

Economic History Association

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Uncertainty and Economic Change

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Source: *The Journal of Economic History*, Vol. 14, No. 4 (Autumn, 1954), pp. 346-360

Published by: Cambridge University Press on behalf of the Economic History Association

Stable URL: <https://www.jstor.org/stable/2114246>

Accessed: 11-04-2020 12:07 UTC

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## *Uncertainty and Economic Change\**

PRESENT-DAY economic historians should be well qualified to talk about uncertainty. There was a happier time when the empirical and concrete study of individual situations was deemed sufficient, when methodological problems of the long run were left for historians to raise and solve if they could and controversies centered on questions that they themselves formulated. Differences there were, but few irreconcilable differences; areas of the unknown were recognized but there appeared to be no gaps in knowledge that could not be bridged in the course of time. Now, for better or worse, this sheltered position has itself become a datum of history. The challenge of social scientists seeking clues to an understanding of the forces shaping secular change has become increasingly insistent and effective; the strenuous wooing of Clio by economic theorists, statisticians, and Parsonian sociologists can no longer be ignored. Assuming that retreat to the shelter of cloistered storytelling is out of the question, creative response on the part of historians to the uncertainties of their twentieth-century environment becomes a condition of leadership in historical inquiry, its lack a virtual guarantee of submergence.

Fortunately, the historian has highly important assets at his command. He is accustomed to dealing with situations in which few distinctions can be drawn between external and other factors, and with processes that cannot be adequately handled by mathematical formulas. The frontiersmen of his tribe have at their disposal theoretical tools undreamed of by his forbears. Moreover, the concerted attack of social scientists on the problems of underdeveloped areas has been productive of insights of the utmost value in historical research. In a community of scholars in which interest is increasingly focused on questions of growth and change, he alone is on familiar ground, and with due attention to tactics he may absorb invaders without loss of control and to the advantage of all concerned.

\* This paper contains some further reflections on the role of security in economic history as explored in "The Climate of Enterprise," Papers and Proceedings, *American Economic Review*, XXXIX (May 1949), 322-35, and "Political Economy and Enterprise," *Canadian Journal of Economics and Political Science*, XIV (August 1949), 322-33. See also A. H. Cole's remarks on security and entrepreneurship in *Change and the Entrepreneur* (Cambridge: Harvard University Press, 1949), pp. 99-100, and G. L. S. Shackle's comment on security and economics in *The Economic Journal*, LXIV (March 1954), 120.

Of the uncertainties that the historian must face, none is more dangerous than that implicit in the clamor for theoretical tools or devices of general applicability in historical investigation, for a theoretical apparatus designed to handle problems of economic change over long spans of time. Unqualified acceptance of such demands amounts to submission to the interests of the theorist and his proclivity for setting up questions to which the historian must address himself. The search for a general theory is not new in historical work, but I think it fair to say that it has been disappointing in results and frequently productive of the distortions that follow adherence to predetermined patterns of change. This is not to deny the need for some means of systematic attack on the complexity of history and for the structuring of situations for purposes of analysis. But I remain with the orthodox in keeping to the view that historical investigation is mainly a matter of seeking insights into process, answers to questions that change with every generation, and to the belief that the historian must be excused for drawing his own distinctions between the relevant and the immaterial. If his findings support or detract from more ambitious attempts to erect a universal theory, this may be regarded as a more or less accidental by-product of research. Fortunately there are alternatives other than those of floundering in the deep waters of general theory or of retreat to the protective shell of antiquarianism, and it is with some of these that I am concerned in this paper.

I refer to attempts to meet the challenge present in Walt Rostow's call for "a form of long-period historical analysis embracing economic, social and political factors in their full relations," in short, "the fundamental determinants of economic growth." It is clear that, for the present at any rate, diverse lines of attack must be encouraged. The most strenuous attempt to cope with the problems of long-period analysis, in my opinion, is to be found in the later work of Harold Innis who sought his key to an understanding of the interrelationships referred to in the area of communication changes and their impact on the cultural setting of economic life. In studying communication he got at the heart of changes in the larger environment of economic activity, and it is this larger cultural context in which investigations of economic change must proceed. Equally promising developments in the frontier zones of research are present in studies of "socially-conditioned entrepreneurship" now under way, and more than a passing reference should be made to the use of the concept of force and obstacle in economic history and to the subject of propensities.

## I

In drawing attention to uncertainty as a possible key to the study of economic change I am not on ground unfamiliar to economists. A good Marshallian would point to numerous references to uncertainty in the "Principles" and in "Industry and Trade," and there is a substantial and growing body of economic literature on the place of uncertainty in profit theory ranging from Frank Knight's writings on the subject to extensions of G. L. S. Shackle's work on expectations. It may be agreed that uncertainty is rooted in lack of knowledge of the future outcome of an event, that it relates to unique situations characterized by novelty, and that it is the very essence of innovational processes. It may be reduced over time, but in a world of other than routine change it cannot be removed; in other words, it cannot be reduced to the category of calculable risk. In his recent essay on profit theory and income distribution,<sup>1</sup> Burton Keirstead places uncertainty at the heart of entrepreneurial decision making, and in his analysis of various categories of uncertainty has produced a thesis of value for studies extending over longer periods than he had in mind. Entrepreneurial expectations are analyzed in terms of market situations, policy, profit, and time horizons, with uncertainty as "the relevant concept." Particularly suggestive is his discussion of situations of "objective uncertainty, subjective certainty." Entrepreneurial behavior not infrequently suggests a degree of confidence not borne out by objective or real uncertainties present, a phenomenon not uncommon in periods of expansion and one that any comprehensive statement of uncertainty must take into account. (It is possible that this paper provides an illustration of this psychological tendency, although this is not the intention.)

More historically oriented is Henry Aubrey's paper<sup>2</sup> on the role of uncertainty in industrial investment in underdeveloped areas. The element of novelty or lack of experience in investment decisions, the relative absence of liquidity and flexibility in industrial enterprise, "the volatility of the political atmosphere in many countries," and so on lead to a preference for short-term investment, or investment in real

<sup>1</sup> Burton Keirstead, *An Essay in the Theory of Profits and Income Distribution* (Oxford: Basil Blackwell, 1953); also G. L. S. Shackle, "Professor Keirstead's Theory of Profit," *The Economic Journal*, LXIV (March 1954), 116-23, and J. F. Weston, "The Profit Concept and Theory: A Restatement," *Journal of Political Economy*, LXII (April 1954), 152-70.

<sup>2</sup> Henry G. Aubrey, "Industrial Enterprise in Underdeveloped Countries" (National Bureau of Economic Research, Inc., Conference on Capital Formation and Economic Growth, Universities-National Bureau Committee for Economic Research, November 6-8, 1953, unpublished).

estate or in established trades, and for a search for protective devices such as exclusive privileges, subsidies, and other capital assistance. The effectiveness of techniques for the reduction of uncertainty is basic to the rate and character of industrial development in these areas.

Leaving aside these reflections on uncertainty in special contexts, I think it may be argued that entrepreneurial strategy in general may be described in terms of techniques designed to reduce uncertainty to the level of risks against which appropriate action may be taken; that is, in terms of a principle of "conservation of certainty." In the study of long-run change, however, the concept must be broadened to embrace the whole range of the uncertainties that bear on entrepreneurial decision making, not only those associated with economic competition, price fluctuations, income changes, but also those present in political unrest, social instability, problems of sanction. The so-called "competitive struggle," then, takes the form of grappling with uncertainties rooted in economics, politics, and society, and, for that matter, in the psychology of the individual.

Although my main interest here is in the environment of decision making rather than in the economics of individual firms, I see no difficulty in utilizing this broader concept of uncertainty in firm studies. A recently completed survey of the Canadian nickel industry<sup>3</sup> may be regarded as a promising move in this direction. The industry has been dominated from the beginning by one company and is one in which resource and technological factors appear to provide an ideal setting for monopoly control of a strategic metal. A virtual cornering of the world's supply of nickel and policies of closely regulated prices over long periods appear to indicate a reduction of basic uncertainties to a minimum. Yet a study of the strategy of the firm's leadership reveals a constant, almost relentless, pressure over the company's history for creative response to a wide range of uncertainties; some of these were economic, for example, the competition of substitute materials and the threat of new rivals from time to time, but more serious were those present in the company's political vulnerability and in problems of sanction of company policies. A major part of entrepreneurial strategy related to uncertainties beyond those of the marketplace and adequate consideration of the changing fortunes of Inco and its place in the Canadian economy called for a review of the larger environment of its activities and its techniques of coping with a range of uncertainties

<sup>3</sup> Warren Main, *The Canadian Nickel Industry, 1885—1939: A Study in Market Control and Public Policy* (Toronto: University of Toronto Press, in press).

wider than that which economists have been accustomed to take into account.

In the above example, interest must center on the *specific* uncertainties that entrepreneurs take into account in investments of time, energy, and capital in various enterprises. But something more than this is needed if we are to get at the role of uncertainty in economic change. One avenue of approach is to distinguish between *specific* uncertainties crucial to the *security* of the entrepreneur and *primary* uncertainties which threaten the *stability* of the larger setting, economic, political, and social, of enterprise. In referring to primary uncertainties I have in mind those uncertainties present in problems of defense on two fronts; namely, defense against external aggression (which may take many forms), and defense of some politically acceptable standard of welfare. Entrepreneurial reactions to specific uncertainties obviously affect this setting, but analytically this distinction between specific and primary uncertainties is necessary if the interaction of entrepreneurs with their environment is to be examined or the parameters of entrepreneurial activity ascertained.

I suggest that it is the primary uncertainties of defense and welfare which, so to speak, "set" the immediate framework of entrepreneurial decision making, that in which entrepreneurs face up to the specific uncertainties of market fluctuations, and changes in political power and in popular attitudes toward entrepreneurship. This framework, as indicated, cannot be taken as given or fixed over time, since entrepreneurs themselves may play significant roles in defense against aggression and want. Viewed in this light, the dynamics of change may be found in responses, generally group responses, to uncertainties both primary and specific. The actual course and rate of change in concrete instances will vary with the extent of primary uncertainties, the effectiveness of techniques of coping with these, and the ability of entrepreneurs to exploit opportunities present in their primary uncertainty setting; that is, to achieve freedom to meet the specific uncertainties of entrepreneurship. It is rarely that we can narrow down the study of economic change to entrepreneurial reactions to specific uncertainties; more commonly, it is the outcome of interaction, the complexity of which calls for some such vantage point as that which uncertainty analysis seems to provide.

## II

By viewing economic change from the standpoint of uncertainty, the historian may be able to make some contribution to the reformula-

tion of the concept of competition now under way in economics, and, more generally, in the social and biological sciences.<sup>4</sup> Social Darwinism, the emphasis on survival through struggle, conflict, and elimination, is no longer as convincing as it once was; more significant is the ability of individuals and populations to exploit environmental possibilities, a process in which co-operation and mutualism have played the larger role. Competition and struggle cannot be ruled out, but their key role in evolution and change is being increasingly questioned. Undue emphasis on the "competitive market struggle" as a condition of economic progress, on the dangers of group or collective action within the market area, can produce a highly distorted view of change. It is my impression that study of the course of enterprise reveals a high degree of co-operative group behavior necessary if uncertainties were to be reduced to a point where investments could be and were made. Competition in the *conventional* sense was seldom absent, and I think its force in the medieval and mercantilist worlds has been frequently underrated,<sup>5</sup> but I think it is safe to say that, historically, the areas of greatest strategic importance in entrepreneurial decision making have been those of politics and society.

Present revisions of laissez-faire doctrine,<sup>6</sup> long overdue, reveal a greater interest in stability and greater concern with group interests and values than that indicated in the myth of economic individualism. We may speak of individuals, great men in enterprise, but these embody in themselves the prestige and strength of (for want of a better word) "collectivities," social and political groupings as well as economic, ranging from the family dynasty to the modern corporation. These have sought solutions of basic uncertainties, carved out areas of comparative freedom for themselves, and in varying degrees and over various periods of time have reconciled the conflicting demands of freedom and control. Study of the shifting and diverse roles of enterprise and government<sup>7</sup> in the reduction of uncertainties reveals complex patterns in which entrepreneurial groupings have, according to circumstances,

<sup>4</sup> T. A. Goudge, "Some Philosophical Aspects of the Theory of Evolution," *University of Toronto Quarterly*, July 1954, pp. 386-401; also G. L. Simpson, *The Meaning of Evolution* (New Haven: Yale University Press, 1949).

<sup>5</sup> M. M. Postan in the *Cambridge Economic History of Europe*, II, 221; also Eric Hirschler, "Medieval Economic Competition," *JOURNAL OF ECONOMIC HISTORY*, XIV (Winter 1954), 52-58.

<sup>6</sup> See J. B. Brebner, "Laissez Faire and State Intervention in Nineteenth-Century Britain," *TASKS OF ECONOMIC HISTORY* (Supplemental issue of the *JOURNAL OF ECONOMIC HISTORY*), VIII (1948), 59-73.

<sup>7</sup> F. C. Lane, "The Economic Meaning of War and Protection," *Journal of Social Philosophy and Jurisprudence*, VII (April 1942), 254-76, and his "Oceanic Expansion: Force and Enterprise in the Creation of Oceanic Commerce," *TASKS OF ECONOMIC HISTORY* (Supplemental issue of the *JOURNAL OF ECONOMIC HISTORY*), X (1950), 19-31.

submitted to, co-operated with, sometimes dominated governmental policies in which the welfare of entrepreneurs may or may not be identified with the welfare of the "state."

### III

Recent discussion of "monopoly and economic progress" in English and American writings underlines differences in outlook that reflect profound differences in the nature of the uncertainties facing enterprise in these two countries. (I leave the odd case of Canada aside for the moment.) The optimism of at least some economists in the United States on the creative potentialities of bigness in enterprise, like skepticism of these in England,<sup>8</sup> appears to be well founded. It is not difficult to make out a case for bigness in American entrepreneurship. New problems of defense and welfare, the uneasy shifts of balance of power in politics, the sheer rate of technological advance with its threats to established positions, new questions of sanction that rests on control of mass media of communication—these call for bigness to provide the security essential to continued large-scale investment in long-term ventures. But the very extent of its vast and growing domestic market, the difficulty of building impregnable defensive position, is a guarantee of an enterprise bureaucracy challenged or "uneasy," forced to act creatively, imaginatively, if it is to survive. The opportunities present in this almost fantastically endowed area of enterprise preclude any general retreat to the shelter of watertight monopoly; nor is there much indication, on the other hand, of advances in techniques of control, the drastic reduction of uncertainties, to the point of secular stagnation in our time.

The problem of monopoly presents a somewhat different aspect in England. The rise of powerful rivals in modern industrialism, the collapse of the world market on which leadership rested, war losses and the end of insular security, these called for extreme defensive measures on the part of government and enterprise. The extent and character of twentieth-century uncertainties were such as to rule out any easy or "natural" revival of the expansionist drive of the nineteenth century. Problems of defense and subsistence led to the return to "positive gov-

<sup>8</sup> J. Jewkes, "Monopoly and Economic Progress," *Economica*, new series XX (August 1953), 197–214, and G. C. Allen, "A Note on Monopoly and Economic Progress," *Economica*, new series XX (November 1953), 359–61.



ernment" in the interests of stability, and entrepreneurial strategy took the form of a tightening of ranks and restrictionist policies designed to eliminate market uncertainties. A combination of government intervention and entrepreneurial "protectionism" promised security but one short-lived in a world where other power centers displayed vitality; and it is my impression that uncertainties accompanying threatened decline are today evoking responses on the part of government and enterprise in an alliance that represents a sharp break with policies that at one time were suggestive of a steady retreat from the position held so firmly a century ago. Recent British experiments in monopoly control indicate a clear awareness of the dangers of quiescent monopoly to the nation's economic health. Without pressing the matter further at this point, it is apparent that the consequences of power concentrations in the economic sphere, which vary so greatly from one area to another, are closely related to uncertainties facing entrepreneurs and governments, and that if the question of entrepreneurial strategy is taken to include all the elements that in fact do enter into decision making, we must look beyond as well as within the marketplace for criteria of monopoly control. The shortest road to economic decline would be the drastic application of legal or other machinery to make "the price system" work.<sup>9</sup>

This issue, primarily one of freedom and control, is scarcely a new one, although it is one to which the characteristics of twentieth-century investment in massive technologies and present-day techniques of handling basic uncertainties over substantial time periods have given a new urgency. The general pattern historically has been one of heavy reliance on protective measures in the form of group action, and it has been seldom, if ever, possible to divorce the process of capital accumulation from questions of politics and social status, a process in which strategic decisions in investment have frequently been made by other than economically oriented forms of organization. In sum, formative influences in change cannot be restricted to the area of economics, entrepreneurs face uncertainties that cannot be defined in economic terms alone, and techniques of handling uncertainties involve the whole area of human action. This complexity and these interrelationships are at the root of uncertainties facing historians who venture to talk about change, but by working with some such key as the "conservation of

<sup>9</sup> See Austin Robinson's review of Howard Ellis' *The Economics of Freedom* in *The Economic Journal*, LXI (September 1951), 644-51.

certainty" I see no insuperable obstacles to developing a systematic attack on the mysteries of economic change.

#### IV

Although "uncertainty" cannot be regarded as a master key in studies of change, since many doors remain locked to it, by enabling us to bring to a focus formative influences, geographic, technological, and institutional, in change, it may let us into a passageway or two. In turning to a few illustrations of the role of uncertainty in history I refer mainly to the case of Canada. This provides me with the advantage of a solid footing on the Pre-Cambrian Shield, and, more important, with a comparatively simple example in which strategic influences are not difficult to isolate and a vantage point from which the course of enterprise in more complex situations may be viewed.

In the first phase, that of Anglo-French rivalries, the advantage was clearly with the maritime power and its greater flexibility of organization, its naval strength, and its emphasis on gains of trade. In the fisheries, geography and techniques made for cohesion and strength in the English system, dispersion and weakness in that of the French; institutionally, the island power's greater emphasis on trade expansion contrasted with continental emphasis on restriction and control in the interests of self-sufficiency. Strong enterprise elements emerged in the English fisheries to drive the French to marginal positions and to force modifications in England's old colonial policy; French entrepreneurs, on the other hand, were kept in line with national policies in which military and ecclesiastical elements set the pattern of expansion. Innis' *Cod Fisheries* is fundamentally a study in techniques of handling uncertainties in early North Atlantic enterprise.

The same pattern of response to uncertainties may be discerned in the fur-trade phase of the struggle for the continent of North America. Contrasting forms of English and French expansion indicate sharp differences in the ability of the entrepreneurs of these two powers to break loose from the administrative control of their mother countries. The strength of these controls in France reflects the defense needs of an area long exposed to military attack, the serious and continuing obstacles to the achievement of national unity, the strength of elements responsible for national stability, Crown, Church, and aristocracy. The persistence of preindustrial attitudes and its corollary, the inability of entrepreneurs to acquire power and sanction in national affairs, under-

line degrees of uncertainty and techniques for its handling quite at variance with those of more favorably situated England. Freedom from continental wars of the sixteenth and seventeenth centuries, the opportunity to farm, mine, manufacture, and trade peacefully, and greater ease of achieving unity in a small compact area lessened the pressure for centralization of power in the hands of an administrative bureaucracy, and permitted a wider range of freedom for entrepreneurs working out of a less rigid and persisting structure of control. I do not pretend that this is the whole story, but I am convinced that at least part of the explanation of economic retardation in France and the move to entrepreneurial freedom in England is to be sought in the degree and magnitude of primary uncertainties and the techniques and institutional defenses that emerged in response to them.

Turning back to North America, French fur-trade expansion followed closely the Old World pattern of statism in a trade that fitted neatly into a centralized system of control. It was a trade that, in the French pattern, followed continental lines, one of close state regulation, reliance on military power and ecclesiastical influence. It was a highly dangerous trade on which to build a New World empire; elongated supply and trade lines invited attack from north and south; defensive expenditures and elaborate transportation systems resulted in a heavy burden of fixed costs that could be met only by returns from trade in a luxury commodity displaying wide swings in price; and penetration of continental interiors steadily increased the uncertainties of defense and colonial welfare. These uncertainties in turn called for further state intervention in the effort to work out a balanced structure of trade linking New World possessions. There were entrepreneurial elements operating at the margins of control, but they played no part in the formulation of policy. A system better calculated to increase the degree and range of uncertainties and the need for defensive measures for the protection of exposed positions would be difficult to find.

The English system, on the other hand, kept uncertainties to a minimum; naval power, concentration on the small unit fisheries and on maritime policies in the fur trade permitted a flexibility, a receptivity to change and a freedom from administrative control absent from the French organization, and this whether reference be to the small entrepreneur of the fisheries or the bureaucratic structure of the Hudson's Bay Company. There was here no deep involvement in continental interiors, no heavy burden of fixed costs in defense, transportation, or trade, no dominance by military or religious elements with their lack

of interest in the welfare of the entrepreneur. And while the French system strengthened centralist tendencies in the empire and operated as a drain on the mother country's resources, that of the English exerted its pressure for greater freedom of entrepreneurship and paid its way in the process. The latter was loose jointed enough to accommodate, within limits, the aggressive drive of Westcountryman and New Englander and the stability and caution of the Hudson's Bay Company, an organization big in relation to its sphere of activity because of the necessity of political influence in the old country, of defense against French and later Northwest Company attacks on its preserves, and the importance of prestige in dealing with the indispensable Indian. The era of peaceful expansion that followed the departure of the company's rivals, and the achievement of order and good government under its rule, attracted its greatest enemy, the settler, who was to bring its control of half a continent to a close.

Although the European phase of Canadian history gave way only in the nineteenth century to what might be referred to as the United States phase of Canadian development, that in which the more significant uncertainties must be sought to the south of the border, American influence began almost with the birth of this new nation. British preoccupation with problems of defense left its mark on the constitutional and economic history of her northern colony. The establishment of four separate governmental units in the Atlantic region, the concessions given to the Church as a bulwark against American penetration, the strength of Loyalist and military elements—these reflected the importance of the United States at an early date as a shaping influence in Canadian development. They underlined, too, the extreme weakness of Canada and her vulnerability to external changes. There were, however, credits as well as debits in the Canadian account. Continued membership in the British Empire helped to reduce uncertainties facing government and enterprise, for this membership carried with it the protection of the British navy, a preferred market for staple products until roughly the middle of the nineteenth century, relative ease of access to the British capital market (even though New York funds were not to be despised), and the stability of British political and social institutions, not the least achievement of which was a working compromise with Canadians of French origin. And with such natural advantages as the St. Lawrence gateway to the interior, the timber and agricultural resources of the Lowlands, the fur resources of the Northwest, a course of expansion in which entrepreneurship could be expected to

assume leadership in a highly secure environment seemed to be assured. There was, however, one snag, namely, the continuing necessity of strenuous defensive measures on the part of state and enterprise against penetration from the south, military at first and to a minor degree political at a later date, and, finally and certainly most important, purely economic.

This "primary uncertainty," I venture to say, has been decisive in its influence on the organization and policies of Canadian enterprise in the nineteenth and twentieth centuries. To have and to hold a transcontinental economy<sup>10</sup> in the face of the speed and weight of United States expansion westward in the nineteenth century, with its threats to the Red River valley and the Pacific coast, called for measures in which the state played a central role by default. Unlike more favorably situated areas to the south, the pressure for defensive tactics on government and enterprise never lessened and in fact increased as Canada moved into its industrial age of canals and railways, ventures that demanded long-term investments enormous for so weak a structure. The political union of 1840, like the larger federation of 1867, reflected the need for a strong state, and the National Policy of 1878 with its support of protectionism, a transcontinental railway system conceived primarily as an instrument of defense, and western wheat expansion set a pattern of change in which state and big enterprise in transportation and finance combined to build and defend a transcontinental system in the northern half of the continent.

It is unlikely that the twentieth century will see any noticeable change in this combination of enterprise and state so painfully worked out in the nineteenth. The extraordinary progress of the Canadian economy over the past decade and prospects of a secular boom ahead, Canada's growing ability to finance her own development, and the abundance of her resources of modern industrialism would indicate in more favorable times a greater freedom of entrepreneurial leadership and drive.

<sup>10</sup> Construction of a transcontinental railway, a gigantic undertaking for this young nation, was carried through in the face of uncertainties present in lack of knowledge of the prairie environment and of costs of construction. The same may be said of the whole process of western expansion based on wheat, which with the railway and tariffs constituted the backbone of national policy. There were compensations present, however, in the vast area of virgin territory open to exploitation, the prospect of a greatly improved position in world markets, and, for settlers, free lands and assisted immigration. And there were pressures too in the drive to salvage large-scale investments already made in the transportation network of the St. Lawrence area and the overriding necessity of moving westward to meet the challenge of the United States—this last an aspect of primary uncertainty as outlined above. These developments appear to provide an illustration of Keirstead's remarks on "objective uncertainty—subjective certainty," although the limited range of choice in this instance should not be overlooked.

Yet United States influence in the more strategic areas of Canadian economic advance remains great and United States competitive power based on the extent of its domestic market continues to keep Canadian enterprise on the defensive. We may talk big, but we keep our tariffs high. Nevertheless, if there were no other uncertainties to be recounted, Canadian enterprise in the long run (a conveniently vague phrase) might be expected to look less to defense and more to greater freedom as it gains the confidence to move beyond the protective shell of bureaucracy in state and enterprise itself.

Unfortunately, this is the twentieth century and the Canadian entrepreneur in common with his counterparts elsewhere operates in a setting in which the primary uncertainties of defense and welfare demand responses that only bigness in enterprise and state can meet; those uncertainties call for substantial control of the environment of activity as a condition of survival. Corporate control of time, to use Arthur H. Cole's phrase, calls for an active shaping of events, and the devices of control are many. I do not suggest that there is anything very novel about the importance of political and social elements in twentieth-century entrepreneurial decision making, but there seems to me to be this contrast with the more peaceful nineteenth century—that even in the more fortunately situated areas of today problems of continuity or survival now place a very high premium on direct control, political, economic, and social, of areas of investment if uncertainties, primary and specific, are to be reduced to a point where the long-term massive commitments of modern industrialism can be made, and I think it is obvious that they must and will be made. Control was not absent in the freest areas of nineteenth century enterprise, but in the range and degree of such control the twentieth-century compares more closely with the enterprise environments of earlier centuries.

## V

In the Canadian example, the general contours of change over the past century reflect the overriding importance of a primary uncertainty, which has left a permanent stamp on the character of Canadian enterprise and on the role of the state in Canadian development. The avenues of United States pressure have been many, and Canadian entrepreneurship with all its advantages of cheap and abundant resources, political stability, and, until recently, unquestioned social sanction has made a

virtue of caution suggestive of a lack of confidence not apparent in its brethren to the south. I do not suggest that Canadian experience is typical, but I would argue that study of change here and elsewhere might profitably begin with the examination of the primary uncertainty setting in which entrepreneurs have functioned, the centers and techniques of response to primary uncertainties and the part played by entrepreneurs in their reduction. The specific uncertainties of entrepreneurship may then be reviewed in the light of this setting, the consideration of which seems to me to present the most difficult and thorny of the questions facing those who venture to talk about economic change.

In suggesting uncertainty as a unifying concept of value in working toward a systematic approach to long-run economic change, I see no limitations of space or time in its application. Looking back to medieval times, it is difficult to see how, without the emergence of feudalism and the manor as a creative response to uncertainties of defense and subsistence, entrepreneurs could have succeeded in establishing security zones of investment in trade, industry, and agriculture, zones established by group or corporate action of town patriciates, monastic organizations, mercantile and craft guilds, leagues of towns, great families. Frederic Lane's merchants of Venice of a later time, like Violet Barbour's mercantile oligarchy of Amsterdam or the entrepreneurs of mercantilist England, played active roles in the reduction of primary uncertainties, the achievement of freedom to face up to the specific uncertainties of entrepreneurial decision making.

In those areas, mainly continental, in which primary uncertainties over long periods evoked strenuous measures on the part of military and religious elements, entrepreneurs found fewer opportunities for political and social leadership, and, like those of Spain and, to an important degree, France, clung to defensive positions in which scope for innovational activity was limited. Only in areas free of pressing problems of defense against aggression or of a politically acceptable level of welfare—Holland for a brief spell, England of the mid-nineteenth century, United States until recently—may the study of economic change be confined to the security of the entrepreneur. I may be displaying the bias of my Canadian environment, but I find it difficult to escape the conviction that in the study of economic change there has been undue concentration on situations in which entrepreneurs have been relatively free, for a time at least, of the pressure of primary uncer-

ainties. There are valuable clues in the work of John Nef<sup>11</sup> and Lane for a better understanding of these, but the preoccupation of economists with market situations continues to provide us with categories of uncertainty too narrow or limited to be adequate for the study of secular change.

It is my impression that present interest in problems of growth and change is a reflection of our growing awareness that what we once dared to call progress is the product of responses or reactions vastly more complex than we once assumed, that the determinants of change have varied greatly over the past, and that they are extremely difficult to handle systematically or realistically now. I think that we are forced to seek some unifying concepts, broad enough to avoid any suggestion of pressure for co-operation in some single theoretical undertaking,<sup>12</sup> and yet explicit enough to suggest some useful guideposts through the maze. Whether or not the study of uncertainty as visualized in this paper meets this need, I am reasonably certain, that is, secure in the knowledge, that we will hear much more about this concept in the historical areas of economics and related disciplines.

W. T. EASTERBROOK, *University of Toronto*

<sup>11</sup> John U. Nef, *War and Human Progress: An Essay in the Rise of Industrial Civilisation* (Cambridge: Harvard University Press, 1950); also review of this volume by W. H. B. Court in *The Economic History Review*, Second Series, V, No. 1 (1952), 128–30.

<sup>12</sup> M. M. Postan, "Economic Growth," *Essays in Bibliography and Criticism*, XXIII, *The Economic History Review*, Second Series, VI, No. 1 (1953), 78–83.