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Colin Clark (1905-89) Economist and Agricultural Economist

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In 1986 the Oxford University Institute of Agricultural Economics was amalgamated into Queen Elizabeth House. The Institute, which came into being in 1913, achieved considerable distinction for its work on the problems of British agriculture under the Directorships of C.S.Orwin and A.W. Ashby. The third Director (1953-69) was of a somewhat different stamp. Colin Clark (1905-89), though without formal training in economics, had established himself as a pioneer of national accounting techniques in the Cambridge of the 1930s (he was mentioned in Keynes' General Theory) and progressed to write one of the classic studies of growth (Conditions of Economic Progress). His name appeared prominently in the Meier and Seers book on Pioneers of Development and there have been many other testaments to his international reputation. The Oxford period witnessed famous controversies on population and food supply, the publication (with Margaret Haswell) of The Economics of Subsistence Agriculture, and much other work on a wide range of subjects by no means confined to agricultural issues. The essay which is reprinted below originally appeared in the Italian journal Rivista di Economia Agraria (June 1995) as part of a series on major figures in agricultural economics, and was presented at an Agricultural Economics Society conference (Edinburgh, 1998). It is also the basis for a shorter entry in the Dictionary of National Biography, 1981-90 Supplement. The writer spent a considerable part of his early career as one of Colin Clark's research assistants. A number of people have been kind enough to suggest that the essay should have greater accessibility.

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1.Introduction

It was by no means uncommon for those who made an impact on economics in the first half of the twentieth century to have had no formal training in the subject at the undergraduate level. Diversion of interest from another discipline was never felt to be an impediment to progress, though few made the type of leap which characterised Colin Clark's early years. After graduating in chemistry, at Oxford, in 1928 he had acquired such stature that he could be quoted by Keynes in the **General Theory of Employment, Interest and Money** a mere eight years later in 1936. By then he had accomplished what must rank as one of the most astonishing career transformations within the annals of economics. To understand that we must begin at the beginning.

Colin Clark, though he is often thought of being Australian by nationality because of his later close links with that country, was born in London in 1905. However, there was an Australian link in his background since his father James Clark, who was a merchant of Scottish descent, had emigrated to Queensland in 1878 to set up business in the meat trades. This was to take him to South Africa where he married his wife Marion Jolly, who decided that her first child should be born in England. There were further business interests in Plymouth, England and though fortunes appeared to have been made and lost enough was available to provide the young Clark with a very distinctive upper middle class education at the Dragon School, Oxford; Winchester (one of the most famous English public schools, though those who understand the British system will realise that it was very much a costly 'private' establishment) and Brasenose College, Oxford. Though a competent chemist he did not achieve the distinction of being place in the 'first class' of the degree lists. There is no record of instruction in either economics or statistics, though it is known that he developed a fascination for numbers. It is interesting that this was associated with a political interest in the British labour movement (i.e the left wing of British politics), and that Colin often sought to sway student political debates by assembling statistical evidence to support his points. Later in life he crossed the political spectrum, though it was the left wing connection which had an early decisive influence on his career. By luck, obviously re-enforced by his skill in handling data, he was recommended to William Beveridge of the London School of Economics as a research assistant in work on studies of poverty in the capital. Beveridge, it is worth noting, became famous as the architect of the British 'welfare state' system of social security put in place by the post-1945 Labour Government led by Clement Attlee.

Colin was at LSE for a very short time from 1928 to May 1929, when he was offered a similar post at the Liverpool University sociology department to work on poverty in the surrounding region initiated by Sir Alexander Carr Saunders, another figure of enormous influence and stature. In 1929 Colin was to fight his first parliamentary election campaign in the Labour interest in the impossible to win rural constituency of North Dorset. He was to contest elections again in 1931 and 1935 (Liverpool, Wavertree and South Norfolk). By 1930, however, his life had taken a decisive turn. In 1929 Ramsay MacDonald had become Prime Minister at the head of a Labour government facing the problems of the onset of the great depression of the early 1930's. MacDonald decided that he should form an Economic Advisory Council (it included Maynard Keynes), and Clark was

invited to act as one of its research assistants. In only three years after graduation a young man of 26, without formal training but already noted by his mentors as being a statistics prodigy, was at the heart of policy making. It was, however, a very brief period. On being asked to write a background memorandum to make the case for protectionism he resigned. However, he had done enough to impress Keynes who secured a position for him as a lecturer in statistics at Cambridge University, where he was to cover the 'social and economic' aspects of the syllabus taught to students of economics. The opportunity was grasped with alacrity. In six years he was to write **The National Income 1924-31** (1932), **The Economic Position of Great Britain** (1936, and written jointly with no less a figure than A.C.Pigou) and **National Income and Outlay** (1937). At the age of 32, on publication of the latter book, he had become one of the great pioneers of national income work. He had also begun what, to many, is his most famous work, **Conditions of Economics Progress,** which first appeared in 1940.

By then, however, life had taken a further unexpected turn. Given his family background he decided, in 1937, to take a year's leave of absence from his Cambridge position to visit universities in Australia and New Zealand. Though he was expected to return the offer appeared of a position as economic adviser to the Queensland state government, (the full title was Under-Secretary of State for Labour and Industry and Economic Adviser to the Treasury), which was then headed by a Labour Prime Minister. This proved to be so interesting, and also somewhat unusually in the case of a public servant to offer him some freedom to continue with his writing, that he was to remain there for a long spell (1938 to 1952).

2. Major career phases

This essay has begun at a somewhat breathtaking pace for quite deliberate reasons, and it will be useful to pause briefly to take stock. In 1940, when **Conditions of Economic Progress** made its first appearance, Clark was 35, and we have already mentioned an astonishing list of output. Note, however, that none of it was particularly closely related to the discipline of agricultural economics. If it could be categorised at all it was 'economic statistics', with a national income slant, shading in **Conditions of Economic Progress** towards a broader concern with the process of development on an international scale, and with agricultural change as part of the latter pattern. During his Australian period he also worked on **The National Income of Australia** (1938 with J.G.Crawford), **A Critique of Russian Statistics** (1939), and on the second edition of **Conditions** (1951). A further edition appeared in 1957. Taken together they are the foundation of a lasting reputation in general economics. The nature of the main strands of that work will be further examined at a later point.

Interest in agriculture developed in a number of ways. It was clearly of fundamental importance to Australian development and much of his concern as an adviser was on the balance between the sectors of a growing economy. However, it was while he was briefly in New Zealand that he was asked a question about that country's future. This, he felt, to be fairly obviously dependent on the future of primary commodity prices. As a result he began to work on the issue, the results being published in 1941 as the **Economics of 1960**, which will be mentioned again. Later, in 1951, he obtained a secondment to Rome to work for a year for the Food and Agriculture

Organisation on world food supply. It was at the end of that period, when almost on the verge of joining the University of Chicago, that an offer came for him to return to Britain, and to Oxford.

Clark was formally responsible for agricultural economics in his Oxford period (1953 to 1969) while Director of the University Institute for Research in Agricultural Economics. A separate section will consider that phase since it is likely to be of particular interest to readers of this journal.

Woven into the pattern there were, however, all sorts of other aspects of his career some of them continuing after his return to Australia in 1969 virtually up to the time of his death in Brisbane in 1989. He had a reputation in demography, land use studies, and econometrics to add to everything else which he accomplished. Not least during his Oxford period he became involved in major controversies of a quasi-political nature for which he became particularly well known in Britain (**Growthmanship**, 1961 and **Taxmanship**, 1964 were notable tracts), as a free market economist after a marked shift in his political instincts.

It will not be an easy task to pick out all of the elements such multi-faceted activity, not least because he always appeared to be working on numerous projects simultaneously with astonishing energy and determination, and as he often admitted himself, with a sheer liking for controversy. His life was also punctuated by numerous 'unplanned' occurrences which opened up surprising avenues of endeavour. That has already been noticed in his transformation from raw undergraduate in a science subject to a member of one of the most formidable economics faculties which has ever existed. It also occurred in his move to Australia, and his return to Oxford. What bound it all together was an abiding passion for statistical information, a love of patterns in numbers, and not least a genius for analysis and a great facility in writing.

To continue the chronology Clark left Oxford in 1969, after a slightly early retirement, to return to Australia first for a brief spell at Monash University, and then at the University of Queensland, where for the remainder of his life he was a 'research consultant'. As we will see it was to herald a continuance of productive work, virtually to the end of his life in September 1989.

3. National Income and Economic Progress

This must be a somewhat selective treatment of the major early contributions, what could be regarded as a 'Cambridge' phase but continuing through to the final 1957 edition of **Conditions**. This had begun in Cambridge, but the first edition was published when he was a civil servant. The largely re-written second edition appeared in 1951 (he was, as already mentioned, a somewhat unconventional government official since he pursued his academic interests simultaneously), while the final edition appeared when he was at Oxford. To understand the importance of the book we can look first at Clark's earlier solo efforts **The National Income 1924-31** (1932), and **National Income and Outlay** (1937). Both of those were much conditioned by the Cambridge background, which was of course dominated by the development of Keynes' **Treatise on Money** and later the **General Theory**. In addition to that it has to be remembered that what we now regard as straightforward estimates of national income and expenditure, compiled as a matter of routine by government statisticians, barely existed. What Clark did, virtually single handed, was to prepare

United Kingdom estimates, partly based on earlier work it is true, but with updating to cover the critical years of the late 1920's and early 1930's. He approached the material by looking at incomes, production, and expenditure in the now familiar manner attempting to reconcile the estimates obtained in the three ways. Fundamentally it was an approach based on the familiar identities of Keynesian economics, and though that needed some later tidying up, the work looks surprisingly modern. He was also much concerned with providing estimates of what we would now regard as 'real values' (i.e. after removing the effects of changes in the value of money). That, however, was not the end of his pioneering efforts. Clark was much concerned with adding some flesh to the bones of theory. A famous estimate of the size of the Keynesian 'multiplier' was one outcome of that. It is little wonder that Keynes should regard him as 'quite first class'.

Having established a reputation as one of the founders of national accounting (the other was, of course, Simon Kuznets working in the United States) Clark's imagination then moved in other directions. Obviously he could well appreciate the importance of the new macroeconomics associated with Keynes, but he did not rest with the 'short period' associated with macroeconomic management, he had an eye to the 'long term'. This was much influenced by contact with two economists at the London School of Economics, the Harvard professor Alyn Young and the Englishman G.T.Jones who were both interested in the phenomenon of 'increasing returns'. Those who recall their theory will remember the famous taunt to microeconomists by the economic historian Sir John Clapham who spoke of the 'empty economic boxes' of theory which failed to recognise the need for quantification of situations in which returns 'increased' or 'diminished' though theorists often spoke of such conditions as being fundamental. It is impossible to read **Conditions of Economic Progress** without remembering that issue as part of the background. With it are coupled the famous questions relating to the speed of economic growth, the differences in levels of income and productivity between countries and the changes which occur in the allocation of labour and capital to various activities as growth proceeds. Before all of this could be studied, however, there was one major snag, that of conversion of statistics relating to various countries with their own monetary units to a common basis. It is what we now regard as the familiar issue of 'purchasing power parities' for international comparisons.

Colin first tackled this issue in a 1938 article in **Weltwirtschafliches Archiv**, where he used his 'International Unit' one unit of which was equivalent to the quantity of goods and services exchangeable for $1 over the average of the decade 1925-34. To convert the currency of another country to dollars was not simply a matter of using the exchange rate; it had to be done using a 'binary comparison' based on a Fisher ideal index number. This is fully explained in the various editions of **Conditions of Economic Progress** (see **Conditions, 1957**, pp.16-17 and Chapter II), along with further work in which Colin attempted to deal with another problem. The difficulty with the I.U. was that it appeared to give inconsistent results for low income countries (the problem basically is that of handling personal and professional services) and was replaced, after much laborious calculation, with an 0.U. (Oriental Unit) for comparisons with some of the poorer countries.

To catch the flavour of what Colin had accomplished by 1957 the interested reader is referred to Chapter III ('International Comparisons of Real Income per Head and Real Product per

Man Hour', **Conditions** 1957). It is an enormous chapter of 145 pages dealing with 28 countries in which series for national income are sorted out and fully documented in immense detail for, as Colin would say in conversation, 'as long a time period as possible'. There is, for example, an annual time series for Great Britain from 1870 to 1953, for Italy from 1901, for the U.S.A from 1850 (though some of the earlier estimates are for decades), and for Sweden from 1876.

A number of points will become obvious to anyone who attempts to read the chapter. First, there is incredible detail which is often such as to make the material wholly indigestible. Second, key explanations are often given in a somewhat obscure manner. Take the following passage:

> "As we propose to define them, real income differs from real product in two respects. A country with a given level of real product may have a higher or a lower real income in so far as real product is augmented, or reduced, by investment income receivable or payable to other countries. A country with a given level of real product may also find its real income augmented if the terms of trade turn in its favour so that it receives a larger volume of imports for a given number of exports: and conversely" (**Conditions** 1957, p. 86).

This is not difficult in itself, but the detail of the calculations involved is then expressed in algebraic terms in a way which makes the first proposition regarding investment income very clear, but makes the logic of the terms of trade correction incredibly dense.

The third characteristic relates to the problem of understanding the main message! After tables for the 28 countries we reach the sudden remark that:

> "It is of great interest to distil all the aboveexperience, where we can, into simple figures for the long-period rate of growth of real product per man hour. Clearly we do more good by measuring this than by measuring real income per head, a figure which is subjected to the additional chance factors of changes in the terms of trade, of working hours and of the ratio of dependants to producers" (**Conditions**, 1957, p.200).

Colin then tells us that he plotted all of the material on logarithmic graph paper to examine the trend lines to produce a whole page table of rates of growth by period. It is fascinating material, but the whole discussion (including the paragraph quoted above) covers no more than the equivalent of one page of text and does little more than say that some countries such as the United States have 'a particularly uniform trend line' (the growth rate was 2.3% from 1890 to 1952), and that some appear to have had productivity affected by war and the Great Depression. It is a singularly abrupt treatment of what has, by any reckoning, to be one of the most important of all economic issues. Worse it then jumps immediately to a discussion of India and China, before returning to a long additional treatment of Great Britain. The latter is full of characteristic detail, but then concludes with a table of income (in I.U.) per head of occupied population at various dates between 1688 (the earliest recorded attempt at a national income estimate by Gregory King) and 1870. The results, which are said to illustrate some observations of John Stuart Mill, are summarised in one sentence:

> "The eighteenth century, whatever its cultural and political achievements, appears to have been a period of economic decline for the mass of the English people; and the first half of the nineteenth century, with all the tremendous changes brought about, only just succeeded in maintaining real income per head constant" (**Conditions**, 1957, p.217-8).

In that one chapter we can see exactly how Colin worked. He assembled huge volumes of material, describing it in such detail that readers, while obviously recognising that the work load which he imposed upon himself was prodigious, feel their heads reeling! He was not always as clear in describing his methodology as he might have been, often burying key explanations in a mass of his detail. Then his key messages have, almost literally, to be 'dug out' of the text since they are often found in single tables presented with the minimum of embroidery. The two examples given above of the growth experience of a large number of countries and of Britain in the industrial revolution period are perfect examples! However, lest this should appear destructively critical, it also has to be emphasised that even the third edition of **Conditions** appeared almost forty years ago!

4. More on Conditions of Economic Progress

Recall that the discussion above only dealt with **Conditions** through its third chapter. There were nine more, plus in the 1957 an 'Excursus' into economic comparisons with the ancient world. They cover the national income of Soviet Russia, productivity in three sectors (primary, manufacturing and service industry), consumption as a function of real income, the distribution of labour between industries, relative incomes as controllers of labour supply, capital and its accumulation, and the distribution of income. It is impossible to describe this mass of material and only a few points will be made which will be of interest to agricultural economists.

The first and most obvious is the presentation of statistics relating to agricultural output in terms of I.U., in an astonishing 64 country table (**Conditions**, 1957, p.256), followed by an analysis of productivity growth in a number of important cases. What emerges from that (again after a little digging) is a picture of agricultural transformation within the developed world. For example (graphs pages 271 and 273) real product per man hour in the United Kingdom and Sweden is shown to have been increasing by vastly different rates (0.7% per year and 2.4%) from 1860 to around 1940, but thereafter to have accelerated (4.0% and 4.6%). For the United States the shift is from 1.6% to 6.3% (p. 273). The reason is the move from farming being self-contained' to a situation in which:

> "The farmer is now almost at one with the business man and industrialist buying one set of commodities in order to transform them into another; and in the short space of twenty years this transformation has been extremely rapid" (**Conditions**, 1957, p.278).

More interesting, in many ways, is the attempt to look at the 'diminishing returns' relationship between density of the agricultural population and real product per person. This matter will re-appear since Colin had views about population which were highly contentious. In 1957 his opinions were somewhat muted. He pointed to the fact that there were countries with low density and high productivity (New Zealand, U.S.A., Canada, Argentina), and at the other end of the scale the low productivity, high density cases of the Middle and Far East. However, he was then able to argue

that "the exceptions are more interesting" (**Conditions** 1957, p. 311). For example Italy had a density very similar to many Eastern countries, "but a considerably higher productivity", while the USSR (even excluding the cold climate areas) had density similar to Denmark, but the latter country was far ahead in productivity. Further, the Netherlands had dense settlement and exceptional productivity. In short the 'law of diminishing returns' can be 'suspended'.

Chapter VIII on consumption has a great deal of analysis of food demand including a remarkable demonstration, based on a 24 country data set for 1950-51 in which food consumption at the 'farm gate' level measured in I.U. is set against real income. Without stating the equation the conclusion is:

"We had long been familiar with Adam Smith's generalisation that 'the desire for food is limited by the narrow capacity of the human stomach', but it is interesting to have this re-stated as a definite asymptote" (**Conditions**, 1957, p.445).

Third, and briefly, one quotation from Chapter IX on the distribution of labour will be enough to remind readers of one of Colin's most famous rules (it is inevitable that it is backed by a table, in this case one which occupies eleven closely set pages):

> "A wide, simple and far-reaching generalisation in this field is to the effect that, as time goes on and communities become more economically advanced, the numbers engaged in agriculture tend to decline relative to the numbers in manufacture, which in their turn decline relative to the numbers engaged in services" (**Conditions**, 1957, p.492).

5. Econometrics

There is one slightly curious feature of Colin Clark's career. If one reads **Conditions of Economic Progress**, and much of his later work, it is soon realised that it is virtually devoid of formal econometrics. Earlier I mentioned his addiction to graphs in order to fit 'trend lines' and his use of a mathematical derivation to deal with food consumption. There is also some modest use of the Cobb-Douglas production function in the chapter on capital resources (**Conditions**, 1957, pps.585-593). However, during his Australian period he did devote some of his time to 'model building'. The results appeared first in a highly controversial book **The Economics of 1960**, which appeared in 1940, and was nothing less than an attempt to use an econometric forecasting model for the world economy. It became a sensation since it contained a prediction that there would be a huge swing in the terms of trade in favour of primary products (notably industrial raw materials) because he held the view that there would be extensive industrialisation in China and India. He was later to acknowledge that this was a 'famously wrong' prediction, or at least one which was some decades ahead of its time!

Later he published a much more pregnant work 'A system of equations explaining the United States trade cycle, 1921-41' (**Econometrica**, 1949), which was also one of the first attempts to develop the type of macroeconomic model with which we are all now familiar. Colin pursued much of his work privately with the Econometric Institute Inc (an American consulting organisation), and also appears as a co-author of a textbook (Spencer, Clark and Hoguet,

Business and Economic Forecasting, 1961) which is one of the Irwin Series publications. There is no doubt that he was skilled in econometric model building, or that he must rank as one of the pioneers. However, while everyone knows of his contribution the **Econometrica** article is rarely formally referred to and his contribution appears to have been submerged beneath the weight of other major writers such as Tinbergen, Klein and those associated with the Cowles Commission. A subsidiary reason, perhaps, is an obvious one; Colin was so active in following his own particular brand of data assembly that he simply did not have the time to pursue the fast developing techniques of econometric analysis and instead he maximised his own comparative advantage.

6. Agricultural Economics

The Oxford phase of Colin Clark's career (1953-1969) was one in which, clearly, he had to pay more attention to agricultural economics and to the running of a University department with formal teaching responsibilities for the training of undergraduates in the agriculture faculty and for a postgraduate diploma in agricultural economics. He did none of the former, leaving it to colleagues, and gave only one series of lectures to the diploma students. That dealt with the very broad issues of population, food supply and land use. He also ran a famous 'Monday seminar' to which he invited speakers who were not by any means concerned with the subject; among many others of great eminence his guest list included the famous Oxford economists Sir Roy Harrod and Sir John Hicks, and Lord Beveridge who was mentioned earlier. Colin believed that his students should be 'educated' in the widest possible sense rather than simply being 'trained' in a particular branch of economics. He also interpreted his brief very widely, engaging in numerous controversies which were strictly outside the field of his immediate brief.

So much was done in this period that the surface can only be scratched. We have already mentioned the third edition of **Conditions of Economic Progress** (1957), but other major books included **Economics of Subsistence Agriculture** (1964, with M. R. Haswell), the **Economics of Irrigation** (1967, later revised with I. Carruthers in 1981, and full of information on the returns to water use and capital costs of installation), and **Population Growth and Land Use** (1967, revised in 1977). There was also a mass of other output in book chapters, journals (that included his Presidential Address to the Agricultural Economics Society, in 1968, on 'The Value of Agricultural Land'), pamphlets, newspaper articles and mimeographs. To be selective I will mention two matters on which he made an indelible mark (population and food supply, and the state of subsistence farming), pick up some of the 'outside interests', and end the section with his thoughts on the European farming scene.

Population and food supply became on his major concerns, and it was probably the one area in which his views attracted the greatest mixture of admiration and fierce controversy. As noted Colin had worked at FAO, but he became one of its fiercest critics. It can all be summed up in one paragraph:

> There should not be many people now who still believe the extraordinary mis-statement, originally made in 1950 and so widely circulated around the world that 'a lifetime of malnutrition and actual hunger is the lot of at least two-thirds of mankind'. Why such an obviously erroneous statement should have received such widespread credence is a

> problem for the social psychologist; a great many people seem to have suspended their normal critical faculties because of the intensity of their belief that the world was over-populated, or needed a world revolution (or both for some people). (**Population Growth and Land Use**, 1967, p.124, in a chapter condensed from **Economics of Subsistence Agriculture**, 1964).

Criticism of the 'two thirds' legend, some felt, became an obsession, while others of less charitable inclination believed that Colin's view that 'the earth can feed its people' was based on the fact that he had become a convert to the Church of Rome, and that he had, indeed, been a member of the Pope's Commission on Population (1964-6) which resulted in the appearance of *Humanae Vitae*.

This is clearly a difficult area! The first point to make is that Colin was always ready to acknowledge that FAO was willing to change its views, often quoting a paper by Dr. Sukhatme (Director General of Statistics) who by 1961 had reduced the estimates of 'hunger' to 10-15 per cent of population, though he did regard the further estimate of 35-40 per cent being 'malnourished' as being mistakenly based on dietary standards of Western Europe. In short, he was always willing to 'debate' the issue and take criticism of his own view, and did not adopt a 'doctrinaire' approach. His contribution to that debate was, of course, formidable. He was well versed in the medical literature about nutrition and was always ready to quote evidence about the 'needs' of populations living in various circumstances. The curious point, however, is that he was strangely reticent in making 'global' estimates of food shortage and never blatantly attempted to take a 'minimalist' approach; that was clearly his inclination but one must be cautious and get his views into their proper context.

The aim of his work was not simply to trade one estimate of 'hunger' against another. His prime concern was to argue that the earth could indeed 'feed its people' given increases in technical knowledge and satisfactory economic arrangements. On the former he was constantly demonstrating the immense growth which had taken place in agricultural productivity per unit area of land, he had careful estimates of the availability of what he called 'standard farm land', and from that he was able to derive an estimate that, even at American levels of diet, there was enough productive capacity to feed no less than 47 million persons (or about 4 persons being fed per hectare). (**Population Growth and Land Use**, p.153). That is a staggering figure when one remembers that world population in 1950, when he first became interested in the subject was 2.5 billion, doubling to around 1988, and now being projected for 2025 to 8.5 billion.

Part of the difficulty in looking at material of this sort is that there is first, a danger of assuming that Colin was predicting, or worse even advocating, what amounted to unlimited population growth. He was doing neither; he regarded population predictions as "anyone's guess", and he had dire warnings about other consequences of population growth other than mere feeding. The other problem was that he was often vague about the means of increasing food supply, and the duties of those not in need to those who are. On the latter he did little more than drop hints, though they are sometimes enough to give some insight. For example in **Conditions of Economic Progress** (1957, p.324) he first contemplated a world with an agricultural population density similar to that of the most intensely settled areas of Western Europe and then went on:

> "If, on the other hand, we decide to neglect our obvious duty, and do nothing to help the hungry countries obtain the transport, communications and fertilisers which they require, we can see what will happen".

What would happen, in fact, would be 'accelerated diminishing returns' to 'the very limits of subsistence'!

The work on subsistence agriculture bore all of the characteristic hallmarks of the prime assembler of statistical material, in a part of our subject which (when it was written) was ill-served with data. In part it was an attack on the FAO view of the world, in part an attack on the notion that there is a mass of surplus labour in Third World agriculture (one must not forget the heavy labour needs at sowing and harvest or one is lead to the view that a pool of readily accessible manpower is easily available), though it also shows how Colin could conjure up a statistical generalisation from a mass of detailed material. The thrust is evident from a later source:

> " It was not until the 1960s that I began to develop the line of thought (published in *The Economics of Subsistence Agriculture* with M. R. Haswell) that improvements in agricultural productivity must be regarded as another *necessary condition* for industrial development. Both international comparisons and time series indicated that a rising proportion of the labour force in nonfarm occupations was only possible if agricultural productivity not only rose, but rose at an increasing pace (the nonfarm proportion of the labour force rising as a linear function of the *logarithm* of farm productivity). (Quoted from **Pioneers in Development**).

While Colin's views were often regarded as extreme, particularly in his estimates of potential food production and population (remember the 47 million), an irony should be noted! Writing in 1994 Barbara Harriss-White had a paragraph which placed his work in a modern perspective, complete with a reference to FAO,

> "The United Nations Food and Agriculture Organisation has reckoned that less than half the world's potential arable land is under cultivation. Using advanced agricultural technology it would be possible to sustain 33 billion people - seven times the present population - and our current population could be fed on a simple but adequate diet of vegetarian and range based animal products by systems of production in which fertilizer, agro-chemicals and high-yielding varieties did not have to be used. Even though global food productivity gains are slackening or have plateaued, if there are problems in the production of food, as our book suggests, they are not of technical limitation" (Harriss White and Hoffenberg, p.2).

Colin's wider interests, while still formally responsible for agricultural economics, were considerable. Two of them (to be selective again) related to the 'causes' of economic growth, and the general effects of high taxation (**Growthmanship**, 1961, and **Taxmanship**, 1964) . Both appear under the imprint of the Institute of Economic Affairs, a London based 'think tank' (to use the British terminology for such organisations) with 'free market' leanings which was to provide powerful ammunition against central planning, and which is often thought to have provided much of the intellectual input leading to the election of Mrs. Thatcher's government in 1979.

Growthmanship is a powerful statement of the view (amply illustrated with a range of statistics, as would be expected) that capital investment as the leading force in growth is misplaced. Rather 'it is more correct to say that capital is created during growth than that growth is a creation of capital'. Instead 'the principal factors in economic growth are not physical but human...(which) develop steadily but slowly'. The implication is that governments 'should avoid attempting to force accelerated growth, since to do so is to risk impeding it and destroying individual liberties in the process'. The improvement of human skills through education, and allowing enterprise to flourish through incentives, are more likely to result in rising standards of living.

In similar vein **Taxmanship** argued that taxes levied above 25% of net national product at factor cost were a source of inflation, and further that incentives could only be damaged by attempts to secure welfare improvements by excessive re-distribution of by government assumption of excessive responsibility for social services. It is far better, it was argued, for individuals to assume much more personal responsibility for their own welfare provision. This type of thinking, allied to the anti-planning stance of **Growthmanship**, appear to be clear evidence of a move across the political spectrum from the left (the Labour party of his early years) to the right (i.e. to the Conservative party). It is, however, wise to be cautious on this point. Colin always stated that in his later years he had no party affiliation in any formal sense, and that his sympathies, in terms of concern for the human condition, remained those of the 'left'. What he disliked was the drift of thinking in the direction of planning and state provision, which he believed were inimical to real progress.

One can, of course, guess what his views on European agricultural policy amounted to! **Growthmanship** sums them up in one sentence, 'the subsidisation of farming and other favoured industries must be brought to an end'. There are similar expressions in **British Trade in the Common Market**, though it was, however, better put in 'Agricultural Economics - The Further Horizon' published in the **Journal of Agricultural Economics** (December, 1962) when Britain was still considering entry into the Community of Six. He prophesied first that the Common Market would eventually include Britain, Denmark and Ireland, not to mention Norway and Portugal (he regarded Sweden as a doubtful starter, getting matters wrong on that country, as well as on Norway, though it was a rather good shot for a 1962 prediction!). He did not disapprove of membership but one criticism was not only scathing but immensely prophetic. It can stand alone, though the reader is asked to remember only that the 'pro-agriculture' stance which he adopted in relation to the developing countries is discarded in cases of richer economies.

> "What has been said above must not be taken as implying any approval of the so-called agricultural policy...as at present announced. The agricultural policy on which the ...countries were supposed to have reached agreement by 31st. December, 1961, and which in fact they reached after the puerile device of declaring that their discussion had only been adjourned and not suspended, and after a series of all night sittings, at 5-30 in the morning of 14 th. January 1962, is quite hopeless without any redeeming features. The extraordinary obscurity of the language in which it is expressed, and indeed the wholesale crop of errors in the official text, seem to indicate that the authors were not easy in their minds about it. The work will have to be done all over again. The policy...continues to protect all the most uneconomic and highest cost producers in the Common Market area, without imposing any restriction on their output; and, knowing that this policy will lead to

> over-production, the...countries have proposed to meet this by heavy levies on imports, whose proceeds will be used to finance the organised dumping of surplus products on a large scale. No wonder that such a foolish and internationally unacceptable policy has to be wrapped up in such obscure verbiage. With the entry of Britain and most of the remaining European countries, into the Common Market there will in fact be few areas of the world in which surplus agricultural policy could be dumped, even if dumping were a desirable policy".

7. Later years

In 1969 (when 64) Colin decided that retirement was to be spent in Australia and he accepted an invitation to join Monash University, where he spent a brief period before returning to Brisbane and an unofficial position at the University of Queensland. For almost twenty years he continued to write many shorter articles, but also to correspond avidly, and to telling effect, with younger writers on subjects which were close to his interests.

One example of his intervention will be sufficient.
In his last decade the data base for internationally comparable national product statistics was very much taken over by the United Nations Statistical Office and the World Bank. Though some material had been published earlier the key reference work appeared in 1982 in the authorship of Kravis, Heston and Summers. Naturally they mention him as one of the earliest of writers on the subject (p. 3), but his name then re-appears (p.139). Recall from above that Colin had been much concerned with the problem of comparison of the incomes of the poorer countries of the world, the particular issue being the that of what Kravis, Heston and Summers describe as 'comparison resistant services'. They then note a suggestion, as they say 'made in correspondence', of a method to deal with the issue. The details need not detain us; the important point is simply that Colin, by that time, was well into his seventies.

It was in the second of his Australian periods that he also produced his last major book, **Regional and Urban Location** (1982). Sections of that grew out of parts of **Population Growth and Land Use** (1967), though it may still strike the reader as somewhat odd that he should choose a title somewhat at variance with his earlier interests. Part of the reason was that Colin, despite often taking a free market stance, was always somewhat sceptical about the role of market forces in guiding the spatial distribution of economic activities. Land use changes work slowly, cannot easily be reversed, and use itself can generate many externalities.

More will be said in the next section about Colin's overall reputation in economics and about his personality. However, it is worth noting that he has set out his own testament, and one which will greatly help any reader to appreciate some of his motivations. In 1983 the World Bank invited a number of 'pioneers in development' to prepare essays on their careers, one of them being Colin (Meier and Seers, 1984). Since the publication is easily accessible nothing more will be done than pick out a one long quotation which (like the passages quoted earlier) will serve as an indicator of one of his major lines of thought (his favouring of agriculture in development, note!), the sheer power of his writing, and his ability to provoke:

> "It is now universally recognised (though I do not think this was the case when I was writing **Conditions of Economic Progress**) that economic advance leads to a declining proportion of the labour force being engaged in agriculture. However, some of those engaged in formulating agricultural policy in developing countries have treated this relationship as if it were reversible - that is, as if the creation of industrial employment would automatically enrich the country. What a disastrous error. India, under the guidance of a leading scientist, followed a most peculiar line of reasoning. Population, he pointed out, was increasing, therefore we need more food. To produce more food we need fertilizer. So far correct. The we must produce the fertilizer...And to construct fertilizer plants we need steel. Therefore as much as possible of our available resources should go into building large steel works. Perhaps because of the extraordinary conditions in which it is produced, steel attracts emotional attributes which prevent rational discussion. Once when I was asked in India whether further investment in steel works should be undertaken, I replied that this was a problem in comparative religion".

8. The scholar and the man

The fact that Colin was chosen as one of the 'pioneers of development' in the work just mentioned placed him on a par with, among others, Sir Arthur Lewis, Gunnar Myrdal, W.W.Rostow and Jan Tinbergen! He was widely recognised in other ways with four honorary doctorates (the last, fittingly and movingly from the University of Queensland late in his life), he was a Corresponding Fellow of the British Academy, a Fellow of the Econometric Society, a *Festchrift* was published in 1988, his biography appears in many of the standard reference works, and considerable efforts have been made by Australian colleagues to document his full bibliography. The highest honour of all, a Nobel Prize in Economics, did, however, elude him. It is idle to speculate about the reasons, though it is interesting to note that Simon Kuznets, who did become a Nobel Laureate for work on economic growth, was mentioned by Colin in a recorded conversation. His remark was quite simple: 'He has done more than I have'.

Given his long record of intellectual achievement it is easy to forget Colin as a person. All who knew him could recognise his sheer dynamism and perpetual intellectual curiosity. A discussion with him - and there were many who sought him out - or a seminar presided over by him in his inimitable way (feigned sleep followed by devastating interjections) were occasions to be treasured. To those who saw him only in formal settings he could appear awesome, not least because he knew so much and could instantly recall everything he knew down to the last detail. The fictional detective Sherlock Holmes, created by Sir Arthur Conan Doyle, had an equally exceptional brother - Mycroft - who made occasional appearance in the novels. Sherlock said of him "All men are specialists, but Mycroft's speciality is omniscience."
The description fits Colin Clark! However, despite his apparent awesomeness he was deeply religious and a devoted family man (his marriage to Marjorie Tattersall was blessed with seven sons and a daughter), who also had one happy knack. While the weight of his intellect was always apparent he never allowed it to bear down on those who, for whatever reason, were unable to match it. He was also extraordinarily kind and completely free of rancour.

The obituaries, when they had to come, were glowing. One, in particular, by Professor Mark Blaug (Guardian, 11 September, 1989) summed him up perfectly;

> "Those who knew him personally will remember a charm and sweetness of character that contrasted with his laborious statistical studies and his provocative writings on matters of economic policy."

Bibliography

The list below records only Colin Clark's major books. An attempt to compile a full record of all his works is provided in:

Perkins, J.O.N, and alan A. Powell,(1990) 'Colin Clark, 1905-1989: An Affectionate Memoir', *Economic Record*, Volume 66, No. 195, December.

The books by Colin Clark are listed below (the publisher, except where stated is MacMillan, London):

The National Income 1924-31 (1932)

The Economic Position of Great Britain (1936, with A.C.Pigou)

National Income and Outlay (1937)

Conditions of Economics Progress (1940, 1951, 1957)

The National Income of Australia (1938, with J.G.Crawford)

A Critique of Russian Statistics (1939)

Economics of 1960 (1941)

Business and Economic Forecasting (1961, with M.H.Spencer and P.W.Hoguet, Homewood, Irwin)

Growthmanship, 1961 (London, Institute of Economic Affairs)

British Trade in the Common Market (1962, with H. Frankel and Lynden Moore, London, Stevens)

Economics of Subsistence Agriculture (1964, with M.R.Haswell)

Economics of Irrigation (1967, revised with I. Carruthers, 1981, Liverpool, Liverpool University Press)

Population Growth and Land Use (1967, 1977)

Regional and Urban Location (1982, St. Lucia, Queensland University Press)

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Harriss-White, B. and Hoffenberg (1994), *Food: Multidisciplinary Perspectives*, Oxford, Blackwell

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