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# Starbuck, William Haynes (1934 –)

Philippe Baumard

- 1 Early influences
- 2 Challenging levels of aspiration theory
- 3 Organizational growth and metamorphosis
- 4 The organizational design school
- 5 Interaction of rationality and ideology
- 6 Unframing and unlearning
- 7 Scientific methods

## Personal background

- born 20 September 1934 at Portland, Indiana, USA.
- graduated from Harvard University (AB Physics, 1956), Carnegie Institute of Technology (MSc, 19459; Ph.D. 1964)
- held professorships in social relations (Johns Hopkins, 1966-67), sociology (Cornell, 1967-71), business administration (Wisconsin-Milwaukee, 1974-84) and is currently ITT Professor of Creative Management at New York University.
- held visiting professorships at London School of Business (1970-71), International Institute of Management, Berlin (1971-74), Norwegian School of Economics and Business Administration, Bergen and Stockholm School of Economics (1977-78)
- Fellow, American Psychological Association (1975), Academy of Management (1986), American Psychological Society (1995).
- developed the concepts of self-designing organizations, organizational design, environmental niches, organizational equilibriums made of antithetical processes, relativity through time of levels of aspiration, and contributed intensively to behavioral research methods and epistemological status.

## Major works

- "Organizational growth and development." Pages 451-583 in J. G. March (ed.), *Handbook of Organizations*; Rand McNally, 1965.
- "Camping on seesaws: Prescriptions for a self-designing organization," with Bo L. T. Hedberg and Paul C. Nystrom. *Administrative Science Quarterly*, 1976, 21: 41-65.
- *Handbook of Organizational Design*, two volumes, edited with Paul C. Nystrom; Oxford University Press, 1981.
- William H. Starbuck contributed more than one hundred articles to leading scientific journals such as *Administrative Science Quarterly*, *American Sociological Review*, *Behavioral Science*, *Journal of Management Studies*, etc.

## Summary

William H. Starbuck had a tremendous discrete and persistent influence on three generations of behavioral scientists and management researchers. Yet, this influence does not embody into

any label or any flag. Humility and constant reflexive interrogation are the key highlights of William H. Starbuck works and life. He contributed the field of management by introducing prescriptive organizational design studies, relativity of managers' perception, interaction between rationality and ideologies, prescriptive yet experimental methods, crisis management through unlearning behavioral and cognitive patterns.

He pictured as early as 1963 organizations that are melt into discover that multiple regression produces unreliable results paradoxical, contradictory and antithetical processes, relentlessly bringing challenging views of organizational behaviors and equilibrium, while never being trapped in any doctrinal commitment.

## 1 Early influences

« Our life, our career, our families, organization and societies closely interrelate. To abstract my career from its context would violate my scientific standards » (Starbuck, 1993: 66). With his B.A. in Physics from Harvard University, the young William H. Starbuck was aiming for a dissertation in applied mathematics. Richard Cyert, one of his professors, advised him rather to choose behavioral sciences. So was debuting, under the wise AUSPICES of Cyert and March at the Carnegie Institute of Technology, the career of W.H. Starbuck.

The works of William H. Starbuck stands today amongst the most influential and most quoted in management sciences. His production, started in 1958 at the age of 24, includes more than one hundred articles and contributions to edited works. His research investigates decision making, organizational design, learning, cognition, interaction between rationality and ideologies, forecasting, crises, and scientific methods. He edited four books, of which the *Handbook of organizational design* with Paul Nystrom (1981b) has become a classic in management literature.

The range and depth of Starbuck' contributions are puzzling. His works are transversal, from sociology to organizational behavior, from mathematics applied to social sciences to scientific methods. W.H. Starbuck published in *Administrative Science Quarterly*, which he edited aged 32, as well as in the *American Journal of Sociology*, *Behavioral Science* or *Sociometry*, etc.

Starbuck's ability to mobilize and connect corroborating fields of social sciences made his renown and reputation. He clearly opened the field of management to other disciplines and then enlightened many alleys of research considered mainstream today. His works spreads from applied mathematics and experimental psychology (1963a, 1965a, 1965b, 1966, 1968a, 1973), sociology and organizational theory (1974, 1976a, 1976c, 1977, 1981a, 1983, etc.), information systems and man-machine interaction (1971b, 1971c, 1975, etc.) to enfold into a continuous introspection on scientific methods (1961a; 1968; 1974; 1981b – pp. 9-13; 1988a; 1988b – pp. 73-77; 1993 ; 1994). This permanent reflexive practice, and relentless interrogation of his own epistemological assumptions and values, is one of the key characteristics of Starbuck's research. Yet, it may maze his readership, either by his excess of frankness (notably in its autobiographical essay, 1993), or by the paradoxical feeling given by a research sometimes very *prescriptive* — for example, on managing crises (1978, 1984, 1989), and sometimes *relativist*, — embodied in astute wisdom and skepticism —, invoking for instance, organizations relying on antithetical processes that counterbalance previous prescriptions and neutralize their effects (1976b, 1976c, 1977, etc.).

Hence, the founding pattern of Starbuck's research cannot be encapsulated in a single recurrent theme. More consistent with the behaviorist school — which is more an attitude than a doctrine, more a philosophy and epistemology than a set of assumptions — Starbuck's works are deeply rooted in a constant interrogation of concrete behaviors, mining sources of theoretical revolutions in singulars and exemplars. Human failures and weaknesses are particularly praised by Starbuck, who integer into his theoretical construction and his reflection on science his own life experiences (1993). Contrary to James March who did not build a theory out of his science, Starbuck does not hesitate to dispute his scientific deed by challenging his own trials, errors and unlearning. This approach fosters an intimacy with his readership, unveiling a lifetime theoretical construction where introspection, doubts and controversies endlessly intertwine.

## 2 Challenging levels of aspiration theory

From 1957 to 1960, Richard Cyert and James March mobilized their students in the conduct of laboratory experiments to empirically support the forthcoming *Contributions to A Behavioral Theory of the Firm* (1963). The experiment conducted by the young Starbuck consists in gathering cost evaluations from three respondents, simulating a situation where a « chief cost analyst » has to give a single evaluation of either the unit cost, or sales of the product (Cyert, March, Starbuck, 1961, p. 256). The experiment led by Starbuck brings two conclusions. 1. Individuals can and in fact, modify their subjective estimations of reality to accommodate them with their aspirations, accordingly of the type of rewards they associate with their answers. 2. In case of conflict, estimations are dwelt into a negotiating process, inducing compensation strategies from each individual in the course of events. By varying rewards and their asymmetries (op. cit., p. 260), the experiment allows to evaluate the deliberate bias in respondents' decisions. Two major contributions are drawn from the experiment : 1. respondents « adjust the information they transmit according to their perception of the decisional situation. 2. The range and characteristics of these manipulations do not affect the organization performance in which the biased decision takes place » (Cyert, March, Starbuck, 1961, p. 264).

Starbuck was then following Simon and Modigliani seminars at the Carnegie Institute of Technology. « Modigliani assured that hypothesis from economic theory about rationality described behaviors pertinently, while Simon objected that people do not have the capacities to decide rationally » (Starbuck, 1993 : 73). Levels of aspirations played a central role in Simon's theories of decision making (Simon, 1955 ; March and Simon, 1958: 47-52 ; 120). Starbuck decided to contribute the seminars by writing a short essay on aspiration theory (1958).

Herbert Simon made the assumption that people had aspirations because they simplify their decision making. A « level of aspiration » was consequently a subjective objective of performance. It serves as a point of reference for the feeling of success or failure. For those who attempt to solve a problem, a performance exceeding the level of aspiration is a success, a performance that fails to reach this level is a failure, as put together by Festinger in 1942. For Simon (1955), if all objectives can be described in directly observable dimensions, all choices could then be synthesized in satisfying or unsatisfying alternatives, allowing the use of dynamic adjustments to produce nearly optimal solutions. Starbuck disputes the logical consistency behind Festinger's theory. « The maximization model produces a unique compormental solution... » (Starbuck, 1963a, 54). and therefore, Festinger's proposition consists in saying that people optimize their level of aspiration by fixing it at the difficulty level where utility is maximized.

Starbuck concludes : “If we then consider this level of aspiration as the point of reference for a subjective success or failure, then Festinger’s proposition is empty” (op. cit.: 57). Hence, there is no maximization of expected utility when the level of aspiration is fixed so low that all possible consequences lead to success. Here is the logical flaw in Festinger’s theory.

Starbuck seized the opportunity to introduce in his model the variation of levels of aspiration as goals are matched or missed, making a clear distinction between temporal horizons and the more or less explicit quality of aspirations. Hence, he demonstrated that changes in levels of aspirations were mostly dependent on conditions of stability associated with goals (Starbuck, 1958) : “Someone who solve a problem may have general preferences, vaguely defined and non-operational that form a superstructure for his or her goals. As this ambiguous superstructure becomes more clearly defined, and as the individual learns more about his life space, his levels of aspirations are going to change. New levels of aspiration will be established; older aspiration levels will be revised or discarded” (Starbuck, 1963a: 59). This was a major contribution. First, it was becoming clear that building a theory on aspiration with a maximization assumption was misleading. Second, Starbuck’s essay suggest that people construct their preferences *ex-post* ; hence enlightening a continuous interaction between behaviors and preferences. This relative treatment of preferences will later inspire by March and Olsen (1976) and more explicitly by March (1978 on the treatment of tastes).

This theme of antithetical processes that correct themselves in the course of events will be from then persistent in all Starbuck’s works, borrowing different clothes and disguises, as the scope and focus is shifting from very small to very large units of analysis. Processes are generating other processes that counterbalance their deeds ( “self-designing organizations”, 1975-1981), decision is depicted as a continuous collision between rationality and ideologies (research on crises, learning and unlearning, 1977, 1978, 1984a, 1989). Starbuck himself is divided between determinism and relativism ; doing sometimes elegant acrobatics as not to chose between his intransigent and mathematical logic, on one hand, and the wisdom of a behaviorist who is willing to introduce fragility and relativity in the act of research, and consequently in theory construction (as intertwined in his autobiography, 1993). We have a better, as we follow Starbuck in the hazards and bitter surprises of his life, why he chose to study brutal and unilateral changes (such as social revolutions) and how he made of life hazards a theoretical predilection for breakdowns and paradoxes.

### **3. Organizational growth and metamorphosis**

Starting from the analysis of motivations for organizational growth (1965b, 1966), Starbuck attempted a mathematical modelization of “organizational metamorphosis” (1968a, 1973). After a through review of growth motivations (self-realization, risk, prestige, executives incomes, profit, cost, monopoly, stability and survival), Starbuck wondered : “Are goals producing growth, or is it growth that produces the goals ?” (1965b, p. 465).

Starbuck divided growth models in four categories : (a) the *cells-divisions* models which focus on growth as a change in percentage of size by the addition of cells and divisions (of which archetype is Haire’s model in 1959) ; (b) *metamorphic* models which acknowledge that growth is not a soft and regular process, but goes through abrupt and discretionary changes (1965b, p. 386) ; (c) the *Will’o’-the-wisp* models that see growth as the pursuit of opportunities, the which are to be released when expansion is realized, whose archetypes would be Andrews (1949) and Penrose

(1959) models ; and (d) the *process-decision* models, the which rely on the identification of decisions that produce growth, whose origin lies in Cyert and March work (1963).

Without compromising — and sometimes with an obvious lack of diplomacy — Starbuck unveiled brick per brick the flawed constructions of each model, picking up empirical weaknesses, shedding light on logical inconsistencies or methodological limits. Starbuck's trenchant and cutting analyses, which leaves little hope to scanned theories — are part of his renown, equally with his generosity and commitment to help and support young researchers. Starbuck's shrill scrutiny literally destroyed contingency theory in "A trip to view the elephants and rattlesnakes in the garden of Aston" (1981). He does not hesitate to tremendous efforts to produce counter-evidence to established theories or beliefs ; a peculiar habit that Starbuck caught as early as 1958 (criticizing Festinger's levels of aspiration maximization) and all along his career with repeated attacks against statistical significance (e.g. "On behalf of naïveté", 1994), or recently, discovering that multiple regression produces unreliable results ("Opening the Pandora's box...", 1996). Chapin (1957) was an easy victim as Starbuck qualified his "Fibonacci proportion" as an "obscure and soft mystique" (1965b, p. 484). Chapin attempted to establish, based on adhesions to American churches, that organizations grow with a ration which limit is approximately 0.618 (Chapin, 1957, p. 449). Starbuck commented : « It is probably an (approximately) correct proposition, but certainly not thanks to magical properties of the 0.618 figure. Adhesion to churches is essentially the number of adults participating to the parish ; the "Sunday School Enrollment gathering the population of children. In 1920, the proportion of the population aged over 19 was 0.592, and in 1930, it was 0.612. Hence, Chapin noted that the ratio was increasing as the church was getting older" (Starbuck, 1965b, p. 484). Similarly, Starbuck showed how cell-division models tend to concentrate on effects, and ignore causes of growth ; how metamorphic models, by describing causes and effects of change usually fail to enlighten their connections ; how will-o'-the-wisp' models focus on internal processes as "determinants of an hypothetical maximum rate of growth" (1965b, 492) and on external factors as obstacles to this growth, and end up in a logical flaw of the "egg and the chicken" with no possibility of determining which factor constraints the other one !

« The problem with most organizational growth models”, Starbuck concluded, “is that they imply a certain degree of predestination and autonomy which is difficult to reconcile with direct observation” (1965b, p. 494). The contrariety with process-decision models came from a focus on immediate and unique problems, leaving long-term evolutions emerging as by-products of short-term decisions. Thus, recognizing and underlining that little was done to take into account long-term learning, Starbuck searched models that would embrace the totality of the phenomenon from its emergence to its extinction. Metamorphic models seemed promising because they left room form unforeseen and fast adjustments, gave attention to details, to non-linearity and to intrinsic regulations that would take place in the course of action. Starbuck's predilection for experimentation, and his abilities in mathematics, naturally led him to the works of Russian mathematician Pontryagin (1961). The latter demonstrated that it is more parsimonious to describe a revolution in three distinct groups of equations — each of them becoming comparatively more simple, instead of trying to put together a single algorithm for the totality of the phenomenon. These three systems would describe (a) the slow transformation before the revolution, (b) the fast transformation during the revolution, and (c) a slow transformation after the revolution, deriving these three phases from the modelization of burning of an electric bulb.

Borrowing from this model, Starbuck discovered that better results are obtained when fine adjustments are successively introduced in the modelization process (1973: p. 108).

#### 4. The organizational design school

This idea of a learning derived from incremental experiments had eventually led Starbuck to the concept of « self-designing organization ». George Box and Norman Draper were working at the Statistics Dept. of the University of Wisconsin. Their research was focusing on improving industrial processes. The classical approach consisted, until then, to establish the best possible design *a priori*, given the state of current and exhaustive knowledge. Unfortunately, the constant improvement of industrial processes necessitated frequent interruptions and *ad hoc* fine tuning. “The lack of technical personnel, however, limits inevitably the range of specific investigations of this kind” (Box and Draper, 1969, p. 4). The authors proposed to use “evolutionary operations” (EVOP), which were originally introduced by Box in 1957 for chemical industrial processes. The philosophy of this method was to manage processes so that not only products were produced, but also the necessary information to improve these products. The parallel with metamorphic models is obvious. The EVOP method allows a “fine tuning” of processes while the processes deploy. The analogy with natural selection was claimed by Box and Draper who saw in their theory an evolutionist force at work that would constantly move the processes towards its optimum. Genetic diversity and natural selection operates similarly with chemistry. The discovery of a new route for production is analogous to a genetic mutation where less promising combinations are neglected in favor of more promising ones.

The approach influenced Starbuck. « The evident challenge of a central design is to establish solutions to a set of problems that evolve rapidly and endlessly, while taking into consideration changes in individual understanding of problems, as well as changes in the problems themselves” (1975, p. 219). In 1972, the German Federal Bureau of Health gave William Starbuck and Wolfgang Müller the opportunity to experiment such a philosophy by asking them to search for an information system that would measure the efficiency of medicine authorizations (1993: 87). The « design » of such a system is rapidly problematic. The only solution was to design a system that would update itself constantly. An element of response came from Watzlawick, Weakland and Fisch (1975). The concept of spontaneous antithetical processes that comes to correct external interventions was there : the desired modification is obtained by applying a contrary force to the deviation. By « doing more of the same thing », people expect to reach desired goal, while they invent solutions that worsen their problems, by accentuating emerging polarities : « Their recipe of doing more of the same thing is the solution that creates the problem » (Watzlawick et al., p. 50). Thus, people are described by Starbuck as « action generators », inventing problems in the process of experimenting solutions (1983). The German Bureau of Health was in a very similar situation. Approximately 60.000 medicines were licensed on the German market. Most of these medicines had multiple components, many without a clear central molecule. Finally, their efficiency is not binary. Moreover, information on therapeutic effects often come from the pharmaceutical firm ; other sources of information being very heterogeneous, and influenced by the differences between countries, laboratories, certification rules, etc. The most discouraging aspect of the problem was the natural rate of change of descriptors. Using the current terminology, it would have taken five years to end up with a complete classification, 50% of which would be already obsolete. If the Bureau had followed Herbert Simon theory (1973), the information system should include analytical models in order to reduce the number of stimuli handled by decision makers. “The opportunity to absorb uncertainty”

shall not systematically imply the desire to do so” (1975: 226). The criteria to evaluate the therapeutic effects are extremely changing, accordingly to societal norms and aspirations concerning “efficiency”. If a doctor can be satisfied with a very stable typology, scientists and authority institutions cannot rely on an a priori stable categorization. Hence, “the metagame matters more, not only for the design of information systems, but for all sorts of design projects for every social system” (1975: 223). Three lessons are drawn from this experience : (1) The design of the system shall be frugal, so to leave users with the initiative of conducting metacorrections of the design itself; (2) incremental strategies of organizational design, grounded in experimentation, shall generate conflicts as sources of improvement; and (3) this is implying that the system could generate as many stabilizers than “destabilizers” of its own design.

This first essay led to a fruitful collaboration with Bo Hedberg and Paul Nystrom, in a article entitled : “Camping on Seesaws: Prescriptions for a self-designing organization” (in ASQ, 1976) whose contributions still influence today works on learning organizations and paradoxical change in organizations.

This article enlightned the role of antithetical processes and prescriptions in organizations as sources of their inner balance. The deliberately prescriptive approach was a stance. The introduction of changes in the organization is depicted as simultaneously a mean of theoretical construction and organizational design. “Instead of trying to change the global organizational behavior, designers can alter processes that are responsible for changes in the organization” (Hedberg, Nystrom, Starbuck, 1976: 42). Opposing the current paradigm that saw organizational design as “problems-solutions” implementation sequences, Starbuck suggested to focus on ideologies and strategies of third order as to support second order learning. He introduced the concept of discretionary changes of processes that amplify behavioral errors, implying contradictory parallel processes, et proking rejection mechanisms, so that processes should be modified gradually in social contexts that acknowledge their ephemeral nature. “A self-designing organization functions easily if its ideology cherishes the provisory” (Starbuck et al., 1976: 43).

Organizational theorists were compeled with “palaces” where specialization, clear objectives, unequivocal structures were creating differentiated yet harmonious ensembles ; where rational procedures and delimited responsibilities allowed to imbricate rigid structures whith their « refined and elegant » components. But “palaces” avoid tests, praise certainties, ossify their behaviors, balk at reorientations, and make a perfect ground for intolerant leaders. A method to prevent these “palaces” to turn into sanctuaries is continuous remodeling ; a proposition of March and Simon (1958) who suggested that managers undertake periodic reexamination programs of their organization and their environment. But the systematic nature of such a procedure could turn itself in a routine, then ossify self-indulgent examinations and self-fulfilling prophties. For Starbuck, there is no reason than an organization should have a more consistent behavior than its environment. He suggested that provisory tents could easily replace ossified palaces, that undecision can raise exploration, unlearning and re-learning. A more ambiguous definition of roles can produce flexibility. Instead of relying on indicators that are designed before end, organizational members should design their own sensors ; find in experimentation new ideas to experiment ; and finally, could derive satisfaction from creatively designing interactions that buld new processes ; these processes participating in the on-going creation of the organization.

What processes should managers create to transform old palaces in a dynamic ensemble of provisory tents? Several processes exist, such as hiring new members, discarding leaders, seeking outside expertise... Some processes accelerate change, while others decelerate it, and others stabilize the organization. Unfortunately, different processes are leading simultaneously the

organization in different directions at different speeds. “How flying without flying apart?” (1976: 55). Should organizations adapt to their environments, or should they compel environments to their aspirations? “It is between these two extremes that is probably situated the balanced organization which considers its environment as partially as a set of constraints to satisfy, and partially and as a workyard to sculpt” (ibid, p. 55). To focus only on one of these dimensions would be illusory and misleading, warns William Starbuck. It would lead to insensitivity to environmental constraints, or following an action program with over-self confidence. Not only managers should live inside tents, but they should settle them on seesaws so as to deal simultaneously with antithetical organizational settings. Six seesaws intertwine in organizational settings : consensus and dissension, content and dissatisfaction, resources abundance and scarcity, faith in goals and doubt, consistency and unconstraint, and finally, rationality and imperfection.

Relying on a minimum of consensus, organizations yet need dissensions to reconsider their implicit assumptions. Organizations rely on a minimum contentment of their members, yet excessive content blind organizational members and rush them into crises. A minimum affluence decrease dissatisfaction, yet organizations need minimum pressure from their environment. A minimum of faith in plans brings consistency, yet rigid plans discourage creativity and compel the organizations in its own ossified programs. A minimum consistency is required, yet it could make members of organizations believe they achieved an optimal balance, and avoid tests and experimentation. Organizations need a minimum of rationality but then may adopt reducing models, develop rational answers to problems that are not rational, or pursue an artificial façade of rationality, while underestimating the value of imperfection: “A self-designing organization can reach a dynamic equilibrium through the non-rational proliferation, the redundancy and improvisation of processes; and these proliferating processes, as they collide, contradict and interact, produce organizational wisdom” (op. cit, p. 63).

To the implicit quest of optimization and maximization of the first behaviorists, William H. Starbuck opposed the principle of minimality and of constant interaction of organizational phenomenon. He will be joined in this effort by Karl E. Weick who studied NASA as a “self-designing organization” (1977) and whose second edition of *Social Psychology of Organizing* (1979) pays tribute to Starbuck’s contributions, acknowledging the principles of organizations :

- that assemble interdependent and continuous actions in sensible sequences (Weick 1979, p. 3 ; relying on Starbuck 1976a, p. 1101)
- whose questioning is improving as researchers get closer to data, with thick descriptions and prescriptive thinking (Weick, 1979, p. 33; as of Nystrom and Starbuck, 1977)
- while we think of them as stable ensembles, in fact, continuously fail into pieces and necessitate elaborate maintenance mechanisms to chase the on-coming threats against their stability (Weick, 1979, p. 58; Starbuck et al., 1976).

## **5. Interaction between ideologies and rationality**

Organizational design theory relies on an original description of interaction between ideologies and rationality. The founding question of Starbuck’s work deals with organizations or people that close themselves in stagnating environments because their self-programmation loosed their connection with their surroundings. In fact, organizations are “congealing the oil” of their wheels, while they invent ideologies to act these ideologies out (Starbuck, 1982). Ideologies are aggregated nodes of beliefs, values, rites and symbols. Starbuck elaborated an important distinction between problem solving, which aspires to reach a minimum level of rationality, and

action-generating, when people observe the results of their action, and propose either new actions, or new problems to fit the available solutions. The issue of these problems being real or not, is finally the result of a collective vote, where clichés and quasi-theories are more pregnant than anything else. Starbuck studied the Kalmar Verkstadt as an illustration. The Swedish train construction had to cope with a State support shortage in 1963. Facing this sudden change (definitely a favorite theme of the author), Kalmar Verkstadt decided to reorientate its activities. Starbuck analyzed ideological and rational processes as they collide in Kalmar Verkstadt decision process. For instance, ideology demanded that Kalmar Verkstadt would not question governmental decisions, so that the company did not even consider this announcement could have been a symbolic protestation.

Environments are thus products and sources of ideologies as decision-making unfolds and intertwines people, ideologies and rationalization of upcoming events. The spectrum of competition frightened the firm. The perspective of technical change scared a firm that did not have engineers and was not used to work on plans. “The characteristics of an organization create perceptual filters, which distort its attempts of rational analysis” (Starbuck, 1982, p. 6). Starbuck associated this “self-persuasion” as self-indulgent therapeutic treatment (pointing here at the strong influence of the Palo Alto school on Starbuck, see Watzlawick). The conformity of organizational beliefs to societal aspirations acts as a source of reassuring legitimacy for the organization (Starbuck and Nystrom 1981d ; see also Meyer and Rowan, 1977).

In a normal situation, conformity to myths and resources allocation mutually reinforce, and generate the organization survival. When facing sudden change, people take for granted environmental ideologies and change their programmed behavior, as they put on a new “façade” to legitimate their reversal. Organizations can thus convert their expectations into self-fulfilling (or self-destructive) prophecies, by acting as well by non-acting (Starbuck, 1976a). “It is clear that the human brain tolerates differentiation and the lack of logical harmony between ideologies, even so it is pursuing its own logical harmony and integration in each ideology” (Starbuck, 1982, p. 13). This operation is made possible by the rites, the metaphors of language and the ambiguity of messages that allow the existence of contradictory ideologies. A solution to support such needed organizational “equivocality” (Weick, 1969) is to leave the problems vaguely defined, and to propose opportunistic, conventional and available actions. Here Starbuck harshly criticized the “garbage can” model (Cohen, March, Olsen, 1972) “which gives too much importance to problems by treating them as important as actions. Actions are all the purpose of organizations, and what they have been designed for. Organizations could survive without problems if societies did insist on the fact that organizational actions are here to resolve problems” (Starbuck, 1983, p. 94). He underlined the too large emphasis given to hazard. Why do people notice some stimuli and ignore others? Why some sequences are labeled “problem/action” and not others? Problems can be the outputs of societal ideologies, for most problems are generated or remodeled to justify intended actions. Problem-solving can be sought for its own sake, warned Starbuck, as it gives an intrinsic logical structure to disorder ; because the flexibility of the word “problem” covers symptoms as well as the causes of symptoms and needs for action (Starbuck: 1983: 94).

## 6. Unframing and unlearning

Hence, organizations build ideologies that turn into structures, language, actions or problems, and then become themselves new sources for building new ideologies (Meyer & Starbuck, 1993). As in the Kalmar-Verkstadt case, these ideologies push organizations to generate themselves the

crises in which they immerse. Past successes are interpreted as criteria for the validity and consistency of current behaviors, as for NCR which eighty years of success in mechanical registers fused beliefs, strategies, structures, and action programs in an indistinct self-reinforcing ensemble. Ideology turns then as a source of stability, relegating triggers of brutal change (i.e. the computing revolution) unnoticed. When asked about forthcoming technological changes in 1958, NCR president replied: “I hear about this supposed market saturation since 1912. Don’t mistake — the mechanical register are here for long!” (Meyer & Starbuck, 1993, p. 106).

When the press takes over the affair, qualifying NCR of “rigid and fossilized”, the corporation built “façades” of legitimacy to protect itself from societal ideologies by increasing apparent conformity to these ideologies (Starbuck, Nystrom, 1984, p. 2). Amongst these “façades”, the stronger “robustness” of NCR mechanical registers, and the acquisition, in 1953, of a Californian electronic cash registers, soon identified as a real threat by organization members, relegated as the last wheel of the car by salesmen. They only sold thirty units, conforming to the dominant ideology. As Weick put it (1979, p. 149), “it is failure to act, and not failing in action”. Ideology is even more robust when in 1968, NCR compeled to imitate IBM by putting on the market a third generation computer. This time, the firm intensively planned, swallowing its 150 millions reserve. But the salesmen still refused to believe in electronic superiority, leading the company to a third crisis.

When crisis are striking, organizations, because they do not possess available solutions in their repertoires, worsen the situation (Starbuck & al., 1978). In 1970, Wall Street purely and simply condemned the firm. « Managers’ beliefs were petrified” (Meyer and Starbuck, 1993: 109). A new CEO, William Anderson, is appointed.

To continue to avoid the crisis would have even more detach NCR from its environment, closing it in behavioral program like Kalmar Verkstad (Starbuck et al., 1978), Facit (Starbuck, Hedberg, 1977) or Nasa’s Challenger (Starbuck, Milliken, 1988c). Obsolete ideologies had to be deserted before organization collapsed ; avoidance strenghtens extinct beliefs, and ex post rationalization of failures. “Anderson inaugurated his nomination by acting rationally (closing down the Dayton plant and laying off 10,000 employees) instead of acting symbolically (if he had ravaged the old headquarters and changed the company’s name)” (Meyer and Starbuck, 1993, p. 114). Anderson helped managers to “unlearn” without shifting too abruptly the symbolic universe that gave them on-going consistency.

“Unlearning” is becoming, through Starbuck’s longitudinal case studies, a model for preventing and dealing with crises (Starbuck et al., 1976, pp.49-54; 1977d; 1978; 1984a; 1988c; 1989). As a prevention, unlearning counteract the inertia of learning. Busy with applying old programs, organizations are lacking time to invent new behavioral patterns, and moreover may absorb in their behavioral program the sparkles of failure as conforms to their ideology. Hence, belief in past successes flatten variations and flaws by introducing ex-post institutional conformity to dysfunctional behaviors. In the Challenger’s explosion case, NASA engineers have confidence in the tests of rubber joints of the shuttle boosters. “In September 1984, Mulloy talks of an ‘tolerable erosion’; and in February 1985, Mulloy and Thiokol described the leak in the joints as an ‘acceptable risk’ (Starbuck and Milliken, 1988c, p. 327). The second finding is that ‘fine-tunning’ can finally be the source of failure (p. 335) because it creates sequences of experimentation which are believed to have the virtue to test limits of theoretical knowledge (p. 337). Challenging continuous improvement theory, Starbuck advocated dissension and counter-intuitive experimentation (1984a, 1988b, 1993). Hence, if crises are occasions to learn, they are also occasions to discover that beliefs do not explain events (1983, p. 100), and more numerous

are organizations that learn and they collapse, than organizations that unlearn preventively (1981). Human and organizational flaws appear in Starbuck theories are autonomous developments of behavioral programs, showing the author's taste for relativity and non-determinism, yet acknowledge managers' distortions in detecting and sensemaking of stimuli for which they are simultaneously the passive receivers and the active emitters (1988d).

## 7 Scientific methods

Managers are not the only ones to take their objectivity for granted... Researchers perception, language and founding assumptions also transfer systematically to managers through systematic interpretation biases (Starbuck and Mezias, 1996b). “Rationality that we apply to our theories is an ideal-type, distilled by thousands years of analyses and debates among mathematicians, philosophers and scientists. This idealized rationality leaves no room for maneuver; it reduces all conditions to binary states (...) it appeals our esthetics, but violates our own rules, distort our observations, and extrapolate our incomplete knowledge to ridiculous extremes” (1988b, p. 71).

William H. Starbuck displayed made his humble attitude towards knowledge a life-long epistemological commitment, to the point of instrumentalizing it for theoretical construction purpose. Acknowledge knowledge tendency for its autonomous development (1996a), he was relentless in fighting theorizations that adopted rational façades. True paradoxes exist, Starbuck says, and “willing to keep paradoxes away from a theory only mask phenomena, and makes it useless for sense making” (1988b, p. 61).

William H. Starbuck makes statements with experience. None of his theorizations was accomplished without him questioning, without complacency or self-indulgence his own epistemological assumptions. As soon as 1961, he questioned the validity of case-based descriptive models by opposing them to normative models. He asserted successfully that external validity of case-based models should not be assessed with external validity tests designed for normative models. To the replication of results, he opposed the purpose-related sufficiency of tests. In some cases, it is better to test the null-hypothesis, and concentrate on reducing ignorance zones by sequential ameliorations than pretending a generalization which ethics might be discussed (1961b, pp. 64-67)

William H. Starbuck ethical commitment, however, reduced his tolerance towards clear cut positions and theories presented as absolute truths. As he defended the use of mathematics in social sciences, he battled Festinger's belief that mathematics were a language only designed for non ambiguous and specific tasks. “This is absolutely untrue”, he writes, “symbolic representation can be as ambiguous as verbal representation” (1965, p. 340).

Handling paradox with elegance, Starbuck rejected prescriptions made without conscience. To James Price who exhorted researchers to have more methodological rigor, he opposed a strong statement that research can be evaluated on the quantity of data it abuses (1968b, p. 135). Starbuck invites researchers to practice experimentation and prescription along, in order to activate, to simulate and eventually to provoke failures in processes that we pretend to describe objectively (1977b, 1981b). Instead of faking objectivity, a true researcher, Starbuck suggests, faces the ambiguous border between prescription and prevision, between observation and interpretation while absorbing equivocalities of his or her own interrogations. Hence, a true researcher do not reject paradigms, but accept their ideological nature (1974). He or she experiments and predict in the course of experimentation, so to be able to surprise himself in errors, and improve in corrections (1981b, p. 13). He or she predicts without assuming that today is a point of rupture (Starbuck, Narayan-Pant, 1990). He acknowledges with humility the null-hypothesis, he admits that his observation may say more about himself than about observed

phenomenon ; he acknowledges time autocorrelating nature ; he acknowledges that one progress faster by eliminating poor hypothesis than by defending plausible ones (1994). He recognizes and defends the value of incongruity (1988b; Jones, 1975).

True researchers acknowledge the relativeness of their diagnostics, because “there are more combinations of symptoms that there are diagnostics, and hence translating symptoms into diagnostics destroy information. And there are more treatments that diagnoses, and hence, basing treatments on diagnoses injects random errors” (1993, p. 87). The contribution of Starbuck to management is an exemplar. By cultivating trials, errors, and unlearning, William Starbuck defied organizational symptoms by disobeying their usual diagnoses, founded his prescriptions on data, without feigning the hypothetical rationalities of filter theories.

### Conclusion

Because he refused to confine his theories in reducing labels, Starbuck’s contribution is today omnipresent in management with no possibilities of attributing it the flags of a “garbage can”, an “enactment”, or a “double loop”. Yet, the terms whose Starbuck popularized the use are today in everyday’s jargon of managers. Who would quote “Organizations and their environments” (1976a) when one is using the term “niche”?<sup>1</sup>.

His most important contribution lies maybe in the modesty that he assigned to the research act. He showed that scientists have their own values, and that these values impact their research. Instead of adopting objective façades that look like grimaces, he invites us to constantly reconsider our descriptions with wisdom, and our prescriptions with humility.

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<sup>1</sup>. This term also appears in Starbuck and Dutton, 1973.

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