

## The Electronic Whip

The mechanical appliances consist of a chronometer and a motion-picture camera. This invention is the most powerful tool ever for the measurement of efficiency, suggesting the whip of owners or taskmasters in earlier times.

Editorial, *Australasian Engineering and Machinery*, April 1913, p. 39.

Remember the 35-hour week? Remember the promise of a 30-hour week when the greatest problem facing society and individuals was going to be how to fill up all our leisure time? Such was 'reality' forty years ago. In the early 1950s, Stalin announced that within ten, or maybe no more than fifteen years, the working week in the Soviet Union would be cut to thirty hours. Education would fill the rest of the week.

At the same time in the West, economic forces presented their other face. Mechanisation was destroying jobs. Mass unemployment loomed. In 1958, sackings in the Hunter Valley coalfields led to the appointment of Royal Commission into Automation. A Brisbane-based Trotskyite, Ken Kemshed masqueraded as a Fabian to get Dr Evatt to pen a Foreword to *Automation – Friend or Foe?*

Since then, the roller-coaster of threats from dole queues and promises of boundless free-time has gathered a bit of moss. Advanced economies maintain rates of joblessness between 10 and 25 percent, with at least as many people working fewer hours than they need to; others have withdrawn from trying to sell their labour-power. India and China each has a reserve army of labour of 2-300 millions. Yet some advanced economies face labour shortages so that the retirement age is being pushed back to seventy. This deform allows corporate lackeys to pretend that all will always be for the best in this best of all possible capitalist worlds. There need be no alternative.

'Five million jobs to go' in the next ten to fifteen years was the headline of a report in June this year from the Committee for the Economic Development of Australia. A report from Oxford University contends that half of the existing jobs in the U.S. won't be there in 2033. Even if these predictions are fulfilled, there need not be hundreds of millions more jobless. The cheery optimists point to the shift from farms to factories and then to offices during the twentieth century.

Nor is the worker the only one at risk. Of the 500 corporations in *Fortune's* first survey sixty years ago, only fifty retain a place. The shift in the balance of power between Procter & Gamble and Wal-Mart spotlights how the control of information effects job losses and corporate ranking. In 1987, Sam Walton talked one his major suppliers, Procter & Gamble, into allowing each of his stores to order direct according to inventories registered at its checkouts. P&G saw the benefits of sacking its sales force but did not anticipate that twenty years later its customer's total sales would be five times greater than its own and so was dictating prices, quality and packaging.

This study examines restructurings of the workforce as a basis from which to reflect on how to move towards communism. The discussion has six chapters. This opening installment summarises two recent articles on computerised production and the disciplining of labour-times: John Lanchester, 'The Robots are Coming', *London Review of Books*, 5 March 2015, pp. 3-8; and Esther Kaplan, 'The Spy Who Fired Me', *Harper's Magazine*, March 2015, pp. 31-41. Their findings are supplemented by other sources identified as we go. The second chapter offers sympathetic criticisms of Lanchester's call for property relations which can fulfill human capacities – in a word, socialism. In an effort to think strategically and act tactically towards that goal, Chapters four and five will place the current upheavals in the context of responses by the Australian labour movement to

previous restructurings. Finally, all these matters are reconsidered through the multi-focal lenses of the global collapse and growing income inequalities.

Neither Kaplan nor Lanchester explains why corporations must behave in the ways they report. Instead, they repeat the executives' chatter about 'efficiency', 'productivity' and 'profit'. This summary of their findings therefore is set within Marx's analysis of capital accumulation. His critique offers our only way to grasp where these corporate controls are leading. Thus armed, our class can better limit their impact. Those defensive measures must also be shaped into a strategy for the replacement of monopolising capitals by socialism en route to communism.

### **The Enduring Paradox**

The machine is a means for producing surplus-value.  
Marx, *Capital*, I.

The dynamics identified in the two prime sources appear to be carrying capitalism in opposing directions. Lanchester emphasises how machines will replace human labour. Kaplan is all about making employees work harder and longer.

Marx showed why both are necessary for the expansion of capital. When steam-power reduced the amount of human energy needed per unit of output, capitalists could work men longer and also employ more women and children at a wider range of tasks for as much as sixteen or eighteen hours a day, six days a week. The gas-lit factory abolished the difference between night and day. As Marx commented: 'Capitalism celebrated its orgies' of exploitation. These days, the new machines extend the working day past the eight-hours for which workers had struggled hard and long. The electronic devices keep workers either on the job or on call around the clock: capitalism murders sleep. (see Jonathan Crary's *24/7 Late Capitalism and the End of Sleep*, Verso, 2013.)

The seeming contradiction between fewer jobs and longer hours is a mark of the illogic that is capitalism. Captain Ahab in *Moby Dick* says: 'All my means are sane, my motive and my object mad.' That distinction is not true for capital. Its insane objective is sensible for its accumulation while loony for life on the planet. There are no 'good' and 'bad' ideas, no 'logical' thoughts and 'il-logical' ones. The divide is between schemes that are rational and good for the expansion of capital versus the ideas that benefit the rest of us. Neo-liberal ideology is an excellent idea for capital-in-general ('social capital' in Marx's terms).

Marx's critique of political economy remains the essential starting point for any analysis of capitalism. His account is predicated on how restructurings of the workforce brought the capitalist mode of production to dominance around 1800 with population drifts from rural to urban; a social division of labour driving the particularisation of work processes; the expansion of chattel slavery alongside that of wage-slavery; the transfer of men, women and children from cottage work into factories; the production of exchange-values for monetarised and remote markets overtaking that of households' providing use-values for domestic or local consumption.

Throughout *Capital*, Marx shows why workforce restructurings remain central to capital's expansion: accumulation of past labour is pivotal since labour-power is the only form of capital which can add value; value is the embodiment of labour (human capacities) in a new commodity; labour itself is commodified as labour-power which is bought and sold in units of labour-time; the value present in each product is determined by the socially necessary labour-time for its making; the equalisation of profit between capitals is achieved by matching and then cutting the universal labour-time applying within that market; the spread of the market for each commodity puts pressure on firms to reduce their socially necessary labour-time; divisions of labour between nation-market-states deepen divisions of labour in each workplace. In short, the capitalist mode of production proceeds through relentless restructurings of the workforce, both as social labour and

within firms. De-skilling, reskilling, de-labourisation and casualisation have been present from its birth, albeit in multifarious forms. Hence, to examine the current bouts of surveillance and automation is to reach into the heart, brain and kidneys of capitalism.

### **Disciplining labour-time**

Times change. Meanwhile, capital's need to discipline labour-times intensifies. The clock and camera remain but are now computerised and less obvious. Esther Kaplan begins with a claim by the CEO of Cornerstone OnDemand: 'It's time we managed people differently.' His firm is part of an \$11 billion industry – 'the Internet of things' - which is expected to gross \$30 billion by 2018. Other workforce-management systems are sold by Kronos, Microsoft's Yammer, Salesforce's Chatter and - anytime soon - Facebook at Work.

Their boosters in the media tell prospective clients: 'you can make boatloads of money literally year after year.' Not quite. That money derives from the values added by living labour. The control devices on offer help bosses to make their wage-slaves add that extra money to the corporate coffers. The agents and personifications of capital are always 'on the take'. They do not 'make' the profit themselves. Their job is to make employees do so as quickly as cheaply as possible. The computer is thus the latest 'means for increasing the production of relative surplus-value' - to amend Marx.

The workplace spies know full well that they dare not tell us - their targets - too much about 'what' is going on and even less about 'why'. No supervisor will proclaim: 'We are going to track you like a parolee in order to screw more "boatloads of money" out of you.' Hence, we are told only as much as is necessary for their systems to operate. When it comes to 'why', spin is the order of the day. A consultant advising GE Capital Fleet Services admits: 'How you present it to the driver may be different than how you present it to senior management.' For instance, safety is given as the explanation for introducing systems which, in truth, make jobs more hazardous.

Whatever a worker does on company equipment belongs to the firm. The American Management Association found that two-thirds of employers monitor internet use by their staff while 45 percent track their keystrokes and check their email. Only two States in the U.S. oblige firms to tell their workers what is happening. No specific legislative protections exist in Australia. Hence, it is wise to assume we are being monitored 24/7 by our employers – including the National Union of Workers in Victoria which locks onto the mobile devices of its organisers.

Moreover, there are no time limits to how long companies may keep the data they collect about our work practices. And since the information belongs to them, they may sell it to an employment agency or labour-hire firm. Our performance data can then be merged with our credit rating, the pattern of consumption from our credit cards, on-line shopping and fly-buys at the supermarket checkout - even if we pay with cash. Surveillance to boost the extraction of surplus value, and then profit, runs in harness with street cameras and NSA-type surveillance. (see Dan Schiller, 'We've got our eye on you', *Le Monde Diplomatique*, November 2014, pp. 1-3) As early as 1969, a senior vice-president from the Ogilvy & Mather New York agency raved about computers' letting corporates calibrate the effectiveness of each advertising media in reaching niche consumers. No Chinese Wall stands between the state and the market. There is not so much as picket fence between work hours and down-time – once known as leisure or play. Uber merged records of late-night 'rider-sharers' with crime figures to calculate how many of its users were visiting prostitutes.

MIT researcher Y-A de Montjoye needed to take only one more step to identify shoppers from anonymous credit-card billings or only four other bits of information from Facebook or LinkedIn. (*Science*, 347 (6221), 2015, pp. 536-9.) The brokers who provide marketers with consumer profiles will not be so coy about naming names. A cyber-security

academic responded: 'Little bits of data combined with data we shed in other places really create portraits.'

### **UPS and Australia Pest**

One of Kaplan's case studies deals with the tracking systems installed by United Parcel Services (UPS). Much of what she reports is either already in place at Australia Pest (AP) or is in train. Personal mail is headed for the dead-letter office. The 'boatloads of money' are in parcels. AP is installing a \$A2 billion automated sorting system. Lanchester describes the Kiva robots that Amazon 'employs' to make up and dispatch its parcels, carrying 1350kgs at a time or lifting an entire stack of shelves. After one wholesaler installed an electronic tasking system for its warehouses, the wages bill went down by a quarter although its sales were up by more than a third.

Kaplan's interest in UPS started after her packages were routinely returned to sender. The reason is 'telematics', which is the marriage of telecommunications and informatics. Put them together and you get data that is wireless transmitted from remote sensors to cloud computers for analysis. Each UPS van has 200 sensors which report vehicle speed, seat-belt use and the time it takes a driver to get from the parked vehicle to the recipient for a signature and back again. The UPS objective is rational: cut \$US100m. a year in fuel, maintenance and wages.

For any environmentally-concerned clients, UPS highlights that telematics means fewer driving miles and less idling time for a work-day saving of 330 gallons of petrol. That blessing happens to be less than one-millionth of the daily consumption of the entire country. But every bit helps, as the old woman said as she pee-ed in the sea.

Kaplan spoke with a driver who had been at UPS for fifteen years. As with every interviewee, he feared to be identified in a land where free speech is guaranteed by the Constitution. When he started with UPS, he would average eighty-five stops a day. Now he is expected to stop 110 times and deliver 400 packages. The proof of the profit-taking is in the numbers. Between 2009 and 2013, 1,000 fewer UPS drivers delivered 1.4 million more packages. UPS aims to get the productivity, aka profitability, of their drivers up by 20 percent, according to Telogis, which also sells telematics to AT&T and Coca-Cola.

How is that possible? Can telematics do it? Yes, but only by driving the drivers to work harder, longer and less carefully. On top of the whip of telematics, some firms pay piece-rates calculated on each item delivered.

Kaplan's informant leaves home at 7 a.m. and gets back around 9.30 at night. Like all his long-term workmates, he suffers joint and spinal injuries. He knows the eight rules for safe lifting. He also knows that if he did them every time he would not be able to keep up with the tighter schedules. Only young beginners can sprint up the stairs to make the expected number of deliveries inside anything approaching an eight-hour shift. One newcomer buckles his seatbelt behind him but it registers on his telematics as if he were wearing it. Others drive with the bulkhead door open to save a few more seconds at the start and finish of each stop. Do the sums. Thirty seconds at each of 100 stops is 3,000 seconds, or fifty minutes a day.

UBER is one more device for lowering the unit price of labour-time. Employees are between 20 and 30 percent more expensive than 'sub-contractors' because the latter get no health cover or other benefits. Trucking, construction and housekeeping are the workforce segments most prone to these dodges. UBER pretends to coordinate 'sharing' when it is actually employing, setting the prices, monitoring performance and booting off drivers if their ratings are too low. Its spin-doctors claim that UBER is like e-Bay, not like McDonald's. (*New Yorker*, 6 & 13 July 2015, p. 31.) 'The sharing economy' is the latest Big Lie, like 'Free Enterprise', which is the brand label that manufacturing corporations paid marketers millions to come up with in the 1940s for the era of monopolising capitals.

### **Labour-times**

In 1913, that ‘friend of the working man’, Justice Higgins, President of the Australia’s Court of Conciliation and Arbitration, spelt out the essential nature of time-control for capital: ‘the working time of the labourer is time purchased by the employer, who has exclusive right to it.’ That ruling need not be on any Statute Book since it is the foundation of the sale to capital of our labour-power in units of labour-time.

Californian employers forced farm-hands to use a short-handled hoe (*el cortito*) so that foremen knew at a glance whether a labourer was taking even the briefest of rests. The back-breaking implement had nothing to do with the quality of the hoeing and everything to do with the quantity of labour-time applied. Union pressure got the short-handled hoe banned in 1976.

Bosses have always understood that there is a difference between the labour-times that add value and the down-times that can’t. Master builders stood men down for fifteen minutes during a shower of rain. More extreme was the U.S. plant where women were made to wear diapers at the work-bench so as not to interrupt their adding of value to capital. (see Marc Linder, *Rest Breaks and the Right to Urinate on Company Time*, Cornell University Press, 1998)

Even today, physical chemistry can mean that there are periods when at least some workers have nothing to do. One solution is to alter the materials and methods. Before quick-drying paints, for instance, painters and decorators had to wait. Despite inventions, there will always be some gaps between the times when the wage-slaves can be adding the maximum amount of value and those times when they add less, or none. In those downtimes, they can be put to ancillary tasks such as tidying up. They might then put in more physical effort, but they will not be adding as much value. What is new is that the personifications of capital now have more of the information they need to shrink if not eliminate down-times within the total production time.

Today’s corporations pay for the data that lets them ‘distinguish between labour-time that generates profits and labour-time that does not.’ However, the print-outs from a single shift for a driver can be up to forty pages long. That avalanche is beyond the ability of managers to interpret. The telematics firms therefore run workshops on Key Performance Indicators – KPIs. A few clients crave more raw numbers. Most want a ‘killer KPI’, where all the information from all the sensors appears as one big number: ‘The killer KPI is labour cost as a fraction of revenue.’

Marx spelt this quest out in ways that capitalists and most of their learned apologists do not comprehend, and dare not proclaim if they do. To do so would be to admit the exploitative nature of the relations between wage-labour and capital. (Those connections are in chapter 7 of volume one of *Capital* on ‘Production Process: the Labour Process and the Valorisation Process’.) For academics to talk about the valorisation process risks broaching the scare word ‘exploitation’. Instead, erstwhile Marxists have sidetracked attention from the extraction of surplus value into studies of the Labour Process. Even those accounts have been gutted into little more than descriptions of workbench procedures.

## **Solidarity**

Kaplan’s driver informant has learnt why ‘People get intimidated and they work faster. It’s like when they whip animals. But this is a mental whip.’ From the other side of the cage, a supplier of telematics makes the same point: ‘The important thing is where the power lies. Drivers might not be happy being measured, but in the end they will yield.’

What determines the level of our wages? Answer: the relative strengths of the contending classes. Those strengths are not just economic or industrial but also political, social and cultural. In short, wages and conditions are set by our preparedness to use our collective strength. From around 1880 to about 1990, workers more or less organised our workplaces. In addition, real-existing socialisms kept the bosses on a shorter leash. Of

course, the spectre of communism never stopped their smashing and grabbing whenever they thought they could get away with it.

The state organises capital and disorganises labour. Or, put another way, the state attempts to do for the expansion of capital what its agents cannot achieve through their corporations. One example is how Gillard's un-FairWork Australia hobbles almost every effort by workers to protect let alone extend our rights at work.

Fewer wage-slaves now have any form of union protection. Or, when there is a union it is like \$40,000 Bill Short-on's AWU which long ago earned its title as Australia's Weakest Union. Similarly, the Shop, Distributive and Allied Employers' Association (SDA) does sweetheart deals with supermarket chains to get coverage, as we have just seen in South Australia over weekend penalty rates. By getting the chains to deduct membership dues, the SDA inoculates teenagers against unionism.

### **Are you being served?**

It is not only employees who are tracked by telematics. As customers, we are all subject to point-of-sale (POS) systems at the cash register. But most of the attention is on how fast the check-out person works. Each scan of every item is timed. Fewer than a certain number in a set time and the worker is on watch. More than a certain number of mistakes and the worker is put on probation. Hovering over even the staff who do turn in perfect KPIs is the threat of being replaced by self-serve check-outs. Self-service grocery began in Australia from 1939 at Brisbane Cash & Carry, to be followed by vending machines, self-service petrol stations, and now ATMs and on-line banking. The time we stand in queues or do paperwork shifts the time-cost from the corporates to us as customers. In planned economy, queues have been a form of rationing; under capitalism, they are wage-saving mechanisms.

Those time controls apply within shifts to make staff go faster. A far graver impact results from how sales data allocate shifts. In the good old days, we could negotiate our shifts to suit family needs. No longer. An algorithm in India now spews out a schedule to match the shifting patterns of demand anywhere from San Francisco to Sharpeville. A computer calculates the patterns of store traffic during the course of the day. It also predicts the impact of bad weather or of a home-team game which will keep locals glued to their screens. Hence, fewer shifts are needed by capital, though not by U.S. workers scrapping by on Food Stamps. (Barbara Ehrenreich, *Nickel and Dimed: On (Not) Getting By in America*, 2001.)

Nothing fundamental is new here. How often have we seen a hand-written notice in the window of a sandwich shop calling for paid help between 10.30 am and 1.30 pm? They are the peak hours for takeaway food and drink. No matter how affable the owner is, she cannot afford to pay her staff for the pleasure of their company. In owner-operated outlets, the hours can still be adjusted to deal with school holidays and medical appointments. Not so at the food chains. The system that Kronos customised for McDonald's is called R2D2, a cuteness which belies its nastiness. The insult to injury comes when Starbucks refers to its worker-victims as its 'partners', as does Uber.

The spread of part-time temporary casualisation is well enough known not to need detailing here. What cannot be stressed too often is that the flexibility involved is 99 percent in favour of capital's extraction of surplus value and 1 percent about single mums picking the kids up from pre-school. Indeed, the more stress there is in a worker's personal life, the more precarious becomes her chance of earning even the minimum wage. Inability to work week-ends or night shifts results in getting fewer shifts in total. 'Flexibility' is the blanket that covers a multitude of sins.

Within two weeks of the arrival of Kronos at one chain of dress shops, the data told the management how to switch hundreds of full-timers to part-time with a termination of health benefits. At a high-fashion shop, Kronos took less than one working day to move workers from fulltime across to an erratic twenty-five hours. A full week of hours is offered

only to those who are 'flexible', that is, those whose lives allow them to accept a roster with broken unpredictable shifts.

### **White Collar**

Kaplan concludes with a portrait of the woman she employed to transcribe the interviews for her story. She found her helper through the world's largest on-line freelance labour-hire firm, Elance-oDesk. It handles ten million 'computer programmers, graphic designers, copywriters and translators', paying out \$US900m. in 2014. The firm dangles a very attractive carrot: it pays you at once for your work. No longer do you have to spend months pressuring contractors for your money – which becomes so time-consuming that you write it off.

During forty years as a free-lancer, I have avoided that chase by employing a literary agent who takes 10 percent as her well-earned payment for dealing with the hassles. One thing she never thought of doing is at the core of Elance-oDesk's operation. In return for prompt and certain payments, the company installs its Work Diary in your computer. This system is like having a supervisor stand over you all the hours you are at your desk. After you log in, it takes snapshots every ten or so minutes of your desktop. They show the open tabs on your browser, record the number of keystrokes and mouse moves. The timing of the snapshots is not fixed so that one of them might catch you emailing your lover. You are allowed to delete that snapshot – but if you do, you lose your pay for that ten-minute work even if the email took only ten seconds.

Kaplan could access the snapshots of the woman doing the transcriptions, who scored an almost perfect ten out of ten. In a post-employment interview, Kaplan found out how the transcriber maintained her 'productivity rating'. She proof-reads off-line because that task registers so few keystrokes. One hour of interview takes four hours to transcribe and a further hour to check. She works five hours for four hours pay: 'She chose to steal her own time.' The company named her 'an all-star' performer. No surprise there. These ratings let prospective customers judge which free-lancer will give the best value for money in the shortest time. The transcriber robbed herself in order to attract more hours.

Bad as this arrangement is, it is many times better than how the open-sourcing pioneered by LINUX is getting work done for free, or for so little that it would barely be worth entering on a corporate's balance sheet. A Google Search for 'open innovation' registered 200 mentions in 2003 but 672 million ten years later. Nancy Ettlinger gives the example of the T-shirt company Treadless which uses crowdsourcing to get its designs for the price of a T-shirt. The company holds competitions, and sends a prize – the aforementioned T-shirt – to whichever designer gets the most LIKES. Entrants offer their creativity for free in the hope of getting the recognition that would lead to paid work. Even more obviously exploitative is Amazon's 'Mechanical Turk' which lists jobs which need human in-put. The pay rates are around \$8 a day in the U.S. where the minimum wage is only slightly below that per hour. (Nancy Ettlinger, 'The Openness Paradigm', *New Left Review*, Sept.-Oct. 2014, pp. 89-100.)

### **Un-Creative Commons**

Transcribing Kaplan's interviews called for accuracy more than creativity. How endangered are the jobs of the intelligentsia? In 'The Robots Are Coming', Lanchester reprints a news report of Apple's earnings, an item which had been composed by a robot on a software system from Automated Insights. That company specialises in turning stock-exchange reports into all the news that's fit to print. Bye-bye more journalists.

Lanchester summarises a 2013 report on 'The Future of Employment: How Susceptible Are Jobs to Computerisation?' It ranks 702 occupations. The least endangered include 'Recreational Therapists' and audiologists. The ones on the cliff edge of extinction are Title Examiners and, most of all, 'Telemarketers'. Almost 40 percent of tweets are already generated from BOTS. The routine tasks of clerks, lawyers, financial analysts and

librarians are among the most likely to disappear before 2030. Legal tasks are so routine that one lawyer has registered his firm “Robot, Robot and Hwang”. In discovery, computers parse thousands of digitalised pages in seconds.

In this round of cuts, the least well-paid will disappear along with middle-level managers and staff with university qualifications, blowing another hole in the claims about tertiary education guaranteeing greater lifetime earnings. It is an even money bet that programmers will be replaced by self-correcting codes so that the rush to train high schoolers for that skill will be a waste.

Algorithms have more than once thrown Wall Street into greater chaos than usual. Now the computers at banks and Super funds are spewing out general financial information under the banner of ‘personalised advice’. Like the so-called advice from the staff advisors, the details are no more than sales pitches for each corporation’s products. The difference is that the banks and funds will no longer have to split profits with commissions for employees.

### **Never mind the quality, feel the width**

To boost labour productivity, capital has to measure output, a calculation which is doubly difficult for the service sector. Human services have a twofold character: one is quantitative while the other is qualitative. An auto line can record the output of each operative on each shift. But how do you do put a number on inter-personal relations where quality matters more than quantity?

### **Pursuit of ‘some measure of productivity’**

**‘aim of ‘structured programming’ Rosemary Pringle p. 29**

### **30 Henry Ford as model**

Take the example of a library. Some of its tasks are like routine process work, for example, the restacking of books. Here, it is possible to set targets as a manager would do on an assembly line, and absorb the costs from mis-shelving, as auto-makers do for faulty components. However, libraries have a second function. Some users seek help to understand what a resource can offer them. These inquiries might take two minutes - or two hours. The call for quality overtakes the drive for quantity.

That rule applies more broadly. For instance, it is madness to say that placing a stent into an artery should take forty-seven minutes and not one second more. Yet hospital administrations promise to reduce emergency-room waiting-times while Medicare pays for seven-, fifteen- and thirty-minute consultations. To a lesser extent, the same principle must apply to education if it is to be more than instruction.

### **Corporatised classrooms**

Neither Kaplan nor Lanchester mentions teachers. Nonetheless, from pre-school to post-graduate degrees, educators are in line to be retro-fitted into nineteenth-century Gradgrinds.

A Massachusetts teacher fills in the gaps. Teachers are tracked through PowerSchool to plan and grade in order to make every lesson fit into the Common Core. TeachPoint obliges staff to provide evidence for twenty-five standards of instruction. She and her colleagues meet these regulations, she writes, ‘by disposing of creativity and flexibility.’ Far from composing their own stories and dramas, kids are taught how ‘to master the art of the state-mandated open-response question.’ (*Harper’s*, May 2015, p. 3.)

Each child has individual needs but providing that level of attention is costly. Budget-cutting governments, therefore, drive schools into rote learning and standardised NAPLAN tests which are no more than serial child abuse. NAPLAN is to be delivered on-line and many of its components are already computer assessed by contractors. Given the advances in on-line translation – Dutch to Urdu - it will not to be too long before machines will be able to evaluate the standard of the ‘convincing narratives’ required from children aged from years three and seven.



Worksheets are the lowest form of engagement with students. Many are now available as Google Apps. School systems do not need four-year graduates to hand them out. An aide can do that, collect them, and feed them through a computer for assessment. The teachers who pay to attend GOOGLE training sessions are doing themselves out of a profession and depriving their students of an education. Any learning that a computer cannot handle just yet can be dumbed down to tick-the-box. WordSearch now catches plagiarists. The reshaping of knowledge to fit the medium of delivery will elevate that offence into the key to wisdom. With Ivy League universities signing up for on-line courses in philosophy and theology, no intellectual pursuit is beyond the grasp of a corporation with a battery of programmers.

The rhetoric about improving teacher quality is a smokescreen for eliminating the costs of providing 'the teacher who made a difference'. Instruction replaces education. Moreover, fewer of the classrooms will be in a state system. More education will be provided by corporate capital through the misnamed Private-Public Partnerships. There is nothing 'private' about the global corporates. The only truly 'private' providers are home-schoolers. Capital must forever find new realms for expansion, best understood as colonising ever more segments of the domestic economy. (Gawain Little (ed.), *Global education 'reform', Building resistance and solidarity*, Manifesto Press, 2015)

Microsoft and Mass Murdoch are in the business of turning instruction into commodities. The corporates do not aim to improve outcomes but to find new realms for profit-taking. Kids can come away less numerate so long as the numbers stack on the balance-sheets. Even where test scores do go up, there is likely to be less thinking. Instruction stymies inventiveness in adulthood as Chinese authorities fear. But Lanchester indicates why capital will need fewer workers to make decisions let alone to create.

**Proponents of IA, 'intelligence augmentation' (IA) when they are making us more stupid than nature intended. Google reports that 'the more accurate the machine gets [at predicting search terms] the lazier the questions become.' That a two-year old can use an app is because they are designed for that mental age. Or in the words of the world's leading graphic designer of information, Edward Tufte: 'if power corrupts, PowerPoint corrupts absolutely', because it was devised as a marketing tool.**

### **'I've seen the future - nobody works'**

The completely automatic factory, computer controlled in all respects, from the ordering of its raw materials to the quality of its products, and the dispatch to its customers, is not far away.'

J.P. Baxter, Vice-Chancellor, University of New South Wales, 1960.

That computer-composed news item about Apple's earnings reported that, during one quarter, the firm took \$18bn in profits on a turnover of \$75bn from 92,000 employees. Lanchester contrasts these numbers with General-Motors in its most profitable year, 1960, when, in today's money, it reported \$7.6bn profits from 600,000 workers. The Taiwanese founder, Terry Gou, of the world's largest manufacturer of consumer electronics (Nokia, Motorola and Microsoft) looks forward to replacing his 1.2m. employees with a million robots. (See also Martin Ford, *Rise of the Robots, Technology and the Threat of a Jobless Future*, Basic Books, New York, 2015.) Robots now do 10 percent of manufacturing output but are expected to be up to 25 percent by 2025. They are costing less to make and have running costs a third of that for a spot welder. One of their biggest impacts is on building computers and electronics.

Who will be able to buy Gou's goodies if so many more people have no job, or are scraping by? Founder and CEO of GOOGLE, Larry Page, has the solution: a deflationary

cycle. Earnings will slide but so will prices. Automation will slash production and distribution costs.

Two points arise here. First, if the amount of human labour in each commodity declines, so does the quantum of surplus-value from which all profit derives. To maintain the absolute levels of profits, firms therefore must sell ever more units. Larry Page talks in terms of 'the things we need'. But it is capital which needs us to need so many of these novelties and adult toys. (Michael Lebowitz explores why at [www.surplusvalue.org.au](http://www.surplusvalue.org.au) )

In addition, the marketing that has long been essential to the expansion of capital makes those things socially necessary. For example, once it was common to walk to work. Many families now need two cars because of inadequate public transport for householders who have been pushed into outer areas for affordable housing, while both parents chase between jobs each day because of casualisation. So, although unit prices might go down, the range and number of units must grow if capital is to survive through its ceaseless accumulation.

Secondly, a fall in prices is one part of how capital can extract relative surplus-value. Absolute surplus-value is increased by lengthening the working day. Relative surplus-value takes multiple pathways, some direct and others indirect, to increase the amount of unpaid value that workers add. Kaplan and Lanchester report several of the latest devices to intensify value-adding by making workers do more during their paid hours.

Marx shows how mechanisation and stricter disciplines also cheapen the items that we all need as well as those which still verge on being considered luxuries. An additional and indirect path to relative surplus-value is through reducing the socially necessary costs of reproducing the labour-power which capital buys from us wage-slaves. During the Eighteenth-century, potatoes began to replace grain, filling bellies with fewer nutrients but at a lower cost. That new staple made lower wages possible – though not inevitable. The outcome always depends on the relative fighting strengths of the contending classes.

Today, we see a similar cost effect from clothing and footwear made in China to retail at Walmart. The lower prices reduce elements in the socially necessary cost of reproducing the labour-power that we wage-slaves must sell to exist. However, all costs are socially determined. They also shrink over time under the competitive pressures upon each capital. Nonetheless, capitals must realise profits out of the surplus-value embodied in their stuff. Only then, can each fund the accumulation needed for the next generation of machines essential for it to outrun its competitors.

Since 2007-08, it has become harder for capital to expand our needs since effective demand from consumers is being constrained by the 'austerity' that is sold as the way to refloat the networks of global credit for the corporates. On top of that spending limit, consumers have become wary about again becoming over-committed.

The corporate culture industry offers the means to divert us from radical actions that would diminish if not remove our financial problems. For a small fee, the culture of distraction exists so that we can amuse ourselves to death. On-line movies are one of the promises of new technologies such as the NBN. The U.S. pioneer Netflix had twenty million DVD subscribers in 2010. It now has five million. But it also has 63 million streaming members in fifty countries, with many more to come. How can it mail DVDs to five million people, let alone twenty? Don't forget that the returns have to be checked, cleaned, and stored for their next shipments. Once upon a time, Netflix employed 100 people to slip the orders into its trademark red envelopes. Now it has twenty-five staff who, from 2 am till 8 am, serve machines doing 3,400 such operations per hour, almost one a second, or five times faster than the manual system, itself pretty incredible for the pace expected from the packers. Each machine is fully automated but the warehouse operations are not yet.

The company is still not making money from its 50m. on-line members and so it is taking very good care of its 5m. physical subscribers who generate all the profit. Netflix managers know that their biggest risk is in sticking to some past success. However, their first attempt to jump horses was a disaster. The firm almost went under after trying to

divide into two, losing a million customers and its share price slumping from \$300 down to \$53. Nonetheless, the boardroom moral is that de-labourisation is essential and that streaming is its *ne plus ultra*.

Any concentration of instances is in danger of leaving readers with the notion that each effect has a single and direct cause, yet there is never a single line of explanation. For example, pilots now control aircraft for around three minutes per flight, yet airlines still have to pay high salaries for them and a co-pilot. Replacing most of the pilots' work with a computer is obviously no way to cut the wage bill. The non-human at the controls is to limit the pilots' rough handling which requires that the aircraft frames to be heavier which reduces the profit-making freight and passengers. The risk is that pilots are losing their flying hours and so will be less capable of handling emergencies. Meanwhile, they are bored, which might account for what happened to Malaysian flight ???.

### **How it's done**

Most of us have trouble keeping up with the emails, deleting the junk let alone replying to messages from friends. Keeping track of the kids' Internet doings is tough. So, how is it possible for giant corporations to monitor the second-by-second performance of tens of thousands of employees? Surely the equipment needed for telematics is too expensive and too complicated for most businesses?

John Lanchester begins 'The Robots are Coming' with an example which explains why cost and capacity are no longer obstacles. In 1996, the U.S. military ordered the world's fastest computer. They needed one that could make more than one trillion calculations per second. They got one which almost doubled that speed at 1,800,000,000,000 calculations per second. In 1997, the prototype had cost \$55m. and filled a room. Today, you can buy a computer with that power for \$A500 and slip it under your dvd player. The leap from a Defence Department weapons system to a birthday present is how the spying that Kaplan reports became all the micro-seconds of our lives.

This rate of capacity development and falling prices is the lynchpin in Lanchester's argument that no job is safe from automation. The combination of accelerating speed and diminishing costs is also the basis for what seems like the opposite development, namely, intensifying the application of human labour as documented by Kaplan. The contrary pair are updating labour-disciplining processes which go back nearly 250 years.

In 1965, Intel's head of R&D, Gordon Moore, predicted that processing capacity would double every eighteen months. In 1974, the first wafers contained 4,500 transistors. Now the highest-density chips contain 4.5 billion. Around 2005, the goal of making everything smaller ended. Since then, the race has been on to replace transistors with 'memristors' that will be able to transmit and encode as well as store. Architecture wins over technology in new methods of 'programming and designing systems'. Instead of encoding by a zero or a one, quantum computers will offer a range of possibilities. IBM is spending \$3 billion to marry exact calculation with 'responsive, associative pattern matching.' The other escape route is to replace silicon, though the results are not encouraging since Moore's Law has collided with some laws of physics. When nano-transistors leak electrons they are not always able to tell '1' from '0'; moreover, silicon-based chips melt at around four billion logical operations per second. (*Scientific American*, May 2015, pp. 59ff.)

The IBM super-computer that won the 2011 *Jeopardy* contest 'needed 16 terabytes of DRAM – housed in 10 power-guzzling Linux server racks.' The grail is now to get the same amount of nonvolatile flash memory into a shoebox with the power of a laptop. A cluster of Silicon Valley gurus sounded the alarm in 2014 that AI could 'summon the demon'. Microsoft's Gates is worried about unleashing any demon he does not own. The rest of us should be alarmed at why the rich and powerful think they need these new systems given the destructive and productive clout of the ones described above. Their capacity to monitor our every move is more totalitarian than any political system from

Sparta to the Peoples Democratic Republic of Korea. To intensify these alarms, while AI boffins were beating their brains out hunting for a computer to checkmate a human, neurophysiologists were 'growing' a humanoid brain from stem cells. The next phase will be to integrate that brain with inorganic operational systems for unmanned combat; the androids will be able to control drone strikes without the collateral damage of PTSD among the U.S.A.F. controllers. A professor at University of Washington, Pedro Domingos, advocates a new Geneva protocol to ban humans from the battlefield. That solution would make matters worse as shown with killer drones and Zionist rockets into Gaza.

### **Gatling guns in nineteenth-century**

**Robots to clear mine fields but from defensive to offensive with Lethal Automated Robots (LARs). No surprise that the war criminal Obama and his drones set up National Robotics Initiative.**

Income inequality within the industry with ??? of two richest fifteen U.S. Americans  
But also the income split between billionaires in every sector and the hollowed-out middle class and devastated tradies. One of the multi-billionaires proposes paying with stock options right down the

Foreign policy article

Robots from metals and dielectrics and vacuum types

Faster and more powerful than organisms

But 'learning and memory, however, would be quite rudimentary'.

In future, increases in understanding of colloids and proteins

Engineers could attempt robots

'with a structure similar to that of a mammal.

The ultimate model of a cat is of course another cat,

whether it be born of still another cat of synthesised in a laboratory.'

Arturo Rosenblueth, Norbert Weiner and Julian Bigelow,

'Behavior, Purpose and Teleology',

*Philosophy of Science*, 10 (1), January 1943, p. 23