

# The Information Proletariat in the Era of Globalisation

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Submitted for the International Conference:

## The Working Class: What is it and where is it?

At the Economics Institute of the Russian Academy of Sciences  
Moscow, 11-12 July 2006

### **Introduction: The fetishisation of manual labour**

It is generally recognised that the character of work has changed considerably during the 20<sup>th</sup> Century. The classical Marxist proletariat, manual factory workers, from being the overwhelming majority, say, 70-80 % of the workforce, are now between 10-20% in advanced capitalist countries. Those members of the workforce who provide services, especially information processing and delivery services, are now the majority.<sup>1</sup> A sub-group of the 'information proletariat' are sometimes called 'knowledge workers', that is, those who jobs require high level of knowledge input obtained from advanced schooling. They are now about one third of the workforce in the US, more than twice as numerous as the manual factory proletariat. They are expected to become at least 40% of the working population, say by, 2010. [1] This latter group can be considered to be the new core proletariat of a knowledge-based society. It contains many highly privileged groups such as university teachers and researchers, and so on, whose level of alienation is, let us say, tolerable, as well as less privileged technical knowledge workers. The information proletariat as a whole includes many highly exploited workers such as those in call-centres and data-input offices.

This 10-20% manual factory proletariat, however are producing considerably more goods per worker than when they were the overwhelming majority. This is due to the increased use of automation especially intensified by the recent and on-going Information and Communications Technology (ICT) revolution based on micro- and nano-engineering. This technology also involves the parallel work of the information proletariat in the production process: writing computer programs, inputting data, operating computers, answering telephones, operating reprographic machines, etc.

The numerical dominance of the 'information proletariat' over the manual factory proletariat should give Marxists cause to re-think their political agenda and strategy, but, sadly, in most cases it has not. There is a persistent and, appropriately, unthinking

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<sup>1</sup> In advanced capitalist economies roughly 70% of the active working population are engaged in providing Services, 27-28% in Industry, and 2-3 % in Agriculture. In Russia, in 1996, the Service sector predominates at about 48%, Industry at 36% and Agriculture at 16%.

attempts to fetishise manual work over ‘brain’ work even when most manual workers, today, mainly use their brains rather than their muscles anyway. Why should this be so? After all, Marxists claim to be scientific materialists. One possible reason could be linked to the persistence of Leninist vanguardism. Marxists often refer to the manual factory proletariat as the ‘vanguard of the working class’. But Marxist-Leninists usually, themselves, if they are consistent, also belong to a vanguard party. So there is a hierarchy of vanguards. The vanguard party leads (manipulates, controls, and even, god forbid, deceives) the vanguard of the class who in turn entrain the rest of the working class in the political program of the party. In addition, it is more realistic and plausible to get control of a relatively small subgroup of the working class rather than the whole class. There is also the problem of the character of the information proletariat. They are even less likely than the manual factory proletariat have proved to be, to behave as willing stooges for the revolutionary vanguard party with sole access to the ‘correct program’, for instance. In fact such workers tend to reject hierarchies and often enthusiastically embrace the network society, the nature of which has been exhaustively discussed by Manuel Castells and others [2, 3].

### **The Definition of Work: The expenditure of stored chemical energy**

The dominance of the information proletariat should also cause one to re-evaluate the nature of work as such. Traditionally we have thought of work very much in loose association with the physics definition:

*“Work is said to be done when a force displaces itself in its own direction.”*

So it is easy to identify manual labour with this definition of work. During manual labour forces are to a material body. These forces are displaced while changing the shape, position, and/or composition of the body. But it also involves considerable activity of the brain: processing sensory information about the location of objects and the effectors whether the latter are bare hands or most usually a tool operated by the hands; making judgements about when to change the position of material objects with the effectors; consulting past experience about the appropriate degree and pattern of force to apply, the correct orientation and position of the effector relative to the material object; deciding when sufficient force(s) has been applied by judgements about the effects on the material object. The chemical energy expended by the brain during even simple unskilled manual labour is comparable with that consumed by the muscles. In the case of skilled manual labour, say, using machine tools, the amount of mechanical work done by a worker in the above physics sense is a small fraction of the energy consumed by the brain. Only in the case of heavy, unskilled manual labour is the energy expended by the muscles significantly greater than that expended in the brain.

So in any human work process energy is expended both to do mechanical work, and also in a mental activity which we can loosely refer to as internal ‘information processing and control’. The proportions of each type of energy consumption during work will vary depending on the nature of the work process. For many types of work very little mechanical work is necessary such as operating a machine tool or a mechanical excavator, computer operating and programming, or teaching.

## The Working Class

### Definition

We can, therefore, define the working class as:

*That group in society that lives, principally, by earning wages in exchange for the expenditure of their own energy, which process we may call 'labour'.*

This energy is stored in the form of chemical energy derived from food and drink. The molecule that actually stores the energy in its final form before use is identical for both muscles and neurones, namely, adenosine triphosphate (ATP). Most of this aggregate chemical energy is expended in peoples brains or keeping them at the correct temperature, rather than in their muscles. This means that Marxists must reject 19<sup>th</sup> Century mechanistic interpretations of 'work' as the purely manual application of forces. Even in most forms of manual labour the majority of the energy expended is by mental processes. The excess value, or the surplus value, created by the labour of the working class is appropriated by capital either as a reward to capital-owners for lending the capital, or else to strengthen and extend the capital system by maintenance or increased investment.

### New facts about the material situation of the working class today

Since the 19<sup>th</sup> Century and early 20<sup>th</sup> Century, when the classics of socialist theory were written, not only has the composition of the working class changed but also its material situation within the capital system. Here are some new facts to be taken into account:

1. Almost all conflicts since Marx's time, especially the world wars in the 20<sup>th</sup> Century, have not been class wars but rather wars based on a mixture of nationalism and its close ally, racism. Workers have fought and died defending their respective nation states and 'way of life'. There have been rare occasions when there has been a class-based rebellion against fighting imperialist wars, for instance, the widespread revolt amongst rank-and-file, mainly working class, US troops in Vietnam. This rebellion was linked to the campus revolts by the students and some faculty members, and to a mass movement of the poor, both black and white, at home. The US elites moved rapidly to establish a purely mercenary, professional army after this experience.
2. In 2004, about 50% of equity investment in the London Stock Market was held by the financial institutions such as mortgage, pension and insurance funds. These funds are largely due to savings of workers. This makes the workers as a social group one of the biggest single owners of this form of capital. UK individual share-ownership is about 14%. Of course the wealthy capitalists have many other forms of wealth that are not invested in the stock market such as property, precious metals such as gold and platinum, and off-shore liquid funds used for short term speculation, for instance, on the value of money itself.

3. The majority of workers now own or are buying their houses in the UK, especially after the wholesale selling off, by Mrs Thatcher, of housing stock owned by Local Councils. So the traditional view of the Marxist Left that the working class is largely property-less is actually no longer true. The notion that private property ownership is always a social evil is also not the case. For instance, in my hometown of Liverpool large, formerly semi-derelict Local Council estates have been transformed into well-maintained and greatly improved housing by this transfer into private ownership.
4. There has been little or no systematic opposition from the working class to the wave of privatisations of formerly publicly-owned enterprises in some advanced capitalist countries such as the UK. There appears to be a similar quiescence to the wholesale larceny of public goods during the Yeltsin era in Russia.
5. Most workers, especially the new information proletariat, tend to work in small groups, making large-scale collective action more difficult through increased isolation and, thus, possibilities of victimisation. In the extreme case ICT allows an individual to carry out information creation and processing labour in the confines of the home. There is the example of the computer programmer who is woken up in the night in his remote Scottish Highland cottage in order that he can fix the computers controlling the harbour traffic in Hong Kong, without leaving his cottage.
6. Membership of trade unions has fallen considerably in recent decades. In the UK it has fallen from 55% of the workforce in 1979 to 29% in 2003. In France union membership is the lowest in Europe at about 9% and in the US it is about 12%, but less than 9% in the private sector. Only in the Scandinavian Social Democracies (and Belgium) is trade union membership more than 50% of the workforce. The average for the EU is 26% and is expected to fall to less than 20% by 2010 [4]. Worldwide there are 164m trade unionists and thus they constitute the largest secular social movement, but this represents only about 5% of the 3Bn + workers in the world. [5].
7. In the past few decades there has been a large-scale creation of an unorganised proletariat from the subsistence peasantry in such countries as China and, to some extent, India. According to the UN Human Development Reports about 400m people in China have been removed from absolute poverty by this process in the past two decades or less. China intends to move 500m more people from the countryside into cities in the next two decades, since it has calculated that it requires only 100m peasants to grow sufficient food. Unless there are significant political changes in China these workers will have few rights to organise freely. This process involves also large-scale pollution of the environment especially the rivers. For instance, China intends to open one coal-fired power station per week for the next 20 years.
8. The vastly improved standard of living of the working class in advanced societies is heavily dependent on the availability of CHEAP fossil fuel energy in the form of oil, gas and coal [6]. This era, especially for oil and gas, is coming to an end with acute shortages expected in 2-3 decades if not sooner

[7]. Although there is much discussion it would appear that, in practice, capitalist economies are largely ignoring this reality. It is similar to being in a container under conditions of free fall under gravity in which one would appear to be weightless, that is, until one hits the ground. It is unclear, and probably unlikely, that the capital system can make a smooth transition to a distributed, sustainable renewable energy system before this contact with reality occurs.

9. The emerging climate crisis and the connected fact of the end of cheap fossil fuel mean that there will have to be a reduction of consumption by those sections of the working class in advanced economies and thus a convergence of living standards with those of the newly formed proletariat in the developing world. This may be difficult to sell politically but also presents the Left with opportunities to establish, in practice, the universal character of labour as a concrete historical reality.

### **The ICT revolution and globalisation**

Since the industrial revolution manual labour has been amplified by applying other sources of energy in a controlled manner so as to increase the productivity of labour enormously. Recently the ICT revolution has produced a similar amplification of the effects of the labour of information processing and thinking in general, as well as leading to automation in this sphere of work. One should also note that ICT has also had a major impact on the productivity of manual labour considerably reducing the cost of automation of production. For instance, computer-controlled machine tools are commonplace, even in small workshops. They can produce a complex machined object in a few minutes which would take several hours using a manual machine tool. Thus there is a gain in productivity by a factor of the order of a hundred.

So we see that ICT revolution represents a synthesis of both elements that contributed to the emergence of the capitalist world economy, that is, information communication (e.g. printing) and controlled energy release to improve the productivity of labour.

These developments underlie the phenomenon of so-called 'globalisation'. One important contribution is that money, which contains information about value, can be transmitted electronically and, therefore, effectively instantaneously, to any part of the globe. The production and exchange processes themselves can also be globally integrated through these technologies. It is now possible to design a product in one country, transmit the design via the Internet to machines operated by low wage workers in a second country, and then market the product in third countries. It is even cheaper (more 'efficient' to use a current euphemism) to input and process information data in developing countries that has been generated in advanced capitalist countries.

One important contribution to intensification of the globalisation process has been the collapse of the pseudo-socialist regimes in Russia and Eastern Europe, and the transition of China to a market economy. In this latter case it has occurred without a political regime change. This has made accessible to capital vast reserves of labour, skilled and unskilled, and raw materials. Russia for instance has the largest reserves of natural gas and now seeks to dominate this global market. One can even say that the

long term consequence of Bolshevik revolution was to create a very large army of new proletarians disciplined, either by circumstance (Russia et al) or state power (China), to submit themselves to exploitation by private capital.

## **The Role of Information Systems: from the Big Bang to the Globalisation of the Capital System**

It is useful to situate the emergence of the information proletariat in the era of globalisation of the capital system in the broadest possible context, no less than the history of the universe itself. One can view the development of the universe from the Big Bang, about 13.7 billion years ago, to the present social existence of our species as a series of revolutionary/evolutionary stages; each stage is associated with the development a new information system.

### **The quantum physics information system**

The very first stage was the emergence of the laws of quantum physics (QP) themselves. It is usually supposed that the present laws of quantum physics emerged during the very first fraction of a second after the big bang – what may have preceded them is the subject of much research. They are currently thought to be a consequence of abstract symmetry properties. The laws of quantum physics decide on how particles of matter interact with various types of fields. In many ways QP can thought of as an information system in that it allows matter particles to be aware of each others presence even when there is no physical interaction between them. The ‘wave function’ of QP carries statistical information about the possible states of the particle, that is, the probability for its being in each of its different possible states. *It makes possible the many subtle processes that allow particles of matter to act collectively to form higher levels of organisation including, eventually, the possibility of life itself.*

For example, the laws of QP allow different elements to be synthesised in dying stars through nuclear fusion processes, and then these elements to combine together into molecules and crystalline material. This resulting type of matter, under the influence of gravity, eventually aggregated to form planets such as our own.

### **The molecular-genetic information system of life**

It is still by no means clear how life emerged but obviously an important step was the evolution of molecules that could trap and store energy through quantum processes. Initially perhaps this energy was derived from thermal sources, but later from sunlight, and was then utilised it to promote the chemical synthesis of more complex molecules such as proteins and the poly-ribonucleic acids, such as DNA. Both these molecules are linear polymers made of a number of different structural units (or monomers). For proteins these are the twenty possible different amino acids that form the monomers in chains containing several hundred monomer units. For DNA, the four organic bases, A,T,G, and C, are the possible monomer ‘letters’ linked together on a sugar-phosphate backbone in groups of three, called triplets. There are thus 64 (=  $4^3$ ) possible triplets. Each of the 20 amino acids is coded by one or several of these triplets. Whereas the proteins have both a structural and a functional role (such as enzymes) the DNA molecules form a molecular-genetic system that codes the information to make the proteins. This led to the possibility of organisms reproducing

themselves by reproducing copies of their DNA information molecules which act as a 'blueprint' to create a new generation.

The emergence of this molecular information system was obviously a crucial step that enabled evolution to take place. It allowed living forms to adapt to changing environments. It is even possible to show, using information theory, that the protein-DNA system<sup>2</sup> itself would be that selected as optimal by evolutionary processes [8]. Organisms can differ slightly in their structure and properties due to random changes (mutations) in the information 'letters' of their DNA. Those variations that allow the organism to survive in changing environments would pass on these survival properties to the next generation. Mono-cellular organisms combined to form multi-cellular organisms to survive in certain environments and so on up the evolutionary ladder. So, in short, the emergence of living systems depended on the complex interplay of matter, energy and information. But the development of a molecular genetic information system was the crucial and revolutionary step that made possible the long evolutionary process that led to human kind.

### **The verbal language information system and the emergence of the genus '*homo*'**

Similarly a crucial step in the emergence of the genus *homo* from our near primate relatives was the evolution of the capacity for language, first, perhaps, as a system on non-verbal signs then, later, as a full verbal system. This information system meant that it was possible to form cohesive social groups which had vastly improved survival chances. It meant collective defence against predators and the more effective communal hunting and gathering. The development of the brain as an external as well internal information and communication organ through language meant also the capacity for more abstract thought that was closely linked to the development of a tool culture. The functionality of a tool could be abstracted from its material embodiment. Knowledge about suitable materials and the effectiveness of tool design could be shared more effectively and more rapidly through the use of language. Use of tools also improved chances of survival.

### **The writing information system and the formation of human settlements**

The movement from hunter-gatherer societies to settled agrarian societies was connected to the next stage in the evolution of information systems, namely, the invention of writing. To live in much larger settled groups required a more complex system of group rules of behaviour that could be unambiguously understood by every member of the group. They had to be written down. This must have been necessary since the existence of a multiplicity of purely verbal interpretations of the rules would have been very disruptive. Writing also allowed for the accurate transmission of all sorts of useful knowledge between generations thus improving group survival chances. The surpluses produced by the more productive settled agrarian societies led to the creation of a literate priestly caste in charge of knowledge production and transmission, as well as in the encoding of superstitious beliefs about, and explanations for, natural phenomena, namely the creation and propagation of religious beliefs. The latter gave the priesthood social and political power, as it does even

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<sup>2</sup> Sometimes referred to as a G (20,4,3) coding system - 20 structural units, coded by 4 letters with codeword length of 3 letters

today, say, under the reign of George the Younger, in the most advanced capitalist country, the USA. The invention of writing must have also helped to promote the exchange of commodities within settled groups and between such groups. This is because it was then possible to communicate information reliably about the amount and conditions of labour, raw materials, techniques of production etc., so as to establish an agreed equivalence of amounts of different commodities.

### **The printing information system and the emergence of the capital system**

As discussed in another paper [9], the invention of printing with moveable type was a critical development necessary for the emergence of the capital system in its first phase of mercantilism. This allowed for the mass production and dissemination of information about markets, the means of production and improvements thereof, and most importantly, the spread of scientific knowledge and its method. Thus the age of reason and enlightenment in the 18C and the creation of the industrial revolution and the modern bourgeois state were long-term consequences of this information revolution.

The emergent social classes, capitalist and workers, become distinct classes as such by the ability of the members of each class to act together, cooperatively, in defence of their collective interests. This requires a communication, that is, exchange of information. The existence of printing greatly enhanced this process of emergence of class behaviour and, eventually, of class consciousness.

### **Electrical Information systems**

The development of other powerful electrical information technologies of the telephone, radio, and television at the end of the 19<sup>th</sup> Century but mostly in first half of the 20<sup>th</sup> Century helped to strengthen the bourgeois state through increased political and social control as demonstrated by Herman and Chomsky in 'Manufacturing Consent' [10]. It has also led to the intensifying of commodity production, and the consequent temporary stabilisation of the capital system, through the creation of artificial needs by mass-media advertising based on these information technologies.

### **Conclusion: Modern ICT and the survival of our species**

We are now entering a critical era for the survival of our species. The next few decades will decide whether we have a future on this tiny spec of matter rotating around an average star, the Sun, towards the edge of the moderately sized galaxy of the Milky Way containing about 200 billion stars. Our galaxy is one of 150 billion or so galaxies in the known universe. At first glance matters do not seem very promising. The capital system now has no competitors with its hyper-expansionist growth for growth's sake economic philosophy, with little or no consideration of the finite limit of resources and the finite capacity of the earth to absorb the detritus of this process. Most critically the age of cheap fossil fuel is coming to a close and the consequences of its profligate (mis)use are upon us in the form of climate instability that threatens to 'cook' the planet and eliminate many species, including, possibly, our own. Urgent action is required - most climate scientists believe that the move from fossil fuel to carbon-neutral renewable energy technologies must begin within the next ten years.

## **The role of knowledge workers**

The capital system has developed a qualitatively more powerful information system, ICT, which it has not yet been able to control and possibly never will due to its distributed, networked character. But most significantly of all it represents a synthesis of the main technology elements in capitalist development, that is, it is both a communications and control technology. It has arrived at a time when a large-scale restructuring of the production system of capital called 'Globalisation' is taking place. Indeed it has made possible this restructuring but, paradoxically, it also makes possible the transcending of the production relations of capital through an alternative globalisation [alter-globalisation] based on cooperation, mutuality and sustainability. This alter-globalisation is required to solve the multi-aspect social and environmental crises confronting the world socio-economic system due to the anarchic character of the market relations of capital

There is the need to switch to renewable, largely solar, energy technologies which have character of distributed small-scale energy production units whose output can be networked to overcome such problems of intermittency of supply. ICT can enable this networking of energy production to take place. It can also be used to replace blind market forces by conscious production of necessary use-values but without the need for a dominant role for centralised state planning bureaucracy with its attendant self-interested inertia, corruption, and privileges.

Most significantly the majority of proletarians are now information workers and expend most energy using their own information organ, the brain, rather than their muscles. The dominant subgroup of the information proletariat, the knowledge workers deal in a universal quantity, knowledge, especially scientific knowledge. Because of this unique position they form the group most aware of the impending climate and environmental crises. In addition they also possess the skills and knowledge to create the technologies for alter-globalisation. In order to implement a program they must, of course, form alliances with all other sections of the working class. Ways of thinking about how such alliances can be organised have been discussed in previous papers [9, 11].

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