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Lawrence Kelso Frank's Proto Ayresian Dichotomy. A note

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Abstract - This paper explores Lawrence Kelso Frank's contribution to the evolution of the so called Veblenian dichotomy. According to this apprach, peculiar to the institutional framework of every economic system is an absolute and irreconcilable tension between the dynamic and progressive force of technology on the one side, and the static and conservative structure of ceremony and institutions on the other. The first section examines Frank's adoption of behavioristic psychology in connection with the main changes which were taking place in the American social sciences during the first decades of the twentieth century. The second section describes Frank's theory of institutional change, emphasizing its similarities with the brand of institutionalism developed by Clarence Ayres in the early 1940s. The third section compares Frank's institutionalism with the contributions of Thorstein Veblen and the philosopher John Dewey. Our main conclusion is that, in many respects, Frank's work represents a departure from Veblen's and a step toward an Ayresian dichotomic analysis of institutional evolution.

JEL Classification: B25, B31, B42, B52.

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1. Introduction

For institutionalists working in the Ayresian tradition, the dichotomy between technology and ceremony is still referred to as a "central analytical tool." (Waller 1982, 757). This approach to the study of institutions considers technological advance as the most significant cause of social and institutional change. Peculiar to the institutional framework is an absolute and irreconcilable tension – the dichotomy – between the dynamic and progressive force of technology, and the static and conservative structure of ceremony and institutions. Clarence E. Ayres was the one who most systematically designed the dichotomy and elevated it to the status of paradigm, claiming that technological advances are the only way to undermine and modify the underlying value system within a culture. Accordingly, Ayres wrote that "deceremonialization, deinstitutionalization, and 'institutional decomposition' can occur only if there are advances in science and technology that are so rapid and pervasive that more and more people become increasingly occupied, in thinking and doing, in activities that are devoid of ceremonial and mythological contents." (Ayres 1944, 193).

In an article that has now become a classic in the history of institutionalist methodology, William Waller (1982) has explored the evolution of the technology-ceremony dichotomy from its beginning to its latest refinements. As far as interwar institutionalism is concerned, Waller focuses on the contributions of Thorstein Veblen – the alleged originator of the dichotomy – Walton H. Hamilton, and, of course, Clarence Ayres[1]. However, a closer scrutiny of the institutionalist literature of the 1920s reveals that the philosophically trained economist Lawrence Kelso Frank, had devoted some attention to the interaction between technological innovation and institutional arrangements.

Lawrence Kelso Frank (1890-1968) belongs to the lesser-known group of individuals affiliated with interwar American institutionalism. Frank received his bachelor's degree in economics in 1912 from Columbia University, where he studied under John Dewey and Wesley Clair Mitchell. During World War I he served as an advisor for the War Industry Board, working together with two other institutionalists, Walton H. Hamilton and Walter W. Stewart (Dorfman

[1] The idea of Veblen as the father of the instrumental-ceremonial dichotomy has been challenged by Hodgson (1998) and Rutherford (1981). The present writers strongly agree with their views.

1959, 498)[2]. While he never held an academic position as an economist, Frank first acted as a systems analyst for the New York Telephone Company in 1919, and then, from 1920 to 1922, as business manager for the New School for Social Research. There, he taught courses on business and economic statistics, and organized a series of seminars on mental hygiene which were given by some of the most distinguished psychiatrists of the time (Johnson 1952, 278). In this position at the New School, Frank came into close contact "with its galaxy of stars in new frontiers, including psychiatry and group dynamics" (Dorfman 1959, 498). Soon Frank shifted to foundation work. In 1923, in fact, Frank was appointed to the permanent staff of the Laura Spelman Rockefeller Memorial, as an assistant its director, Beardsley Ruml. There he remained until the Memorial disappeared as a separate body in 1929. During those years, Frank held specific responsibility for programmes dealing with child welfare and human development, acquiring a strong reputation among infant psychologists (Bulner and Bulner 1981). Later in his life Frank also worked at the Josiah Macy Jr. Foundation and the Caroline Zachary Institute of Human Development.

Although Frank is often referred to as the originator of the child development movement in the United States – a field to which he devoted his entire career since the late 1920s – his early contributions to economics deserve some attention. In a series of articles published between 1923 and 1925, both in economics and philosophical journals, Frank discussed the effects of technology on the institutional structure of society and the cyclical movements of contemporary economies. As we shall attempt to show in this paper, these articles contain some interesting – and, to our knowledge, hereto neglected – contributions to the nature of the fundamental dichotomy, which also anticipate some of the themes which were later developed by Clarence Ayres[3].

2. The psychological and epistemological foundations of Frank's Institutionalism

For a better assessment of Frank's dichotomy, it is necessary to begin from his discussion of the psychological foundations of economics. Their substantial methodological differences

[2] While Hamilton worked for the War Labor Policies Board, Walter Stewart assisted Wesley Clair Mitchell in the Prices Section. We have not been able to gather any specific information concerning Frank's position at the War Industry Board.

[3] In this paper, we will often refer to Clarence Ayres's version of the fundamental dichotmoy. However, an exhaustive and detailed analysis of Ayres' institutionalism goes well beyond our intentions. On this subject the interested reader can usefully see the works of Breit (1973), Hodgson (1998), Mayhew (), McFarland (1986), Rutherford (1981) and Walker (1979).

notwithstanding, Frank argued that alternative economic doctrines could be reconciled as variations around a single central theme, namely, "the reconciliation of the antithetical concepts of a system of economic forces and of human volition or autonomy." (Frank 1924a, 17). In this passage, Frank seems to imply what is nowadays commonly known as the "agency-structure problem" in social theory. At the risk of oversimplification, this problem can be defined as follows: how can the idea of the individual personality and purposiveness be reconciled with the concept of social structure and its related influence on individual human agency? For Frank it was just the effort to resolve such an inner tension which defined the very essence of economics. "[E]conomic speculation" – he wrote – "may be regarded as an attempt to deal with the problem generated by the conflict of two major conceptions: an economic system of equilibrating forces, and human autonomy." (Frank 1924a, 23).

Frank found in the emerging psychological doctrine of behaviorism one possible solution to this agency-structure problem. Following Watson and his fellow travelers, Frank defined human behavior in terms of the organism's response to an antecedent stimulation. The particular form or manner of the response was just a stage in the process of development of habits, as formed by prior stimuli. In its simplest terms, he argued, "behavior is an event, the occurrence of which is a consequent to an antecedent stimulus; but the character, quality, form, pattern, and so on that behavior event is a product of past experience or habits." (Frank 1924a, 25).

According to such a behavioristic perspective, purposive action should always be explained in terms of the basic properties of behavior. Even the teleological notion of instinct – which was so central in Veblen's evolutionary schema – became an empty box once it was viewed through the behaviorist lenses:

> "There seems to be little occasion for the heated debate over the question of instincts. Man's behavior is built up apparently by conditioning reflexes or inherited sequences of behavior, and by maturity whatever he does is a learned response to a specific stimulus." (Frank 1924a, 30).

Therefore, if behavior is to be accounted for only in terms of stimulus-response patterns, scientific explanations of human conduct based on intentional or purposive terms should always be carefully avoided. The idea of habitual patterns of behavior became the substitute for intent or purpose in human conduct. This allowed Frank to evade easily the "agency" side of the agency-structure problem: "We may give up the conception of autonomy and the problem of motivation without embarrassment to social science, if we approach the problem of human behavior as a

sequence of antecedent stimulus, prior experience, or habits and consequent response." (Frank 1924a, 25).

At the same time, viewing human behavior as a learned response to a stimulus enabled Frank to move a step further and to reinterpret in non teleological terms the conception of an economic structure of equilibrating forces. For, just as the conception of human purposiveness can be reinterpreted as the variability of the habit responses among individuals to the same antecedent stimulus, so the conception of structure can be viewed as the "uniformity, regularity, and interrelation of the aggregate responses of a group, which give the appearance of a system of forces." (Frank 1924a, 26)[4].

As we have argued more extensively in two other papers (Asso and Fiorito 2003: forthcoming), Frank's enthusiastic embrace of behaviorism was directly related to the growing favor toward positivism within American social sciences. While at the Laura Spelman Rockefeller Foundation, Frank produced an excellent illustration of the changes taking place in American social sciences during the first two decades of the new century. In March 1923 he wrote a survey on the "Status of Social Science in the United States" which was commissioned by Beardsley Ruml in order to evaluate the research capabilities of graduate schools in the social sciences at universities that seemed promising recipients of the Foundation funds (Frank 1923c).

This survey presents a critical account of the state of teaching and research in economics, political science and sociology, which was described by Frank as backward and inadequate. The main reason why all social sciences lagged behind their natural counterparts was that little attention had been so far devoted to the study of "real problems," but rather to "questions of policy and expediency or debating points, or else ethical or moral problems, none of which give the basis for a scientific problem" (Frank 1923c, 26). Conversely, in the natural sciences, the methods of observation and controlled experimentation allowed scientists to check their theoretical formulations against the facts, rooting out in such a manner any risk of normative bias. Frank made a plea for a new departure in the social sciences, which involved a break with the traditional "scholastic" speculations and the adoption of a truly experimental approach:

> "Nothing would be more serviceable in the promotion of social science than the provision of experimental opportunities for testing out hypotheses, opening up new fields of research and generally dispelling the scholastic tradition. Even the work on classification

[4] Interestingly, this definition appears to be in line with Wesley Clair Mitchell's notion of institutions giving rise to regularities and patterns of mass or aggregate behavior (Mitchell 1924, 1925). Together with Frank, Mitchell was among the most active participant of the mid 1920s debate on behaviorism and institutional economics (Asso and Fiorito forthcoming).

> and so on, needs the stimulus of experimental work because the prevailing categories of social science are so largely inherited from moral and ethical disputes of the past." (Frank 1923c, 24).

Although Frank admitted that social sciences would never be able to acquire the same scientific status of the natural sciences, the benefits obtained by a greater body of tested knowledge of the social system – this was Frank's main conclusion – were so great, that any promising and scientific effort in this direction deserved the Memorial's funding support[5].

Therefore, for institutionalists like Frank, behaviorism seemed to be consistent with the belief that social sciences should be reshaped – to the extent that it could be possible – in the image of the natural sciences. With their mixture of formal analysis, empirical investigation into cause-effect relationships, and resulting theories capable of prediction and control over nature, natural sciences became the paradigm against which all other forms of knowledge ought to be measured. Accordingly, society was seen as an objective reality whose constituents, structures and functions manifested themselves as periodical regularities. Behaviorism fitted perfectly into this new conception of method and approach to the social sciences. In this connection, the following quote by Frank – extracted from an article on the theory of business cycles – is particularly revealing:

> "As Henri Poincaré has said, it is the repeating facts of nature which make science possible. In the social field, it is the habits of men – the stable, almost fixed, response they give to stimuli – which make a social science possible, just as it is fixed unchanging responses – say of metals to acids – which make chemical science possible. If we are to study cycles as social scientists, then it will be necessary, apparently, to study them as manifestations of the habits of men in a money economy." (Frank 1923b, 641).

Similar arguments for a methodological revolution in economics were frequently raised in the institutionalist literature of the mid 1920s and early 1930s[6]. Experimentation, so it was

[5] Frank's report bears evident signs of having been elaborate under the influence of Wesley Clair Mitchell. It also reflected the belief that objectivity, detachment from political partisanship, and applicability were qualities which modern social science should promote. In this connection, Frank explicitly mentioned the NBER's neutral attitudes towards policy commitments as one of the rare examples to be followed among research institutes. According to Frank, social research in the absence of experimental work, "tends invariably to become or to appear apologetic or polemic, to play the role of disputant or attorney, rather than that of scientific inquirer. It is significant that the National Bureau of Economic Research should have adopted the organization described hereinbefore, with its directors appointed by conservative, liberal, radical and learned societies, to dispel any suspicion of bias." (Frank 1923c). On Mitchell and the NBER's pledge of policy neutrality see Biddle (1998).

[6] See for instance Copeland (1924; 1931), Mills (1924), Mitchell (1924; 1925), Tugwell (1924), Wolfe (1924).

argued, required a more systematic design of investigations. The joint use of statistical analysis and the experimental method would yield more definitive results and permit a greater degree of integration between the different social sciences. Many believed that the art of prediction about human behavior in economics would make strong advancements by applying to it methods of inquiry that had proved so successful in the natural sciences. As Morris A. Copeland – another leading figure of the behaviorist wing of institutionalism – once wrote to Eveline Burns: "I regard Institutionalism as an attempt to apply the natural science point of view in economics. According to this view economics seems to me to be a branch of biology."[7].

The advent of behaviorism, and, more generally, the whole debate over the scientificity of economics, brought about new reasons for divisions within institutionalism – a school already heterogeneously composed – and partly contributed to the beginning of its decline in the late 1930s. Not all the main figures, in fact, endorsed the positivistic-behavioristic campaign of the late 1920s. Two different strands emerged within the movement: a more "scientistic" wing, led by Copeland and Mitchell, and a more humanistic wing, which included people such as John Roger Commons (1934) and John Maurice Clark (1927) who were generally unsympathetic towards behaviorism (Seckler 1975; Rutherford 1999 and 2000; Asso and Fiorito forthcoming).

3. Frank's Dichotomy

Having established the psychological roots of his own brand of institutionalism, Frank went on to elaborate a consistent analysis of the institutional structure of society and its evolution. In his writings, social life was regarded as the aggregate behavior of its individual members, which, as he wrote, "we are coming to see as so many habits learned under the guidance of parents, teachers and others in authority." It is the socially structured habits of the surrounding adult individuals that make sustained social life possible. By habit Frank meant "a mode or pattern of response to a stimulus which has been learned from more or less repeated contact with that stimulus." (Frank 1923a, 480). Using a behavioristic perspective, Frank observed that in origin all social institutions are individual habits that have become diffused in society through interactions and exchanges between its individual members. These socialized habits tend to be

[7] M. A. Copeland to E. Burns, November 14, 1930. Morris A. Copeland Papers, Rare Book and Manuscript Library, Columbia University.

preserved over time since, from generation to generation, the process of diffusion often remains unbroken and continuous.

For Frank, there were essentially two types of socially relevant habits. First, in the interval between birth and maturity, the individual develops certain habits of avoiding, or refraining from, the response to certain stimuli and of behaving in certain definite patterns to other stimuli. Second, the individual learns that, for every response thus forbidden, one may lift the ban by performing some specific group-sanctioned "ceremonies, rituals and proffer of symbols" (Frank 1923a, 480). This point was developed as follows: "When we speak of taboo we refer, of course, to private property to things and animals and to sexual and social taboos on persons, and when we mention rituals, ceremonies, and the use of symbols we have in mind marriage, voting, the 'price system' and so on." (Frank 1924a, 27).

A special kind of habits, then, is that which defines technological or scientific behavior. For Frank scientific and technological effort is conceived as a special kind of habitual behavior associated with the use of material and conceptual tools. As Frank put it:

> "In addition to these habits of behavior toward persons, as owners of things or of services, men also learn (*by the same process of habit formation*), from the sequence of phenomena we call 'causation,' to make tools and to work out techniques and processes for making things and rendering services. *These habits we call science and engineering*." (Frank 1924a, 29: both emphases added)[8].

According to Frank, however, the development of truly scientific habits had to wait upon the emancipation of human intelligence from animistic beliefs and practices: "[…] only then do men come gradually to discover the repeating facts and the relations among these facts of antecedence and consequences. " (Frank 1924b, 8).

Frank's main arguments concerning the historical evolution of scientific behavior deserve our attention. During the earliest centuries of human existence, Frank speculated that mankind revered and worshipped nature, attributing supernatural powers to geological landmarks and animals. The religious rites and celebrations organized around these beliefs, helped humans to cope with the fundamental uncertainty of daily existence and to courageously face the future

[8] At first sight Frank's conception of technology as habits of behavior, might appear in line with Veblen's contention that "the body of knowledge" and "the facts made use of in devising technological processes and applications, are of the nature of habits of thought." (Veblen 1914, 176). The following discussion will show that this is not the case.

without undue hope and expectation.[9] The introduction of language and tools freed primitive humans from the burdens of immediate existence to the power to communicate, conduct trade, and physically and intellectually explore the boundaries of the material world.

The reliance by primitive humans on supernatural and anthropomorphic symbols to understand nature and human behavior gave way eventually to a mechanistically inspired experimental revolution. Begun in the seventeenth century, Frank argued that such an experimental revolution vastly expanded our knowledge of the basic principles of force, motion, space, and time that govern nature and the universe. The ancient prohibition against interfering with nature's course, according to Frank, gave way to the realization that the attempt to explain, predict and control natural processes yielded indispensable knowledge about the functioning of the world. This coincided with the advance of experimental science, which emblematically reflected a new attitude of mind toward the value of experience. The qualitative attributes of nature were no longer equated with spiritual essences, but were now seen as forming the primary empirical constituents of human thought and sensorial perceptions.

This historical path culminated in the present "emancipated" stage of science which marks, according to Frank, its full and perfect development. "[Emancipated] science" – Frank wrote – "sees phenomena, neither as the discrete events of animism nor as the illusory appearances of metaphysics, but rather as one of the several consequents of a sequence in which an antecedent event is followed by the event which we call sensation, perception, or observation in man and by the event which we call an effect in everything outside of a man" (Frank 1924b, 10). More specifically, with the "passing of the supernatural," it becomes clear that every phenomenon has a dual role. On the one hand it starts the stimulus-response patterns which determine men's behavior; on the other hand, it initiates a causal sequence in the external world, giving rise to "appearance and reality or to what has been called immediacy and causality." (Frank 1924b, 10). It is the recognition of the identical nature of these two parallel causal sequences which marks the beginning of the emancipation of science from the metaphysical. Science – Frank affirmed – begins with the realization of this dual nature of phenomena, since "the progress of science is a continuous process of learning new ways of detecting and responding to the stimuli given off by events." (Frank 1924b, 10-11).

[9] "What men saw in phenomena, therefore, was the visible expression of the will of the gods; and naturally enough, they turned in their speculations to questions of the motivation of these gods. Thus we find, apparently as a common element in every religion, a theory of the motivation of its deities, expressed in formulae and rituals for appealing to such motives as men believe to be advantageous." (Frank 1924b, 7).

One further point needs to be dealt with regarding Frank's conception of scientific behavior. In his critique of received philosophical doctrines of mind, Frank attacked Cartesianism for its mind-body dichotomy. The concept of habit is used in this connection to bring mind and body together under the same class of phenomena. To put it differently, mental, intellectual, and logical phenomena are to be understood in terms of stimulus-response patterns as well as any other kind of behavior. In Frank's words "all we 'know' or can 'know' is how to behave or do something […] and […] 'knowledge' and science are located, not in some problematic sphere of existence (mental, ideal, spiritual and so on), but in the apparatus of behavior, nerves, muscles, glands, and the rest, where they function as learned response or habits." (Frank 1924b, 15-16). Hence, stimulus response sequences do not only describe both the functioning of human activity and the appearance of physical phenomena, but also the general principle according to which such causal sequences are perceived and understood[10].

Another necessary requisite for scientific progress is the accumulation of tools and techniques. For Frank the evolution of science may in fact be traced to "the development of its strumentalities for learning from the stimuli of phenomena." (Frank 1924b, 11). The very definitions of notions such as "technique" and "tools" provided by Frank emblematically reveal his strict adherence to a behavioristic-mechanistic conception of scientific endeavor. According to Frank a technique is:

> "learned response or habit of behavior, which is touched off by a stimulus of an antecedent event, but which is addressed to the consequent event, that is a uniform and reliable habit of dealing with the world of events." (Frank 1924b, 12).

While a tool or instrument is

[10] As remarked by Frank Knight, such an attempt to reduce scientific activity to non teleological stimulus-response patterns of behavior faces an ineludible problem of logical consistency. For instance, following a strictly behavioristic point of view, Knight argued, any attempt to explain why an author was actually writing a scientific article, would lead to an infinite explanatory regress: As Knight put it in his correspondence with Morris Copeland: "If you try to work out a drive or action-pattern which will 'explain' your writing the article at all, and writing one leading to this particular conclusion instead of some other, you will only set yourself (if you succeed) the new question of working out an action-pattern to explain why you did that, and so on without end. In the intellectual life itself (if not elsewhere) you cannot get away from real interests, which look forward and not backward for their explanation. This tendency to place the investigation, inquiry or argument itself outside the universe of discourse, is very interesting to me. But the fact remains that inquiry and argument are also behavior, and their characteristics have to be taken account of in any discussion of behavior which pretends to completeness." Frank H. Knight to Morris A. Copeland: November 9, 1926. Knight Papers, Regenstein Library, Department of Special Collections, University of Chicago. See Asso and Fiorito (2003) for a detailed discussion of this specific issue.

> "an addition to man's apparatus of behavior, which either improves his receptivity to stimuli or his capacity of response, as in a lens, or a kymograph, or in a lever or wedge, and so on." (Frank 1924b, 12).

Frank's conclusion represents the *summa* of his mechanistic-behavioristic creed: "When we speak of anything as mechanical or mechanistic […]" – he wrote – "we refer to these characteristics which are common, not only to man-made machines, but to all organisms and organized structures." (Frank 1924b, 12).

It is relevant at this point to note that Frank's conception of science is quite distant from that of Veblen's. In fact, as correctly observed by Geoffrey Hodgson, Veblen's ideas on causation do not appear to be consistent with the positivistic ideal of science as the *objective* unveiling of cause-effect relationships. According to Hodgson: "Veblen accepted the valid argument of David Hume and Immanuel Kant that events, not causes, can be observed. Hence the imputation of causal connections must always involve preconceptions by the analyst." (Hodgson forthcoming, 283). Veblen's acceptance of the unavoidability of ontological commitments is, in fact, quite remote from Frank's insistence on the dismissal of metaphysics as a necessary condition for scientific progress[11]. As Veblen himself explicitly stated: "Causal sequence […] is of course a matter of metaphysical imputation." (1908, 109)[12].

On the other hand, Frank's ideal of science appears to be similar to that of Ayres. Similarly to Frank, Ayres insisted on the necessity of expunging metaphysics from the realm of science (Ayres 1942, 343), repeatedly referring to "the genuine values which derive their

[11] Curiously enough, Frank Knight took a position not dissimilar from Veblen's. In an article published in the *Quarterly Journal of Economics* and written in reaction to Frank's 1924 "The Emancipation of Economics," Knight firmly rejected the possibility of separating observation from inference. Every observation – he wrote – is filtered and shaped by the individual's consciousness, for "we cannot perceive the objects themselves as real […] without reading our own experience into them." (Knight 1925a, 395; 1925b). On Knight's anti-positivistic campaign in the 1920s and 1930s see Asso and Fiorito (2003).

[12] Two years before, in his much celebrated essay on *The Place of Science in Modern Civilization*, Veblen had expressed the same concept. Here, Veblen advanced his skepticism towards any attempt to get rid of teleological forms of imputation and understanding of causal sequences, even in the case of mathematically formalized theories. "In later modern times the formulation of causal sequence grow more impersonal and more objective, more matter-of-fact; but the imputation of activity to the observed objects never ceases, and even in the latest and maturest formulations of scientific research the dramatic tone is not wholly lost. The causes at work are conceived in a highly impersonal way, but hereto no science (except ostensibly mathematics) has been content to do its theoretical work in terms of inert magnitude alone. Activity continues to be imputed to the phenomena with which science deals; and activity is, of course, not a fact of observation, but is imputed to the phenomena by the observer. This is, also of course, denied by those who insist on a purely mathematical formulation of scientific theories, but the denial is maintained only at the cost of consistency. Those eminent authorities who speak for a colorless mathematical formulation invariably and necessarily fall back on the (essentially metaphysical) preconception of causation as soon as they go into the actual work of scientific inquiry." (Veblen 1906, 15).

meaning from clear and certain knowledge of demonstrated cause-and-effect processes" as opposed to "the pseudo values which derive their meaning from the fantasies of superstition." (Ayres 1961, 21). With Frank, Ayres shared also a strong emphasis on the use of tools in defining scientific and technological behavior. As Ayres wrote in an often quoted passage:

> "Since Veblen first began to write, it has been apparent that some sort of claim was being made for technology as a master-principle of economic analysis. This claim was seen to rest on the peculiarly dynamic character of technology as itself inherently progressive and the agent of social change, in particular the agent of industrial revolution […]. The whole issue between old and new ways of thinking in economics comes to focus here. The new way of thinking does rest on some kind of inner law of progress. But there is nothing absolute or inscrutable about it. What makes it seem inscrutable is the inveterate predisposition of orthodox economists to think in terms of a conception of human nature as that of the uniquely individual 'spirit.' Thinking so, they think of technology as a skill-faculty of the individual spirit; and thinking so, they find the principle of technological development quite inscrutable – as indeed they must. *For the developmental character of technology is implicit not in the skill-faculty of the human individual but in the character of tools*." (Ayres 1944, 111-112: emphasis added).[13].

For Ayres the notion of technological progress is not a function of individual ability or collective habits of thought or institutions, but merely of the behavioral patterns associated with the use of "tools."[14]

The similarity between Frank and Ayres, however, becomes even more evident once we analyze the effects of technology on the institutional structure of society. Frank shared with Ayres the positivistic belief that science and technology are altogether progressive and that they provide an alternative and absolute source of authority in human affairs, requiring for it and inspiring in the conduct of everyday life, the rational organization of human activities:

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[13] An adequate discussion of technology is absent from Frank's work. In some passages Frank equates technology with machines. In one of his more lucid statements he writes: "Machines are aggregates of instruments and tools which, by the use of cams or other timing devices and of frames, levers, and pivots for preserving a fixed range of spatial displacement, are capable of producing a train of concurrent sequences from an initial displacement—and, therefore, of bringing about a number of determinate consequences. When we speak of anything as mechanical or mechanistic, therefore, we refer to these characteristics, which are common, not only to man-made machines, but to all organisms and organized structures." (Frank 1924b, 12). The idea of machines as "aggregates of tools and instruments" evokes Ayres' conception of technological advance as the resultant of new combinations of previously existing tools.

[14] In a following passage, describing the process of technological development, Ayres insisted that it occurred by virtue of sheer accumulation of technical materials: "it is" – he wrote – "a direct result of physical embodiment of technical behavior patterns in tools and physical materials." (Ayres 1944, 118). See Mayhew (1981) for a different interpretation of Ayres' notion of technology.

> "And here it might be appropriate again to remark that the evolution of social life, or of the habits of behavior which give rise to social life as we find it, appears to be the product of scientific or technical development. In so far as new techniques provide dependable ways of handling situations, they displace the older habit and institutions with which men met those situations when no dependable, or less dependable, techniques were available. *Each new generation seemingly builds up its habit of behavior around the tools and techniques which science provides, and since science is continually developing better tools and techniques, these social habits change from generation to generation, always in the direction of greater effectiveness of execution of the tasks addressed by those habits and techniques*." (Frank 1925b, 472: emphasis added).

Scientific advance is therefore a "dual process" which entails both "the creation of new techniques and tools" and the "discrediting of magic and its associated beliefs." However, as Frank observed, these two processes are hardly synchronized, "for frequently men have developed a technique without relinquishing the edifice of ancient belief which it had ruined." (Frank 1924b, 17).

What are then the social consequences of the introduction of a new technology? Also on this account, the relevant passages in Frank's writings contain striking similarities with Ayres' approach to institutional dynamics and deserve to be quoted at length:

> "It appears that whenever a new tool or technique for meeting the exigencies of living appears in a group, it is usually seized upon as an instrument for greater production, comfort, or slaughter. But since the pre-existing and traditional group arrangements of ceremonies, rituals, and symbols are group-sanctioned practices for exploiting the older tools and techniques, it frequently happens that the use of a new technique calls for some modification of these older practices. There follows a series of elaborations and refinements of the older group practices, designed to facilitate the use of the new tool or technique, but only too frequently acting as impediments and obstacles to that use. The increasing burden of these traditional group practices and their elaborations are accepted as unavoidable in the developing use of the new techniques and tools. Hence there is an increasing discrepancy between the needs of the technical processes and the possibilities and requirements of the institutional life of the group. To meet the situation there is, later, a bold attempt to rescue and even promote the institutional practices at the expense of the tools and techniques, which is the stage of outright ceremonialism or ritualism, when men cling tenaciously to ancient rites, symbols, and practices, at the expense of their industrial arts." (Frank 1925a, 184-185).

According to Frank, out of this struggle between the progressive force of technology and the inherently static institutional system of social norms, beliefs and ceremonies, two divergent institutional paths might develop: either the existing institutional structures succeed in preventing change, or the older institutional schema is relinquished and replaced by "group practices and arrangements more in harmony with the needs of their technical equipment." (Frank 1925a, 185). Even in this case, however, Frank does not abandon his favorable attitudes toward the

development of technology. Given the dynamic and progressive character of modern technology – Frank continued – this revision of the institutional schema is to be considered almost inevitable, since "the cumulative industrial changes render the customs of the traditional group life untenable." (Frank 1925a, 185).

4. A digression: Frank in connection to Veblen and Dewey

A few further remarks should be spent on the relationship between Frank, on the one side, and Veblen and Dewey on the other. Frank was an admirer of Veblen and this circumstance is confirmed by the fact that he repeatedly referred with approval to Veblen's work in his writings[15]. However, it should be emphasized that Frank's analysis of institutional evolution is tainted by a sort of technological determinism that is lacking in the work of Veblen. This difference between the two authors became evident in 1924 when Frank reviewed Veblen's *Absentee Ownership* for the *Political Science Quarterly*.

On that occasion Frank criticized Veblen for having overemphasized the role of absentee owners in his analysis of modern business practices. For Frank, in fact, the ability of obtaining a free unearned income from an increase in economic efficiency ought not to be considered as a privilege of a specific economic class, but rather as an ineludible step in the evolution of technology: "it appears that every new development of tools and machinery has involved the creation of an unearned income, in so far as they have brought returns, larger or more quickly, than their operators realized before […]." The advantages brought by the introduction of new technology, he argued in a rather optimistic way, will eventually spread over the whole community. "[I]s not" – Frank wondered in a rhetorical fashion – "the secular trend in the direction of unearned income for everyone, just as we have seen every privilege and benefit begin with a small class, then gradually evolve down to the underlying population, and as we are perhaps seeing now in old age and widow's pensions, accidents and sickness payments, life insurance, especially endowment policies, and similar provisions?" (Frank 1924c, 511-512). "Indeed," he continued in another passage,

[15] Mitchell was presumably the one responsible for introducing the work of Veblen to Frank, when the latter was a student at Columbia. It seems plausible, however, that Frank and Veblen met personally and interacted during the years in which both men participated to the foundation of the New School for Social Research in New York.

> "'something for nothing,' is almost the only unequivocal measure which we can apply to a civilization and, perhaps in the rather restricted form of absentee ownership and an income from the practice of business, we are witnessing the early stages of a major movement in cultural history. If such it be we may be sure that neither the social reformer nor the 'hard-boiled' business man will accelerate or retard its coming, *since only tools or the natural setting have any enduring influence upon man's group patterns of behavior*." (Frank 1924c, 511-512: emphasis added).

In Frank's view, therefore, the dynamics of modern capitalism is largely independent from the predatory practices of modern businessmen and absentee owners. While for Veblen technology and institutions interpenetrate each other, and the operation of tools and machines depends upon institutional habits of thought and action, and vice versa, Frank's focus rests mainly on the technological side of the whole story. For instance, Frank's account of the emergence of the vertically integrated industry (Frank 1925a) neglects any consideration of the consequences of concentration on the governance structure of the firm – i.e. division between ownership and control, evolution of the role of the entrepreneur – relying exclusively on the effects of integration as a vehicle for granting greater technical efficiency by preserving the integrity of the production and distribution process and by permitting a better coordination of the flow of material through every production stage (Fiorito forthcoming).

Moreover, as already remarked, Frank's discussion of the prospects of modern capitalism is flawed with an optimism that is absent from the writings of Veblen but that can be found in Ayres'. For example, still in relation to industrial integration, Frank fails to acknowledge that there is a limit to the firm's ability successfully to replace market organization with internal organization, letting his analysis, in some passages, to acquire a rather naive flavor. One possible example can be found in his theory of business cycles, when he claimed that the progress of industrial integration, triggered by the introduction of machine technology, will largely reduce, if not completely eliminate, the phenomenon of economic fluctuations, "for the simple reason that it will remove business from control of industrial processes, thus permitting that continuous, non-fluctuating operation which is the peculiar function of the machine." (Frank 1925a, 193)[16].

This is quite distant from Veblen's cautious remarks about the normative implication of technological progress. In this connection, Veblen explicitly maintained that "technological proficiency is not of itself and intrinsically serviceable or disserviceable to mankind, – it is only a

[16] The previous year Frank had written: "But social institutions and habits change, slowly to be sure, as new techniques and tools are discovered which make possible new responses (habits). And it is this slow change that portends the end of business cycles; for, in so far as integrated industries are developed, which relate

means of efficiency for good or ill." (1908, 109). Above all, as remarked by Hodgson (1998 and forthcoming 283), for Veblen it is the instinctive endowment of the economic agents that provides the trans-cultural standard according to which different institutional and technological frameworks can be compared. More specifically – as Veblen (1899, 99; 1914) put it – the "instinct of workmanship" is "the court of final appeal in any question of economic truth or adequacy." Veblen and Frank – who, like Ayres, rejected instinct psychology – differed both on the intrinsic merits or demerits of technology and on the evaluative use of instincts in this context.

As to John Dewey, we have already mentioned that Frank studied under the American philosopher during his undergraduate years at Columbia. Like in the case of Veblen, Frank often referred to Dewey's works in his more philosophically oriented writings. For instance, in his discussion of habits, Frank repeatedly refers to Dewey's *Human Nature and Conduct*. It is our contention, however, that Frank's behavioristic approach to human substantially differs from Dewey's. While they both admit that human conduct is primarily habitual (Dewey 1896, Kilpinen 1998), Dewey's insistence on intelligence as the only way to find a solution to the problem of disrupted conduct distances him from Frank's dogmatic adherence to the mechanistic stimulus-response pattern explanation of human behavior. In fact, unlike Frank, Dewey argued that whenever we have conflicting habits, or whenever someone or something disturbs the environment in such a way that habitual practice is blocked, the individual seeks impulsively to restore the routinized behavior. However, neither habit nor impulse are capable of finding a reasoned solution. For this intelligence was required. For Dewey, intelligence was clearly a teleological and purposive category of thought and provided a means to "adapt customs to conditions, and thereby remake them" (Dewey 1922, 54).

In a similar vein, in his discussion of science, Frank explicitly acknowledged his intellectual debt to John Dewey for "the foregoing essentially instrumental position."[17] As in the case of their conception of habits, we believe that there are some substantial differences between the two authors. In his theory of knowledge, Dewey takes the defining characteristic of mental activity to be the ability to react to problematic or uncertain situations as signifying a range of possibilities that, if acted upon, would yield identifiable results. Thus, in Dewey's own words, to manifest mental activity "is to be able to anticipate future consequences and to respond to them as

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the several stages of the industrial process by program or budget instead of by buying and selling, the habits of buying of selling and therefore the business cycle must disappear." (1923b, 641).

[17] In a footnote, Frank discussed Dewey's Essays in Experimental Logic, and especially referred to the chapters on 'Thought and its Subject Matter,' 'Data and Meanings,' 'Objects of Thought,' and "Stages of Logical Thought.'" (Frank 1924b, 15n).

stimuli to present behavior." (Dewey 1917, 20 quoted in Kolp 1992, 95). But in spite of such an apparently behavioristic jargon, for Dewey individuals do not just react to environmental pressures, to sensory stimuli, in the way described by Frank. According to Dewey, events are not mere stimuli; they have meaning; i.e., they indicate possibilities for future realization. To put it differently, for Dewey humans are capable of dealing with events creatively, of "making sense" of things, and on this basis they act and generate events that would not have occurred otherwise. The contrast with Frank's strictly mechanistic account of human behavior could not be greater. As correctly noted by one interpreter, all of this suggests that "[Dewey's theory of knowledge] seems anti-behavioristic in spirit; that knowing is more than, or perhaps just different than, the ability simply to manifest certain behavior, even if the behavior has certain nomological connections with, e.g., the world." (Kolp 1992, 189)[18].

5. Conclusions

This paper has presented a brief discussion of Lawrence Kelso Frank's contribution to the evolution of the technology-ceremony dichotomy. It is our contention that, in significant respects, Frank's work represents a departure from Veblen's and a step toward an Ayresian dichotomic analysis of institutional evolution. While Veblen adopted instinct psychology, Frank abandoned it and, like Ayres, enthusiastically embraced behaviorism[19]. While Veblen understood technology as a form of knowledge that is embedded both in individual habits and social institutions, Frank, in a way not distant to Ayres', reduced it to tool-using behavior, downplaying its social implications. While Veblen rejected the idea that technology was intrinsically valuable, Frank, similarly to Ayres, posited a normative relationship between technological advances and institutional evolution, suggesting that scientific progress necessarily entails the rationalization of

[18] Ayres as well, in his *Theory of Economic Progress*, placed Dewey, together with Veblen, among the first writers who systematized the analytical distinction between technological and ceremonial behavior: "The application of Dewey's theory of valuation to an understanding of the meaning of value in the field of economics, toward which the present discussion is attempting to move, goes beyond Dewey's published works. But surely it is implicit in his essay on the 'Theory of Valuation,' contributed to the International Encyclopedia of the Unified Science, and published as a separate pamphlet. And equally surely the application is bound to be made, in a world in which the published works of Dewey and Veblen, for example, co-exist and are bound to be read occasionally by the same people." (Ayres 1944, 220n). As in the case of Frank, Ayres' claim of a Deweyan ascendancy of his work appears to be disputable. On the relationship between Dewey and Ayres see Hodgson (1998) and Tilman (1990).

the entire social framework. Finally, in a proto Ayresian fashion, Frank formulated a theory of institutional change in which economic development was seen as the function of the pressure of technological change against the inertia of ceremonially organized behavior. Institutional changes occurred – in Frank's own words – "when the new tools and machines broke down the older habits which were incongruous with the new industry, and forced men to develop new sets of habits more nearly adapted to the use of these tools and machines." (Frank 1923a, 488-489).

One final question may be raised as to whether Ayres was aware of, and in any way influenced by, Frank's writings at the time he laid down the foundations of his *Theory of Economic Progress*. In this connection, we have not been able to trace any explicit reference to Frank's contributions in Ayres' published works, nor has our archival research disclosed any evidence of correspondence between the two.

[19] According to Ayres (1944, 90) "all institutional economists […] were resolute behaviorists." As our account of the evolution of the psychological foundations of institutionalism has attempted to show (Asso and Fiorito forthcoming), this does not appear to be the case.

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