

Helen P. Liebel

## INFLATION: ITS HISTORY AND POLICY, 1500-1968

THE SIXTEENTH CENTURY marks the beginning of the modern era and resembles it in some unexpected ways. Wars there were and of considerable scope, but wars exist in all centuries while inflations do not. The sixteenth century is known for its "Price Revolution".

It is generally agreed that inflations are characterized by rising prices. Yet the rapid price increases are a consequence rather than a cause of inflation. Inflation is the result of scarcity among the factors of production; there is an excess demand for goods in relation to their availability. This produces a continuous and sustained price movement which in turn leads to a progressive exhaustion of foreign exchange. It is not the result of excessive spending of money or of too rapid an expansion of credit. The economy is not over-heated. If bankers have expanded credit it is because there is a demand for it; otherwise interest rates (the cost of borrowing) would fall too low. If there is a demand for more credit than is available, interest rises. The demand exists only because goods are short. This means that wages are being earned faster than goods can be supplied to the consumer market. One reason why goods are short is that the right factors of production for satisfying demand do not exist, either because the economy is underdeveloped, or because the factors of production are being used to produce goods which do not come on to the consumer market. This is one reason why wars usually bring on some inflation: the production of consumer goods slows down as the output of munitions increases. Inflations also exist, however, when there are no wars. An historical survey of some of the great inflations in Western history may make the inflationary process a little clearer and help us to isolate the kinds of policies necessary to alleviate inflationary conditions.

The history of modern economic problems begins with the *Price Revolution* of the sixteenth century. The fourfold and fivefold increase of prices in Europe at that time was the result of two main factors: first, the influx of huge amounts of gold and silver from the rich mines of Aztec Mexico which Cortes conquered in 1520, and from the equally rich mines of the Inca Empire

which was conquered in the 1530s; second, the consequences of the Reformation—European wars and the increased production in agriculture and industry which led to a shift in the distribution of wealth. The confiscation of Church lands by Henry VIII of England, for example, led during 1538-39 to their being sold or leased to entirely new social groups; it led to speculation in land, and even to a redistribution of natural wealth. In the long run this put England in a position to increase agricultural productivity, to accumulate capital for investment in industry, and by 1600 to have achieved more real growth of income than any continental country.

Actually, however, the increase of prices and the pressures of an inflationary spiral began before the Reformation. In some ways increased prices contributed to the unrest which made the Reformation a success. The appeal of Luther was not merely religious; his parishioners were hard pressed for cash. The chronic shortage of coin in Europe had however already been somewhat ameliorated by improved metallurgical techniques and by the discovery of gold in the Austrian Tirol just before 1500. The sudden increase in the stock of money added credit. It had the same effect as printing paper money: liquidity of income was suddenly increased and consumer demand rose. Production, however, lagged behind demand, and that drove prices up.

Investment is also often expanded during such periods as this. How much of it leads to a real increase in productivity and a growth of national incomes remains debatable. For example, the great banking houses of sixteenth century Europe were indeed quite active in financing trade, especially the spice trade. The King of Portugal could never have established the Portuguese colonies in Africa and Asia and the subsequent monopoly of the spice trade without the strong backing of a banking consortium with its headquarters in Antwerp, then the money market of Europe. This group of bankers also included the Fuggers, a German house centred in Augsburg, who were very deeply involved in financing the election of Charles V as Holy Roman Emperor.

The election of Charles in 1519 was one of the most controversial events of the century. The Pope, the German princes, Francis I of France, and numerous Italian intriguers were concerned that his election to his grandfather's imperial throne might create too large a power bloc in Central Europe, for Charles had already inherited the Burgundian crown from his father and the Spanish crowns of Aragon and Castile from his maternal grandparents, Ferdinand and Isabella. Although the millions spent on securing his election might have aggravated inflation, the increase in prices had

inflation—is possible only when capital is effectively invested in technical progress and in real increases in production.

The Spanish spent their treasure on war, and that was only more productive of inflation. Certainly they also tended to spend on luxuries rather than invest in Spanish industry itself. The old national industry in the north was barred by mercantilist regulation from participation in the overseas trade and declined. This is reminiscent of conditions in underdeveloped countries today when foreign investment flows in. The lack of educated and trained people results in the cash going to government officials who spend it on their private pleasures or on one-shot tries to establish some industry for which the technicians do not exist. Spain lacked the human resources for industrial advance and so declined. Meanwhile, however, in those countries where technical skills did exist, where because of the Reformation the educational system had become more widely accessible, and where new universities and new academies had been founded, progress was the greatest. The Spaniards bought their manufactured goods from the Netherlands and England, their farm produce from France. This stimulated investment in England and the Netherlands, and made possible, in the long run, the real growth of these countries.

The seventeenth century is not usually thought of as being a period of high prices, although in many ways it was. Certainly agricultural prices continued high in England and France during the first part of the century, and in Germany they almost doubled because of the demand created by the Thirty Years' War. The war however destroyed about one third of the German population and the country's entire agricultural economy. After 1648, prices dropped. Pre-war population levels were not regained before 1750, almost a century later. In England and France, meanwhile, the very real growth in agricultural productivity and the development of modern farm technology led to a huge expansion of agriculture. In England this was the heyday of the gentry; the real income of landowners rose. In France the noble landlords benefited from an 80 per cent increase in land values between 1660 and 1675, while labourers gained a 25 per cent wage increase and the price of foodstuffs remained at the levels of 1600 and 1620. The War of Louis XIV eventually led, however, to the devastation of large parts of France and to a subsequent decline in property values similar to the one that had taken place in Germany after the Thirty Years' War. In France, by the early eighteenth century, a longish period of price stagnation had set in.

It is the development of the Netherlands, however, which tells us most

about what can and can not be achieved by real economic growth. In 1575 the Dutch gulden was worth 14.28 gram fine silver. Thereafter its silver content declined steadily and at a regular rate until 1700, when the gulden contained only 9.61 gram fine silver. Yet the depreciation of Holland's silver coinage did not lead to the price increases one might have expected under the circumstances. Studies made by Professor Posthumus, the leading authority on Dutch price history, clearly show that during the period of Holland's greatest trade expansion, between 1620 and 1659, the content of silver was kept fairly stable at 10.28 gram, and this at a time when the amount of silver imported from Peru and Mexico had declined. During the nineteenth-century Industrial Revolution, another period of great growth, there was a further very minute change in the silver content of the gulden. It had been stabilized at 9.61 gram in 1682 and maintained at that level throughout the eighteenth century, when the growth of the Dutch Republic had been exceeded by that of England. The first change came in 1844, when the gulden was reduced to 9.45 gram, at which level it remained until 1914. During these three centuries, prices responded to other conditions than the supply of money. Between 1620 and 1780 they did not vary more than 50 per cent until the Wars of the French Revolution and Napoleon brought a runaway inflation and then a great depression. During the period of the Netherlands' greatest economic growth in the seventeenth and eighteenth centuries, however, prices remained relatively stable and the monetary system did so too, despite the still great inflow of precious metals from the New World.

One reason for sustained growth and price stability was that the Dutch were able to mobilize their capital resources more efficiently than could their competitors. The Bank of Amsterdam was founded in 1609 and the Dutch East India Company a few years before. The Dutch East India Company had a considerable advantage over its English competitor in that it sold its shares in smaller units and was able to mobilize the funds of small investors. Its greater resources enabled it to conquer the Portuguese empire in Asia and gain direct access to the Spice Islands while the English Company, which appealed only to a few very large investors, was compelled to buy the spices from the Dutch Company at their Indian entrepôt. The successful expansion of world trade and the effective mobilization of capital resources, together with technical progress in Dutch industry and shipping, provided the Netherlands with economic supremacy for over a century. There is no inflation when there is real economic growth and this has something to do with technical

progress, efficiency of capital investment, maintenance of peace, the expansion of real trade, and a stable monetary system.

The capital accumulation of the seventeenth century and the effects of the wars of that era influenced the diverse history of prices, wages, and economic progress in the eighteenth century. The Bank of England had been founded in 1694 largely with the aid of Dutch capital, as part of the success of the Dutch Prince, William III, who had come to the English throne. The Bank of England succeeded in keeping interest rates low, thus making easier the financing of the wars against Louis XIV; but, more essentially, it financed the expansion of commerce by English merchants. Despite two major wars, prices did not fluctuate more than 10 to 20 per cent over a quarter of a century. During the eighteenth century, however, a new wave of expansion began, especially after 1730, and in most of Europe as well as in England, prices of grain, manufactured goods, and wages rose slowly until mid-century. Then, coincidentally with a sharp increase in the rate of population growth and the effects of the Seven Years' War as well as of the War of Independence in America, prices and wages increased sharply. By the 1780s an inflation was definitely under way. It was the inflationary pressure of the 1780s, partly the result of government fiscal problems, that made the French Revolution possible.

While studies made by Professor Abel, the leading German authority on the development of agricultural prices, show that the European wage earner had been twice as well off, in terms of real income, during the eighteenth century as his ancestors had been in the sixteenth, it remains clear that the general level of income declined again because of the late-eighteenth-century inflation, so that by 1800 the European wage earner was back to sixteenth century levels.

The eighteenth-century crisis contains many factors which resemble those in the current world crisis. There was no huge influx of metals, but there was the deficit financing of wars (the French investment in financing the American Revolution). After 1792 the printing of paper money in France produced factors which had the same effect as the inflow of metals in the sixteenth century. Population pressures also contributed to increasing inflationary tensions. The world populations of 600 million of 1600 had risen to 700 million by 1700, and 950 million by 1800. More rapid changes were yet to come. By 1900 the world's population was an estimated 1.6 billion; by 1940 it was 2.2 billion, by 1960 it had passed the 3 billion mark. The more rapid increase in population produced a need to expand production, especially of foodstuffs at a faster rate. If investment in agriculture and industry is not

efficient—in fact, not increasingly efficient—scarcity is likely to produce inflationary tension and social friction of the sort that makes for riots, and then revolutions when there are unusually severe fluctuations in international markets. The current price increases have certainly produced much the same kind of social friction everywhere in the world, quite regardless of the existing forms of government. The Cultural Revolution in China is not unrelated to the race riots in Detroit, or to student demonstrations in Madrid, or to rebellion in Poland.

During the eighteenth and nineteenth centuries the real growth of the English economy which followed from the fantastic development of modern farming technology and industrialization saved the English wage earner from suffering as much from the inflation as his European counterpart. English grain prices rose about 150 per cent between 1740 and 1815, and those of other European countries followed, although their highs were somewhat lower than those in England. (England supplied the war effort.) In all countries of Europe, wages rose more slowly than grain prices and prices of manufactured goods. Everywhere it was feared that social unrest would result from these changes. Once the revolution broke out in France, French newspapers were suppressed and French propaganda was prohibited as were the associations of craftsmen. In France the crisis was temporarily ameliorated by the confiscation of church lands and of the lands of *émigrés*. Their sale on the open market led to a redistribution of wealth, but the continued wars required increased government expenditures. It resulted in more inflation than could be countered by increases in real production.

In 1790, Du Pont de Nemours, a French nobleman and later a founder of the Du Pont Company of America, wrote a warning pamphlet, *On the Dangers of Inflation*. The inflation was being caused, he argued, by expansion of government credits without adequate assets. More money had been issued than was backed by land. The psychology of the war boom and the speculation in futures and in government credits were also adding to the inflation. He ignored the existence of crop failures, the sharp declines in agricultural productivity, and the tightening of trade—those factors which always lurk in the background of rising prices—but his general notion that speculation ought to be curbed and government bonds be promptly redeemed characterized the thinking of his age. In those days it was believed that the promptness of government payments increased confidence more than did any changes in the interest rates.

The French inflation continued as did the steady drain on foreign ex-

change. Finally Napoleon enforced strict prohibitions (the Continental System) on all trade with England and but for some native industry which was temporarily stimulated, the entire European economy well-nigh collapsed. The improved competitiveness of England made itself felt after the war ended, and European industry was unable to develop as rapidly as the English, or even compete with it, until after mid-century. The real income of Englishmen increased in the early nineteenth century, despite the collapse of grain prices in 1815 and despite the dislocations caused by industrialization. Since factory workers were paid more than rural day labourers, the ever-growing population moved into huge cities, there to be confronted not with high bread prices but with the problems of slum housing. The inadequately filled demand for homes and good living conditions continued throughout the nineteenth century, while frontier expansion in North America more than adequately filled the increased demand for food.

The real growth of industry and agriculture on a world-wide basis made possible real increases in the standard of living of the population of the Old World and the New. Except for fluctuations during the first part of the century, the ratio of prices to wages changed in favour of the wage earner. In England, wages increased about 50 per cent while the general price trend continued to be low. High prices did not again approach early nineteenth-century levels until 1914, and by then wages were 50 per cent above these levels. In France there was more than a 100 per cent increase in wages during the century, while prices lagged behind. In Germany wages increased more than 100 per cent and prices also lagged behind. The immense increase in population was more than offset by an enormous and growing abundance of food and jobs. Interest rates were low and banking conditions stable. In the United States, however, there was less stability, mainly because of the Civil War and the expansion of the remaining frontiers after that war ended—factors which contributed to the prevailing inflationary trend and disputes about bi-metallism at the end of the century.

In Europe, education was an important factor in the increase of production. During the nineteenth century, trade schools, the spread of compulsory education at least through primary schools, and the development of technical institutes and modern universities were important developments for promoting technical progress. There were also fewer wars in Europe and even the Prussians seldom spent more than 30 per cent of the government budget on the army.

All allegations to the contrary, government proved to be an important

source of capital. Railroads were built with grants of land worth billions in terms of capital, and this occurred in the United States as well as in Europe. In countries such as Germany, where the pace set by the British economy provoked an ambition to catch up, more was spent on research and education than in Britain, with the result that by 1914 Germany became Britain's greatest rival. Despite a so-called Great Depression between 1870 and 1896, when the rate of profits declined, and when grain prices declined greatly because of the import of cheap wheat from the United States and the Canadian prairies, technological progress and real growth continued.

But the growth of the nineteenth century has changed into the inflation of the twentieth. It is true that prices were rising before World War I, but the war disrupted trade to such an extent that there occurred one of the greatest inflations the world has ever known. In many countries rationing and some price controls existed. Modern economists agree, however, that controls only retard, they do not stop inflation. Once the war ended and the controls were removed, prices sky-rocketed. In Russia they had done so even before the war ended and the result was a huge inflation with prices rising some 1,300 per cent up to 1917. This was the cause, in part, of the Russian Revolution. Compared with sixteenth-century increases, those brought about by World War I seem fantastic. In the six years after 1914 prices rose over 500 per cent in France, over 600 per cent in Italy, over 200 per cent in the United States, and over 300 per cent in Great Britain. The German inflation, however, was one of the most important in modern times. While other Western countries raised bank rates and tightened credits to the point where a depression began to set in, the Germans were required to pay reparations and they continued to expand credits until the price index rose by January, 1923, to 2,785 per cent over the levels of 1914. By November, 1923, when the inflation was ended, the increase stood at 750 *billion* per cent over 1914. The new marks issued in November and backed by United States bank credits were to redeem the depreciated marks at the rate of one *trillion* to one. None of the inflationary price rises of the past decade as yet compare either with the inflation of the French Revolutionary era or that of the period following World War I, both of which ended disastrously in a long-term depression. However, the policy pursued to end a runaway inflation is and must be of interest: complete currency reform and the backing of a stable banking system, in the case of Germany a foreign one. Similar deflations of currency took place in Germany in 1948, when there was again a post-war inflation, and also in France under De Gaulle to end the inflation of 1957-1958. The current crisis however, also

involved the United States, which can no longer provide the necessary stable currency to shore up the rest of the world's financial resources.

Until recently, economists still disputed that there had been an inflation at all. Price increases have been regular while the real growth of economies has slackened. The Korean and then the Vietnamese war threw billions of dollars of demand on to the world market, inducing capital investments in war industries while the world's population grew by one billion in the generation, following World War II! Improvements in agricultural technology have lagged however, on both sides of the iron curtain, and recently there was a serious famine in India. Much capital has also been invested in underdeveloped countries in which inflations are endemic and where the inefficient application of new capital has not resulted in an increase in gross income any greater than the general 5 per cent increase in developed countries. Declining productivity and even total decreases in the capital invested in Britain, relative declines in the United States, the inflation of values because of the war economy—these have undermined the strength of "hard" currencies and made them less efficient as agents of international trade. World trade has not expanded, although production has. This is a sign that there has been an increasing disequilibrium in distribution at the same time that there has been an increased rate of population growth. There seems to be an insufficient amount of capital to invest efficiently in those industries and in that agriculture which would most increase productivity and sponsor further technical progress.

Standards of education have declined in many advanced countries. Capital for research is spent in huge amounts on weapons technology. If this inflationary era is anything like that of the sixteenth century, stability and advances will take place in those countries which are most likely to invest their resources in technical progress and in increases in real production. These are the Common Market countries and Japan, all of which have expanded their educational facilities.

The best hedge against inflation is investment in real production. This means a reduction of inflation-producing expenditures. It means that government policy-makers must throw out their archaic notions of how the economy runs and learn that not all expenditures are inflation-producing. Spending is not *per se* an evil, nor is all spending the same in effect. In fact withholding or cutting budgets in those sectors of the economy which are necessary for real growth can only make the inflation worse and can produce greater deficits in the long run. It is necessary to provide an expansion of credit in the

right places and to limit credit available to non-productive even though temporarily more profitable investment. Organization of services and information can be rationalized. People can be induced to migrate. Education can be made more competitive and produce a higher yield in technical progress. Investment in research facilities and high-quality personnel, in high-quality facilities (and this has not been the case in Canada), yields a higher return than spending the same monies on outlying schools staffed with poor personnel who turn out poorly educated people.

Intensity of capital investment is an important factor to consider. More capital is required for some kinds of industries in order to make them competitive. If the capital is lacking, one reason may be that it has been inefficiently mobilized. While the Dutch allowed everyone to subscribe to the Dutch East India Company and made a huge success of it, the English Company remained uncompetitive for a long time, partly because it restricted investment to only a few wealthy shareholders.

Controls, rationing, price fixing, wage freezes, profit freezes, high bank rates, increased taxes do not counter inflation. They simply retard it and encourage a lower standard of living and a decline in the real growth of the economy. The best solution to inflation is a more efficient direction of expenditure and capital, not a curbing of it. This means directing it to those sectors of the economy most vital for continued real growth and for maintaining real consumer purchasing power.

Because inflation is always global it is necessary to encourage international co-operation in discussing and dealing with these problems, and to encourage global efficiency of investment. This is obviously not being done and it is not possible for one country to do it alone. In the absence of international co-operation one must strive to encourage expenditure on non-inflationary activity, for example, education. Above all, the rate of saving must be increased. In Canada, it has been 15 per cent of entrepreneurial income since 1945. One might suspect that the Canadian population and economy have now come to the point where more than a 15 per cent reinvestment rate is needed. It would appear, then, that the current inflationary tensions are due to an inefficient and inadequate distribution and investment of capital, not to demands for more wages. These as well as high prices are only the consequence of the underlying tensions. Heavy increases in war expenditures by the United States have deflected investment and slowed down technical progress at a time when declining productivity has made it difficult to maintain a stable monetary situation, and at a time, also, when general

population increases have made it necessary to increase productivity and technical progress universally. If the trend continues, a runaway inflation might very well occur. The crisis makes necessary an international conference to discuss ways and means of improving productivity, of rationalizing international educational systems at a higher level, of arranging population exchanges, and, if all else fails, making a general re-evaluation of the basis for defining currency units. The U.S. dollar, just as was the Spanish peso in the sixteenth century, is being invested in war goods rather than in real growth, thus making the cost of establishing maximum growth industries inappropriately high. A further consequence is the speculation in gold which is used as a substitute for the capital credits not now available in world markets. As the price of gold is higher, because of the scarcity of gold and of money, panic buying threatens to topple the entire international mechanism of exchange. All government policies to date have been of the temporary kind and cannot reverse the trend. Only a completely new deal, the creation of a vast and rationalized system of marketing and production like the Common Market area, could achieve this. For the interim, a more substantial investment in high-quality education—not in maintenance of the existing technology, but an investment in education for progress—can and would make a difference in the next five-year interval. Budget cuts or underspending in this sector will only produce a deficit as large as the amount which ought to have been spent on raising the standard of living and the skills of the community. Unless the trend to low productivity and the fear of technical progress is reversed, the Canadian and entire North American economy will succumb to real declines, economic, social, and political, with complete disintegration of the body politic a foreseeable reality.

## NOTE

From the extensive bibliography of books and periodicals on which this article is based, the following list of less familiar works has been selected as an aid to further study:

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