The series constitute ‘ideas in progress,’ after the notion described by I.J. Good in ‘The Scientist Speculates.’ Good also describes ideas about ideas as ‘partly baked ideas’ believing that “… it is often better to be stimulating and wrong than boring and right.” While the papers do not take this tenet as an excuse for licence at the expense of rigour, they are exploratory and the ideas may change as a theme is developed over time.

Copyright © Denis Loveridge, 2009
All rights reserved

*MIoIR is part of the Manchester Business School
Deindustrialisation is a simple matter, reindustrialisation is not. For deindustrialisation simple neglect is sufficient. Badly designed products that are badly made; inadequate and inappropriately directed investment in skills and equipment; market conditions that encourage the acceptance of shoddy products; a social milieu that hides and promotes mediocrity behind a front of pseudo 'excellence' in an hedonistic worship of crass celebrity; the promotion of a dependency culture at the expense of personal responsibility; the politicization of trade unions; these and other features of UK society post World War II made it all too easy for UK industry to go into decline while similar situations pervaded many Western societies. The latter was hastened by the manufacturing revolution created by the Japanese in shipbuilding, motor vehicles, camera and other consumer durable goods which has only been matched relatively recently in the West. Almost from the beginning of the industrial revolution mill owners and others dreamt of creating factories based entirely on machines, replacing human labour to the maximum, if not entirely. From the 1960s onwards this desire was accelerated by the growing use of 'automation' but also by the paradoxical effects of (a) trade union militancy and its reflection into the desire by employers to remove the 'infernal' human being from the cogs of manufacturing and (b) the promotion of a 'post-industrial' society. The latter was most often (mis-)interpreted to be a niverna, a society in which manufacturing of the 'nastier' kinds (e.g. 'dirty' continuous process industries such as iron and steel, coal mining, gas making, cement and brick making, agriculture, shipbuilding, cotton milling, etc.) could happily be abandoned in favour of cleaner and less physically (and mentally?) arduous occupations. In a globalising world other people could do these things while the UK's capabilities in science and technology would ensure the country's future through exporting its intellectual capacity if not property. An exaggerated parody? Maybe, to some extent. Nevertheless, Donald Michael (1962) exposed the nature of the shift toward cybernation concluding 'that its final stage is characterised by the spread of mechanisation, rationalisation, and cybernation to most institutions of society, and by the development of machines and systems capable of at least some of the higher-level perceptual, cognitive, and adaptive capabilities of human beings. These developments are likely to render millions of workers superfluous and present societal problems defying easy solution.'

These situations have remained ‘live’ throughout the past 30 years and remain so. Indeed, some have accelerated, under a smokescreen of national security, in the last decade.

As always there are multiple claims that the present situation is unique and in a sense the ‘arrow of time’ makes that inevitable. However, it is not true of what may be termed the general characteristics of the situation and to demonstrate that I use, in the remainder of this note, an internal company paper written by Phillip Holroyd and myself in 1975, shortly before the government of the day called in the IMF to sort out the UK’s financial situation. Within a year, I found myself on the point of being thrown out of a Swiss hotel because Sterling was becoming so weak that the currency was fast loosing its credibility - an event that remains imprinted on my mind. So how did Holroyd and I see the situation?

"SOCIO-ECONOMIC STUDY
FACTORS AFFECTING WEALTH"

P. Holroyd
D. J. Loveridge
February 1975

This note is an attempt to generate some understanding of the economic forces occurring in the world in the medium and long term, but with some emphasis on the effect these trends can have upon the U.K. economy in the reasonably short term: up to five years say.

Without such a background, many of the major changes occurring in the social, ecological, technical and political spheres cannot be adequately comprehended. However, in this note, the approach to economics is not that of the economist which we find too narrow and too detailed for long term analysis. Rather, we prefer to establish the issues by focussing from the general societal events and changes to the specific impacts resulting from many of these events as they occur. Then, we wish to relate these consequences to the underlying movements of the economic system, behaving as it does, as a complex organism with its own inevitable rhythms.

But first, we wish to discuss the term 'economic situation', and by this we mean the 'wealth of a nation'.

Wealth

The wealth of a community is obtained in five basic ways:-
1. Sale of indigenous raw materials in excess of home demand and required by other communities.
2. Sale of services in demand by other communities.
3. Exploiting the indigenous wealth of other communities.
4. Borrowing from other communities.
5. Creating artificial wealth by increasing the internal money supply.

Now, in general world terms, it is clear that raw material wealth is increasing in developing countries, whilst declining in major developed nations. Services can be paid for by the sale of other services (thus moving wealth around), but ultimately this wealth must be supported by those whose wealth derives from indigenous resources or from renewable resources.

Real wealth of nations of the future will depend more upon raw materials which are renewable or easily created, i.e. food, wood, clay and recyclable materials.

Highly industrialised society has achieved near saturation of the goods market, therefore it must turn either to services, or towards the production of goods where demand in the world still exists and is growing, and this later has limited potential.

Wealth of the U.K.

Examination of the five basic wealth producing means shows that for the UK.

1. There are no indigenous raw materials in excess of home demand with the possible exception of North sea oil in the 1980's.
2. UK has abundant services: know how, innovation, attractions, but is not moving rapidly to utilise these assets - compared with Japan say.
3. In the past, UK wealth depended mainly upon industrialisation through coal and iron (now expensive and exhausted respectively) and also upon the exploitation of the Empire. Exploitation of the miner and the foreigner has now ceased.
4. Borrowing on a large scale is the main means by which 'wealth' i.e. 'standard of living' is currently being maintained.
5. Short term 'wealth' problems (i.e. ability to pay workforce and administration) is being supported by 'creating money'. Thus the current UK wealth is dependant upon borrowing and the creation of liquid cash (printing money).

Borrowing is possible due to a degree of faith by lenders in our ability to repay.

This faith is placed in:-

1. Possible raw material wealth, i.e. North Sea Oil.
2. Belief in Government statements of intent to 'manage the economy' (a naive belief in this analysis).
3. A realisation that a UK collapse would have serious consequences in world affairs (now increasingly questioned).

Now:

North Sea oil, unless much greater quantities become available is being mortgaged for present standards.

Government statements (Conservative & Labour) are producing increasing scepticism abroad of abilities to manage. UK collapse could be of minor impact to a world situation. Thus: lending may cease. Also, creating cash by printing money to relieve current shortages is inflationary and increases the lack of confidence by investors and lenders, as well as deferring the real problems to a future date. Hence, the long term wealth of the UK must be in terms of:-

- its ability to increase its self-sufficiency (less dependence upon imports of: energy, materials, services)
- its ability to sell services effectively (increased sales of professionalism, expertise, innovation).
- decrease borrowing (lower present living standards).
- eliminate inflation due to money supply.

No real attempt is being made to follow any of these possibilities.

That is:-

No real integrated energy policy.
No real investigation of renewable resources.
No real attempt to increase sales of services:
- industrial licencing
- medical knowledge
- agricultural expertise, etc.

No real backing for innovation
No real concern for the rise of professionalism
No real feeling for the imperative to decrease current wasteful standards.
No real adjustment to the money supply system.

Thus there is no real prospect of the UK creating real wealth in the near or medium future. Worse, the apparent recovery of the economy due to the trade cycle upturn, will in all probability postpone these necessary actions by Government, making the ultimate creation of wealth for the UK almost impossible in the steady decline of the industrial world.

World Wide Factors

The rate of change in the wealth of a nation is affected by its current wealth; its current needs; its current resources and current world markets. These are naturally changing continuously in the ebb and flow of resources, services and their interactions. Consequently, detailed predictions of precise wealth becomes impossible - as is the case in all complex interconnected systems. Nevertheless, there are major world trends occurring which are impressing their influence upon this immense world system:

Population growth creating concern in food, urbanization, health, conflict.
Resource availability creating concern in industrial growth, cartels.
Political Awareness creating concern in demands, freedom, aggression.

Each of these (and other) general and long term phenomena has become aggravated (amplified) by a positive feedback process of one problem reacting upon another, i.e.

For example: an increase in political awareness will lead some countries to conserve or protect their own raw-materials recognising these as future wealth. This withdrawal of resources merely aggravates the needs of those other dependant countries whose populations are growing apace. Or, consider the population increases in the Far East which will make Australasia increasingly desirable - especially with the material resources readily available there. Major conflicts may well arise in this quarter which will affect the industrialized Western world by removing another source of raw materials.

But, by far the most important of such interactions currently affecting the world situation is the conflict in the Middle East which has arisen due to historical and cultural differences and which, of course, has affected, in turn, the supply of oil to the developed world. Again, in this complex situation, it is impossible to say with any precision the actual course events will take, but they will certainly not be straight forward projections of the past.

It is now realised by most developed nations that, whatever the Middle East situation, oil resources have only a limited term to run.

Even with the wildest optimism, oil reserves will begin to become depleted around the end of the century. Consequently, there is a desperate need to develop alternative energy sources as quickly as possible. The way, however, is blocked. The most easily identifiable alternatives seem to require major/massive investment in technology and this at the very time when capital is scarce - the control of the wealth of the industrialised nations having been transferred to the raw material suppliers, who - clearly - will not use their new surplus funds to investigate alternative energy possibilities.

Thus, industrial society has reached an impasse, and only slightly sooner than would have been the case but for the Arab conflict.

The issues to be faced are:-

- a resumption of oil flow, by coercion or seduction will not significantly (or only temporarily) alter the general world trends towards a lower industrial growth rate.
- to return to, and maintain a growth situation will require massive funding for technology now and hence lower even further the current wealth of industrial nations. Current living standards must drop and this may prove socially unacceptable, leading to political crises.
- integrated collaboration is essential between future supplier/consumer nations. The balance continually shifts and partnership is imperative. Thus, in a small way, membership of the E.E.C. is vital for the U.K.
- a recognition that industrial growth will never again be high (in general world
terms) and that there must be a consequent societal shift to alternative life styles.

Our attitude to these changes will be forced upon the developed nations during the next five years in which time major industrial decisions may have to be delayed until the socio-technical directions become clear. One factor which may influence business decisions strongly within this period, will be the expected up-turn in the ‘economy’ due to entirely systemic forces producing an apparent relaxation in our economic situation.

We wish now to analyse this persuasive but systemic phenomena.

The Trade Cycles

The money flow around the world of commerce is best illustrated by a systems diagram such as Fig. 1 (not included). This form of structure has developed over the past one hundred years since the Industrial Revolution, and has over the past twenty-five years (post-war) become the 'blueprint for standard business operation'. One important factor not shown in such a diagram are the time delays occurring in the various sections as money is transferred from one point to another. A major outcome of time delays in such an interactive system containing many loops, is the inevitable onset of oscillatory behaviour.

Now, when many such industries, all behaving in this complex manner are linked together in some way, through their various channels: input, output, money supply, etc. then again a new phenomenon occurs in which the oscillations (if they are of roughly equal period) will be pulled into phase. This is seen many times in the natural world where biologic rhythms are strongly linked across diverse species and physical barriers. Thus, the cyclical variations within individual industries become translated into a major inter-industrial fluctuation which can be recognised as the business or trade cycle.

The precise mechanism of the variation is obscure, and, of course, the rhythm is often disturbed by major perturbations external to the business system; wars, epidemics, etc. but by taking historical data as in Fig. 2 and by applying spectral frequency analysis or Fourier analysis then the descriptive parameters can be obtained.

For example the 'Financial Times' share price movements shown in Fig. 3 can be analysed into its separate determining cycles quite accurately. Further, if, as we argue, these underlying cycles are a real phenomena then the Fourier synthesis can be used to make some projections into the short term future with some degree of confidence. Naturally, world events, crises and catastrophes add an element of randomness to the curves, but the underlying oscillations continue in phase throughout such perturbations and thus allow an estimate to be made of the likely turn points in industrial activity. On this reasoning and from analyses such as Fig. 3 it appears that the current recession/depression should be halted around early 1976 and then slowly recover during the next three years before moving into another acute recessionary phase around 1979 allowing an 18 month delay between share movements and industrial activity.

From what has already been said about the general UK decline in wealth, it is evident that 1979 onwards will be crucial years for the economic survival of the UK North Sea oil can only offer weak support during this period being mortgaged as it now is. Industry will be subjected to a worse cash crisis than is occurring 1974/75 and therefore all efforts should be made prior to this period to accumulate reserves; complete investments; set housekeeping in good order and to have moved into areas of business less subject to the commercial linked oscillation and interactions: that is, the service and knowledge industries.

Summary and Conclusions

In summary, we find a substantial shift occurring in the balance of wealth between nations, the Western industrialised countries losing wealth to those developing nations who now control the raw materials supply.

The wealth and hence living standards of the Western world will increasingly depend upon changing from supplying goods made from scarce or expensive materials, to creating and supplying services based on renewable or recyclable resources; particularly to the fourth world (the rich developing nations).

It is probable that the developing nations are now set upon a course over the next 10-20 years of becoming industrialised with money realised from the sale of their raw materials. This in turn will create even greater demand world wide for vital raw materials effectively preventing the already industrialised nations from achieving the earlier high growth rates.

The U.K., already maintaining an unwarranted wealth level through borrowing, will face an increasingly severe survival situation in the next 10 years, unless
her remaining assets - knowledge and skill - can be utilised effectively and sold to markets demanding such knowledge and skills: i.e. the evolving industrial nations.

The improvement in trade due to the upturn of the trade cycle in the next 2-3 years may cause the UK to ignore the general trends and thus fail to prepare for a major trade recession in the late 70's and early 80's. a catastrophe from which the UK may emerge, with a much lower standard of living.

The oil scarcity generated by the Arabs merely moves the critical issues to an earlier date. North Sea oil is unlikely to be a major factor in improving the UK long term prospects; cannot affect the UK short term and is of doubtful benefit in the medium term. Because of the many concurrent crises now emerging, there will be a shift in societal values and life styles which will affect industrial cash flows in many ways:

- right to work
- relation to community
- responsibility to environment
- increased care for workers

All such changes will add to the cash outflow from companies, thus draining reserves for future investments. Increased dependence upon ever weaker Government industrial support will result.”

As mentioned earlier, Holroyd and I would not claim that our thoughts (set out above) were particularly insightful: each recession or depression has its own unique character. The cause of the present situation was recognised by many people: debt and borrowing to fund ‘economic growth,’ whatever that phrase might mean, were out of control and had grown to be so as credit became ever easier over several decades. Like all ecological systems, and money is one, a situation grows along the lines of the panarchy metaphor (Gunderson & Holling, 2002) following the ‘r’ and ‘k’ parts of the cycle until the ‘bubble’ bursts to enter the release (omega) phase when the full potential of ‘k’ phase is released before a reorganisation (alpha) phase begins to lead back toward the start of a new ‘r’ phase. The highly connected nature of the worlds banking and financial systems helped to promote and inflate growth through the ‘k’ phase, which, in its final stage, saw the uncontrolled introduction of the weirdest of financial products (see WP 50). The growth of shadow banking, as it is now called, had been known about for more than a decade. In addition, the Clinton administration allowed the Gramm-Leach-Bliley Financial Services Modernization Act to pass in 1999 repealing part of the Glass-Steagall Act of 1933 and opening up competition among banks, securities companies and insurance companies. The Glass-Steagall Act specifically prohibited a bank from offering investment, commercial banking, and insurance services through a single entity. The third component of the panarchy metaphor, ‘resilience,’ is the one that the human world has to rely on to escape from the current situation (Loveridge, 2008) or Ackoffian mess. Unfortunately escape is currently being seen as dealing with a series of problems, conceptual abstractions of parts of the situation as are their so called solutions. In reality escape will depend on the human situation being ‘safe when it fails’ (Holling, 1977) as the complexity of the system will defy ‘engineering solutions’ that presume first, that ‘we are in control’ and second that these solutions to problems can be designed to be ‘fail-safe.’

The evolution of the ‘next industrial revolution’ from the kind of situation that Holroyd and I anticipated in 1975 will follow in subsequent notes. In these it will become clear that invention and innovation in the five other themes (S, E, Ec, P & V) are likely to dominate those of science and technology (T), as they have done in the past, with T acting in an enabling role and not a promoting one. The all pervading role of money, in its now established virtual role, and of trust in it, rather than in outmoded economics, will also become evident.

References

Ackoff, R. L. 1974 ‘Redesigning the Future: a systems approach to societal problems,’ Wiley Interscience


Loveridge, D. 1983 ‘Computers and You,’ Futures, December


Michael, D.N. 1962 ‘Cybernation: the silent conquest,’ in in Of Men and Machines, p.80 (original emphasis). Michael uses the formulation "we invent the term". Marshall McLuhan uses it as
synonymous with automation in *Understanding Media*, p.370. See also Michael, D.N. In ‘Report to the Center for the Study of Democratic Institutions’
Fig. 3. Predicted and actual values of the F.T. Ordinary Share Index - corrected for inflation.

* Current position of F.T. Index.