Ultimately - if all goes perfectly - the maturing adolescent acquires a single aspiration governing all the rest: what Temple calls 'a life's purpose'(*Ibid.* p.45.)[39] At that point the educator would be entitled to say to the young person: '[A]t first you were a mere mass of impulses; I have co-ordinated and systematised those impulses so that now you have a real will and purpose of your own …' [40]

Thomas Arnold

Almost a century before Archbishop Temple's setting out the presuppositions, as he saw them, of 'our' (i.e. early Twentieth Century) child-rearing practices, the Head of Rugby School Thomas Arnold had been urging the reform of the public schools along Millian lines. Schools must continue to instruct, certainly, but decisively beyond that they must instil appropriate *goals*. 'Instruction,' as in teaching languages, was not their only, nor their chief, responsibility. Their 'great work' was to be *education*. And the purpose of education 'is to make us love what is good, and therefore not only know it, but do it.'[41] It was thus a matter of 'the formation of character'. [42] [43]

How was the desire to pursue the good to be installed? Above all, in Arnold's view, by embedding the scholars in a culture which constantly presents them with examples to emulate - the right teachers, but also older boys ahead of them on the path; and carefully chosen literature [44]. And once you have given 'a boy or child' the aim considered appropriate to steer him or herself through life you should withdraw. He can now steer *himself,* (and she *hers*): 'It is true ... that boys and children have no right to govern themselves while they remain boys and children... But as soon as boys [sic] arrive at manhood...the child has a right to govern himself... A child then has no right to govern himself while he is a child, but he has a right so to be governed as shall qualify him for governing himself hereafter...'[45] Perhaps it would be fair to gloss Arnold's precept thus: with the right object installed as overall aim, the human system can safely be left to steer itself.

David Stow – a Millian character-based educational and reform theory contrasted with predecessors.

Contrast these examples if you will with educational theory as it was offered prior to the Millian articulation of character as control system. Very largely, it looked to establishing a battery of 'associations' - associations on the one hand between actions to be discouraged and pain,

and on the other, between actions to be encouraged and pleasure. But let my example of pre-Millian pedagogy look first to the more cheerful programme of the early 19th Century evangelical Christian reformer David Stow.

In Mill's own lifetime, we have an example there of educational theory which does *not* involve character as control-system, but which also avoids hanging miscreants from the ceiling. David Stow was an evangelical cleric who published his 'Training System' in the 1830s, advertising itself as offering "Moral School Training for Large Towns". Stow's key recommendation for the all-important 'moral' training of children was that a school should have daily access to an outside *playground.* A 'trainer' would join the pupils at play, not to check their behaviour but in the spirit of sharing their "youthful gaiety"[46]. On return to the schoolroom the trainer would lead a discussion of how the play session had gone on: and in particular on whatever selfish or inconsiderate behaviour that had been in evidence.

Miscreants thus identified and condemned they would see themselves as out of step with the broad majority of peers. And this would be enough, Stow insisted, to effect reform.

Stow took his inspiration from the state of the streets in Britain's early 19th C industrial heartlands, where gangs of youths, left to their own devices by parents taken out of the home by factory work, roamed wildly. There, as Stow perceived it, the individual's desire to be 'one of the gang' led to mayhem: but, he insisted, in a schoolroom properly organised and run according to Stow's principles, *the same motivation - the 'sympathy of numbers' - would lead to considerate behaviour and constructive learning*. There is no introduction of new desires, no 'control mechanism' being engineered: instead only the exploitation of an existing source of displeasure.

But it is of course the Millian notion of the human being as possessing a control-system which turns out to be decisively more influential: education comes to be about 'forming character', and forming character comes to be about developing a control system which encompasses all the individual's desires, needs, ambitions, aims, goals etc. - some innate, others introduced by others, some short term, some long, all marshalled into a comprehensive system, selecting, when perfected, the action which best suits the opportunity.

Prison reform

Likewise, in the field of prison reform, it is the alteration of a Millian character that is called for by 19th Century theorists of the penal system. Moving beyond the 18th Century associationism as it was understood before Mill – that is, associationism as powerless to give a person a new desire - a new aim in life was exactly what a prison regime should cultivate in its inmates. Prison reform discovers the importance of correcting character: the prisoner must emerge with a new aim in life, new desires, and the regime must be directed accordingly, with prison library and chaplain in aid[47].

The Millian character in imaginative literature

The Nineteenth Century sees a new turn in the nature of imaginative literature too. It affects writers across Europe, North America and perhaps beyond, and what it reflects, and develops, is the Millian way of thinking about the governance of action.

Modern science in this period is developing a detailed understanding of the animal brain and nervous system, and writers, some of them, catch the significance of the understanding of the human being which is beginning

to be articulated - the idea that the physical brain plays the key role in governing what goes on in the human body.[48]

The writer in English whose work was perhaps most influenced by the new scientific perspective was George Eliot. She brought awareness of physiology to her writing and tried to show what its implications were for understanding human actions.

Previous generations of authors had presented a person's decision to act in such and such a way as effected in typical cases by a small complex of motivations – e.g. love, revenge, ambition[49]. Or even it may be just a single passion that is drawn as responsible for 'action selection' – whereas in reality the typical human decision was, physiology implied, the outcome of a complex multiplicity of multifarious factors. That was her critique.[50] But what made her analyses of human action-selection fundamentally innovative was not the genus and number of distinct motivations involved in the analyses offered by traditional novels but the *scientific* perspective she brought to the task. It was that a person's actions were selected by the physical brain.

This didn't mean that a person acted in ignorance of what caused their behaviour. The scientific conception in Eliot's time supported the idea

that the brain's operations were physical but that they were also at the same time often things the person was aware of.[51] You had only to take careful note of what *thoughts* were passing through your mind to know the import of the *physical* processes going on in your brain. You could tell therefore, by studying your own thinking, the import of what relevant processes were going on in the brain as you made a decision.

What did a really careful 'observation' reveal of what was involved in making an action-decision? Eliot's thesis was that often the process was highly complex, involving many different 'considerations' - that is to say, 'thoughts' - that is to imply, brain processes. In *The Mill on the Floss* Eliot has a Mr Tulliver asking an acquaintance called Riley to recommend a reliable tutor for his son. Mr Riley responds to this request, without discernible hesitation, that a clergyman called Stelling would be just the man for the job. But she then adds five substantial paragraphs[52] reporting the thinking that lies behind the recommendation.

However, though she lists all the factors that she considered to be playing a part in the outcome - the apparently 'spontaneous' recommendation - she doesn't throw light on how these widely diverse factors are brought together and evaluated so that a single outcome selected. What is hidden is

the idea that the different considerations, with all their widely different sources, and all their various strengths, and indeed all their varying kinds (some memories, some aims, some ambitions, some dislikes, some arguments, some fully conscious thoughts, some thoughts that are scarcely conscious) could only effect a selection of action if there was some structure holding them all together into some causal nexus, yielding a single response to the question: Shall I recommend Rev Stelling? It is a structure with *this* role which is the Millian character, and the power of Eliot's discussion relies on its being there.

Action selection then is being thought of as essentially a deterministic physical process, a subsystem of the operation of the physical brain. And the novel? Its role becomes that of enlightening readers about the action-selection process in a suite of fictional people, in the belief that this will be entertaining and in the hope that it will be enlightening.

Though Eliot herself was relaxed about the possibility of causal factors sometimes entering into decisions 'unconsciously', other writers of imaginative literature in the 19th century placed in the centre of the stage motivation due to 'brain processes' of which the agent was *un*aware. Dostoevsky's Roskolnakov arrived at his destination without knowing

what brought him there in 1866, the world having been vouchsafed "Notes from Underground" a couple of years earlier.[53] Joseph Conrad's writing, leaving us in the end with the indelible picture of Lord Jim 'just jumping' from the doomed ship in the eponymous novel, took the genre, with the wind of Freud at its back, into the new century and beyond. With writers such as Eliot, as Walter Allen summarises, cutting corners admittedly, "plot" came to be abandoned, unless you say that "character, in fact, itself becomes plot"[54].

The 'Control System' today

The Millian character itself was not abandoned but subsumed, just as the Millian character did not replace the 'habits' nor the 'uneasinesses' [55] of the 17th and 18th Centuries but subsumed them. Today, perhaps, one might characterise the view we work with - reach for? - as that our character, still there, is now understood as a matter of teleological processing running on our - physical - nervous system.

END

References

Allen, Walter, 1954. *The English Novel.* Penguin, Harmondsworth.

Arnold, Matthew, 1897. *Selected Sermons* appearing in Findlay, J. J. (ed), *Arnold of Rugby,* 1898.
https://archive.org/details/arnoldofrugbyhis00finduoft/page/n6

Arnold, Matthew, 1845. 'Christian Duty Of Conceding The Roman Catholic Claims', appearing in *The Miscellaneous Works of Thomas Arnold,* First American Edition, 1845, New York etc, D. Appleton & Co.
https://archive.org/details/miscellaneouswo01stangoog/page/n166

Atkinson H.G. & Martineau H, 1851. *Letters on the Laws of Man's Nature and Development*, London, Chapman. (Reissued by CUP, 2009.)
https://archive.org/details/lettersonlawsma05martgoog/page/n9

Babbage, Charles, 1846. *Economy of Machinery and Manufactures.* John Murray, London.
https://archive.org/details/oneconomyofmachi00babbrich/page/n7

Babbage, Charles, 1864. *Passages from the Life of a Philosopher.* London, Longman.
https://archive.org/details/passagesfromlif01babbgoog/page/n11

Ball, Terence, 2017. "Psychology, Associationism, and Ethology" in Macleod, Christopher and Miller, Dale E. (eds), 2017.

Bernard, Claude, 1865. *An Introduction to the Study of Experimental Medicine,* originally published in French in 1865. Translation by H.C. Green, 1949, Schuman.
https://archive.org/details/b21270557/page/n7

Bradby, H.C., 1900. *Rugby, The Great Public Schools Series.* George Bell and Sons, London. Etext available from the Victorian Web.

Brock, William H., 1992. *The Fontana History of Chemistry.* Fontana, London.

Carpenter, William, 1875. *Principles of Mental Physiology*. King, London.
https://archive.org/details/principlesofment00carprich/page/n8

Dostoevski, Fyodor, 1864. *Notes from Underground,* first published in Russian as **Записки изъ подполья.** English translation Random House, London. 1993.

Eliot, George, 1860. *The Mill on the Floss.* (Date is of first publication in book form (3 volumes)). Modern edition: Penguin, Harmondsworth, 1985.

Engels, Friedrich, 1908. *Socialism, Utopian and Scientific*, trans. Aveling, Chicago, Kerr. Originally published in German in 1880.

https://archive.org/details/socialismutopian00engeuoft/page/n6
Findlay, J. J. (ed), 1898. *Arnold of Rugby*, Cambridge, CUP. (1st published 1897).
Foucault, Michel, 1991. *Discipline & Punish*. London, Penguin. Originally published in French, *Surveiller et punir,* 1975.
Hatheway A. W. & Doyle B. C., 2006. "Technical history of the town gas plants of the British Isles.". The Geological Society of London, 2006
https://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.472.7729
Hegel, Georg, 1807. *Phänomenologie des Geistes.* English translation: *Hegel's Phenomenology of Spirit*, 1977, trans. A.V. Miller. Oxford, OUP.
Hegel, Georg, 1817. *Encyklopädie der philosophischen Wissenschaften im Grundrisse.* English translation: *Encyclopedia of the philosophical sciences in basic outline*, 2015. Cambridge CUP.
Herder, 1772. *Treatise on the Origin of Language.* English translation: Forster, M.N., *Herder: Philosophical Writings*, 2012, Cambridge, CUP.
https://www.marxists.org/archive/herder/1772/origins-language.htm
Herzen, Alexandre, 1874. *Physiologie de la volunté.* Paris. Germer Baillière.
Hutton, James, 1788. *'Theory of the earth'* read before the *Royal Society of Edinburgh* on March 7th and April 4th 1785 and appearing in *Transactions of the Royal Society of Edinburgh*, Volume 1, 1788 p.209ff.
https://archive.org/stream/transactionsofro01roya#page/n323/mode/2up/search/%22+we+trace+the%22
Hyman, Anthony, 1982. *Charles Babbage: Pioneer of the Computer.* Oxford, OUP.
Kant, Immanuel, 1790. *Kritik der Urteilskraft*. English edition: *The Critique of Judgement.* English translation by J.C. Meredith, 1952. Oxford, OUP.
Lamarck, J.B., 1809. *Philosophia Zoologique.* English translation by Hugh Elliot: *Zoological Philosophy.* Macmillan, 1914.
https://archive.org/details/ZoologicalPhilosophy/page/n4
Lewes, G.H., 1879. *Problems of Life and Mind.* Third Series, Problem 1 - The Study of Psychology. Boston, Osgood, The Riverside Press, Cambridge.
https://archive.org/details/problemsoflife01leweuoft/page/n8
Locke, John, 1689 (though dated 1690). *An Essay Concerning Human [originally 'humane'] Understanding.* London, Eliz. Holt for Thomas Basset. *Online Library of Liberty version:*
https://oll.libertyfund.org/titles/761#lf0128-01_head_007

Macleod, Christopher and Miller, Dale E. (eds), 2017. *A Companion to Mill*, Chichester, Wiley-Blackwell.
McDougall, William, 1909. *An Introduction to Social Psychology.* London, Methuen. 2nd edition (1st edition 1908).
Mill, J.S. References to work of Mill make use of *The Collected Works of John Stuart Mill*, edited by John M. Robson (Toronto: University of Toronto Press, London: Routledge and Kegan Paul, 1963–91).
The Collected Works of John Stuart Mill, Volume I - Autobiography and Literary Essays, ed. John M. Robson and Jack Stillinger, introduction by Lord Robbins (Toronto: University of Toronto Press, London: Routledge and Kegan Paul, 1981). 17/06/2019. <https://oll.libertyfund.org/titles/242>
Mill, J.S., 1838. *Bentham*. *London and Westminster Review*, 7 & 29 (Aug.1838), 467-506.
https://oll.libertyfund.org/titles/241#Mill_0223-10_539
Mill, J.S., 1859. *On Liberty.* London: Parker. Modern edition:
https://oll.libertyfund.org/titles/233#lf0223-18_head_051
Mill, J.S., 1843. *System of Logic Part 2*. London. Parker.
Modern edition:
https://oll.libertyfund.org/titles/mill-the-collected-works-of-john-stuart-mill-volume-viii-a-system-of-logic-part-ii
Mill, J.S., 1863. *Utilitarianism*. London. Parker.
Modern edition:
https://oll.libertyfund.org/titles/mill-boll-48-j-s-mill-utilitarianism-1863
Mill, J.S., 1873. *Autobiography.* London. Longmans Green Reader and Dyer. Modern edition:
https://oll.libertyfund.org/titles/mill-the-collected-works-of-john-stuart-mill-volume-i-autobiography-and-literary-essays#lf0223-01
Mill, J.S., 1835. *Professor Sedgwick's Discourse.* London, *London Review.*
Modern edition:
https://oll.libertyfund.org/titles/241#Mill_0223-10_425
North, John, 1994. *Astronomy and Cosmology*. London, Fontana.
Pratt, Vernon, 1987. *Thinking Machines.* Blackwell, Oxford.
Richardson, Samuel, 1747-8. *Clarissa*. px; Letter XIV. Modern edition: 1985, Penguin, London.
Riskin, J., 2016. *The Restless Clock.* Chicago Press, Chicago and London.
Skorupski, J., 2007. "Mill, German Idealism, and the Analytic/Continental Divide" in Macleod and Miller (eds), *A Companion to Mill*, 2016.Wiley-Blackwell.

Smith, Roger. 2013. *Between Mind and Nature: A History of Psychology.* Reaktion, London.
Starobinski, Jean, 2003. *Action and Reaction.* Zone Books, New York.
Stow, David, 1836? *The Training System*. 8th Edition. Longman, 1850, London. 1st published? 1836. Website now carries an 'unsafe' warning: *https://archive.org/details/trainingsysteme00stowgoog/page/n11*
Temple, William, *The Nature of Personality.* Macmillan, 1911, London.
White, Glenda, website devoted to Stow. Now carrying an 'unsafe' warning.
Young, Robert M., 1970. *Mind, Brain and Adaptation in the Nineteenth-Century.* OUP, Oxford.

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[1] Terence Ball "Psychology, Associationism, and Ethology" in Macleod, Christopher and Miller Dale E. (eds), 2017.

[2] Riskin, 2016, Chapter 4.

[3] J.S.Mill, 1859, III,4. *https://oll.libertyfund.org/titles/233#Mill_0223-18_955.*

[4] "[G]iven the motives which are present to an individual's mind, and given likewise the character and disposition of the individual, the manner in which he will act might be unerringly inferred; that if we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event." Mill, *System of Logic*, Book VI, Chapter II Section 2. *https://oll.libertyfund.org/titles/247#lf0223-08_label_1223*

[5]Kant, 1790, English translation, 1952, Part II Section §14 (75), p.54.

[6]J.S. Mill, *Autobiography*, 1873, Ch 7, p169ff; etext. (Note: This wasn't the only account he gave of his emergence from despair.)

[7]"Morality consists of two parts. One of these is self-education; the training, by the human being himself, of his affections and will. That department is a blank in Bentham's system." Mill, *Bentham*, 1838. *https://oll.libertyfund.org/titles/241#Mill_0223-10_587*

[8]Mill, *Utilitarianism*, 1863. "It results from the preceding considerations, that there is in reality nothing desired except happiness." *https://oll.libertyfund.org/titles/241#Mill_0223-10_845*

[9]For the history of the development of goal-pursuit in (electronic) machinery see *Thinking Machines*, 1987, p.192.

[10] Mill, 1843. Book VI, Chapter II Section 3. *https://oll.libertyfund.org/titles/247#Mill_0223-08_449*

[11] "I perceived, that the word Necessity as a name for the doctrine of Cause and Effect applied to human action, carried with it a misleading association; and that this association was the operative force in the depressing and paralysing influence which I had experienced : I saw that though our character is formed by circumstances, our own desires can do much to shape those circumstances; and that what is really inspiriting and ennobling in the doctrine of freewill, is the conviction that we have real power over the formation of our own character ; that our will, by influencing some of our circumstances, can modify our future habits or capabilities of willing." Mill, 1873. Chapter V. *https://oll.libertyfund.org/titles/242#Mill_0223-01_401*

[12] Babbage and Mill came to know of each other's work in economic theory – both attending from time to time London's Political Economy Club, of which Mill was a member; Mill draws on Babbage's *Economy of Machinery and Manufactures.* See Anthony Hyman, *Charles Babbage:Pioneer of the Computer*, 1982, pp.103,104.

[13] "It is only when our purposes have become independent of the feelings of pain or pleasure from which they originally took their rise, that we are said to have a confirmed character." Mill, 1843, Book VI, Chapter II. *https://oll.libertyfund.org/titles/247#Mill_0223-08_453*

[14] "A habit of willing is what is commonly called a purpose..." Mill, 1843, Book VI, Chapter II, Section 4. *https://oll.libertyfund.org/titles/247#Mill_0223-08_453*

[15] "The action itself becomes an object of desire." Mill, 1843, Book VI, Chapter II, Section 4. *https://oll.libertyfund.org/titles/247#lf0223-08_label_1251*

[16] Mill endorses Novalis' *aperçu*: "A character is a completely fashioned will..." Mill, 1843, Book VI, Chapter II. *https://oll.libertyfund.org/titles/247#Mill_0223-08_453*

[17] Mill, 1843. Book VI Chapter II Section 3. *https://oll.libertyfund.org/titles/247#Mill_0223-08_449*

[18] Hegel, Georg, 1807. p.83.

[19] *Phenomenology of Spirit* (as *Phänomenologie des Geistes*) was published in 1807 and the *Encyclopaedia of the Philosophical Sciences* in 1817.

[20] Engels, 1908, p.85. *https://archive.org/details/socialismutopian00engeuoft/page/84*

[21] Herzen, Alexandre, 1874. p.129. Quotation prompted by Jean Starobinski, 2003, p.147.

[22] "Living bodies form for themselves, by the activity of their organs, the substance of their bodies", as Lamarck insists in 1809. See English translation of Lamarck, 1914, p.256. *https://archive.org/stream/ZoologicalPhilosophy/ZoologicalPhilosophyAnimals_Lak_506pgs51391278#page/n347/mode/2up/search/Living+bodies*

[23] Physiology shows us, says Engels, that "every organized being is every moment the same and not the same; every moment, it assimilates matter supplied from without, and gets rid of other matter; every moment, some cells of its body die and others build themselves anew; in a longer or shorter time, the matter of its body is completely renewed, and is replaced by other molecules of matter, so that every organized being is always itself, and yet something other than itself." Engels, 1908, p 81,2. First published 1880. *https://archive.org/stream/socialismutopian00engeuoft#page/80/mode/2up/search/every+organized+being*

[24] Hutton,1788. And note that in 1788 it was intelligible for the Earth to be thought of as a machine with a purpose, but only if its purpose is understood as the *Creator's* purpose in creating it: 'When we trace the part of which this terrestrial system is composed, and when we view the general connection of those several parts, the whole presents a machine of a peculiar construction by which it is adapted to a certain end. We perceive a fabric, erected in wisdom, to obtain a purpose worthy of the power that is apparent in the production of it.' (Hutton, 1788. p.209) *https://archive.org/stream/transactionsofro01roya#page/n323/mode/2up/search/%22+we+trace+the%22*

[25] North, John, 1994. p.458; the paper in which this suggestion is made is dated 1848.

[26] Brock,1992. p.284.

[27] Before 1900 the vast majority of industrial techniques involved batch-by-batch techniques: town gas was one of the first examples of

manufacture by continuous process – first introduced in 1805. See A. W. Hatheway & B. C. Doyle, 2006.

[28] Skorupski discusses Mill's appreciation of German romanticism in "Mill, German Idealism and the Analytic/Continental Divide" in Maclead and Miller (eds), 2017.

[29] "The human being," writes Herder, "came from the hands of nature … with the best immediate disposition to develop himself [sic] from the first moment." Herder, 1772, Second Part. https://www.marxists.org/archive/herder/1772/origins-language.htm

[30] A conception that owes much to the Aristotelian 'form' which played such an enormous role before it was displaced by the new thinking of the 17th Century.

[31] Mill was very much in touch with the Romantics' style of thinking, understanding it as playing a key part in his recovery from depression. Mill, 1873. *http://oll.libertyfund.org/titles/242#lf0223-01_footnote_nt_308_ref*

[32] Charles Babbage, 1826. And see Babbage, 1864, Ch VIII. *https://archive.org/stream/passagesfromlif01babbgoog#page/n124/mode/2up/search/contradistinction*

[33] Later, well after Mill's period of 'dejection', Babbage and Mill came to know of each other's work in economic theory - both attending from time to time London's *Political Economy Club*, of which Mill was a member; Mill draws on both Babbage's *Economy of Machinery and Manufactures* and his *Principles of Political Economy.* See Anthony Hyman, 1982, pp.103,104.

[34] Hyman, 1982, p.164.

[35] Here is the physiologist Claude Bernard using the same time-honoured figure in his seminal study, *An Introduction to the Study of Experimental Medicine,* originally published in 1865, identifying feedback control mechanisms in organic processes: "[C]omplex physiological phenomena are made up of a series of simpler phenomena each determining the other by associating together or combining for a common final object ... The ancient emblem representing life as a closed circle, formed by a serpent biting its own tail, gives a fairly accurate picture of things."(Translation by H.C.Green published in 1949, pp. 87,8) *https://archive.org/details/b21270557/page/86*

[36] The immediate audience of Temple's lectures were Oxford students in 1910 - see William Temple, 1911, p.vii. - no more schooled in then-accepted techniques of child-rearing than he was himself.

[37] Temple draws heavily, as he points out, on the 'social psychologist' William Mcdougall: “No doubt the vague movements of the infant are teleological or purposive in the lowliest sense of the word ; but actions do not become the expressions of conscious purpose until the individual attains the capacity of representing the end towards which he feels himself impelled. At the intermediate level of development of the personality, the ends or final causes of his action are immediate, various, and often inharmonious with one another; with the development of a unified personality, (i.e. of clear self-consciousness, a consistent ideal of conduct and a strong sentiment for the self and for that ideal), these are more and more superseded and controlled by a single powerful final cause, the ideal of the self.” William McDougall, 1909. p.263.

[38] Temple, 1911. p.28.

[39] Temple, 1911. p.45.

[40] Temple, 1911. pp.28,29.

[41] Arnold, *Selected Sermons*, appearing in Findlay, J. J. (ed), 1898, p.190.

[42] Mill, *Professor Sedgwick's Discourse*, 1835. p.285. From the Collected Works, 1963.
https://oll.libertyfund.org/titles/241#Mill_0223-10_425

[43] As H.C.Bradby explains - he was one of Arnold's admirers at the end of the century - education properly so called, i.e. teaching and learning beyond mere instruction, was thus for Arnold a matter of “the formation of character”. “The ideal which he set before himself was to train boys to become not merely scholars but Christian gentlemen.” Bradby, H. C., 1900.

[44] “A school does its best to educate as well as to instruct , when not only does the teacher's example agree with his teaching, but when he does his endeavour to make the example and influence of the boys themselves - a far greater matter than his own - agree with it also.”Arnold, *Selected Sermons*, appearing in Findlay, J. J.(ed), 1898, p.191.

[45] Arnold, 'Christian Duty Of Conceding The Roman Catholic Claims', in *The Miscellaneous Works of Thomas Arnold*, 1845, p.176.

[46] Stow, *The Training System of Education*, 1st published 1836 (although authorities suggest an edition published prior to 1836 has been lost).

The suggestion is made however on a website my browser said to be malformed - *https://davidstow.org.uk/stow-and-the-development-of-teacher-training/stow-and-the-development-of-teacher-training/.*

[47] Foucault, Michel, 1991. For summary statements see p.99.

[48] For authoritative overviews see Robert M. Young, 1970 and Roger Smith, 2013.

[49] cf. "I have three passions that sway me by turns; all imperial ones. Love, revenge, ambition, or a desire of conquest." Lovelace, in Richardson's *Clarissa,* px; Letter XIV.

[50] And her implied wholesale dismissal of so much previous imaginative writing was, we might think, breathtaking… (a point I owe to the poet Ian House).

[51] Carpenter: "*Mind*... is essentially *active;* all its states are states of *change*; and of these changes we become directly or immediately conscious by our own experience of them." Carpenter, 1875, p 12.

- Eliot's partner and intellectual collaborator George Henry Lewes: "[E]very mental fact is at once a state of Feeling and a state of the Organism." Lewes, *Problems of Life and Mind.* Third Series, 1879, p.86

- Henry George Atkinson: "Mind is the product of the brain. It is not a thing having a seat or home in the brain; but it is the manifestation or expression of the brain in action; as heat and light are of fire, and fragrance of the flower." Atkinson, Letter 1, from Atkinson and Martineau, 1851, p.17-18. *https://archive.org/details/lettersonlawsma05martgoog/page/n34*

[52] Just one of the five substantial paragraphs: "Consider, too, that all the pleasant little dim ideas and complacencies — of standing well with Timpson, of dispensing advice when he was asked for it, of impressing his friend Tulliver with additional respect, of saying something, and saying it emphatically, with other inappreciably minute ingredients that went along with the warm hearth and the brandy-and-water to make up Mr. Riley's consciousness on this occasion — would have been a mere blank." Eliot, *The Mill on the Floss.* 1985, p.77.

[53] "In every man's memories there are such things as he will reveal not to everyone, but perhaps only to friends. There are also such as he will reveal not even to friends, but only to himself, and that in secret. Then, finally, there are such as a man is afraid to reveal even to himself, and

every decent man will have accumulated quite a few things of this sort." Dostoevski, *Notes from Underground*, 1993, p.39. First published in Russian, 1864.

[54] Walter Allen, 1954, p. 221.

[55] Locke, *An Essay Concerning Human[e] Understanding*,1689 (though dated 1690). Book II, Chapter XXI Section 31. *https://oll.libertyfund.org/titles/761#Locke_0128-01_530*

Appendices

Wordcount

Paper has 7,628 words including References.