

Who'd have thought?

AI – another act in the class struggle[⊗]

BEYOND media catastrophism that 'The sky is falling – again,' at issue for wage-slaves is how might Artificial Intelligence (AI), or Artificial General Intelligence (AGI),* be used against our class more than AI already is. Headlines proclaim the disappearance of hundreds of millions of jobs yet never mention its use in disciplining labour-times to intensify the application of our labour to push up capital's take of relative surplus-value.

By way of corrective, these notes introduce two contexts, each with several layers:

- A. the dialectical reasoning of historical materialism crucial for scrutinizing intelligence in any of its manifestations;
- B. Marx's critical analysis of political economy applied to how agents of the boss-class strive to maximise its gains from High-tech.

Since there are no hand-me-down solutions, these pages can do no more than open windows onto the above. Nonetheless, to ponder the uses of AI outside the compass of intelligence and without the impress of class struggle is to compound error.

Although we shall never reach absolute truth about our physical or social worlds, an organised working-class can move towards a keener understanding of how the agents of capital will use AI because our labour is integral to every remaking of how value is reproduced. By struggling in workplaces and against Australia's covert class dictatorship, we learn by doing while reformulating our interpretations through what we have done, failures included. At each step, our motto is Marx's 'Question everything.'

[⊗] (Notes expanded from an interview with Jan Bartlett on 3CR, June 29, 2023 – seventeen years to the day after Steve Jobs introduced the Apple i-phone which announced an end to 'part-time' work.)

* AI is what confronts wage-slaves for the time being; AGI will be when a machine is able to do everything any human can. One indication of the hype is how AI is being boosted as if OpenSource/Chatbox could deliver AGI, even though its votaries admit it is a good way off, like next century, perhaps in tandem with room-temperature Quantum Supremacy - that other Philosopher's Stone.

A. MATERIALIST DIALECTICS

BEFORE getting started, a mutation of what Engels scarified as 'shame-faced materialism' among scientists of his generation has to be faced-down. A no-less shameless Philosophical Idea-ism now afflicts many who style themselves as Marxist. These anti-capitalists bring to mind the sketch which Marx and Engels drew of the Young Hegelians: 'Once upon a time a valiant fellow had the idea that men were drowned in water only because they were possessed with *the idea of gravity ...*' (*German Ideology*, 2) Today's mentalists may not believe in spooks but they convince each other that 'ideology' gives 'Neo-liberalism' the wherewithal to move about the globe wreaking havoc, just as the so-called Neo-liberals claim the obverse for 'the market.' Categories do nothing. Only the real, living agents of *self*-monopolising capital can impose 'Neo-liberal' policies to service its needs.

Human intelligence

In this multiplication of causes which have entered between that fact and the ultimate effect, the former is, at the same time, connected with other things and circumstances, so that the complete effect is contained, not in that first term, which was pronounced to be the cause, but only in these several causes *together*.

Hegel, *Science of Logic*, (1812/31).

One arm for our fighting back will be to refresh our collective working knowledges of materialist explorations of intelligence in humans, among other animals and for machines. Accounting for each has been infected with class interests, for instance, with IQ tests proving that rich white females are inherently more intelligent than poor black males. The Marxist polymath Stephen Jay Gould demolished such 'science' in his *The Mismeasure of Man* (1981).

What is *not* artificial in human intelligence? The answer is our innate ability to learn. Beyond that potential, everything becomes 'artificial,' though framed within physiological inputs and constraints. We enhance those combinations upon our learning to communicate. No one is born speaking Urdu or able to Sign. We get to do so by being part of a community – a household, a mob. Marx dismisses 'as preposterous' any account of 'the development of speech without individuals who live together,' and who can 'talk to one another.' (*CCPE*, 189)

Engels takes Darwin's epigones to task for promoting 'the whole manifold wealth of historical evolution and complexity in the meagre and one-sided phrase

“struggle for existence”.’* (DoN, 312-3) Moreover, since the means for our survival are socially reproduced, cooperation and competition could never be mutually exclusive, as became apparent again when the cooperation among factory-hands made its workplace divisions possible. (*Capital* I: chapters 13-14) The co-discoverer of natural selection, the socialist Alfred Russell Wallace, never tired of proposing that species evolve through co-operating as much as by competing, as did Kropotkin in *Mutual Aid: a factor in evolution* (1902). Since the 1970s, their perceptions have gained research endorsement from Lynn Margulis as endosymbiosis. (*The Symbiotic Planet, a New Look at Evolution*, 1998).

Human intelligence is also social because we inherit bodies of knowledge. Isaac Newton, reputedly the greatest genius ever, took years to formulate the binominal theorem, yet, as Marx points out, by the 1860s ‘a schoolboy can learn how to prove one in an hour.’ (*Theories of Surplus-Value*, I, 343). No indigenous Australian could have done so at that time any more than Newton could have tracked a Euro after an hour’s observation of a Nyungar’s doing so. Those differences are not evidence of racial hierarchy but of social inheritances from meeting communal needs.

Furthermore, instructing English schoolboys in mathematics had become easier because of another social inheritance when Cambridge undergraduates set out in 1812 to replace the Newtonian symbols for the derivative of a function with those from Leibnitz. Babbage joked that he promulgated D-ism (dy/dx) over Dot-age (\dot{x} \ddot{x}).

ON ROUTE to articulation or to algebra, we each undertake and undergo a spectrum of social practices and physical processes. Some are pre-natal, with foetal alcohol and methadone syndromes at one extreme. Before conception, nutritional advantages or deprivations in parents shape developmental paths in their offspring; others take effect in the womb, such as from a lack of folic acid.

Although Engels saw that switching to a meat diet had meant that the brain ‘received a far richer flow of the materials necessary for its nourishment and development,’ (DoN, 178-9) he would have none of the vulgar materialism of ‘What you eat today, walks and talks tomorrow,’ insisting instead that

... the body is not a steam-engine, which undergoes only friction and wear and tear. Physiological work is possible only with continued chemical changes in the body itself, depending also on the process of respiration and the work of the heart. Along with every muscular contraction or relaxation, chemical changes occur in the nerves and muscles, and these changes cannot be treated as parallel to those of coal in a steam-engine. (*Dialectics of Nature*, 316)

Engels is here elaborating what Marvin Harris would later call *Cultural Materialism* (1979), where ‘culture’ is recognised as shifting sets of social practices interacting

* Marvin Harris proposes ‘Biological Spencerianism’ in place of ‘Social Darwinism,’ *The Rise of Anthropological Theory*, 1968, chapters 5 to 8.

with our brains and bodies. (Enders, *GUT the inside story of our body's most under-rated organ*, 2015.)

Engels registers those connections in how a meat diet 'led to two new advances of decisive importance – the harnessing of fire and the domestication of animals.' His essay on 'The Part Played by Labour in the Transition from Ape to Man' adds that the 'the hand alone would never have achieved the steam-engine if, along with and parallel to the hand, and partly owing to it, the brain of man had not correspondingly developed,' highlighting that 'the hand is not only the organ of labour, it is also the product of labour.' (DoN, 174) (Alfred Sohn-Retheel, *Intellectual and Manual Labour*, 1978). Once 'labour' is understood as the totality of our social practices, from pottery to poetry, we can perceive how expansions in our capacities has short-circuited our development as individuals, eliminating any recapitulation of the evolutionary course of our species. (Stephen Jay Gould, *Ontogeny and Phylogeny*, 1977)

That insight cannot of itself tell us at which ages we are able to learn this or that. Unlike foals and lambs, infants cannot totter at birth, or walk before precursor cells attach muscles to bones for voluntary movement. One psycho-social achievement is to distinguish ourselves from others – the 'I/Thou' problem – a feat which can take four or five years. (Jacques Lacan, 'The Mirror-Phase as Formative of the Function of the I,' *New Left Review*, 51, 1968).

Throughout these mental-somatic interactions, the sheathing of brains with myelin allows impulses to move faster and more efficiently along nerve cells. This process begins for hearing at six months after conception, takes a further nine months for seeing, and is not always complete until the age of seven. One effect is the timing for our capacity to read, usually not until around five or seven, when boys tend to lag behind girls, though both are equally competent by around fifteen. (Maryanne Wolf, *Proust and the Squid, The Story of the Reading Brain*, 2007).

Myelin is not the sole determinate since the pace of becoming literate is affected by the range and richness of aural and visual experiences, with chronic ear and eye infections as impediments. A goodly number of children hear 32-million fewer words before school-age than their advantaged peers, and from a vocabulary with half the variety and complexity, often commands and denials. Word-poor kids can be as much as three years behind before they enter secondary school. One result is that they are the most likely to rely on Apple's Siri or Hey Google. AI is educating those Digital Natives down to a pre-literate state, further depleting related realms in their brains.

Dopamine is a neurotransmitter which regulates the brain's reward-pleasure centers, and powers addiction to sugar and to anti-social media, each deserving the label of 'dopamine lollipop.' From decades of brain scans of children, Susan Greenfield reports that repeated instant gratifications from gaming is reconfiguring neural circuitry, a switch more potent in the young when those pathways are being established. (*Mind Change. How Digital Technologies are Leaving their Mark on Our Brains*, 2014)

Less direct consequences on infants follow from commodities marketed as 'personal' but prove impersonal when carers go AWOL on their mobiles to deprive babies of the eye contact needed for attachment. That serial child abuse threatens effects worse than the pandemic of myopia among successive cohorts because of too much screen-time and too little, if any, outdoor play, so that eye muscles do not develop for long-distance vision, a causal chain established by the Australian materialist dialectician, Ian Morgan (*The Lancet*, May 5, 2012), against U.S. genetic determinists.

The combination of deficits led the socialist epidemiologist Fiona Stanley, Australian of the Year for 2003, to hold that a 'Brain Drain' begins before the age of five.

That there is no universal, single or unilinear socio-economic or physiological determinate for individuals applies to our invention of literacy some 6,000 years ago in several cultures and in different formats – alphabet or pictogram. Writing became possible because of physical characteristics but they required our forebears to make connections between visual, auditory, executive and memory areas of the brain. In yet another instance of the import of socialisation, our species took 2,000 years to establish those cognitive changes whereas a child now needs 2,000 days.

That we became literate is another contribution from collective human practices, 'the work of history.' (*Capital*, I: 125) Its fractured emergence overlapped with shifts in how our species sustained itself as irrigated agriculture began to displace hunter-gatherers towards the end of the glacial maximum, c.10,000BP.

Sweeps across the course of human development make actuality checks of time, manner and place essential. Pictograms build different neural pathways than those in children who absorb alphabets. The Protestant Reformations battled for bibles in the vernacular. Russian Orthodoxy privileged the Iconostasis as a window into the Divine. Both have after-lives in our desacralized cultures, in cadences from the King James Version, and icons of Lenin and Stalin in the 'corner' of Soviet flats.

The socially acquired and activated components of human intelligence are not confined to its socio-political and economic contexts but interact in modifying physiological elements while being reshaped by those changes. How exactly they can be at once conditioned and conditioning is the dialectician's dilemma. During the past twenty-five years, one revision in our understanding has been to accept interactions between social practice and the phenotype. These changes outside the DNA sequence supplement how genes do their work, but do not replace them. (Edward J. Steele *et al.*, *Lamarck's Signature*, 1998; Nessa Carey, *The Epigenetics Revolution*, 2012).

Russell Jacoby posed a law of the tendency of the rate of intelligence to fall as a consequence of political and economic conditioning. (*Telos*, 27, 1976) Those social drivers are intensifying, more than ever bound to physiological inputs from the High-Tech and poisonous-food industries. We adapt to all that we inherit from devices and diets, those mutual reinforcers of malnutrition among the obese. Jacoby opened with a paradox: a fall in the rate of intelligence makes it difficult to recognise

its existence, while continued declines will make it ever harder to analyse its sources and effects. A second paradox is that if the rate had been falling, it did so while IQ scores were on the rise. (James Flynn, *Psychological Bulletin*, 1987). Does teaching to the test for NAPLAN shrink qualitative expressions of intelligence?

Consciousness

AS MUCH as we have yet to learn about our bodies, we have far more to discover about consciousness, despite all the MRI scans. Thirty years back, the Marxist neuro-physiologist Stephen Rose thought we were over five percent of the way in regard to his area of expertise, memory. (*The Making of Memory, from Molecules to Minds*, 1992). By then, researchers had established that we retain memories by altering them each time we recall them. Forgetting is also an active process. Each differs from storage in and retrieval from the Cloud – although that branch of Amazonia is subject to aphasia. Stop paying, and your selfies are erased.

One certainty is that we are not hard-wired for anything – not for war-crimes or for tax-deductible philanthropy. ‘Hard-wired’ has become another ruling-class metaphor to allege that ‘human nature’ is fixed forever and a day; hence, we are stuck with capitalism, and had better just get over it. Moreover, ‘hard-wired’ is anachronistic, a relic from the telegraph, the telephone and computers before transistors. Engineers replace one inorganic component with another: we evolve through rerouting neural pathways. Wires no more operate inside our cerebella than in our lap-tops. The divide is not bridged by dragging ‘soft-ware’ across to take the role of ‘mind’ in a Cartesian playhouse.

In prospect is that the fallacy of our being hard-wired will be overtaken by the actuality of our being micro-chipped. People are lining up to have chips inserted into their arms (not the ones concealed in Covid shots). Musk is looking forward to putting one of his Neuralink chips into his brain. That wish leads to a puzzle: will the chip be attached to Musk, or he to it?

Eye glasses were among the earliest prosthetics, followed by telescopes and microscopes to extend our sight. A sprawl of commodities has since provided the means to fly and to communicate further than a voice can carry. Are they extensions of our bodies or have we become their appendages? Since the i-Phone, there is less room to doubt that our species is falling victim to what Marx said of machinery’s being ‘misused in order to transform the worker, from his very childhood, into a part of a specialised machine.’ (*Capital*, I: 547). That machine is no longer confined to one’s workplace, but is the socio-economic system under the rule of capital.

Edmund Carpenter’s *Oh, What a Blow That Phantom Gave Me!* (1972) reports how the screening of ethnographic documentaries[#] of traditional rituals to their performers transformed those practices and, in some cases, replaced them: ‘New media,’ he writes, ‘allow us to escape from old environments, but soon become means to imprison us in new environments, namely themselves.’ More than that,

[#] And Dennis O’Rourke’s documentary, *Yap: How did you know that we’d like TV?* (1981).

they are additional 'means to imprison us' to corporates and state apparatuses, repressive and ideological. (Louis Althusser, *Lenin and Philosophy*, 1970).

Other animals

One pre-condition for understanding human intelligence is to recognise that *homo sapiens* is part of the animal kingdom. Koalas and whales are *other* animals, members of different species, not the result of a separate creation. Animal liberationists prove anthropocentric when they speak of our responsibilities towards 'animals' and not to 'other animals.' Some degree of anthropomorphism is inescapable because we are animals, and because we continue to interact with other animals, as pets, or on our plates. (J.S. Kennedy, *The New Anthropomorphism*, 1992).

Like us, those animals are mixtures of innate capacities and learned expressions. Lyre-birds mimic others. One more way to see why socialising applies to other creatures is by sparing a thought for the desperates who pay tens of thousands to have their furry children cloned. The owners do not get their old dogs back, just look-alikes, without any of their life experiences, and so in need of puppy-training before psychoanalysis and yoga. In a variant of anthropomorphism, engineers and programmers attribute personalities to a metallic regiment of R2D2s.

Philip K. Dick's *Do Androids Dream of Electric Sheep?* (1968) asks what happens to our humanness when all other animals are replicants. Thanks to the director's cut of *Bladerunner* (1991), we thought we knew what his novel was about without having it read it. Wrong again. Ridley Scott's movie is a visual treat but deals with no more than five percent of Dick's Speculative Fiction, which is ninety-five percent more stimulating than the cops-and-robbers on screen. Dick's conundrum deserves a director equal to his intelligence – a Haneke or a Wertmuller.

But can androids dream? And what do human beings do when we dream? Sort the files of the day's doings? Algorithms do that all the day long. Or indulge in Freudian wish-fulfilment?

Advances in our understanding of human intelligence will require attending to interactions between the physical and the socio-cultural via our re-making of what we continue to inherit in each realm. Their metamorphizing supplies a standard against which to ponder whether any inanimate device is capable of the flux between sensitivity and sadism, sagacity and stupidity, that scores our species being.

How might a Chatbox experience lust, wrath, pride, envy, gluttony, greed or sloth? Algorithms can be fed dictionary definitions and filled with libraries of history and literature around the seven deadly sins but still have fat chance of recreating the Falstaff from *Henry V* into the Falstaff of *The Merry Wives of Windsor* without ever farting or fucking, belching or boasting.[∅]

[∅] That AI has been generating sequels for Hollywood blockbusters is obvious from sitting through their trailers. Striking Hollywood writers and actors risk being replaced by production techniques to which many of them contributed, recalling Marx's insight: 'It would be possible to write a whole history of the inventions made since 1830s for the sole purpose of providing capital with weapons against working-class revolt.' (*Capital*, I: 562-3)

Difficulties arise in using our brains to explain their workings before we are half-way sure about whether a brain is more than its expressions as intelligence, imagination, memory and consciousness. Adult male brains have 171 billion cells, including 86 billion neurons, but quantitative data cannot account for the qualitative elements in the workings between mind, body and brain. To contend that 'intelligence is imagination' and 'imagination is intelligence' is to be trapped on what Hegel derides as an 'eternal futile see-saw' of tautologies. By contrast, science is practised by penetrating appearances in search of the dynamics below, and then back to the surface, repeating the cycle in further clarifying both levels. In that spirit, our exploration of the promise and threats from 'artificial intelligence' returns to the particularising of each term.

Machine Intelligence

That machine intelligence is *artificial* is assumed more often than argued, a cliché challenged by attending to the distinction that Marx establishes between a machine and a tool:

The machine, therefore, is a mechanism which, after being set in motion, performs with its tools the same operations as the worker formerly did with similar tools. Whether the motive power is derived from man, or in turn from a machine, makes no difference here. (*Capital*, I: 495).[#]

Aristotle knew his chattel-slaves as 'speaking tools.' By contrast, an inanimate tool – an axe - neither speaks nor moves, able neither to conceptualize nor execute without the promptings of human intelligence. Many machines do move but almost all still need to be 'set in motion,' including self-driving vehicles. Alone in a room, machines do nothing but rust. Abandon a new-born and it will die of dehydration in a few hours. For us, the social is fundamental to the multiple processes of our becoming, one condition for our remaining human. Left to its own devices, an AI machine remains Aristotle's 'Idiot,' not man as a political animal.

Hubert Dreyfus in his *On the Internet* (2001) insists on an unbridgeable gulf between we humans and the most super of computers. Try this riff on how he illustrates the latter's limitations. If I say that Biden has put his foot in his mouth again, you do not have to be told that he has also put his big toe in his mouth. We do not have to be told because we have feet and toes. In short, we are sentient beings in a physical world. We know all that, and more, because of what Marx calls our 'sensuous human *activity*, as *practice ...*' (*GI*, 197) By contrast, the computer has to be told that a foot comes with five toes, that they are different shapes and sizes, that

[#] Motive power came from the operatives' muscles supplemented by waterwheels far more than by steam-engines. (Raphael Samuel, *History Workshop*, 3, 1977).

they have nails, and even which end of the foot they are on. And so it goes. Human beings might not be all that bright, but we know those details because we are human. AI devices can be taught about them only because all of us have been absorbing some from before birth, after which babies display an endless fascination with their toes while robots are stumbling up the stairs.

Dreyfus's dividing line is being breached. In one blending of the organic with the inorganic, jury-rigged African frog cells, known as Xenobots, perform programmable functions, and can self-replicate. CRISPR allows for gene-splicing and genome-editing on the guide sequences in RNA and – surprise, surprise – reproduces itself in courtroom disputes over patents.

Maintaining covert and overt class dictatorships spins on and off methods deployed on battlefronts and in workplaces. In this era of bio-botics and brainjacking, the U.S. Defence Advanced Research Projects Agency (DARPA) is funding BrainComputerInterFace, while the CIA looks forward to hacking into our brains – literally – courtesy of project BRAIN (Brain Research through Advanced Innovative Neurotechnologies). The next frontier is to combine neuralchips with Xenobots, a device at once mineral and animal, bringing AGI that much closer.

An 'imitation game'

NAMED after the code-breaker Alan Turing, 'The Turing Test' misrepresents his 28-page article, "Computing Machinery and Intelligence," (*Mind*, 59, no. 236, 1950), when Turing is the ghost in his own machine, his prose sparkling in an exchange with his *alter ego* about Shakespeare's homoerotic Sonnet 18. The article rewards a third read – the first for its scope, the second for its structure and the third for its subtleties.

We had not read it until earlier this year. What a run of surprises were in store.* We, of course, had picked up the truncated version with a man in one room and a machine in another; when the human cannot tell that his interlocutor is a machine, it qualifies as intelligent. Wrong. Turing has a man and a woman together in a room. An interlocutor, either male or female, is in another room, trying to figure out which of them is male and which female without being able to hear their voices. A machine attempts the same. When the human and the machine is each right around 70 percent of the time, the machine can be judged 'intelligent,' though not

* London to a brick that the professor of AI at UNSW (one Toby Walsh) has either never read Turing's article, or has forgotten it. His three books on AI are so threadbare that Chatbox would be ashamed to plagiarise them. It's worth skimming a couple of pages of one in a bookshop or library to appreciate how right Marx was to recognise that '[o]n the level plain, simple mounds look like hills; and the insipid flatness of our present bourgeoisie is to be measured by the altitude of its "great intellects".' (*Capital*, I: 654)

necessarily 'conscious.' (The machine in this 'imitation game' is not 'the Turing Machine' from his 1937 article, 'On computable numbers.')

Turing did not care for grafting skin onto robots, or suppose that their liking 'strawberries and cream' was a condition for intelligence. By clearing out such clutter, he broaches what it means for us to 'think' when we are thinking over what thinking might mean in a computer of the future. As much as he accepts that '[c]onjectures are of great importance since they suggest useful lines of research,' he gives up on his original question, 'Can machines think?,' believing it

to be too meaningless to deserve discussion. Nevertheless, I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted.

Not quite. Instead, everyday speech has absorbed the detritus of technological determinism with 'hard-wired,' just as 'educated' opinion now floats in a vat of 'conventional wisdom', and, not only as J.K. Galbraith mocks, because 'It is a far, far better thing to have a firm anchor in nonsense than to put out on the troubled sea of thought,' but also because keeping mum about class exploitation does no harm to career prospects around academe.

Six pages before the end, Turing laments his not being able to produce more than a thousand digits of programming a day with computer-power of 10^9 so that sixty co-workers could not develop the machine needed for his 'imitation game' until around 1999. Enter Moore's Law. Computing power is now hundreds of millions greater than in the 1970s. Since humans remain far from explicating our own intelligence, we cannot know how a latter-day Alan Turing might proffer 'an imitation game' for sub-conscious and unconscious should Quantum Supremacy be allied to Artificial General Intelligence.

In 1950, Turing could but propose the 'more expeditious method' of following the development of a child:

Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's? If this [programme?] were then subjected to an appropriate course of education one would obtain the adult brain.

This is not the occasion to challenge his slip from 'mind' to 'brain' as if synonyms, or his criterion of 'appropriate' to argue by tautology.

Instead, our attention turns to a U.S. researcher, Alison Gopnik, whose books include *The Philosophical Baby* and *The Scientist in the Crib*. Gopnik thinks beyond the conventionally-wise distortions of 'the Turing test' to explain how her lab

showed 4-year-olds on-screen machines that would light up when you put some combinations of virtual blocks on them but not others; different machines worked in different ways. The children had to figure out how the machines worked and say what to do to make them light up.

After a few goes, the infants got it right while AI systems, such as GPT-3, 'bombed.' Kids are great with unlikely outcomes whereas AI – and adults? – do better with

predictable ones.* Children 'are much better at answering counterfactual questions' because they enjoy 'pretending,' evoking Turing's choice of 'game' for his experiment, more than von Neuman's 'games theory.'

EXAMINING the bio-social nature of intelligence – that dualism of the physical and the cultural – has been in preparation for tracking more exactly how agents of the boss-class might extend their uses of AI to renovate millennia-old struggles within and between classes. One strand in that contest is how the conventional wisdoms swirling around 'intelligence' define the reasonable and the possible as no more than what is necessary for capitalism.

In *The Protestant Ethic and the 'Spirit' of Capitalism* (1905), Max Weber broke through such casuistry when he writes of '[t]he rational capitalistic organisation of (formally) free labour.' The brackets around 'formally' visualise his metaphor of an 'iron cage' in which 'free' labour is subjected to disciplines that derive their significance from 'connection with the capitalist labor organisation ... Exact calculation – the foundation for everything else – is only possible on the basis of free labour.' Within the il-logic of capital's compulsion to expand, its agents are rational calculators threading a Protestant Ethic through the needle's eye of profit-seeking.

Unlike Captain Ahab's pursuit of Moby-Dick, they dare not shout to the four winds: 'All my means are sane, my motive and my object mad.'

TO BE CONTINUED in B. a critical analysis of the political economy of time-theft.

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* Gopnik's results parallel evidence from pre-school classes of Philosophy For Children (P4C), see the 2010 French documentary, *Just a Beginning*, and the Italian *The Circles* (2022).