Seminario 5. Lenguaje, conocimiento y *horizonte de espera*

La idea de conocimiento. La idea de lenguaje. El pensamiento, lo factual, el mundo.

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COGNITION, CONSTRUCTION OF KNOWLEDGE, AND TEACHING*

> The only truly ubiquitous factor in cognitive developments – be it in the history of science or in the ontogeny of mind – are of a functional, not a structural kind.
>
> Piaget and Garcia, 1983, p. 38

ABSTRACT. The existence of objective knowledge and the possibility of communicating it by means of language have traditionally been taken for granted by educators. Recent developments in the philosophy of science and the historical study of scientific accomplishments have deprived these presuppositions of their former plausibility. Sooner or later, this must have an effect on the teaching of science. In this paper I am presenting a brief outline of an alternative theory of knowing that takes into account the thinking organism's cognitive isolation from 'reality'. This orientation was proposed by Vico at the beginning of the 18th century, disregarded for two hundred years, and then propounded independently by Piaget as a developmentally grounded constructivist epistemology. The paper focuses specifically on the adaptive function of cognition, Piaget's scheme theory, the process of communication, and the subjective perspective on social interaction. In the concluding section it then suggests some of the consequences the shift of epistemological presuppositions might have for the practice of teaching.

During the last three decades faith in objective scientific knowledge, a faith that formerly served as the unquestioned basis for most of the teaching in schools and academia, has been disrupted by unsettling movements in the very discipline of philosophy of science. Though the roots of the subversion go back a good deal further, the trouble was brought to the awareness of a wider public by the publication of Kuhn's *The Structure of Scientific Revolutions*. There, undisguised and for everyone to read, was the explicit statement that

> ... research in parts of philosophy, psychology, linguistics, and even art history, all converge to suggest that the traditional epistemological paradigm is somehow askew. That failure to fit is also made increasingly apparent by the historical study of science .... None of these crisis-promoting subjects has yet produced a viable alternate to the traditional epistemological paradigm, but they do begin to suggest what some of that paradigm's characteristics will be. (Kuhn 1970, p. 121)

While the troubles of the "traditional epistemological paradigm" have

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shown no sign of subsiding in the years since Kuhn's publication, one could not honestly say that any substitute has been generally accepted. In most departments of psychology and schools of education, teaching continues as though nothing had happened and the quest for immutable objective truths were as promising as ever. For some of us, however, a different view of knowledge *has* emerged, not as a new invention but rather as the result of pursuing suggestions made by much earlier dissidents. This view differs from the old one in that it deliberately discards the notion that knowledge could or should be a representation of an observer-independent world-in-itself and replaces it with the demand that the conceptual constructs we call knowledge be *viable* in the experiential world of the knowing subject.

Ludwig Fleck, whose monograph of 1935 Kuhn acknowledged as a forerunner, wrote an earlier article in 1929 that went virtually unnoticed and that already contained much that presages what the Young Turks have been proposing in recent years:

> The content of our knowledge must be considered the free creation of our culture. It resembles a traditional myth. (Fleck 1929, p. 425)
> Every thinking individual, insofar as it is a member of some society, has its own reality according to which and in which it lives. (p. 426)
> Not only the ways and means of problem solutions are subject to the scientific style, but also, and to an even greater extent, the choice of problems. (p. 427)

In his monograph, Fleck then cites Jakob von Uexküll (1928) as a fellow proponent of the notion of subjective realities, but criticizes him for not being radical enough. In retrospect, one might conjecture that Fleck would have agreed more fully with von Uexküll's later elaboration of the biological organisms' self-generated environments. In any case, it is this *construction* of the individual's subjective reality which, I want to suggest in this paper, should be of interest to practitioners and researchers in education and, in particular, to the teachers of science.

The notion of cognitive construction was adopted in our century by Mark Baldwin and then extensively elaborated by Jean Piaget. Piaget's *constructivist* theory of cognitive development and cognition, to which I shall return later, had, unbeknownst to him, a striking forerunner in the Neapolitan philosopher Giambattista Vico. Vico's epistemological treatise (1710) was written in Latin and remained almost unknown. Yet no present-day constructivist can afford to ignore it, because the way Vico formulated certain key ideas and the way they were briefly

discussed at the time is, if anything, more relevant today than it was then.

THE ROOTS OF CONSTRUCTIVISM

The anonymous critic who, in 1711, reviewed Vico's first exposition of a thoroughly constructivist epistemology expressed a minor and a major complaint. The first – with which any modern reader might agree – was that Vico's treatise is so full of novel ideas that a summary would turn out to be almost as long as the work itself (e.g., the introduction of developmental stages and the incommensurability of ideas at different historical or individual stages, the origin of conceptual certainty as a result of abstraction and formalization, the role of language in the shaping of concepts). The reviewer's second objection, however, is more relevant to my purpose here, because it clearly brings out the problem constructivists run into, from Vico's days right down to our own.

Vico's treatise *De antiquissima Italorum sapientia* (1710), the Venetian reviewer says, is likely to give the reader "an idea and a sample of the author's metaphysics rather than to prove it". By *proof*, the 18th-century reviewer intended very much the same as so many writers seem to intend today, namely a solid demonstration that what is asserted is *true* of the real world. This conventional demand cannot be satisfied by Vico or any proponent of a radically constructivist theory of knowing: one cannot do the very thing one claims to be impossible. To request a demonstration of *Truth* from a radical constructivist shows a fundamental misunderstanding of the author's explicit intention to operate with a different conception of knowledge and of its relation to the 'real' world.

One of Vico's basic ideas was that epistemic agents can *know* nothing but the cognitive structures they themselves have put together. He expressed this in many ways, and the most striking is perhaps: "*God is the artificer of Nature, man the god of artifacts*". Over and over he stresses that "to know" means *to know how to make*. He substantiates this by saying that one knows a thing only when one can tell what components it consists of. Consequently, God alone can know the *real* world, because He knows how and of what He has created it. In contrast, the human knower can know only what the human knower has constructed.

For constructivists, therefore, the word *knowledge* refers to a commodity that is radically different from the objective representation of an observer-independent world which the mainstream of the Western philosophical tradition has been looking for.[1] Instead, *knowledge* refers to conceptual structures that epistemic agents, given the range of present experience within their tradition of thought and language, consider *viable*.

Richard Rorty, in his Introduction to *Consequences of Pragmatism*, announces this shift of focus in terms that fit the constructivist's position just as well as the pragmatist's:

> He [the pragmatist] drops the notion of truth as correspondence with reality altogether, and says that modern science does not enable us to cope because it corresponds, it just enables us to cope. (Rorty 1982, p. XVII)

Constructivism *is* a form of pragmatism and shares with it the attitude towards knowledge and truth; and no less than pragmatism does it go against "the common urge to escape the vocabulary and practices of one's own time and find something ahistorical and necessary to cling to" (Rorty 1982, p. 165).

The anonymous reviewer's complaint that Vico did not *prove* his thesis, reproaches Vico for not having claimed for his 'metaphysics' (which was actually a theory of knowing) the correspondence with an ahistorical ontic world *as God might know it*. But this notion of correspondence was precisely what Vico – like the pragmatists – intended to drop.

Present-day constructivists, however, if pressed for corroboration rather than proof in the traditional sense, have an advantage over Vico. They can claim *compatibility* with scientific models that enable us to 'cope' remarkably well in specific areas of experience. For instance, one might cite the neurophysiology of the brain and quote Hebb's:

> At a certain level of physiological analysis there is no reality but the firing of single neurons. (Hebb 1958, p. 461)

This is complemented by von Foerster's (1970) observation that all sensory receptors (i.e., visual, auditory, tactual, etc.) send physically indistinguishable 'responses' to the cortex and that, therefore, the 'sensory modalities' can be distinguished only by keeping track of the part of the body from which the responses come, and *not* on the basis

of 'environmental features'. Such statements make clear that contemporary neurophysiological models may be compatible with a constructivist theory of knowing but can in no way be integrated with the notion of transduction of 'information' from the environment that any realist epistemology demands.

KNOWLEDGE AS AN ADAPTIVE FUNCTION

Constructivism differs from pragmatism in its predominant interest in *how* the knowledge that "enables us to cope" is arrived at. The work of Jean Piaget, the most prolific constructivist in our century, can be interpreted as one long struggle to design a model of the generation of viable knowledge. In spite of Piaget having reiterated innumerable times (cf. 1967a, pp. 210ff) that, from his perspective, cognition must be considered an *adaptive function*, most of his critics argue against him as though he were concerned with the traditional notion of knowledge as correspondence.

This misinterpretation is to some extent due to a misconception about adaptation. The technical sense of the term that Piaget intended comes from the theory of evolution. In that context, *adaptation* refers to a state of organisms or species that is characterized by their ability to survive in a given environment. Because the word is often used as a verb (e.g., this or that species *has* adapted to such and such an environment), the impression has been given that adaptation is an evolutionary activity. This is quite misleading. In phylogeny no organism can actively modify its genome and generate characteristics to suit a changed environment. According to the theory of evolution, the modification of genes is always an accident. Indeed, it is these accidental modifications that generate the variations on which natural selection can operate. And nature does *not* – as even Darwin occasionally slipped into saying (Pittendrigh 1958, p. 397) – select 'the fittest', it merely lets live those that have the characteristics necessary to cope with their environment and lets die all that have not.

This interpretation of the theory of evolution and its vocabulary is crucial for an adequate understanding of Piaget's theory of cognition. As for Vico, knowledge for Piaget is never (and can never be) a 'representation' of the real world. Instead it is the collection of conceptual structures that turn out to be adapted or, as I would say, *viable* within the knowing subject's range of experience.

In both, theory of evolution and the constructivist theory of knowing, 'viability' is tied to the concept of equilibrium. Equilibrium in evolution indicates the state of an organism or species in which the potential for survival in a given environment is genetically assured. In the sphere of cognition, though indirectly linked to survival, equilibrium refers to a state in which an epistemic agent's cognitive structures have yielded and continue to yield expected results, without bringing to the surface conceptual conflicts or contradictions. In neither case is equilibrium necessarily a static affair, like the equilibrium of a balance beam, but it can be and often is dynamic, as the equilibrium maintained by a cyclist.

To make the Piagetian definition of knowledge plausible, one must immediately take into account (which so many interpreters of Piaget seem to omit) that a human subject's experience always includes the social interaction with other cognizing subjects. This aspect of social interaction is, obviously, of fundamental importance if we want to consider education, that is, any situation in which the actions of a teacher are aimed at generating or modifying the cognitive constructions of a student. But introducing the notion of social interaction raises a problem for constructivists. If what a cognizing subject knows cannot be anything but what that subject has constructed, it is clear that, from the constructivist perspective, the *others* with whom the subject may interact socially cannot be posited as an ontological given. I shall return to this problem as well as to the constructivist approach to education; but first I want to explicate the basis of a Piagetian theory of learning.

THE CONTEXT OF SCHEME THEORY

Two of the basic concepts of Piaget's theory of cognition are *assimilation* and *accommodation*. Piaget's use of these terms is not quite the same as their common use in ordinary language. Both terms must be understood in the context of his constructivist theory of knowing. Unfortunately, this is what contemporary textbooks in developmental psychology (most of which devote at least a few pages to Piaget) often fail to do. Thus one reads, for instance:

> Assimilation is the process whereby changing elements in the environment become incorporated into the structure of the organism. At the same time, the organism must

accommodate its functioning to the nature of what is being assimilated. (Nash 1970, p. 360)

This is not at all what Piaget meant. One reason why assimilation is so often misunderstood is that its use as an explanatory postulate ranges from the unconscious to the deliberate. Another stems from disregarding that Piaget uses that term, as well as 'accommodation', within the framework of his theory of schemes. An example may help to clarify his position.

An infant quickly learns that a rattle it was given makes a rewarding noise when it is shaken, and this provides the infant with the ability to generate the noise at will. Piaget sees this as the "construction of a *scheme*" which, like all schemes, consists of three parts:

(1) Recognition of a certain situation (e.g., the presence of a graspable item with a rounded shape at one end);
(2) association of a specific activity with that kind of item (e.g., picking it up and shaking it);
(3) expectation of a certain result (e.g., the rewarding noise).

It is very likely that this infant, when placed in its high-chair at the dining table, will pick up and shake a graspable item that has a rounded shape at one end. We call that item a spoon and may say that the infant is *assimilating* it to its rattling scheme; but from the infant's perspective at that point, the item *is* a rattle, because what the infant perceives of it is not what an adult would consider the characteristics of a spoon but just those aspects that fit the rattling scheme.[2]

Shaking the spoon, however, does not produce the result the infant expects: the spoon does not rattle. This generates a perturbation ('disappointment'), and perturbation is one of the conditions that set the stage for cognitive change. In our example it may simply focus the infant's attention on the item in its hand, and this may lead to the perception of some aspect that will enable the infant in the future to recognize spoons as non-rattles. That development would be an *accommodation*, but obviously a rather modest one. Alternatively, given the situation at the dining table, it is not unlikely that the spoon, being vigorously shaken, will hit the table and produce a different but also very rewarding noise. This, too, will generate a perturbation (we might call it 'enchantment') which may lead to a different *accommodation*, a major one this time, that initiates the "spoon banging scheme" which most parents know only too well.

This simple illustration of scheme theory also shows that the theory involves, on the part of the observer, certain presuppositions about cognizing organisms. The organism is supposed to possess at least the following capabilities:[3]

> The ability and, beyond that, the tendency to establish recurrences in the flow of experience; this, in turn, entails at least two capabilities,
> remembering and retrieving (re-presenting) experiences,
> and the ability to make comparisons and judgements of similarity and difference;
> apart from these, there is the presupposition that the organism likes certain experiences better than others, which is to say, it has some elementary values.

The first three of these are indispensable in any theory of learning. Even the parsimonious models of classical and operant conditioning could not do without them. As to the fourth, the assumption of elementary values, it was explicitly embodied in Thorndike's *Law of Effect*: "Other things being equal, connections grow stronger if they issue in satisfying states of affairs" (Thorndike 1931, 1966, p. 101). It remained implicit in psychological learning theories since Thorndike, but the subjectivity of what is 'satisfying' was more or less deliberately obscured by behaviorists through the use of the more objective sounding term 'reinforcement'.

The learning theory that emerges from Piaget's work can be summarized by saying that cognitive change and *learning* take place when a scheme, instead of producing the expected result, leads to perturbation, and perturbation, in turn, leads to accommodation that establishes a new equilibrium. Learning and the knowledge it creates, thus, are explicitly instrumental. But here, again, it is crucial not to be rash and too simplistic in interpreting Piaget. His theory of cognition involves a two-fold instrumentalism. On the *sensory-motor* level, action schemes are instrumental in helping organisms to achieve goals in their interaction with their experiential world. On the level of *reflective abstraction*, however, operative schemes are instrumental in helping organisms achieve a coherent conceptual network that reflects the paths of acting as well as thinking which, at the organisms' present point of experience, have turned out to be viable. The first instrumentality might be called 'utilitarian' (the kind philosophers have

traditionally scorned). The second, however, is strictly 'epistemic'. As such, it may be of some philosophical interest – above all because it entails a radical shift in the conception of 'knowledge', a shift that eliminates the paradoxical conception of truth that requires a forever unattainable ontological test. The shift that substitutes viability in the experiential world for correspondence with ontological reality applies to knowledge that results from inductive inferences and generalizations. It does not affect deductive inferences in logic and mathematics. In Piaget's view, the certainty of conclusions in these areas pertains to mental operations and not to sensory-motor material (cf. Beth & Piaget 1961; Glasersfeld 1985b).

THE SOCIAL COMPONENT

In connection with the concept of viability, be it 'utilitarian' or 'epistemic', social interaction plays an important role. Except for animal psychologists, social interaction refers to what goes on among humans and involves language. As a rule it is also treated as essentially different from the interactions human organisms have with other items in their experiential field, because it is more or less tacitly assumed that humans are from the very outset privileged experiential entities. Constructivists have no intention of denying this intuitive human prerogative. But, insofar as their theory of knowing attempts to model the cognitive development that provides the individual organism with *all* the furniture of his or her experiential field, they want to avoid assuming any cognitive structures or categories as innate. Hence, there is the need to hypothesize a model for the conceptual genesis of 'others'.

On the sensory-motor level, the schemes a developing child builds up and manages to keep viable will come to involve a large variety of 'objects'. There will be cups and spoons, building blocks and pencils, rag dolls and teddy bears – all seen, manipulated, and familiar as components of diverse action schemes. But there may also be kittens and perhaps a dog. Though the child may at first approach these items with action schemes that assimilate them to dolls or teddy bears, their unexpected reactions will quickly cause novel kinds of perturbation and inevitable accommodations. The most momentuous of these accommodations can be roughly characterized by saying that the child will come to ascribe to these somewhat unruly entities certain proper-

ties that radically differentiate them from the other familiar objects. Among these properties will be the ability to move on their own, the ability to see and to hear, and eventually also the ability to feel pain. The ascription of these properties arises simply because, without them, the child's interactions with kittens and dogs cannot be turned into even moderately reliable schemes.

A very similar development may lead to the child's construction of schemes that involve still more complex items in her experiential environment, namely the human individuals who, to a much greater extent than other recurrent items of experience, make interaction unavoidable. (As we all remember, in many of these inescapable interactions, the schemes that are developed aim at avoiding unpleasant consequences rather than creating rewarding results.) Here again, in order to develop relatively reliable schemes, the child must impute certain capabilities to the objects of interaction. But now these ascriptions comprise not only perceptual but also cognitive capabilities, and soon these formidable 'others' will be seen as intending, making plans, and being both very and not at all predictable in some respects. Indeed, out of the manifold of these frequent but nevertheless special interactions, there eventually emerges the way the developing human individual will think both of 'others' and of him- or herself.

This reciprocity is, I believe, precisely what Kant had in mind when he wrote:

> It is manifest that, if one wants to imagine a thinking being, one would have to put oneself in its place and to impute one's own subject to the object one intended to consider.... (Kant 1781, p. 354)

My brief account of the conceptual construction of 'others' is no doubt a crude and preliminary analysis but it at least opens a possibility of approaching the problem without the vacuous assumption of innateness. Besides, the Kantian notion that we impute the cognitive capabilities we isolate in ourselves to our conspecifics, leads to an explanation of why it means so much to us to have our experiential reality confirmed by others. The use of a scheme always involves the expectation of a more or less specific result. On the level of reflective abstraction, the expectation can be turned into a prediction. If we impute planning and foresight to others, this means that we also impute to them some of the schemes that have worked well for

ourselves. Then, if a particular prediction we have made concerning an action or reaction of an other turns out to be corroborated by what the other does, this adds a second level of viability to our scheme; and this second level of viability strengthens the experiential reality we have constructed (cf. Glasersfeld 1985a, 1986).

A PERSPECTIVE ON COMMUNICATION

Although it is not always explicitly acknowledged, the separation of two kinds of instrumentality, which I mentioned above, is not a new one in the field of education. Since the days of Socrates, teachers have known that it is one thing to bring students to acquire certain ways of acting – be it kicking a football, performing a multiplication algorithm, or the reciting of verbal expressions – but quite another to engender understanding. The one enterprise could be called 'training', the other 'teaching', but educators, who are often better at the first than at the second, do not always want to maintain the distinction. Consequently, the methods for attaining the two goals tend to be confused. In both, communication plays a considerable part, but what is intended by 'communication' is not quite the same.

Early studies of communication developed a diagrammatic representation of the process as it appears to an outside observer. Success or failure of a communication event was determined on the basis of the observable behavior of a sender and a receiver. This schema was highly successful in the work of communication engineers (Cherry 1966, p. 171). It was also immediately applicable to the behaviorist approach to teaching and learning. The teacher's task, according to that view, consisted largely in providing a set of stimuli and reinforcements apt to condition the student to 'emit' behavioral responses considered appropriate by the teacher. Wherever the goal is students' reliable replication of an observable behavior, this method works well. And, because there is no place in the behaviorist approach for what we would like to call *understanding*, it is not surprising that the behaviorist training rarely, if ever, produces it.

The technical model of communication (Shannon 1948), however, established one feature of the process that remains important no matter from what orientation one approaches it: The physical signals that travel from one communicator to another – for instance the sounds of speech and the visual patterns of print or writing in

linguistic communication – do not actually *carry* or *contain* what we think of as 'meaning'. Instead, they should be considered instructions to select particular meanings from a list which, together with the list of agreed signals, constitutes the 'code' of the particular communication system. From this it follows that, if the two lists and the conventional associations that link the items in them are not available to a receiver before the linguistic interaction takes place, the signals will be meaningless for that receiver.

From the constructivist point of view, this feature of communication is of particular interest because it clearly brings out the fact that language users must individually *construct* the meaning of words, phrases, sentences, and texts. Needless to say, this semantic construction does not always have to start from scratch. Once a certain amount of vocabulary and combinatorial rules ('syntax') have been built up in interaction with speakers of the particular language, these patterns can be used to lead a learner to form novel combinations and, thus, novel conceptual compounds. But the basic elements out of which an individual's conceptual structures are composed and the relations by means of which they are held together cannot be transferred from one language user to another, let alone from a proficient speaker to an infant. These building blocks must be abstracted from individual experience; and their interpersonal fit, which makes possible what we call communication, can arise only in the course of protracted interaction, through mutual orientation and adaptation (cf. Maturana 1980).

Though it is often said that normal children acquire their language without noticeable effort, a closer examination shows that the process involved is not as simple as it seems. If, for instance, you want your infant to learn the word 'cup', you will go through a routine that parents have used through the ages. You will point to, and then probably pick up and move, an object that satisfies your definition of 'cup', and at the same time you will repeatedly utter the word. It is likely that mothers and fathers do this intuitively, i.e., without a well-formulated theoretical basis. They do it because it usually works. But the fact that it works does not mean that it has to be a simple matter. There are at least three essential steps the child has to make.

The first consists in focusing attention on some specific sensory signals in the manifold of signals which, at every moment, are available within the child's sensory system; the parent's pointing provides a

merely approximate and usually quite ambiguous direction for this act.

The second step consists in isolating and coordinating a group of these sensory signals to form a more or less discrete visual item or 'thing'. The parent's moving the cup greatly aids this process because it accentuates the relevant figure as opposed to the parts of the visual field that are to form the irrelevant ground.[4]

The third step, then, is to associate the isolated visual pattern with the auditory experience produced by the parent's utterances of the word 'cup'. Again, the child must first isolate the sensory signals that constitute this auditory experience from the background (the manifold auditory signals that are available at the moment); and the parent's repetition of the word obviously enhances the process of isolating the auditory pattern as well as its association with the moving visual pattern.

If this sequence of steps provides an adequate analysis of the initial acquisition of the meaning of the word 'cup', it is clear that the child's meaning of that word is made up exclusively of elements which the child abstracts from its own experience. Indeed, anyone who has more or less methodically watched children acquire the use of new words, will have noticed that what they isolate as meanings from their experiences in conjunction with words is often only partially compatible with the meanings the adult speakers of the language take for granted. Thus the child's initial concept of cup often includes the activity of drinking, and sometimes even what is being drunk, e.g., milk. Indeed, it may take quite some time before the continual linguistic and social interaction with other speakers of the language provides occasions for the accommodations that are necessary for the concept the child associates with the word 'cup' to become adapted to the adults' extended use of the word, for instance, in the context of golf greens or championships of the sporting kind.

The process of accommodating and tuning the meaning of words and linguistic expressions actually continues for each of us throughout our lives. No matter how long we have spoken a language, there will still be the occasions when we realize that, up to that point, we have been using a word in a way that now turns out to be idiosyncratic in some particular respect.

Once we come to see this essential and inescapable subjectivity of linguistic meaning, we can no longer maintain the preconceived notion that words *convey* ideas or knowledge; nor can we believe that

a listener who apparently 'understands' what we say must necessarily have conceptual structures that are identical with ours. Instead, we come to realize that 'understanding' is a matter of fit rather than match. Put in the simplest way, to understand what someone has said or written means no less but also no more than to have built up a conceptual structure that, in the given context, appears to be *compatible* with the structure the speaker had in mind – and this compatibility, as a rule, manifests itself in no other way than that the receiver says and does nothing that contravenes the speaker's expectations.

Among proficient speakers of a language, the individual's conceptual idiosyncracies rarely surface when the topics of conversation are everyday objects and events. To be considered proficient in a given language requires two things among others: to have available a large enough vocabulary, and to have constructed and sufficiently accommodated and adapted the meanings associated with the words of that vocabulary so that no conceptual discrepancies become apparent in ordinary linguistic interactions. When conversation turns to predominantly abstract matters, it usually does not take long before conceptual discrepancies become noticeable – even among proficient speakers. The discrepancies generate perturbations in the interactors, and at that point the difficulties become insurmountable if the participants believe that their meanings of the words they have used are *true representations* of fixed entities in an objective world apart from any speaker. If, instead, the participants take a constructivist view and assume that a language user's meanings cannot be anything but subjective constructs derived from the speaker's individual experiences, some accommodation and adaptation is usually possible.

From this perspective, the use of language in teaching is far more complicated than it is mostly presumed to be. It cannot be a means of *transferring* information or knowledge to the student. As Rorty says: "The activity of uttering sentences is one of the things people do in order to cope with their environment" (1982, p. XVII). In the teacher's case, language becomes a means of constraining and thus orienting the student's conceptual construction.

This inherent and inescapable indeterminacy of linguistic communication is something the best teachers have always known. Independently of any epistemological orientation, they were intuitively aware of the fact that 'telling' is not enough, because understanding is

not a matter of passively receiving but of actively building up. Yet many who are involved in educational activities continue to act as though it were reasonable to believe that the verbal reiteration of facts and principles must eventually generate the desired understanding on the part of students.

CONSEQUENCES FOR EDUCATION

The contemporary movements in the philosophy of science converge in the realization that knowledge must not be considered an objective representation of an external observer-independent environment or world. To paraphrase Rorty, the fact that scientific knowledge enables us to cope does not justify the belief that scientific knowledge provides a picture of the world that corresponds to an absolute reality. This stance tends to suggest a return to the sceptics' age-old assertion that we cannot attain certain knowledge about the world. Educators are traditionally averse to accepting such a view, and it is in this regard that pragmatism and constructivism may play a helpful role.

Both these orientations aim at overcoming the sceptics' pessimism, not by contradicting the assertion that objective knowledge is impossible, but by changing the concept of knowledge. Instead of presupposing that knowledge has to be a 'representation' of what exists, they posit knowledge as a mapping of what, in the light of human experience, turns out to be feasible. If the theory of knowing that constructivism builds up on this basis were adopted as a working hypothesis, it could bring about some rather profound changes in the general practice of education.

First of all, the distinction of utilitarian and epistemic instrumentality would sharpen the distinction between training and learning. It would help to separate the acquisition of skills, i.e., patterns of action, from the active construction of viable conceptual networks, i.e., understanding. Hence it would encourage educators to clarify the particular goals they want to attain. Curricula could be designed with more internal coherence and, consequently, would be more effective, once they deliberately separated the task of achieving a certain level of performance in a skill from that of generating conceptual understanding within a given problem area. There is no question that the old stand-bys 'rote learning' and 'repeated practice' have their value

in training, but it is naive to expect that they must also generate understanding.

The analysis of the process of linguistic communication shows that knowledge cannot simply be transferred by means of words. Verbally explaining a problem does not lead to understanding, unless the concepts the listener has associated with the linguistic components of the explanation are compatible with those the explainer has in mind. Hence it is essential that the teacher have an adequate model of the conceptual network within which the student assimilates what he or she is being told. Without such a model as basis, teaching is likely to remain a hit-or-miss affair.

From the constructivist perspective, 'learning' is the product of self-organization. Piaget's dictum "intelligence organizes the world by organizing itself" (1937, p. 311) was a challenge to direct the attention of psychologists to the question of how the rational mind organizes experience and to design a model of this process. His scheme theory, as I outlined it above, is an attempt to answer part of that question. It can be summarized in the statement: Knowledge is never acquired passively, because novelty cannot be handled except through assimilation to a cognitive structure the experiencing subject already has. Indeed, the subject does not perceive an experience as novel until it generates a perturbation relative to some expected result. Only at that point the experience may lead to an accommodation and thus to a novel conceptual structure that re-establishes a relative equilibrium. In this context, it is necessary to emphasize that the most frequent source of perturbations for the developing cognitive subject is the interaction with others.[5] This, indeed, is the reason why constructivist teachers of science and mathematics have been promoting 'group learning', a practice that lets two or three students discuss approaches to a given problem, with little or no interference from the teacher.

Insofar as learning and knowledge are instrumental in establishing and maintaining the cognizing subject's equilibrium, they are *adaptive*. Adaptedness, from the constructivist point of view, must be understood as the condition of fit or viability within external and internal constraints. Constraints, however, effect a negative selection. They block and thus determine what does *not* fit. They do not prescribe the character of what does not collide with them and therefore slips through. Once this way of thinking takes root, it

changes the teacher's view of 'problems' and their solution. No longer would it be possible to cling to the notion that a given task has one solution and only one way of arriving at it. The teacher would come to realize that what he or she presents as a 'problem' may be seen differently by the student. Consequently, the student may produce a sensible solution that makes no sense to the teacher. To be then told that it is *wrong* is unhelpful and inhibiting (even if the 'right' way is explained), because it disregards the effort the student put in. Indeed, such bleak corrections are bound to diminish the student's motivation in future attempts. In contrast, constructivist teachers would tend to explore how students see the problem and why their path towards a solution seemed promising to *them*. This in turn makes it possible to build up a hypothetical model of the student's conceptual network and to adapt instructional activity so that it provides occasions for accommodations that are actually within the student's reach.

Fleck's statement that I quoted at the beginning, to the effect that the choice of problems is subject to the 'style' of the scientific community, applies no less to the individual. The character and structure of what an individual *sees* as a problem is under all circumstances determined by the conceptual network and the goals of that individual. Once we adopt this as the working hypothesis, the question of motivation becomes accessible from a new direction. We may not have to do this as long as the subject matter we want to teach provides obvious advantages on the level of *utilitarian* instrumentality (although even there, it should be clear that what a teacher considers useful will not necessarily be considered useful by students). In the case of topics that pertain to *epistemic* instrumentality, the task of fostering motivation is obviously far more difficult. We shall have to make the students perceive the advantage of mastering conceptual models that have a wider range of applicability and success in their experiential world than the ones they have at the moment. More important still, we shall have to create at least some circumstances where the students have the possibility of experiencing the pleasure of finding that a conceptual model they have constructed is, in fact, an adequate and satisfying model in a new situation. Only the experience of such successes and the pleasure they provide can motivate a learner *intellectually* for the task of constructing further conceptual models.

It boils down to what Ceccato, the Italian pioneer of conceptual analysis, said in a talk about education years ago:

> The important thing is to show the child (and nothing changes if we substitute 'the student') the direction in which to go, to teach him to find his own path, to retrace it, and to continue it. Only in this way will he be able to assume a scientific attitude with which he can approach also the things of the mind. (1974, p. 137)

This constitutes a drastic modification of the usual procedure. Yet, where it has been tried, its results are startlingly successful.[6]

Recent developments in the philosophy of science have provided a more adequate way of thinking about how scientists proceed to devise better ways of 'coping' with the world of our experience; it should not be surprising that this analysis is applicable also to the process of education. Students may not have the same particular goals that scientists try to attain. But, unless we assume that they share, with the inventors and developers of the conceptual models we call science, the goal of constructing a relatively reliable and coherent model of their individual experiential worlds, we cannot lead them to expand their understanding. Memorizing facts and training in rote procedures cannot achieve this.

Good teachers, as I said before, have practised much of what is suggested here, without the benefit of an explicit theory of knowing. Their approach was intuitive and successful, and this exposition will not present anything to change their ways. But by supplying a theoretical foundation that seems compatible with what has worked in the past, constructivism may provide the thousands of less intuitive educators an accessible way to improve their methods of instruction.

NOTES

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[1] I am using 'objective' in this traditional philosophical sense and would not want it confused with the Humpty Dumpty-like definitions Siegel suggested in his 1982 article. Although he introduces a dichotomy, he does not separate the two most common uses of the word: (a) referring to knowledge that purports to describe the world as it is; and (b) knowledge that purports to be intersubjective.

[2] This notion of assimilation seems to be compatible with the view of philosophers of science who maintain that all observation is necessarily 'theory-laden'.

[3] Piaget nowhere lists these presuppositions, but they are implicit in his analysis of conceptual development (cf., for instances, Piaget 1937 and 1967b). Another implication of his theory is that none of these presupposed capabilities necessarily requires the subject's conscious awareness (see my 1982).

[4] Note that, even if the child has co-ordinated sensory signals to form such a 'thing' in the past, each new *recognition* involves isolating it in the current experiential field.

[5] Piaget was often criticized for not taking into account the social interaction of the child. This, I believe, sprang from the fact that his readers tacitly assumed that the social context in which a child develops affects the child in a way that must be essentially different from the physical one. Instead, when Piaget speaks of adaptation, it never excludes adaptation to others. But although he explicitly acknowledged social and especially linguistic interaction here and there in his writings (e.g., 1967b, p. 41), he was, as a rule, less interested in the source of perturbations than in the mechanisms for neutralizing them.

[6] Teaching methods that are explicitly constructivist have been documented for instance in Clement 1987; Cobb et al. 1987; Confrey 1984; Duckworth 1987; Lochhead 1983; Steffe 1986; Steffe et al. 1987; Treffers 1987.

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• *ABSTRACT*

This paper explores in some detail a semi-popular text written by Einstein to present his theory of relativity. Semiotic tools are used to compare what Einstein says about the activity of building spaces and times with what sociologists of science can tell us. Einstein's text is read as a contribution to the sociology of delegation. *Once the drama of Einstein's argument has been reconstructed, it is possible to learn from his theory of relativity something about the classical problem of 'relativity' in the STS field. A comparison is established between the notion of social context and that of the aether, and an argument is developed to lead us beyond 'social' explanations. The goal of such a semiotic study is twofold: to allow the adaptation of the strong programme to the peculiar conditions of the theoretical sciences; and to find a vocabulary for an activity best defined as* infra-physics.

A Relativistic Account of Einstein's Relativity

Bruno Latour

If the young field of social studies of science can be granted some degree of success in the empirical sciences and in theoretical physics, its achievements are far from impressive in the mathematical sciences. The more formalized a field of science, the less field studies there exist and the less convincing they are. Most are satisfied if they can show *some* degree of relationship between 'society' and 'content', but the bold claim of the strong programme — namely, that the content of any science is social through and through — remains a programme for future field studies.[1]

There are two ways of interpreting this relative failure. The first is to take it as the best proof that the strong programme is an empty claim. When it reaches the more abstract or formal aspects of science, it starts to lose its acumen — although not its pretence — because these aspects *are* indeed more and more remote from society and history (the word 'abstract' will be redefined below, pp. 31ff). The second way of interpreting this failure is to consider that the definition of 'society' brought into play in order to explain the sciences is unfit for the task. Given the

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apparatus familiar to sociologists, the explanation of the more abstract parts of science becomes ever more far-fetched, not because these parts of science escape from society, but because the apparatus is in itself much too crude. This in turn creates a positive feedback loop: every unconvincing explanation of the theoretical sciences offers grist to the mill of those who prefer the first interpretation. 'There is more to science than society,' says the latter, 'and the failure of the strong programme proves this clearly enough.'

In this paper, however, I want to pursue another tack: there is more to society than meets the eyes of social scientists. Instead of extending the social sciences' usual concepts to the natural sciences, I want to redefine these very social concepts in order to make them able to explain the more formal sciences. The task at hand is to keep the same strong programme, but to doubt what the social sciences have to say about society. It is in effect a two-pronged enterprise, one that treats the natural and the social sciences symmetrically.[2]

Limits of the Material

In a previous work,[3] I have shown that instead of extending our knowledge of French nineteenth-century society to Pasteur's bacteriology with very disappointing results, and with a view merely to explaining the most superficial aspects of his science, it was easier and faster to suspend our knowledge of French nineteenth-century society and to follow, in the very technical aspects of Pasteur's benchwork, how a new social link was forged. Instead of imposing a far-fetched *implicit* social interpretation of their interests on the actors, this approach displayed the *explicit* translation by the Pastorians of both a new society and a new science. The price to pay for such an approach was to give away the claim that sociologists and social historians know society well enough to explain the sciences. This price seemed to me a light one.

Pasteur, however, grounded as he was in the empirical sciences and being involved as he was in all aspects of contemporary industrial, economic, and practical activity, was an easy case. For this paper, I have chosen a more difficult case — that of Einstein's relativity theory. His reformulation of space and time is considered revolutionary, far removed from common sense and quite abstract. Social explanations of Einstein have limited themselves to his political activities and shunned the technical aspects of his theory. When they happen to deal with them, they are rather disappointing. Feuer, for instance, brings into play a whole battery

of social and psychological concepts — such as upbringing, milieu, intergenerational conflicts, race, religion and culture — just to account for the choice of the *word* 'relativity'.[4] He gives no indication of how relativity theory *itself* could be said to be social. The other reason for my choice is, of course, the tantalizing link that exists between the debates surrounding relativity in physics and those in social studies of science, my own discipline.

The present paper is limited to the study of the English version of one semi-popular work written by Einstein: *Relativity, the Special and the General Theory*.[5] Such a choice is a severe limitation, even though this book was carefully rewritten by Einstein over many years. The limitation, however, is not so great for our purpose, which is the following: in what ways can we, by reformulating the concept of society, see Einstein's work as *explicitly* social? A related question is: how can we learn from Einstein how to study society? If I fail in answering these questions on the semi-popular version, I will surely fail to show it on the more mathematical texts. If I succeed, it will not be a proof that I would have succeeded on the more technical texts. It will simply show that instead of looking for laborious social explanations, there is an easier and broader way to develop the strong programme, which has no reason to be limited to the experimental sciences.

Shifting Out and Shifting In

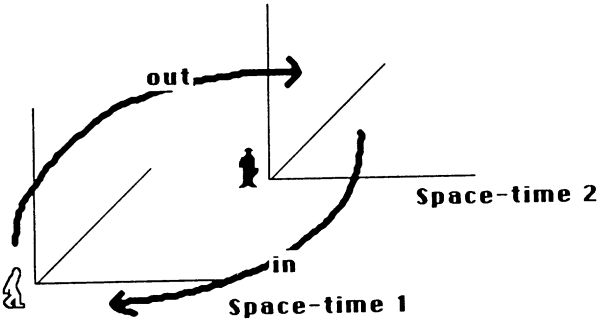
To study Einstein's argument, we first need to define a few basic tools for analyzing texts. But in order to make the argument lighter and to allow a reader, even one unfamiliar with Einstein's book, to follow my own narration, I have gathered most of the results into six Tables at the end of the paper (pp. 37–41).

One of the most elementary operations of any narration is what semioticians call *shifting out*,[6] as, for instance, when Agatha Christie writes: 'Hercule Poirot arrived at Paddington Station at 9 o'clock on Christmas Eve.' She asks the reader to shift their attention away from her, the writer (also called the enunciator), to a new actor (Poirot), operating elsewhere (at Paddington), at a different time (9 o'clock on Christmas Eve). These three types of shifting out (*actorial, spatial* and *temporal*) may be repeated, separately or together, by the author as many times as necessary — as, for example, when, in a dialogue, Poirot summarizes his adventures to the rather slow Hastings. Naturally, the actors (or more exactly *actants*) which are shifted out in this way need not be human characters: they can

be anything. For instance, in phrases like 'that train arrived in at seven o'clock' or 'scientific progress has always been valued everywhere', the three processes of shifting out are easily recognizable, 'train' and 'scientific progress' being actants like any other (see Table 2).

The converse operation is called *shifting in*, whereby the writer brings attention back to him or herself and gives the reader the impression — it is by definition never more than an impression — that the enunciator, the author and the 'I' who speaks in the text are one and the same character. To depict these two elementary movements, I will use the following diagram in which the two (or more) frames of reference mark different positions in space and time; the change in the little outlines from white to black signifies the shift from enunciator to actor; the two arrows to and from the enunciator, the shifting-in and shifting-out. The result of these two movements is to create characters which play the role of *delegates* for the main enunciator.

FIGURE 1
Shifting Out and In

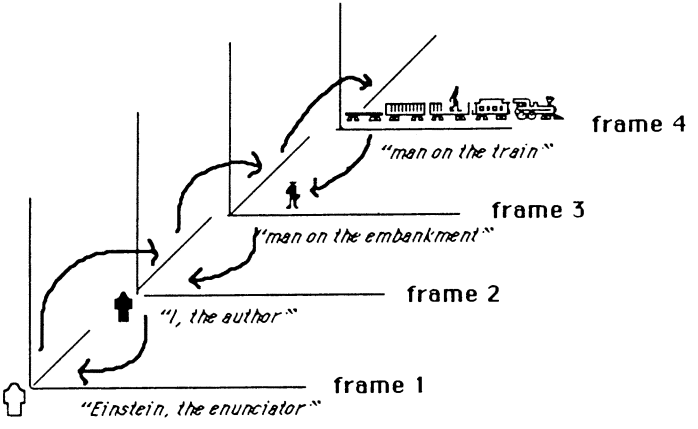


This figure illustrates the two basic semiotic operations: shifting out and in. For further explanation see text.

Since this operation of shifting in and out is common to all narrations, it is in no way limited to 'literary' texts. Einstein, the enunciator of the book under scrutiny, for instance, shifts out a first character, the author, who says 'I' and who may be seen as a personification of Einstein, and who talks to another delegated character, 'the reader' (see Table 1). then this character shifts out again by creating a 'man on the embankment', who does various things — including among them a third shifting-out, by imagining what a 'man in the train' would do and see. Later, each

of the characters shifts back in. All these operations, in which Einstein delights as much as any novelist (see Table 5), are easy to follow if we visualize them in a diagram like those in Figures 1 and 2.

FIGURE 2
Einstein's Delegation in Space and Time

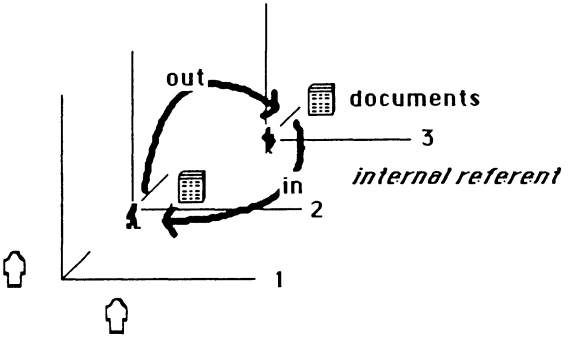


The shifting in and out of characters has one important effect on the reader. Any story — no matter how wild, bizarre and foolish — creates a certain type of *realism*, because of the constraints imposed on the actors. Even Count Dracula has to slip away safely into his coffin at dawn. The delegated characters impose constraints on one another in such a way that for a reader not everything is possible. An impression of resistance, that is of reality, is built by all stories. This built-in realism is called by semioticians the *internal referent*, to distinguish it from the *external referent* often thought to be the touchstone that allows fiction to be distinguished from accurate reporting. It is very important at this point not to push for any additional division between the various types of literature, especially between so-called 'fiction' and so-called 'science'.[7] All of them build an internal referent, but some of them choose to do so by giving the impression that the author possesses *documents* allowing him to support what he says. This realistic genre of storytelling is common to many novels, as well as to reporting and, of course, science. In such a genre, the authors offer proofs, in the text, that they have not made up the whole story, but that it is based on certain documents that can be seen or could be shown. If Hastings, in Agatha Christie's novel, says:

'I was most impressed by the list Poirot had made of all the potential suspects,' this builds an additional effect of realism into the text. This effect is reinforced if the author, shifting in one level below, actually shows the reader this impressive list, or tells us that it can be consulted in the manuscript 2345-B6H at the British Library. Thus if we actually go to the British Library and find the list of suspects, then we do not need to go any further to aver the reality of Poirot's case.

As I have shown elsewhere,[8] it is possible to define scientific literature stylistically by following how the authors, instead of alluding to documents, mobilize them in the text as so many *inscriptions* (tables, graphs, pictures, diagrams). It is even possible to decide if a narration pertains to a harder or a softer field of science by looking at the type of inscriptions and the way they are piled on top of one another so as to create, for the reader, the impression of a harder or softer reality.[9] To visualize this added realism in the diagram, I have chosen a symbol, □, that represents the type of written trace the delegated characters bring from one level of the story back to the one below. The 'adequation', or the coincidence between documents or inscriptions, is what we mean by reality, as far as semiotic theory is concerned.

FIGURE 3
The Realist Genre



The Figure illustrates how documents are brought back to the delegating frame of reference.

The shifting operations, and the building up of reality that ensues, have another important effect on the reader. While the enunciator and the reader (also called 'enunciatee') are both stuck to one portion of space and time and to one character (albeit unknown), the effect of the shifting-out

operation is to delegate them elsewhere in space and time under a different guise, and then, thanks to the shifting-in operation, to bring the delegated characters *back*. If there were no shifting, there would be no way of ever escaping from the narrow confines of *hic et nunc*, and no way of ever defining who the enunciator is. There would be utter silence. No science, no politics, no art would be possible. The delegation provided by the triple shifting — actorial, spatial and temporal — is the basis of every discourse. These simple semiotic tools allow us to follow precisely practices usually subsumed under the names of 'power', 'institution' and 'domination', as well as others such as 'instruments' and 'equations' which are thought to pertain to cognition. We can now understand why every argument that touches upon this problem of delegation (whether it be in science, in politics or in art) appears to be fundamental and so triggers passions, interests and fears.

The Practical Work of Framing Events

The peculiarity of Einstein's narration is not that it puts to use shifting in and out, since every narration does the same, but that it focuses the reader's attention upon these very operations. Although he takes the reader, at the beginning, to Trafalgar Square (p. 6), he is not interested in sending him to tail Hercule Poirot on to the train at Paddington, nor in observing how he solves a murder mystery. He is interested only in the way in which we send *any* actor to *any* other frame of reference. Instead of describing laws of nature, he sets out to describe how any description is possible. He does not tell a story inside some framework to which he has taken us, his readers, but he tells the story of how you *frame* any event, how you build any frame of reference. Technically, his book is about delegation and, like those of Greimas, for example, is a book of meta-linguistics or of semiotics, one which tries to understand how any narration is constructed.

Inscriptions

While Greimas and most semioticians are content with a definition of shifting that simply sends a character to a different space and to a different time,[10] Einstein's exclusive attention is focused on how we define that it is a *different* space and a *different* time in the first place. Playing the idiot, the author-in-the-text redefines what an event is, what a space and

a time are, by the practical activity of a little character holding firmly a rigid little rod (no cheap psychoanalysis intended) who superimposes the *readings* of the hands of watches and of the notches of rulers. From within the genre, common at this period, of Machian reduction of physical concepts,[11] Einstein's narration translates the abstract and given notions of space and time, in terms of a practice that locally generates spatial and temporal frames (see Table 3).

In the first chapter, 'the truth of a geometrical proposition' is translated into 'a construction with ruler and compasses' (p. 3). Then this practical construction is further translated:

> Every description of the scene of an event or of the position of an object in space is based on the specification of the point on a rigid body (body of reference) with which that event or object *coincides*. (p. 5; my emphasis)

Since this translation limits the observer to a small number of situations — the ones in which he can actually erect the scaffolding of rigid rods — he then constructs a wider scaffolding, the Cartesian coordinates:

> Referred to a system of co-ordinates, the scene of any event will be determined (for the main part) by the specification of the lengths of the three perpendiculars or co-ordinates (x, y, z) which can be dropped from the scene of the event to those three plane surfaces. The lengths of these three perpendiculars can be determined by a series of manipulations with rigid measuring rods performed according to the rules and methods laid down by Euclidean geometry. (p. 7)

The result of this transformation from abstraction into a concrete task of staging coordinates is to get rid of the notion of space:

> We entirely shun the vague word 'space', of which, we must honestly acknowledge, we cannot form the slightest conception... (p. 9)

Then to the hard and lowly work of building a rigid scaffolding to frame any event is added the practical management or at least *three* delegates shifted out in other frames of reference.[12] The illustration of the problem is again made in terms of a train — to which is added a falling stone, the primitive scene of physics since the Middle Ages. How can one decide whether an observation made in a train about the behaviour of a falling stone can be made to coincide with the observation made of the same falling stone from the embankment? If there are only one, or even *two*, frames of reference, no solution can be found since the man in the train claims he observes a straight line and the man on the embankment a parabola. Thus nothing tells us if it is the same stone acting according to the same law of physics. Each observer has 'its' — remember it is a

semiotic character in the text — own irreducible vision of the world. The characters may be shifted out, but not shifted back in, running the risk of falling into relativism. Einstein's solution is to consider *three* actors: one in the train, one on the embankment and a third one, the author or one of its representants, who tries to superimpose the coded observations sent back by the two others. The shifting-in of superimposable written records is feasible if the delegated observers are thoroughly disciplined and are forced to stick to much simpler tasks than the ones usually required from travellers and railway employees. They are not asked to tell what they see, but to write down the 'ticks' of the clocks and the notches of rulers they have been equipped with:

> We understand by the 'time' of an event the reading (position of the hands) of that one of these clocks which is in the immediate vicinity (in space) of the event. In this manner a time-value is associated with every event which is essentially capable of observation. (p. 24)

The meaning of space, that of time and that of a description is nil, if the relation that ties the delegated observers hearing ticks and superimposing notches to others to which they send written and coded reports is not specified. Any description has meaning only 'relative to a particular body of reference'; it is meaningless if the equipment, hierarchy, task and method of documentation of the delegated observers are not specified.

Instead of considering instruments (rulers and clocks) as ways of representing abstract notions like space and time, Einstein takes the instruments to be what *generates* space and time. Instead of space and time being represented through the mediation of the instruments, it is space and time which have always been representing the humble and hidden practice of superimposing notches, hands and coordinates. It must be said that the character portrayed by Einstein does a very similar job to that of an anthropologist of science who refuses to understand what 'space' and 'time' mean, and who focuses instead on work, practices and instruments. Like any constructivist in sociology of science, Einstein's first move in this text is to bring the abstractions back to the inscriptions and to the hard work of producing them. This shift of emphasis from abstraction to inscription will allow Einstein to transform the usual frame of the traditional Newtonian narrations into actants that can be altered (shortened, slowed down, elongated, rotated). What really *counts* in framing any scene is not space and time but other activities, like shifting out a delegated observer, bringing it back in, sending signals, superimposing traces, and so on. Instead of dominating all scenes, space and time are aspects of what is set up at the beginning of any scene.

Thus, the first originality of Einstein's text is to replace the shifting-out in space and time that every other narrator (including sociologists and semioticians) took for granted, by a slightly more complicated operation that requires at least three delegated observers equipped with clocks and rulers who send light signals and who then build up the stage of coordinates inside which the usual shiftings may later operate.

> Every reference-body (co-ordinate system) has its own particular time. Unless we are told the reference-body to which the statement of time refers, there is no meaning in a statement of the time of an event. (p. 26)

Meaning comes back to the story only when the metrological *work* is specified. The word 'relativity' applies whenever this former work that gives meaning back to the story is specified. (This point should be kept in mind because this is also the way we will define, below, the relativity of our own account.)

Subscriptions

Einstein, in this work, is not only obsessively interested in the staging of the very frames of references that allow spatial and temporal shifting-out, but he also focuses on the shifting-in. As I have said, it is not the former but only the latter that creates distinctions between fiction-writing and fact-writing. The confidence of the reader in the trustworthiness of the account increases if the author shows that it has the documents to guarantee what 'it' says. If these documents are inscriptions that can be superimposed on the narration, then confidence grows according to the number or quality of the documents and to the perfection of the fit. Such operations give the impression that there is an adequation between utterances, and what the utterances are about (this 'adequatio rei et intellectus' being the basis of most of our definitions of truth). Of course, this construction of an internal referent may be common to much narration. Even the scientific genre may be imitated as a literary effect by making up the inscriptions that prove that the story is not made up! This is common practice when some degree of realism is the goal.

There is, however, a final way of claiming to establish the trustworthiness of the account. This is by shifting in the *first* shifting-out — that is, by focusing the attention of the reader back to the enunciator's own setting.

Let us illustrate this crucial point. The reader of Agatha Christie's novel is asked to travel with Hercule Poirot to a different frame of

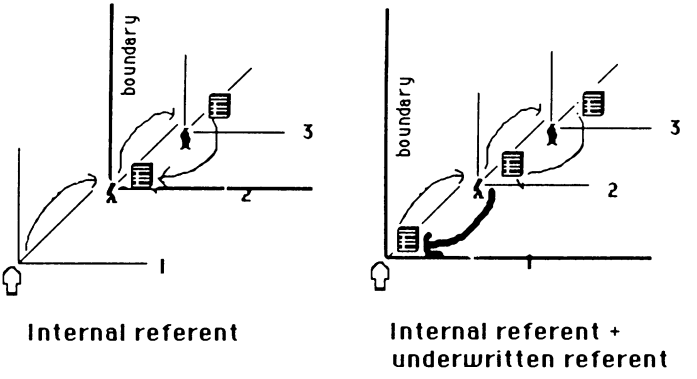
reference, much as the reader of an astronomy paper is asked to go 'out there' to the stars. When they begin to wonder whether it is a fiction or a real story, they are both asked to shift back to the many proofs that the authors have mobilized in their stories to build the internal referent. However, the reader of the novel is not supposed to go further back to Agatha Christie's office, and to see if Hercule Poirot has left traces of his passage that resemble *in some ways* what is in the novel. On the other hand, the reader of the astronomy paper is led to think that he could be permitted (although it would be a rare outcome) to come back to the astronomers' observatory and to *superimpose* the traces of the stars he has read about upon the traces present in the lab. If the reader's attention was shifted back in this way, his disappointment at finding nothing in the writer's office could not be taken against the fiction writer's craft — quite the contrary — but it would be the end of the scientific writer's credit. The internal referent of the text is complemented, asserted, evaluated by its adequation, fit, superimposition, to another referent that I will call *underwritten*[13] (or subscribed) because it is made of another set of inscriptions that establish the credibility of the ones used in the text to establish the reference of the narration.

This might be, in the end, the only distinction between 'literary' literature and scientific literature, but it is one that cannot be taken lightly. As the following diagram stresses, the possibility of this final shifting-in defines a different *boundary* for the narration. On the left-hand side of Figure 4 we have a text and the enunciator's setting is irrelevant; on the right-hand side, we have something slightly different from a text since the enunciator's setting, the laboratory, becomes essential — hence this idea that scientific papers are simply means of communicating information and do not relate to general literature.

Einstein is obsessed by the risk that the last shifting-in that creates the only final distinction between fiction-writing and fact-writing, becomes impossible. The dramatic intensity of his text depends in large part on the following dilemma: either we believe that there is a space and a time to which we can shift-out our delegated observers, but then, when we shift them back in, their reports are no longer superimposable; or we require that all their reports be superimposable, but then we have to abandon the idea that characters can be delegated in an unproblematic space and time (see Table 6).

The first branch of the dilemma leads to what is commonly referred to as 'relativism': each observer sees according to its own point of *view*; when the man on the embankment adds up velocities, the total is not the same as for the man in the train; each actor has its own irreducibly

FIGURE 4
The Underwritten Referent



When the underwritten referent is added to the discourse, the divide between fiction and science is moved down one level.

subjective point of view, which means that all points of view are equally privileged, which means that the enunciator cannot prove that what he says is based on superimposable inscriptions. Of taste and colours, one does not discuss. Texts are always, in the end, points of views, opinions, interpretations — that is to say, fictions.

It is the second branch of the dilemma that will lead to relativity, which is the exact opposite of relativism, as many commentators of Einstein have pointed out. The delegated actor has no personal point of view; when the man on the embankment adds up velocities the total adds up exactly to what the man in the train has summed up, at least in the hands of the third observer, the narrator of this text; there is no privileged point of view; which means that no matter how far away I delegate the observers, they all send back superimposable reports that establish my credibility; which means that it is possible to escape from fiction. We understand the intensity of the efforts, of the reflection, even of the passions triggered by this meta-scientific text: what is at stake here is the final boundary between fact and fiction. The ability of semiotics to be extended to science depends on its ability to deal with this reference that underwrites the inscriptions commented in a text.[14]

Transcriptions

The frequent confusion of relativism and relativity is amusing because it is the fierce fight between the two that gives Einstein's text much of

its impetus (see Table 6). To understand this point, we should turn our attention not to temporal or spatial shifting, as we have just done, but to the third kind, called 'actorial' shifting. The question is to decide if the shifted-out actors have personal points of view or not. If yes, then you can't shift them back in, since they will all present unequivalent versions of the scenes they have observed. If no, then you are indeed able to shift all of them back in. They will all come back with equivalent versions of the scenes they have been delegated to observe. In the first case, they are shifted out and independent; in the other, they are also shifted out but are completely dependent.

However, it is only when the enunciator's *gain* is taken into account that the difference between relativism and relativity reveals its deeper meaning. If the actors are all independent, each with its own irreducible point of view, the enunciator has no privilege. What is the consequence if the actors have no personality, are all dependent, if they have points of view that can be easily reduced to the enunciator's? It is the enunciator that has the privilege of accumulating all the descriptions of all the scenes he has delegated observers to. The above dilemma boils down to a struggle for the control of privileges, for the disciplining of docile bodies, as Foucault would have said.

What appears confusing in Einstein's text, as well as in the opposition between relativism and relativity, is this apparent paradox: if there exist many points of view each claiming to be privileged, no one of them can get an edge over all the others; if, on the contrary, there are no privileged points of view, this means that there is nothing to prevent one of them getting an edge over all the others. We are, in our daily practice, quite clever at handling this seeming paradox — not in physics, to be sure, but in economics. It is the same paradox as that of liberalism. As long as any movement of goods, money or people is interrupted by many local franchises, protections, tariffs, feudal systems, particular regulations, traditions, irreducible cultures, it is impossible to capitalize on any large scale. 'Laissez-faire laissez-passer' is a necessary precondition for large-scale capitalization. Of course there is a price to pay — abandonment of protection, of tariffs, of special ad hoc regulations — but the payoff is worth it for those who can profit from the weakening of others' barriers.

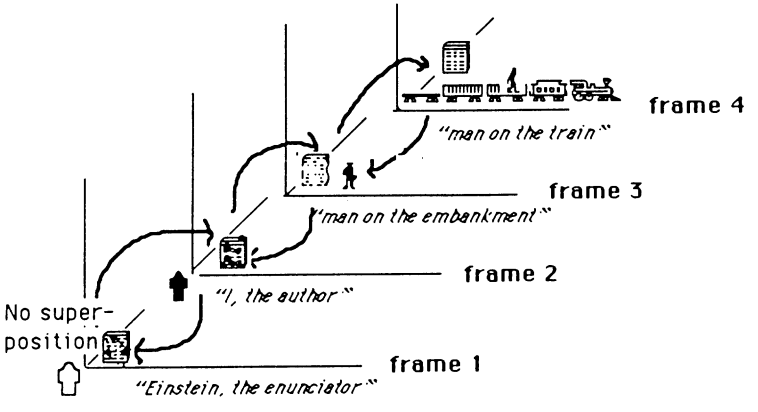
In Einstein's text, we also have to grasp the same relation between two seemingly contradictory slogans: no privileged point of view; no independent observer. The choice given us by Einstein is between the *deformation* of the reports sent by the observers — relativism — or the *transformation* of these reports — relativity. The same attention Einstein

FIGURE 5
Relativism *versus* Relativity

Relativism	**Relativity**
Privileged points of view	No privileged points of view
Independent observers	Dependent observers
Unequivalence of observations	Equivalence of observations
No superimposition of traces	Superimposition of traces
Enunciator has no privilege	Enunciator gains in the end
No large-scale privilege	Large-scale privileges
No possible omniscience	Omniscience is possible

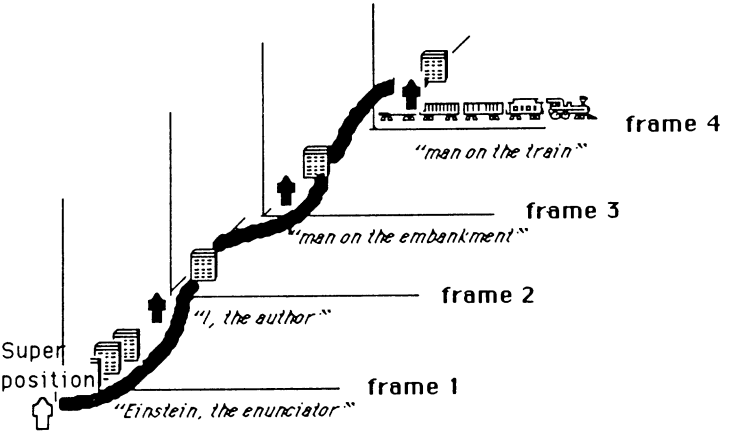
paid to setting up the instruments (clocks and rulers) is now paid to the *transcription* of the reports sent by the delegated actors. Either the reports are sent without retranscription and they cannot be superimposed once they are all gathered back in the enunciator's lab; or they are retranscribed and they are then fully superimposable. Either each report is deformed and it seems that each observer has its own view of the scene; or each report is transformed and it appears that no observer has its own peculiar point of view. In the first case, the enunciator is just one among many other observers, stuck as much as they are in one frame of reference since no frame is equivalent to any other; in the second, it is *as if* he was freely travelling from one frame to another, since all frames have been rendered equivalent. I have portrayed the two branches of the dilemma thus:

FIGURE 6
Relativism



With relativism, each frame of reference has its own definition of its actions; the enunciator thus cannot gather any superimposable document.

FIGURE 7
Relativity

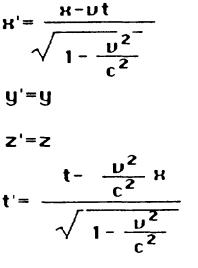


With relativity, a transversal path is established in between frames of reference which no longer have their own irreducible points of view; thus it is possible for the enunciator to capitalize on superimposable reports.

In the first solution, shifting in and out may be interrupted at any point, since the man in the train and the man on the embankment send different messages about what happens in their frame of reference. In the second solution, the enunciator cannot be betrayed by anyone. The impersonal delegated observers work for him and for him only, sending perfectly superimposable documents. As stressed in the pictures, what counts in the first solution is the series of shifted frames of reference, whereas, in the second, what counts above all is the *transversal* path established in between frames. Nothing interrupts the free movement of the enunciator — he can expand from one frame to another. There is no longer any one frame that might be used as a rigid and stable reference, into which confidence is vested; confidence is now put into the transversal link that allows all frames, no matter how unstable and pliable, to be *aligned.* Instead of a complicated gear to shift every frame of reference out and in, there is only one transformation. To take a still simpler metaphor, the first solution is like going on foot through bumpy and unknown fields that have no beaten path; the second is like following a highway. To the constant negotiations through inequivalent and irreducible frames, relativity leads us to a non-negotiated travel from one equivalence to the next.

Given the importance of the gain, the *paperwork* imposed by the retranscription of each document appears quite light. Given any set of coordinates, x, y, z and t sent by any one of the delegated observers, it is possible for the enunciator to shift them back in his own frame of reference by substituting each coordinate with another, through the set of equations known as a 'Lorentz transformation'.

FIGURE 8
The Lorentz Transformation



The Lorentz transformation defines the paperwork necessary to move documents from one frame to the other and still maintain superimposition of traces at the end.

In the case, at least, of observers sent to unaccelerated frames of reference, the Lorentz transformation is a way of shifting out and in without having to lose, in the jump, the documents gathered by the delegated actors. What semioticians call without further ado 'shifting out and in', because they mostly consider narrations that are content to be read as text and fiction, is offered a precise meaning by Einstein because he studies narrations that he wants to *distinguish* from texts and fictions. The choice between deformation without transformation — relativism — or transformation and stability of the form — relativity — is nicely summed up on p. 47:

> Every general law of nature must be so constituted that it is *transformed* into a law of exactly *the same form* when, instead of the space-time variables x, y, z, t of the original co-ordinate system k, we introduce new space-time variables x', y', z', t' of a co-ordinate system k'. In this connection the relation between the ordinary and the accented magnitudes is given by the Lorentz transformation. Or in brief: General laws of nature are co-variant with respect to Lorentz transformation. (My stress)

Later in the text, when the problem will be to send accounts of observations from accelerated frames of reference, more transformations than

this simple paperwork will be required, but the goal will be the same (see Table 6): in order to maintain the stable equivalent form of all observations, more and more transformations and retranscriptions are necessary. The rigid Cartesian coordinates used so far to control the behaviour of delegates is replaced by a less rigid but much finer mesh, the Gaussian coordinates, of which the Cartesian are only a particular case.

> According to the special theory of relativity, the equations which express the general laws of nature *pass over* into equations of the *same forms* when, by making use of the Lorentz transformation, we replace the space-time variables x, y, z, t, of a (Galilean) reference-body by the space-time variables x', y', z', t', of a new reference body K'. According to the general theory of relativity, on the other hand, by application of *arbitrary substitutions* of the Gauss variables x_1, x_2, x_3, x_4, the equations must *pass over* into equations of the *same form*. (p. 98, my stress)

The devil take the rigidity and stability of the frames of reference, provided the delegated observers have no privileged point of view and send in*form*ation which is not de*form*ed. At the end of his text Einstein, abandoning any sort of rigidity of the frames, devises what he calls a 'mollusc of reference'. It is this mollusc that allows the enunciator to send delegates anywhere at any speed and still get back usable observation that maintains the forms of the description intact and stable:

> Every point on the mollusc is treated as a space-point, and every material point which is at rest relatively to it is at rest, so long as the mollusc is considered as reference body. The general principle of relativity requires that all these molluscs can be used as reference-bodies with equal right and equal success in the formulation of the general laws of nature; the laws themselves must be quite independent of the choice of the mollusc. (p. 99)

Either the laws are dependent on the choice of independent observers, or the observers are made dependent, thus rendering the laws independent. The ability of the delegated observers to send superimposable reports is made possible by their utter dependence and even stupidity. The only thing required of them is to watch the hands of their clocks closely and obstinately:

> These clocks satisfy only one condition, that the 'readings' which are observed simultaneously on adjacent clocks (in space) differ from each other by an indefinitely small amount. (p. 99)

That is the price to pay for the freedom and credibility of the enunciator.

In this book, Einstein's fiddling with time and space does not lead, as we can now see, to the metaphysics often triggered by his writings, but to an *infra-physics* of crucial importance for the sociology of science. Instead of frames of reference, we are presented with the practical work of setting up frames; instead of characters, we now see the hard work of disciplining and managing delegated observers and instruments; instead of taking information for granted, the encoding and decoding of information are now made visible. Inscriptions, subscriptions, transcriptions: the word 'relativity' refers to this lowly work of building and relating frames to one another in such a way that some kind of stable form can be maintained which can, then, be cumulated, combined and superimposed at some point.

The Limits of a Social Explanation

What does it mean to offer a social and political explanation of Einstein's definition of relativity? If, by political and social, we mean that the technical work of Einstein should be translated into *another* language in which words such as 'groups', 'classes', 'interests', 'cultures' are said to be what is really present *beneath* the words 'trains', 'embankment', 'stars', 'Gaussian coordinates', or 'Minkowski four-dimensional space', a social explanation would be meaningless. Einstein's work is not reducible to the work done, in other domains, by economists, historians, sociologists and ideologists. Nothing is hidden beneath, reflected by, represented through, mirrored in, alluded to by his technical work. Should we thus conclude that his work is so technical and abstract that it escapes from our world and pertains only to physics with no relation to anything else? Certainly not. This alternative between two technical languages for two scientific professions — social scientists and physicists — is precisely what this paper aims to avoid.

On the other hand, if, by a social explanation, we mean that we can learn from the technical part of Einstein's argument something about the way society is built, we might start to approach such an explanation. It is clear, for a start, that the various ways of shifting, the management of delegates, the question of their faithfulness, the difference between fact-writing and fiction-writing, the displacement without deformation, the building of equivalences, the keeping up of metrological chains — all these problems are *common* to many disciplines and activities, and cut across what is abstract and what is concrete, what is scientific and what is daily practice, what is political and what is technical. For

instance, the Smithsonian Institution, in the middle of the nineteenth century, had similar problems in building up meteorological phenomena. How to obtain in Washington a map of tornadoes?[15] By recruiting 600 correspondents spread around the country. This recruitment drive is only one little part of the task, because it is then necessary to discipline them in such a way that they fill in usable forms that make sense once gathered in the Washington office. It is especially important to make sure that they make their readings at the same time every day, at the same place. 'Weather missionaries' are sent around to make sure correspondents are dedicated and faithful. This is not an easy task, especially if one bears in mind that the same people are often asked to send to the same Institution stuffed animals, plants, specimens of all sorts, which means that they have to roam around the country as much as possible.[16] The practical question of obtaining at the same time fixed dedicated weathermen and mobile dedicated naturalists is enormous, and is as much part of the building of an institution as is Einstein's meta-discourse on how to discipline any observer sent to any frame of reference.

It is to accommodate many examples of such a problem that I have proposed considering history of science as the history of centres which are growing through the management of traces that have three main characteristics: they are as mobile, as immutable and faithful, and as combinable as possible. The circulation back and forth of these 'immutable mobiles' trace *networks* — that is to say, two-way paths leading from the centre to the now-dominated frames. These networks are constantly repaired against interruption by maintaining *metrological chains* that keep the frames equivalent. To define these centres in the most general way, I have called them *centres of calculation*.[17] The main point of their history is that no distinction has to be made between economics, science, technics or even the arts, when we follow how each of their three characteristics is enforced. Contributions to this common history may be made by historians of perspective, of print, of art, of technics, of expeditions, of economics, and so on. From this point of view, no distinction has to be made, either, between 'abstract' thinking and 'practical' activities. The immutability of the mobilized traces is as much enhanced when a naturalist imagines a new way of naturalizing killed bears, as when Laplace invents a new way of calculating error variations in astronomers' readings. The mobility of the traces is as much favoured when a new satellite link is established between two data banks as when Linnaeus devises a new way of coding any plant with two Latin words. The combinability of the traces is as much enhanced when a Computer Assisted Design engineer fuses on the same screen the shapes

of a car's parts and their price, as when Monge invents a way of merging descriptive geometry and fortress defilading. It is because of the links between these innovations in various domains that centres may also be called 'centres of capitalization'.

Obviously, Einstein is both a latecomer in this long history and a significant contributor to it. His obsession with transporting *in*formation through *trans*formations without *de*formation; his passion for the precise superimposition of readings; his panic at the idea that observers sent away might betray, might retain privileges, and send reports that could not be used to expand our knowledge; his desire to discipline the delegated observers and to turn them into dependent pieces of apparatus that do nothing but watch the coincidence of hands and notches; even his readiness to jettison what common sense cherishes provided the equivalence of all metrological chains be saved. Thus it is easy to see in what way Einstein's work pertains to this general history.

To assess his role in this history of centres of calculation, there might be another and more straightforward way than to dig in his cultural milieu, or to see if the economic infrastructure of turn-of-the-century capitalism could in some distorted and far-fetched way be 'mirrored' in what he does. What Einstein does for the centres he does directly and without mediation. He says in this text that, if the special and general relativity are not accepted, there is a risk. The risk is that the reports sent by observers delegated to frames of reference which are closer to the speed of light, or violently accelerated, be made useless. What he proposes is a series of 'minor' innovations in the way we delegate observers, discipline their information, decode their messages and translate their representations. They are minor innovations since they are inserted in a vast and long history of centres of calculation, and remain meaningless without it. Still, they are innovations that are to be taken seriously if these centres decide to resume their travels to frames that are accelerated or close to the speed of light. Einstein's invention may not be new and important enough to trigger the great organ of metaphysics, but it is not insignificant enough to be simply reduced to the earlier solutions offered by the centres to 'long-distance travel'. We should strike a precise balance between overstating his solution (revolution in space and time 'out there') and underrating it (conservation of the centres 'down here'). The balance should be something like this: provided the two relativities are accepted, more frames of reference with less privilege can be accessed, reduced, accumulated and combined, observers can be delegated to a few more places in the infinitely large (the cosmos) and the infinitely small (electrons), and the readings they send will be understandable. His

book could well be titled: 'New Instructions for Bringing Back Long-Distance Scientific Travellers'.

To weigh the importance of centres of calculation, there is no better way than to measure what Einstein is ready to jettison in order for them to go on at an expanded rate and scale. Why does maintaining equivalent observers have such paramount importance that everything else should be made subservient to it? (See Table 6). I indicated above the solution to this question by the comparison with liberalism. This comparison was simply a metaphor to help grasp the seeming paradox that ties the fight against privileges with the increase of privileges. It is time to see how these fights against privileges in economics or in physics are literally, and not metaphorically, the same. If the man in the train sees different things than the man on the embankment — this difference being made visible by the lack of fit when superimposing the two reports — it means that there is no gain to be made for the second by dealing with the first. Each has its own autonomous life, its own view of the world, its own evaluation of quantities. Each, in other words, is as weak or as strong as any other. There is no delegation, no agreed chain of command, but a democracy of points of view where every one sees the others as so many undisciplined and intractable bodies. If, on the other hand, the man in the train describes scenes according to instruments which, after a few transformations, are made equivalent to the ones seen by the man on the embankment, this means that the latter will gain something. Without being on the train, the man on the embankment will have 'its' point of view *plus* another one compatible and addable to the first. Of course, it is not the man on the embankment that we care about, but the enunciator, the last one in the list, for whom the others are cat's paws. In other words, if it is possible to make all frames of reference equivalent (with respect to a few transformations) it is possible to *accumulate* all the others in the last frame.

Who is going to benefit from sending all these delegated observers to the embankment, trains, rays of light, sun, nearby stars, accelerated lifts, the confines of cosmos? If relativism is right, each one of them will benefit as much as any other. If relativity is right, only *one* of them (that is, the enunciator, Einstein or some other physicist) will be able to accumulate in one place (his laboratory, his office) the documents, reports and measurements sent back by all his delegates. Relativity draws the design of a centre of calculation from which, and to which, paths lead. It is not his privileged point of view that gives a centre any superiority over other locations, but its rejection of any privilege to any local point of view including its own, thus permitting the gathering in one

point of all the superimposable traces. It is not because it has a better view of the clouds from its windows that the Smithsonian is better able to build up meteorological maps, but because, instead of looking through the windows, they look at the weathermen's reports inside dark offices.

This rejection of some privileges in order to shore up some others, throws a rather new light on the usual argument that Einstein is a revolutionary. Scientific revolutionaries are often portrayed as bold thinkers who break away from common sense. In Einstein's case, the breaking away from Galilean frames of reference, from Newtonian absolute space and time, the audacity with which he shortens rulers, slows down clocks, curves space and gets rid of gravity, makes him indeed the epitome of a revolutionary in science. It is because of this audacity that social and contextual explanations try to sneak into the physics. Einstein, it is said, was an outcast immersed in a revolutionary culture and milieu, and his flamboyant political views do nothing to contradict these social explanations. The notion of scientific revolutions should, however, be taken with a grain of salt; so, for that matter, should that of political revolutions.[18] Instead of marvelling at how revolutionaries become latter-day conservatives, it would be better to see first if there is such a thing as a revolutionary breaking away from orthodoxy.

In the text under scrutiny, the author never presents us with a break from the usual ways of thinking, but with a choice between two ills: either we maintain absolute space and time and the laws of nature become different in different places; or we maintain the equivalence of the laws of nature, and we 'discard' (p. 27) absolute space and time. The question is not how to revolutionize our thinking but how to maintain, to conserve, to stabilize, to rigidify, one thing that appears more important than anything else. The author is not calling us to an upheaval of physics, but to get rid of a few minor points — aether, simultaneity — so as to let physics go on its ancient way on an expanded scale. The drama he unfolds is not that of a revolution but that of the testing and selection of the *weakest point* that should give way for everything else to be maintained (see Table 6).

> In view of this dilemma there appears to be nothing else for it than to abandon either the principle of relativity or the simple law of the propagation of light *in vacuo*. Those of you who have carefully followed the preceding discussion are almost sure to expect that we should retain the principle of relativity, which appeals so convincingly to the intellect because it is so natural and simple. The law of propagation of light *in vacuo* would then have to be replaced by a more complicated law conformable to the principle of relativity. The development of theoretical physics shows, however, that we cannot pursue this course. . . Prominent theoretical physicists were therefore more inclined

> to reject the principle of relativity, in spite of the fact that no empirical data had been found which were contradictory to this principle.
>
> At this juncture the theory of relativity entered the arena. As a result of an analysis of time and space, it became evident that *in reality there is not the least incompatibility between the principle of relativity and the law of propagation of light* [E.'s italics] and that by systematically *holding fast* to both these laws a logically *rigid* theory could be arrived at. (p. 19, my stress)

Strange revolutionary indeed that sacrifices a belief in order to build a rigid theory that maintains two of the physicists' most cherished beliefs intact! If Einstein is a revolutionary, it is in the same way as the Prince Salina, who wished to change everything so that everything remained the same. If Einstein appears to breach an important principle, this simply means that something *more* important is thereby conserved. The question to be asked is this: given what Einstein wishes to maintain, what should rather be sacrificed? Hence in this case, it is no use trying to distinguish revolutionaries from conservatives — and thus it might be a waste of time to search Einstein's Swiss milieu for revolutionary influences. In the trial of forces displayed in the above quotation, one weaker link is going to break; the stronger links which are thus fortified and expanded are what need watching.

An argument is not social because it deals with society and groups; it is social when it tries out which ties are stronger and which ones are weaker. This is why the more meta-linguistic, the more abstract, the more theoretical is a study, the closer we are to the *explicit* analysis of the three characters of immutability, mobility and combinability, and the easier it is to offer an explanation of it in terms of centres of calculation. I started by saying that empirical sciences appeared easier for sociologists than more theoretical ones. We can now see that the case is exactly the opposite. Social studies of science, far from being limited to the empirical disciplines, are better equipped for the more formal ones because these disciplines offer, in a way, a simpler, more direct, and more explicit case. When we get to texts, such as Einstein's, which talk about the ways of describing any possible experience, we are *closer* to our sociology, not farther from it. That closeness depends, of course, on the previous work of redefinition done on sociology itself.

It is now clear that we no longer call 'social' some translation that would replace the vocabulary of physicists by the vocabulary of sociologists, but rather one that forges a hybrid vocabulary that makes the speed of light c, or the Lorentz transformation, part of the normal business of building a society, while it makes the rôle of the enunciator and of centres of calculation part of the normal business of elaborating a scientific

revolution in physics. This means, of course, that we, sociologists, do not know in advance what society is made of. As Mike Lynch has demonstrated,[19] this admission of ignorance is the only way of getting further inside the sciences.

A Relativistic Solution to the Problem of Social Context

The main consequences of Einstein's infra-physics, and of the peculiar explanation in terms of immutable mobiles I have provided of it, is to raise anew two related problems: what does it mean to talk about the social context of a science? What does it mean to 'socially explain' a science? The second question, which is easier, will be used to solve the first, more tricky one. Explaining a science means that we should be able to establish with it more *equal* relations in such a way that we learn from it about society and use our own discipline to teach a few things to the science we are dealing with.[20] This more equal status should be our touchstone even though, in the case of physics, such a programme may appear ludicrous. The fecundity of an account in this newly redefined strong programme will be assessed by our ability to transform the definition of social until it is *on a par* with the very content of the science studied, and exchanges properties with it. One example of such an exchange is to formulate questions like this one: can we, sociologists, learn about our relativism from Einstein's relativity?

The principle of relativity (Galileo's argument that movement is as nothing), the special and the general theories of relativity, are various ways of giving back *meanings* to descriptions. The *work* of setting up instruments, taking readings, framing coordinates, shifting out and in, transcribing messages, establishing equivalences is what offers meaning. This is what Einstein calls 'relativity', and what he opposes to 'relativism'. Absolutism and relativism are tied to one another, while relativity reestablishes reality by giving up absolutism.

What is the case in social studies of science? It is exactly parallel. We fight against absolute definitions of science; we refuse meaning to any description that does not portray the *work* of setting up laboratories, inscription devices, networks; we always relate the word 'reality' to the specific trials inside specific laboratories and specific networks that measure up the resistance of some actants. Is this a weakening of the concept of reality? Is this relativism in the sense that all accounts would be irreducible, untranslatable, and unrelated? No, in spite of our critiques — and to be fair, in spite of a few of our early claims[21] — it is not. We are no more relativist that Einstein, and for the same reason. By

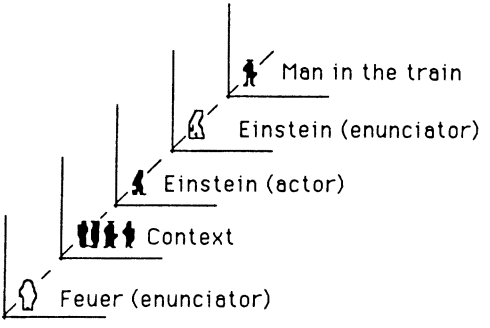
fighting absolute definitions of observations that do not specify the practical work and material networks that give them meaning, we take as seriously as everyone else the construction of reality — indeed, we might be the only one to take it seriously *enough*.

Is it then possible to use Einstein's argument to reformulate our relativity in such a way that it is made as clearly different from relativism as Einstein's? To tackle this most difficult point we have to go back to the actorial shift described above, and to what creates the distinction between fact-writing and fiction-writing. Einstein, in his text, populates his world with many actants: ravens, trains, clouds, men with rigid rods, lifts, marble tables, *c*, molluscs, and of course clocks and rulers — see Table 2. Although we are dealing with what is called the 'content' of Einstein's book we, the readers, are meeting a great many figures who do all sorts of actions. Semiotics is the study of these figures and actions. What happens if we go *outside* of Einstein's text — let's say to Feuer's? We find new characters like Einstein's parents, the Olympia Academy, Ernst Mach, fin-de-siècle Europe, conflicts of generation, and so on. We also find Albert Einstein. Instead of being the enunciator and author of the text under study, he is now the object of Feuer's explanation, a real man in his social and cultural context. Sociology, social history or psycho-sociology are some of the names of the disciplines which study such characters and social contexts.

Now, let us ponder what the relation is between the inside characters and the outside ones. This amounts to following up Einstein's question, 'What is the relation between the man on the train and the man on the embankment?', with this question: 'What is the relation between Einstein, enunciator of his text, and Albert Einstein in Feuer's story?' The two relations are precisely the same. No matter how 'outside' and 'contextual' and 'historical' Feuer may wish it to be, his Albert Einstein is a shifted-out character *inside* his text exactly as the man in the train is in Einstein's text. No matter how sociologists and historians love to put texts, ideas, and events *in* their context, this context is always made up of shifted characters inside another text. They can *add* one text to another, but not *escape* from it. We have access to co-texts not to context.

This is the basis of what has been called 'the semiotic turn': nothing can be said of the enunciator of a narration if not in a narration where the enunciator becomes a shifted-out character. In consequence, there is no difference to be made in principle, between internal sociology — how to manage the population of actants that make up the *content* of a text — and external sociology — how to manage the population of actants that make up the *context* of a text. This is not to say that many

FIGURE 9
Co-Texts, not Context



The creation of a context in which Einstein is put follows the same rules as those by which Einstein creates delegated characters in his own account.

distinctions of style, genre, richness, conviction, quality, cannot be drawn between texts. It simply means that a statement about 'the pragmatic context of an utterance' is as devoid of meaning as the statement of a state of motion without specification of the coordinates.

The two principles, that of Einstein's relativity and that of semiotics, are one and the same. They both state that to talk of an *external* referent independently of the structure of the report is devoid of meaning. They both state that we are always in between at least two frames and that the deeper we go into physics and cosmology the more we should examine the conditions of the narration that stage these frames. They both state that an effect of reality is built in by the superimposition of reports sent from at least two frames of reference to a third one.

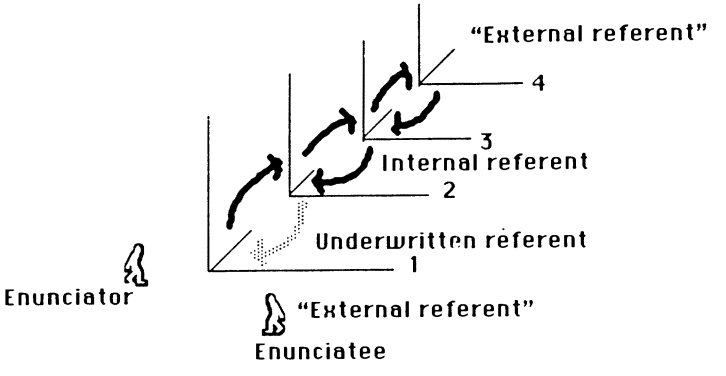
Why is the first one accepted with gratitude while the other is greeted with horror, by natural as well as by social scientists? It is simply that the opposition between relativism and relativity which is so clear in the case of Einstein has not been made as clear in the case of semiotics. The reason for this lack of clarity is to be sought through the question of the referent.

The introduction of relativity is not a way for Einstein to weaken reality — that is adequation with a referent — but the only way to strengthen it. Why? Because, as I have shown above, when you shift in, it allows you to obtain a new fit between superimposed reports that you would not get were you to reject relativity. The internal referent is then assessed by what I called above the 'underwritten referent'. Of course, the price

to pay for this added realism is the abandonment of the external referent, which is an effect of the discourse on the reader.

Now, when we, social students of science, say that there is no distinction of principle between context and content, we do not mean to say that all narrations pertain to the genre of fiction-writing, or even that all descriptions are simply 'texts' — as French deconstructionists are often prone to claim. We simply say that by shifting out and in, sociologists, historians, and social scientists in general, build up *internal* referents as much as any other realist writers. We only repeat that the external referent is an effect of these discourses over their readers. When Feuer creates Albert Einstein by shifting out a character of that name, he mobilizes documents of all sorts to give the impression that his story is not made up. Is this an impression only? It is impossible to go beyond narration and beyond some superimposition of documents in order to answer the question. Does this mean that there is no touchstone to decide if Feuer's book fits in any way the reality of Einstein's youth and background? No. Any more than relativity means a breakdown of communications between the man in the train and the man in the embankment — quite the contrary.

FIGURE 10
Three Types of Referent



Three types of referent can be distinguished; the impression of an external referent 'out there' is obtained 'down there' by the superimposition of the underwritten referent with the internal referent.

In both cases the only path that is left open is that of the underwritten referent. Can you shift in all the way back to Feuer's office

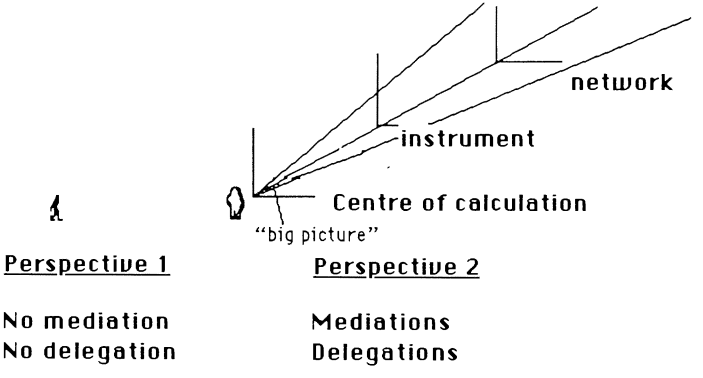
and superimpose in some way the documents he mobilizes in his text with others? If no, then the boundary of the narration is such that you have only a text; from the text to the enunciator there is a *non sequitur*, a gap. If yes, then what happens? The boundary of the text is stretched further in; there is continuity, a network is in place. But who does such a verification? Who goes to the office of the writer to check this ultimate superimposition? *Another scientist*, another writer who is busy expanding still another network by establishing a continuous link between the inscriptions mobilized in his text and what a potential reader could wish to see in his office, were he to check, and so on. In other words, there are three things we cannot escape from: discourses, inscription devices and networks — that is, infra-physics. This argument is common to Einstein's theory and to our 'social' explanation of it.

In other words, 'social context' in current social studies of science plays the same sort of role as 'aether' for turn-of-the-century physics.[22] This vast social structure that would somehow surround networks and seems necessary to provide a firm foundation to sociologists' explanations is no more provable and no more necessary than this subtle and infinitely elastic milieu that physicists firmly defended for over a generation to establish the firm foundation of *their* explanations. Sociologists always want to add the social context, and they think that in a case study something is amiss if there is no larger-scale entity to explain the whole thing. In practice, however, the characters presented in their accounts, and which bear the name of 'social structure' 'longue durée', 'large-scale influences', 'overarching interests', and the like, are not bigger than the little ones they try to explain. A giant in a story is not a bigger character than a dwarf, it just does different things. The same two-metre-square painting may represent a battlefield or an apple; no one will say that the first is bigger and more encompassing than the second. *Size is not a property of characters, only of networks and of their relations.* Society, in the accounts of sociologists, might not be much bigger than a pumpkin — at least if we judge from the evocative gestures they make when they talk of the 'big picture'!

We can gather that this 'aether' is entirely unnecessary for sociologists from this simple argument: were we really to step outside of accounts related to one another in a manner of a network, we would be limited to the narrowest of all possible point of views, our own *hic et nunc* vision of the world. If we want to see the 'big picture', we have to be in touch with some sort of an inscription device that, through many mediations, elaborates locally and *inside* a network, a projected picture. If we step outside to be in touch with the real context — the reality outside of any

narration, any network, and any discourse — this is to be *limited* to one point of view, to the smallest picture, to what we see from our own unaided and unmediated body. Either the 'big picture' is very tiny but related to a long network that makes it really big, or the 'big picture' is unrelated to any instrument and is really very, very small (see Figure 11). Away from the work of inscriptions, subscriptions and transcriptions, no shifting in and out would be possible. We would be limited to a point. Are the social scientists who want us to place things *in* the bigger framework not asking us to commit suicide? Is it not the same as forcing us to eat and drink only aether, under the pretext that it is the staple of the universe?

FIGURE 11
The Relative Sizes of the 'Big Picture'



Either one abandons networks and is limited to one's own unmediated point of view, or one wishes to look at a bigger picture but then has to consider the end point of a network made up of long series of mediators.

The reason why this simple infra-physical argument is so hard for social scientists to grasp has to do with another belief, the belief in abstraction. When they claim that the 'big picture' includes the smaller ones, they do not take the word 'picture' literally but metaphorically. It means, for them, a view of the world, an abstraction that cannot be reduced to the lowly practices of building inscription devices.

It is one of the great powers of Einstein's text that it also throws light on the very process of abstraction. He is not only a master at managing spatial and temporal shifting, he is also very good at the third shifting, which is called, as the reader may recall, the actorial one. For instance,

Einstein replaces coordinates by train and embankment, or walking men by beams of light, or trains and embankment by earth and sun (see Tables 2 and 4). The process by which abstract notions are replaced by characters is usually called, in semiotics, *figurativity*, or figuration. It is often said that one can tell a popular article from a scientific one by the number of figures (human or animal-like characters) that play parts in the stories. At face value, it seems that Einstein is writing a popular book, because he slowly takes us from trains and walking men all the way to abstract mathematics, thus following a strict hierarchy from concrete to abstract actants. One could claim that Einstein, like the Lord, masters the abstract structure but, knowing the weakness of his readers, feeds them figures, stories and parables instead.

However, Einstein's innovation for the third kind of shifting is as essential as for the two others. *There is no clearly recognizable hierarchy* in his text from one level of simple concrete metaphors to another more abstract one. The most abstract argument, about Gaussian coordinates, is also the one where the mollusc is introduced (p. 99). When he builds up a spacious chest in the middle of nowhere that is lifted by 'a being' through a constant force with a 'rope', this abstract thought experiment is supplemented with very concrete notations concerning what the man in the chest feels in his leg muscles (p. 66). These notations are not added for realism so as to make an ignorant reader swallow the pill of an abstract thought: they are crucial for the argument about the similarity between feeling acceleration and feeling gravitation. Even when he introduces four-dimensional Minkowski space (p. 57), it is to make its coordinates 'play exactly the same role as the Euclidean coordinates', reversing again the order between levels of abstraction.

The word 'abstraction' in Einstein's text does not refer to a certain type of figure, but to the very common activity of selecting in and out those details which are convenient. For instance, he starts with trains and embankment mirrors and clocks. Then (p. 31) the embankment is 'supplemented laterally and in a vertical direction by means of a framework of rods, so that an event which takes place anywhere can be localized with reference to this framework'. As to the train, it is elongated 'across the whole of space, so that every event, no matter how far off it may be, could also be localized with respect to the second framework'. Although the description of the embankment and of the train has already lost some realism, the author continues and 'disregard[s] the fact that in reality these frameworks would continually interfere with each other, owing to the impenetrability of solid bodies'. After these three transformations, the figures of the train and of the embankment have become

geometric coordinates. Are these coordinates less figurative than the train and embankment? Are they more abstract? No, they simply have different details and keep only some of the elements of the train — the first story of the train having already retained but the barest details of the railway system of turn-of-the-century Switzerland. To find positions from one system of coordinates to another, the author again modifies the figuration and replaces the geometric coordinates by an algebraic notation — by Galilean transformation, which is a subset of the Lorentz one when the velocity of light is infinite. Are these equations more abstract or less figurative than the two or three earlier ones? No. They lose details which were considered irrelevant — like the colour of the curtains in the wagon or the price of the ticket — and add new details deemed more important — like the possibility of calculating for any value of x the corresponding value of x'.

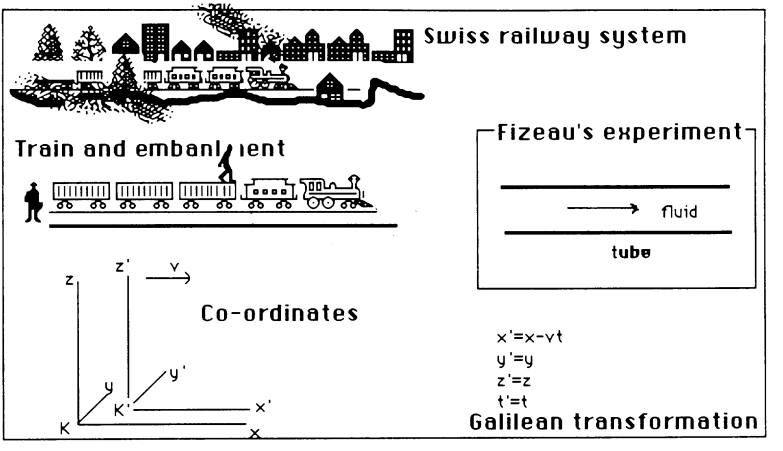
The most striking aspect of this reworking of the meaning of abstraction is offered by the confusion between thought-experiment and the experiments which, he says, have taken place in a laboratory. As a rule, the real experiments have *fewer* details and look more like what we would call a thought-experiment than the latter, which are, on the contrary, vividly described! For instance, Einstein moves from the equations of Maxwell's transformation to the experimental scenography, that of Fizeau:

> The tube *plays the part* of the railway embankment or of the co-ordinate system K, the liquid *plays the part* of the carriage or of the co-ordinate system K', and finally the light *plays the part* of the man walking along the carriage, or of the moving point in the present section. If we denote the velocity of the light relative to the tube by W, then this is given by the equation (A) or (B), according as the Galileo transformation [where c is infinite] or the Lorentz transformation [where c is finite] corresponds to the fact. Experiment decides in favor of equation (B) derived from the theory of relativity, and the *agreement* is indeed very exact. (p. 40, my stress)

Is this new experimental scene more figurative than the thought experiment of an elongated train, or the writing down of the equations? No, and the drawing that displays this real experimental laboratory is the most abstract of all!

Hierarchies between degrees of figuration, distinctions between actual and thought-experiments, shifts from popular accounts to more abstract ones, divides between theory and experiment — all this does not interest Einstein much. In Figure 12, Einstein does not try to order them on a scale from concrete figures to abstract ones. So what is it that interests him in shifting from one repertoire of figures to another one?

FIGURE 12
Non-Hierarchical Series of Figurations



Abstraction does not refer to one particular type of human or non-human-like figures, but to what is maintained through the non-hierarchical movement through various types of figures.

What counts for him is *what is maintained* through all these transformations from one figuration to the next. Going from train to embankment, from this story to coordinates, from them to equations, from these to thought-experiments, from these to real experiments, and maybe back to the circulation of trains — the only place where we ever experience non-accelerated regular translation — this is what is of paramount importance. The freedom of the enunciator counts, not the order of the figuration. But this problem of freedom is also the very question tackled in the text: how can one maintain everywhere in the same form the laws of Nature, so as practically to build some degree of universality for the centre's networks to expand? If we remember that the word 'metaphore' means displacement or transportation, we understand how fascinating is Einstein's use of these metaphors that manage to transport so much without deformation.

Abstraction, in this text, does not designate a list of non-human-like figures, but a reversible movement from any one list to any other that keeps some meaning intact in the process. More exactly, what we call 'meaning' is whatever is preserved in the movement through stories, and not *one* of the repertoires obtained after reaching at last one final story. This semiotic innovation is as important for our sociology of science as the

other one on the spatial and temporal shifting. The 'big picture' is not given in one frame of reference, but in going from one frame to all the others through a network. Operations like thinking, abstracting, building pictures, are not *above* other practical operations like setting up instruments, arraying devices, laying rods, but are *in between* them. The vocabulary often used by cognitive and social sciences to describe mental operations is misleading. Abstraction does not designate a higher level of figuration but a fast *circulation* from one repertoire to another. It is not a property of the mind, it is a property of the networks. By reworking also the notion of abstraction, Einstein, in the present text, shows us a way of never leaving the firm ground of infra-physics, even when we enter the realm of abstraction.

Conclusion

Have we succeeded, as foreshadowed in the introduction, in opening, through the semiotic study of one semi-popular book by Einstein, a more direct and less laborious way to resume the strong programme? Although the answer is to be left to the reader, it should be made clear that this question has now taken the following form: have we succeeded in establishing a different, more equal, relation between social studies of science and Einstein's physics? To be sure, we learned a lot *from* Einstein for clarifying our own definition of society, of relativity, of context and of abstraction; but did we teach Einstein anything? No matter how presumptuous the question seems to be, it is the necessary counterpart of this more equal status the method requests. My claim would be that, without the enunciator's position (hidden in Einstein's account), and without the notion of centres of calculation, Einstein's own technical argument is ununderstandable; so is the reason why he prefers *above all* to maintain the forms of the natural laws against all transformations of space, time and characters. The forces that hold his argument together and that account for the passion generated in and by his arguments, need to be put back in place for the physics to make sense at all. To push the claim to its extremity, the metrological chains vastly expanded, accelerated, transformed and recombined by Einstein are in *our* social[23] space and not ours in *his*...

To demonstrate that this argument is not so presumptuous, we could show how simple is the solution it offers to some problems of interpretation that have plagued Einstein scholars. Einstein later recanted the Machian interpretation of special relativity, and took up a realist and

absolutist metaphysics once he had reached general relativity. Did he change his mind? Had he disguised later his interest for Mach, or pretended earlier to be one of his disciples? Psychological or tactical interpretations are not necessary if my argument on capitalization is right: once obedient delegates flow effortlessly back and forth to the centre of calculation a new semiotic position is designed for a character that is an Einstein-God reaching without any problem the essence of physical reality. Once delegates are totally disciplined they count as nothing. Relativity and absolutism merge again, in the same way as we can reach someone else through long distance phone calls, no matter how many delegates we have in between, provided they are at once present, aligned and faithful. The same clarification occurs when we turn to this other commonplace of Einstein scholarship — that is, his rejection of quantum mechanics' philosophy. How come that this revolutionary joined the traditionalists' camp? Did he become less flexible with age? Again, psychological interpretations are too shallow. If the above argument is right, revolution and flexibility mean nothing when you want to discipline delegates once and for all. The philosophy of quantum mechanics re-introduced what Einstein had fought all along: independent and active observers, so active indeed that they influenced what they observe... This revival of relativism had to be opposed.

• *SEMIOTIC INVENTORY (ABRIDGED)*

TABLE 1
List of the Marks of Enunciation in Einstein's Text
(only the marks that *personify* the author-in-the-text
or the reader-in-the-text are noted below)

ENUNCIATOR (Author)	ENUNCIATEE (Reader)
	'you read' p.1
	'you remember with more respect'
	'you were chased by conscientious teachers'
	'you would regard with disdain' p.1
'we feel constrained' p.2	
'If I analyse' p.5	
'I load my conscience with grave sin' p.9	
'I stand at the window'	
'I ask' 'we shun...we replace... we must honestly acknowledge'	
'we must specify' p.10	
'who would imagine' p.17	
'the thoughtful physicist plunged into the greatest difficulties'	
'If I ask you' p.21	'you will answer "yes"'
'If I now approach you'	'you find it not so easy'
'I cannot be satisfied'	
'I allow myself to be deceived as a physicist' p.22	
'I would ask the reader not to proceed further'	
	'after thinking the matter you offer'
'I am very pleased'	'you cast a disdainful glance at me' p.23
	'these results must strike you' p.38
	'seized by a shuddering' p.55
'every intellect must feel the temptation' p.61	
'ought we to smile at the man?' p.67	
'I must warn the reader against a misconception' p.69	
'no person can rest satisfied' p.71	
'I am standing in front of a gas range' p.72	
'I dare not withold it from the reader' p.78	
'I am guilty of a certain slovenliness' p.79	
	'this lays no small claims on the patience of the reader'id.
	'the reader will appreciate' p.83
	'if he is not too pedantic'
'I am thankfully surprised' p.84	
	'The reader may be anxious' p.94
	'After mature consideration the reader will admit' p.95

TABLE 2
List of Some of the Important Actants

Important objects
'Rods' chapter I and II
'Trafalgar Square, London' 'Earth' 'Clouds' 'Poles' p.6
'Train', 'embankment' 'falling stone'p.9
'trajectory' 'clocks'p.10
'the law of inertia' 'fixed stars' p.11
'a raven' p.12
'the note emitted by an organ pipe' p.11
'our old friend the railway carriage' p.16
'Lightning' p.21
'arrangement of two mirrors inclined at 90°' p.22
'Lorentz transformations' 'Galilei transformation' p.33
'world' p.55
'our old friend the railway carriage' has 'brakes' p.62
'stones' 'magnetic fields' 'gravitation' p.63
'earth' p64
'a spacious chest resembling a room' 'hook' 'ropes' p.67
'a gas range' 'a fire' 'a pan' p.72
'a plane circular disk which rotates' p.79
'a marble table' p.83
'a large number of little rods of equal lengths' p.83
a heated marble table p.85
'Gaussian co-ordinates' p.87
'mollusc of reference'

Human like actants
'I in the train' 'pedestrian on the embankment' p.9
'a man in the train'
'the Dutch astronomer De Sitter' p.17
'H.A. Lorentz' p.19
'an able meteorologist' p.21
'people travelling in the train' p.25
'an observer in the train' p.28
'the brilliant physicist Fizeau' p.39
'Minkowski' p.55
'an observer' 'a being' p.66
'opponents of the theory of relativity' p.76
'an observer who is sitting eccentrically' p79
'an observer who is at rest' p.80

Authorities
'As is well known' p.11
'The most careful observations have never revealed such anisotropic properties' 'This is a powerful argument in favour of the principle of relativity'p.15
'Every child at school knows' 'We know with great exactness that this velocity' p.17
'The epoch making theoretical investigations of H.A Lorentz... show that' 'Prominent theoretical physicists were therefore more inclined to reject...'p.19
Fizeau's measurement 'has been repeated since then by some of the best experimental physicists so that there can be no doubt about its result' p.39
'Experiment decides in favour of equation B' p. 40

TABLE 3
Work of Inscribing, Subscribing, Transcribing

'The practice of seeing in a 'distance' two marked positions on a practically rigid body' p.3
'we understand its validity for a construction with ruler and compasses'
'We can mark off the distance S time after time' p.5
'erecting a pole' p.7
'attaching', 'dropping', 'manipulating' p.7
'If I were to be commissioned to determine by observations whether in the actual case two events took place simultaneously' p.21
'This observer should be supplied with an arrangement of mirrors' p.22
'We understand by the 'time' of an event the reading... In this manner a time-value is associated with every event' p.24
'An observer...marking off his measuring rod in a straight lines many times as is necessary to take him from the one marked point to the other. Then the number which tells us how often the rod has to be laid down is the required distance' p.28
'The magnitudes *x,y,z,t,* are nothing more nor less than the results of measurements obtainable by means of measuring-rods and clocks' p.36
'The four dimensional continuum...shows a prounounced relationship to the three dimensional continuum of Euclidean geometrical space....We must replace the usual time co-ordinate *t* by an imaginary magnitude ...' p.57
'an observer equipped with apparatus' p.66
'tension of a rope' p.67
Building up squares with ropes on marble table p.83
'To every point of a continuum are assigned as many numbers...as the continuum has dimensions. This is done in such a way, that only one meaning can be attached to the assignment' p.90
'Every physical description resolves itself into a number of statements, each of which refers to the space-time coincidence of two events A and B' p.95
'Thus in reality the description of the time-space continuum by means of Gauss co-ordinates completely replaces the descriptions with the aid of a body of reference' p.96
'We learn the behaviour of measuring-rods and clocks and also of freely-moving material points ...simply by mathematical transformation' p.100

TABLE 4
Figurativity

'we see that it will be advantageous if, in the description of a position, it should be possible by means of numerical measures to make ourselves independent of the existence of marked positions (possessing names) on the rigid body of reference' p.7
the flying raven :'Expressed in an abstract manner we may say: If a mass *m* is moving uniformly...' p.12
'Now in virtue of its motion in an orbit around the sun our earth is comparable with a railway carriage travelling with a velocity of about 30 km per second' p.15
train and embankment 'We shall imagine that the air above it to have been removed... The ray of light plays the part of the man walking along relatively to the carriage' p.18
'Up to the present we have only considered events taking place along the embankment,..we can imagine this reference body suppplemented laterally by means of a framework of rods' 'we can imagine the train ..continued across the whole of space' we can disregard the fact that in reality these framework would continually interfere' p.31
'In place of the man walking inside the carriage we introduce a point moving relatively to the co-ordinate systems' p.38
'The tube plays the part of the railway embankment or of the co-ordinate system *K*, the liquid plays the part of the carriage or of the co-ordinate system *K'*, and finally the light plays the part of the man walking along the carriage, or of the moving point in the present section. ' p.40
'The natural laws satisfying the demands of the special theory of relativity assume mathematical forms, in which the time plays exactly the same role as the three space co-ordinates' p.57
'By means of purely theoretical operations (i.e. simply by calculation) we are then able to find...' p.74

TABLE 5
Main Shiftings Out and In Associated with a Scenography

p.4 et seq. : sequence at Trafalgar Square of a man equipped with a rod building up the scaffold necessary for any event to be transformed in readings;
p.9 et seq. : sequence of the author throwing a stone from a train while a pedestrian on the embankment observes; the two characters then try to make their observations coincide (*shifting in*).
p.10. : sequence which makes either the stars or the earth move into a circle depending on the point of reference chosen.
p.12: sequence of the flying raven above a train observed by the man in the train.
p.16: sequence of the man walking in the train while the man on the embankment tries to measure his velocity relative to the train and relative to the embankment.
p.21 et seq.: sequence of the heated discussions between the author, meteorologists, man in the train, and man on the embankment, to decide if events are simultaneous
p.26.: same sequence but with beams of light
p.27.: sequence of the man measuring the train with a rod while the man on the embankment tries to superimpose his own measurement of the train.
p.31: sequence of the transformation of a train embankment scene into a co-ordinate system.
p.40: sequence of Fizeau's experiment which is superimposed to the train embankment earlier scenes.
p.66 et seq.: sequence of the accelerated chest and of the experiments imagined in it by the man and out of it by another observer at rest; the author and the readers are making comments on the errors they both make.
p.72: sequence of the author puzzling over a gas range.
p.75: sequence of a planned experiment to be done with a solar eclipse.

TABLE 6
List of the Main Trials and Structure of the Text

Eliminated through trials	Dilemmas	Maintained through trials
absolute truth is out (p.3)		
absolute space is out (p.8)		
		natural phenomena run their courses according to the same general laws: principle of relativity p.13
	either we reject the principle of relativity or the experiments that detect no rôle for the direction of motion p.15	
		principle of relativity disproven by no experiment p.15 p.19
	Dramatisation: either we reject the principle of relativity or we reject the well established speed of light p.19	
	Resolution of the drama: 'Enter the ***theory*** of relativity... No incompatibility between the principle of rel. and the speed of light'	
absolute time is out p.26		
		what is kept is simultaneity relative to a reference body p.26
absolute distance is out p.27		
let's drop independence from the condition of motion p.30		

How should we modify the theorem of the
addition of velocities to keep the principle of rel.? p.30
what is kept is Lorentz's transformation p.33
Let's keep Fizeau's result about speed of light p.41

Classical mechanics is transformed p.42
Principle of relativity is out

Object of value:
'General laws of nature are co-variant with respect to Lorentz transformation' p.43

Aether and specially favoured co-ordinates are out p.53
'Time is robbed of its independence' p.56
What is kept in practice is Minkowski's formulation p.57
Relativity without him 'would not have got
farther than its long clothes' p.57

Let's go further than uniform rectilinear and
non rotary motions p.61
New trial: Can we do it for ***all*** bodies of reference? p.61
We seem forced to discard the theory of rel. and grant
absolute physical reality to non-uniform motions p.62

Distinction between inertia and gravitation is discarded p.69
Classical mechanics and theory of rel. are unsatisfactory p.72
Dramatisation: Is the theory of relativity laid in the dust? p.76
The special theory is not overthrown but survives
in the other as a limiting case p.77
It seems that general relativity itself is called into question p.82
Cartesian co-ordinates are out p.85
Gaussian co-ordinates are kept p.87
The law of the constancy of the velocity of light
cannot be maintained p.93
What lead us in the special theory of rel. is invalidated p.93
Exit the Euclidean continuum
Description with Gaussian co-ordinates
replaces Euclidean continua p.96
Final dramatisation: the general theory has to be
reformulated without rigid reference bodies p.97
Rigid reference bodies out

Object of value:
'All Gaussian co-ordinate systems are essentially equivalent for the formulation of the general laws of nature' p. 97

Final heroes who passed through all trials:
Molluscs who have equal rights and equal success,
laws which are independent of the choice of the mollusc,
the great power of relativity which lies in its comprehensive limitation p.99

• NOTES

I apologize to all Einstein scholars for this 'underrealist' portrayal of their hero. The main ideas of this paper have been obtained through discussions with Michel Callon, Isabelle Stengers and François Bastide. I am also grateful to Mannar Hammad for his insights on delegated observers, and to Jim Griesemer for his spirited defence of realism. Mike Lynch, Trevor Pinch and Leigh Star provided useful comments on the final draft. I thank Geoffrey Bowker for correcting the English. He was so entirely unconvinced by the argument against social context that he simply muttered 'appure si muove...'!

1. See the pioneering work of David Bloor, *Knowledge and Social Imagery* (London: Routledge & Kegan Paul, 1976); Sal Restivo, 'The Social Roots of Pure Mathematics: A Contribution to the Sociology of Ideas and Minds' (mimeo, 1986); and the field study of Eric Livingstone, *The Ethnomethodological Foundations of Mathematics* (London: Routledge & Kegan Paul, 1985). A different but more complete, much more empirically grounded argument is to be found in J. Lave, *Culture, Cognition and Practice* (Cambridge: Cambridge University Press, in press).

2. For this redefinition of the principle of symmetry, see B. Latour, *Science in Action* (Milton Keynes, Bucks.: Open University Press, 1987).

3. B. Latour, *The Pasteurization of France*, followed by *Irreductions: A Politico-Scientific Essay* (Cambridge, MA: Harvard University Press, in press).

4. See L. S. Feuer, *Einstein and the Generations of Science* (New York: Basic Books, 1974). There are many other interesting aspects in Feuer's book about the notion of revolution, and conflicts between generations, that I have no room to do justice to here.

5. I use throughout the following edition: A. Einstein, *Relativity: The Special and the General Theory* (London: Methuen, first edn 1920, paperback 1960). All page numbers refer to this edition.

6. For an introduction to the semiotics of scientific texts, see F. Bastide, 'Introduction to Semiotics of Scientific Texts' (Paris: Centre de Sociologie de l'Innovation, mimeo, 1985). For the definition of the terms used in this paper, see A. Greimas and J. Courtès, trans. L. Chris et al., *Semiotics and Language: Analytical Dictionary* (Bloomington, IN: Indiana University Press, 1983).

7. A large body of literature now exists on the scientific literature. Apart from Bastide, op. cit. note 6, see M. Callon, J. Law and A. Rip (eds), *Mapping the Dynamics of Science and Technology* (London: Macmillan, 1986).

8. B. Latour, 'Visualisation and Cognition', in H. Kuklick (ed.), *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, Vol. 6 (1986), 1–40.

9. For an extensive collection of the work done at the time on visualization and cognition, see B. Latour and J. de Noblet (eds), *Les 'Vues' de l'esprit*, Visualisation et connaissance scientifique, *Culture technique*, No. 14 (1985); see also M. Lynch, 'Discipline and the Material Form of Images: An Analysis of Scientific Visibility', *Social Studies of Science*, Vol. 15 (1985), 37–66.

10. Greimas & Courtès, op. cit. note 6.

11. I am perfectly well aware that this paper depends on a Machian interpretation by Einstein of his own work, an interpretation that he later recanted: see G. Holton, *Thematic Origins of Scientific Thought: Kepler to Einstein* (Cambridge, MA: Harvard University Press, 1973). Once again, semiotics is concerned with what the text does, not with what the enunciator thinks.

12. On the semiotic reason why this third frame is always necessary, see M. Hammad, 'Le petit bonhomme d'Ampere', in *Actes sémiotiques*, Vol. 7, No. 33 (1985), 37–45. Most of the difficulties related to the ancient history of the inertia principle are related to the existence of two frames only; the solution is always to add a third frame that collects the information sent by the two others: see M. A. Tonnelat, *Histoire du principe de relativité* (Paris: Flammarion, 1971).

13. Literally, what is written under another writing. 'Underwritten', like the French word 'souscription', also means the pledge that other subscribers or underwriters make to support someone's credit.

14. This is not what semioticians, obsessed by literary texts, usually do, but it is one of the extensions that it is necessary to make to Greimas's semiotics in order to be true to his own claims (see, below, the related argument about context).

15. I am following here James R. Fleming, 'Meteorology at the Smithsonian, 1847–1874: The Natural History Connection', paper presented at the 1986 HSS/SHOT/PSA/4S Meeting (Pittsburgh, PA, October 1986).

16. See the marvellous paper by L. Star, J. Griesemer and E. Gerson, 'Linking Concepts with Work Organization: Natural History and Ecological Theory', presented at the 1986 HSS/SHOT/PSA/4S Meeting (Pittsburgh, PA, October 1986), on the problem of disciplining naturalists and trappers. Classic examples of the necessity to discipline observers in order to build long-distance networks may be found in A. Chandler, *The Visible Hand* (Cambridge, MA: The Belknap Press of Harvard University Press, 1977). As expected, the very building of railroads required a complete reworking of inscriptions, subscriptions and transcriptions: 'By an arrangement now perfected,' quotes Chandler (104), 'the superintendent [of the railroad] can tell at any hour in the day, the precise location of every car and engine on the line of the road, and the duty it is performing.'

17. See Latour, op. cit. note 2. See also J. Law, 'On the Methods of Long-Distance Control' in Law (ed.), *Power, Action and Belief: A New Sociology of Knowledge, Sociological Review Monograph* No. 32 (London: Routledge & Kegan Paul, 1986), 234–63; and Star, Griesemer & Gerson, op. cit. note 16.

18. For a critique of the political notion, see F. Furet, *Penser la Révolution Française* (Paris: Gallimard, 1978), translated as *Interpreting the French Revolution* (Cambridge: Cambridge University Press, 1981); about the scientific notion, see Holton, op. cit. note 11.

19. M. Lynch, in his *Art and Artifact in Laboratory Science: A Study of Shop Work and Shop Talk in a Research Laboratory* (London: Routledge & Kegan Paul, 1985), has presented the most radical critique so far of the 'social science' used to implement social studies of science. His main argument is that there is nothing social in the content of science but its very technical content itself. Imposing sociological notions is thus either a trivial repetition of the sociologists' prejudices, or an ignorance of the specific technical content.

20. This appears to me, at the moment, to be the only solution to the various difficulties raised by the problem of reflexivity (see S. Woolgar [ed.], *Knowledge and Reflexivity* [London: Sage, in press]), and by the symmetry between nature and society. Since we should offer neither a repetition of the tribe's language, nor a metalinguistic explanation, some sort of hybridization is necessary.

21. See especially H. Collins's asymmetric argument that Nature plays no role, but society a major one, in the settlement of scientific controversy, in his *Changing Order: Replication and Induction in Scientific Practice* (London: Sage, 1985). The classic version remains Bloor, op. cit. note 1. This presentation of relativity should not be confused with the principle of irreducibility I have offered earlier (op. cit. note 3, second Part, 2.1.1).

The building up of equivalences is what interested me there. Here, the main metrological chains that keep equivalence aligned are already in place.

22. For a recent presentation of the 'aether' argument about the necessary (macro and Marxist) context of all social studies of science, see S. Russell, 'The Social Construction of Artefacts: A Response to Pinch and Bijker', *Social Studies of Science*, Vol. 16, No. 2 (May 1986), 331–46.

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Historia conceptual, memoria e identidad (I) Entrevista a Reinhart Koselleck

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La impresionante trayectoria académica de Reinhart Koselleck (Görlitz, 1923-Bielefeld, 2006), desde su ya lejana tesis de doctorado («Kritik und Krise», 1959) hasta sus trabajos recientes sobre la memoria de la guerra y los monumentos a los caídos, hace innecesaria cualquier presentación. No sólo estamos ante uno de los historiadores más importantes del último medio siglo, sino también ante un eminente teórico que, a lo largo de su dilatada obra, ha escudriñado todos los recovecos del concepto de historia: la historia como sucesión de acontecimientos, la historia como actividad intelectual inherente al ser humano y, sobre todo, la historia como experiencia existencial y como dimensión ineludible, constitutiva de la modernidad.

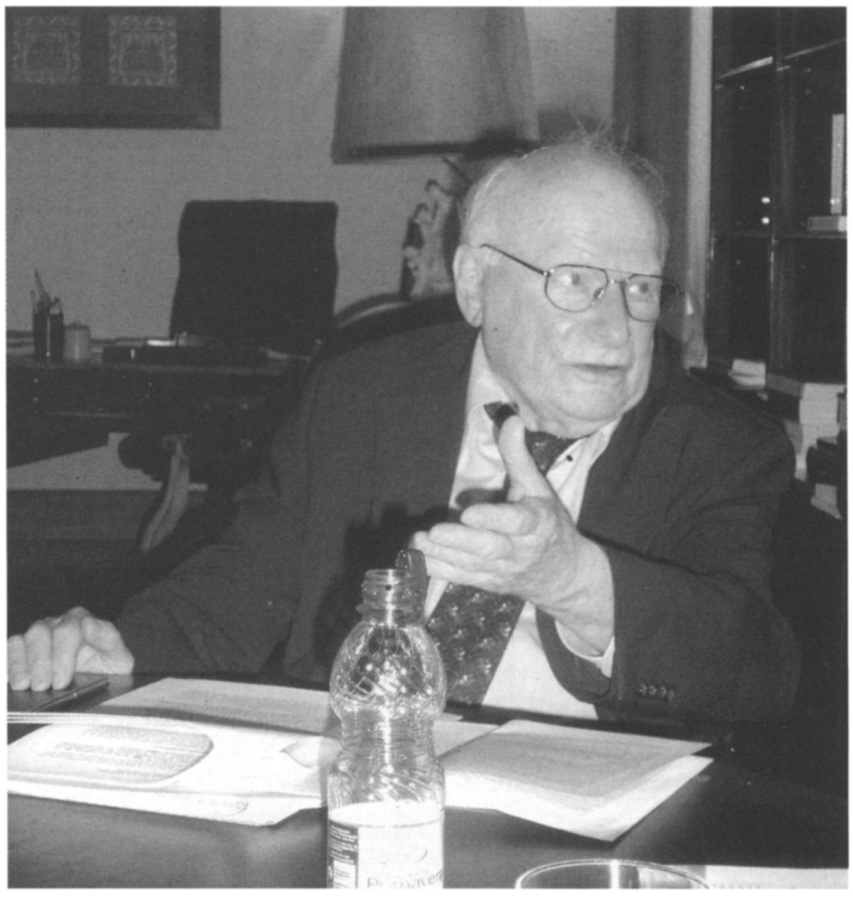
Entrevistamos al profesor Koselleck en Madrid la tarde del 5 de abril de 2005, aprovechando su primera visita académica a nuestro país, invitado por el Centro de Estudios Políticos y Constitucionales. Transcribimos a continuación una versión española de la primera parte de esta entrevista inédita, a la que hemos creído oportuno añadir algunas notas aclaratorias, y que cobra ahora una trágica e imprevista actualidad tras la muerte del historiador el pasado 3 de febrero. La segunda parte se publicará en el siguiente número de «Revista de Libros».

JFS/JFF.– *Algunos supuestos esenciales de la* Begriffsgeschichte *(historia de los conceptos) contribuyen en gran medida, a nuestro modo de ver, a desterrar la engañosa dicotomía entre continuidad y ruptura que muchas veces ha perjudicado una comprensión adecuada del cambio y del devenir histórico. La superación del falso dilema entre continuidad y ruptura, permanencia e innovación –superación que en el terreno lingüístico puede ser abordada a través de su propuesta de esa especie de «sincronía diacrónica» que son los estratos del tiempo–, sin duda añade complejidad y contribuye a afinar nuestros análisis históricos. Teniendo en cuenta que, como usted mismo ha afirmado reiteradamente, puesto que la realidad nunca puede ser completamente abrazada por el lenguaje, siempre habrá una brecha infranqueable entre los hechos y los conceptos, ¿cuál es su opinión sobre el uso de las categorías de continuidad y ruptura como herramientas heurísticas en historia factual? ¿Le parece que esa polaridad sigue siendo útil, o más bien considera que debería ser abandonada?*

RK.– Sigue siendo útil usar las categorías de continuidad y ruptura, la cuestión es saber a qué nivel o en qué serie de acontecimientos conviene aplicarlas. Si tomamos la historia política, vemos que hay un gran número de rupturas, muchas más rupturas que, por ejemplo, en la historia lingüística, que es más dada a la transformación continua, a la transformación lenta. Pero los acontecimientos políticos destruyen con frecuencia las continuidades. Bastante a menudo, acontecimientos revolucionarios o incluso de tipo reformista traen consigo una ruptura. En el plano político y en el plano social, en el lingüístico y en el económico, tenemos diferentes formas de continuidad y diferentes formas de ruptura, y lo difícil es establecer la relación adecuada entre todas esas formas y niveles. La última etapa de la historia de Alemania es un buen ejemplo de ello. La parte oriental de la actual República alemana se integró muy rápidamente. En el plano político, fue un proceso muy rápido, de sólo un año de duración, y fue muy bien aceptado, tanto por los actores del Este como por los del Oeste. Pero la integración mental de una y otra parte ha dejado hasta hoy mucho que desear. De manera que, al cabo ya de quince años, tenemos media generación en la que no ha aumentado la comunicación entre el este y el oeste de Alemania. Y en medio de esta situación hay una transformación económica muy difícil que, de nuevo, es mucho más lenta de lo que la gente esperaba. Así pues, este ejemplo reciente prueba los diferentes niveles de un debate posible sobre continuidad y ruptura.

JFS/JFF.– *Uno de los grandes desafíos para el historiador consiste en tener que enfrentarse a un cúmulo de acontecimientos y de discursos que se presentan a la vez, de manera contradictoria, como únicos y como repetidos. Así, frente al énfasis historicista en la singularidad de cada acontecimiento histórico, usted ha subrayado en numerosas ocasiones que la historia está llena de estructuras y fenómenos recurrentes. Ahora bien, ¿se trata verdaderamente de fenómenos recurrentes, esto es de verdaderas «repeticiones», o de simples analogías que el historiador proyecta desde su propia perspectiva sobre las palabras y los hechos del pasado? ¿Es correcto hablar de estructuras repetitivas o más bien de semejanzas más o menos superficiales entre sucesos históricos distintos, que se desarrollan en contextos fundamentalmente diferentes?*

RK.– Para contestar adecuadamente a esta pregunta habría que reunir una enorme masa de pensamientos y transformaciones históricas de gran amplitud, y reflexionar en conjunto sobre todo ello. Por ejemplo, es perfectamente posible que en determinados pasajes de la Biblia o de la obra de Platón encontremos argumentos plenamente útiles para las estrategias políticas de hoy en día. Así sucede también con respecto a la democracia, y la cuestión, desde luego muy interesante, radica en la posible transformación o no de nuestros argumentos y estrategias políticas. En la Grecia antigua hubo, como es sabido, abundantes reflexiones sobre la igualdad de los ciudadanos, la mejor manera de preservar su libertad, la administración activa o pasiva, etc., y en toda esa literatura es posible identificar, por supuesto, un tipo ideal de democracia, esto es, un modelo político en el cual el pueblo se gobernaba a sí mismo (aunque fuese en el pequeño ámbito de la *polis*). Claro está que este modelo no es nunca idéntico al modelo florentino o francés o cualquier otro, pero la estructura de la argumentación es repetitiva y yo no diría que se trata de un parecido superficial. Creo que la similitud prueba que hay conexiones profundas entre problemas que se formulan y se viven de manera diferente, y creo que la similitud de estructuras va mucho más allá de lo que solemos pensar, porque el historiador corriente no suele dirigir su mirada en esa dirección, y por tanto



Reinhart Koselleck

muchas veces le pasan desapercibidas esas semejanzas de base, esas estructuras comunes. El historiador ordinario suele dejar estos temas a un lado, pensando que es asunto de teólogos o de sociólogos, y que su cometido es simplemente ocuparse del estudio de acontecimientos concretos, singulares, a partir de fuentes no menos singulares, como las que suele manejar. Pensemos, por ejemplo, en las fuentes históricas referentes a la época fascista en España. Estoy seguro de que existen al respecto muchos documentos singulares. Y esos documentos no hablan de lo que hay de repetitivo en tales acontecimientos. Normalmente no encontraremos el factor repetitivo de manera explícita en esa clase de movimientos ideológicos, a menos que se trate de una ideología como el jacobinismo francés. Se supone que los jacobinos eran romanos de verdad, tal como los pintó Jacques-Louis David, de forma que su ideología habría debido ser la del virtuoso romano de la época republicana, pero, por supuesto, no hay nada de eso. Se trataba de una promesa de salvación, en el plano ideológico, para la gente que participó en la secta o partido jacobino. Así pues, en realidad hay muy pocas analogías útiles para una democracia efectiva producida por la participación de todos, y esa cuestión, la toma de decisiones políticas en común, sigue siendo un desafío. Detrás de toda argumentación a favor de la democracia directa, o también de la democracia representativa o indirecta, pocas veces veremos nuevos argumentos; incluso si la situación es nueva, los argumentos han de ser transferidos muchas veces desde el pasado. Y eso constituye una técnica o un arte, un arte histórico que consiste en entrelazar series de acontecimientos en el largo plazo, a través del descubrimiento de estructuras repetitivas...

JFS.- *Pero, más allá de analogías indudables en la argumentación, la cuestión es si los diversos conceptos de democracia –democracia directa, representativa, etc.– manejados por los actores a través de los siglos en los discursos constituyen en realidad el mismo concepto, o bien se trata de conceptos distintos, que se hacen valer en circunstancias muy diferentes aunque la estructura de los argumentos o la estrategia argumental resulte similar... Así pues, todos esos actores, hablantes o autores, ¿están hablando realmente del mismo problema?*

RK.- No necesariamente. Conviene diferenciar en qué aspecto nos encontramos ante problemas constantes o perennes, en qué medida se trata de problemas que, aunque individualizados, son a menudo persistentes y que responden a desafíos permanentes, y también hasta qué punto algunos problemas son realmente únicos, singulares, para los cuales no se encuentran precedentes. Si diferenciamos estos tres niveles, entonces tenemos la posibilidad de discutir sobre ellos y encontrar las singularidades o los elementos repetitivos. Por ejemplo, en la Edad Media existía una dualidad de autoridades, teológicas y civiles, monásticas y urbanas, con la Iglesia oponiéndose al poder civil y en pugna cada una contra la otra. Es evidente que la constitución dual de la Europa medieval, así denominada, no es la misma que la de Atenas en la época de Aristóteles, pero hay bastantes argumentos aristotélicos que utilizó santo Tomás de Aquino, porque hay similitudes y paralelismos entre la democracia florentina y la democracia ateniense. No cabe duda de que en ambos casos se trata del gobierno de un reducido número de ciudadanos. La analogía estructural es muy pequeña, sin embargo la problemática que implica se renueva bastante poco, puesto que dicha problemática aparece una y otra vez ligada a ciertas condiciones que guardan similitud con viejas situaciones. El historiador está obligado a ocuparse de esas analogías, porque si sólo miramos los acontecimientos singulares como eventos radicalmente únicos, particulares, no podremos llegar a explicarlos. No podremos explicar por qué algo fracasa. Cualquier explicación, incluso relativa a un hecho singular, depende de cursos de acción, de secuencias de acontecimientos...

JFS.- *La explicación puramente sincrónica no es explicación ...*

RK.- En efecto, no lo es. Es necesaria la integración de las perspectivas sincrónica y diacrónica, hay que tener siempre en cuenta ambos planos. No se pueden dividir, y es el propio Saussure, en su análisis del lenguaje, quien afirma que la potencia diacrónica de toda lengua está presente en la situación sincrónica del habla. Yo creo que ya no es cuestión de oposición sincronía/diacronía, sino que lo que es preciso analizar es cuánta capacidad de innovación hay en una lengua que puede tener siglos de antigüedad, y cómo se produce esa innovación, por ejemplo, como consecuencia del cambio técnico. Y al abordar esa relación entre viejas estructuras y nuevos significados, observar la nueva semántica que se introduce en la lengua de resultas de nuevas experiencias. Tenemos que definir, pues, esa relación compleja entre viejas estructuras y nuevos significados, pero no podemos afirmar que todo sea nuevo.

Desde un punto de vista estrictamente lógico habría dos posibilidades. Si afirmáramos que todo es repetitivo, entonces no habría posibilidad de nada nuevo, lo que resultaría muy aburrido. Nada nuevo podría ocurrir. Pero si dijéramos que todo es nuevo, no se podría vivir, ni siquiera sobrevivir, porque si todo lo que nos rodea fuese una novedad y cada cosa una sorpresa, uno carecería de los conocimientos y de las habilidades más elementales para vivir. Así pues, hace falta un mínimo de repetición para entender lo que ocurrirá mañana. Éste será precisamente el tema de mi conferencia de mañana[1]. Todo esto, claro está, en un plano puramente lógico, pero por otra parte invariablemente tenemos esperanzas y necesitamos analizar cómo se relacionan estas esperanzas y expectativas con las otras variables.

JFS/JFF.- *Pese a los grandes desafíos epistemológicos planteados a las ciencias históricas en las dos últimas décadas del siglo XX y a los debates en torno al llamado* linguistic turn *y la posmodernidad, no pocos historiadores siguen manteniendo una práctica investigadora más bien irreflexiva, bastante próxima al positivismo. Cansados de teorías y de debates estériles, se desentienden de todo tipo de cuestiones metodológicas, e incluso afirman que les basta con el análisis de las fuentes para dar una interpretación adecuada de los hechos. Por otra parte, en el campo específico de la historia de conceptos, ¿no cree que, además de la metodología de la* Begriffsgeschichte, *es posible aplicar y practicar otras aproximaciones?*

RK.- La primera parte de su pregunta en realidad no se refiere sólo a la historia factual, puesto que tampoco en historia conceptual es posible resolver un determinado «incidente» o evento particular sólo mediante el recurso a nuevas fuentes, o a nuevas interpretaciones de las fuentes. Hacen falta preguntas, preguntas e hipótesis que puedan ser contestadas y contrastadas por los especialistas en semántica histórica o por otros estudiosos. Por ejemplo, mi proyecto de lexicón está basado en cuatro hipótesis; a saber: en un cierto momento (1) el lenguaje se democratizó y (2) se politizó, al tiempo que se producía (3) un fuerte sesgo ideológico y (4) una temporalización interna de los conceptos[2]. Así pues, la temporalización entre el pasado y el futuro se va implantando poco a poco, mientras que se desarrolla gradualmente una nueva estructura del lenguaje político. Esta nueva estructura termina por afectar a todos los conceptos.

En cuanto a la segunda cuestión, ciertamente el estudio histórico de los conceptos admite diferentes perspectivas y aproximaciones. Así, por ejemplo, podemos centrar nuestra atención en el marco normativo del liberalismo, como por lo que me ha parecido entender sucede en el caso del lexicón español[3]. Yo, sin embargo, no incorporaría un marco normativo de ese tipo, sea el que fuere, porque mi experiencia con colegas teóricos del derecho, juristas y teólogos es que muchos de ellos eran incapaces de concebir una historia descriptiva de los conceptos, aproximación que en algunos parece despertar grandes reticencias de carácter dogmático. De algún modo, ellos parten del principio de que conocen «la verdad», de que saben cuál es el «verdadero concepto» correspondiente a tal o cual noción, y no están dispuestos a admitir análisis histórico-conceptuales que choquen con su propia visión normativa de las cosas. He discutido mucho con algunos de ellos, y en no pocas ocasiones lo he tenido que dejar por imposible. Los principales teólogos incurren frecuentemente en errores y falsas interpretaciones a causa de sus prejuicios. Lo mejor sería que transformasen esos prejuicios en hipótesis. Así reconvertido cada prejuicio en una hipótesis o en un concepto abierto al debate, podríamos preguntarnos libremente si es o no posible o aceptable tal o cual cosa. Pero quizá no he entendido bien su pregunta...

JFS.- *Sí, creo que tiene razón al decir que nuestro* Diccionario *contiene a veces cierta carga normativa, o si se quiere, incluso cierto «prejuicio» en favor del liberalismo, ya que nos pareció fuera de duda que constituyó el lenguaje –y la visión del mundo– dominante en la España del siglo XIX. Por otra parte, es indudable que hemos intentado reflejar en la redacción de cada voz las disputas y polémicas acerca del significado del concepto en cuestión, y estoy plenamente de acuerdo con usted en la desconfianza y el desdén que muchos juristas dejan traslucir ante la historia conceptual. A algunos de ellos les resulta difícil de aceptar incluso la legitimidad académica del estudio de una historia de los conceptos desprovista de toda carga o finalidad normativa. Se ponen nerviosos ante la simple posibilidad de que los conceptos con los que trabajan –que constituyen algo así como su suelo epistemológico– dejen de ser un terreno firme para convertirse en algo contingente, ambiguo e inestable.*

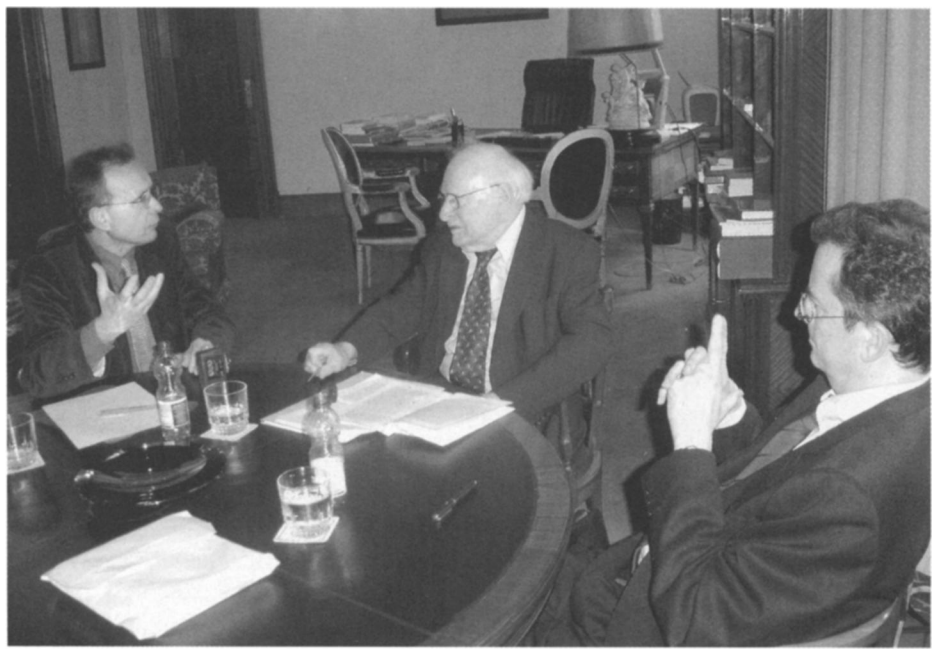
JFF.- *A propósito de esta cuestión, recuerdo que alguien con formación jurídica*

afirmó en un congreso que el concepto de propiedad no había variado sustancialmente desde hacía siglos, y que era en la actualidad prácticamente el mismo que en tiempo de los romanos [risas]. *Sin embargo, es indudable que, en relación con la* Begriffsgeschichte *tal y como ustedes la practican en Alemania, con una reconstrucción completa de la historia del concepto y un seguimiento de las palabras a lo largo de muchos siglos, nuestra aproximación, centrada sólo en la España de los siglos XIX y XX, es quizá más sensible a los cambios semánticos que tienen lugar en el corto plazo, ligados a las luchas políticas de cada día.*

RK.- Su crítica es interesante, pero no estoy de acuerdo. Puede ser cierto en su percepción, porque estamos ante dos culturas académicas y dos proyectos diferentes. La cuestión también depende, desde luego, de la analogía o el grado de adecuación entre la lengua hablada por los agentes y el análisis del historiador, teniendo en cuenta que la lengua hablada se inscribe siempre en situaciones únicas, desde el momento en que se produce obligadamente dentro de unas coordenadas particulares y concretas. En el límite, el significado no podría cambiar en absoluto, puesto que estaría referido cada vez a una situación singular y única. Estamos ante un aspecto de la teoría conceptualista que insiste en la singularidad o «unicidad» del lenguaje aplicado, pero por otra parte hay que pensar cuántos elementos de la lengua tienen una capacidad de significación y unas posibilidades de uso semántico, sintáctico, etc., que vienen de muy atrás, desde hace siglos. En cualquier caso, si las palabras se pueden aplicar a una situación concreta y única es precisamente gracias a la potencia, a la capacidad de significación, acumulada por el uso constante y continuado de esa palabra durante siglos. Son esos viejos usos los que hacen que las diversas traducciones en distintas lenguas –al español, al latín, al alemán o al inglés– presenten también diferentes matices, y que, por ejemplo, la estructura de las frases pueda variar, con niveles variables de profundidad o longitud. Mi punto de vista sería, por consiguiente, el de un único y exclusivo proceso muy prolongado. Es preciso analizar las raíces de la lengua, el ritmo lento de las transformaciones a largo plazo y también la lingüística aplicada a situaciones concretas, transformaciones de las que a veces surge algo nuevo.

JFS/JFF.- *Su insistencia en la necesidad de distinguir cuidadosamente entre la realidad concreta de los hechos y su aprehensión lingüística nos plantea asimismo un problema epistemológico. En efecto, puesto que no hay experiencia posible sin conceptos, aun sin negar las realidades extralingüísticas, en nuestro mundo poskantiano y pospositivista parece difícil imaginar siquiera un evento histórico «en sí mismo», al margen de su aprehensión conceptual de una u otra manera por los observadores humanos que articulan los hechos y les dan sentido. ¿No cree que, a partir de tales premisas, se hace difícil mantener esa estricta distinción entre «los hechos» en bruto y su aprehensión lingüística?*

RK.- Sí, teóricamente en este punto pueden darse dos respuestas extremas, cualquiera de las cuales reduce el lenguaje a una reacción ante los hechos. Así, para unos, el lenguaje sería meramente un espejo, y un espejo deformante, a la manera marxista: el ser es la guía de la conciencia, y más fuerte que ella. Por tanto, la conciencia no sería verdaderamente consciente. Esta es una posición que expresa la prioridad radical de «lo real». Para otros, por el contrario, todo está lingüísticamente mediatizado y, por tanto, la prioridad reside en la interpretación lingüística de los hechos. Lo que éstos hechos sean o no depende de la interpretación lingüística. Cualquiera puede elegir entre estas dos posiciones extremas. Ambas pueden ser aplicadas metodológicamente. Se puede defender, como buen marxista, la dependencia absoluta de las ideologías y mentalidades respecto a las condiciones reales de producción, ¿por qué no? O bien, por el contrario, podemos seguir a Gadamer cuando dice que todo está lingüísticamente determinado. Pero a mi modo de ver esas dos posiciones no bastan para desarrollar una investigación idónea, y no hay convergencia posible entre ambos extremos. Siempre tendremos que optar entre una u otra dirección y tal decisión depende de la propia pregunta que inicialmente hayamos planteado. Yo diría que el asunto central aquí es la cuestión que usted trata de responder: tal es mi punto de vista. A veces mis colegas socialistas me atacan diciendo que produzco cosas sin sentido, absurdos lingüísticos, que no tienen nada que ver con la realidad. Pero yo creo que son muy ingenuos al pensar que la realidad es independiente del lenguaje. Claro que, por mucho que insistamos en que la realidad depende del lenguaje, un historiador de la economía siempre podría replicar: «Muy bien, pero para mi trabajo el lenguaje es simplemente una ayuda, mientras que son básicamente las necesidades económicas y la presión producida por ellas las que hacen reaccionar a la gente y ponen en movimiento su imaginación lingüística». La argumentación depende, pues, de la opción metodológica elegida por cada cual, y podríamos limitarnos a examinar los argumentos de unos y de otros, y a dar cuenta de las respectivas razones con que se combaten mutuamente. Sin embargo, hay un punto en el que insisto siempre. Cualquiera que sea la opción elegida, ya se incline por una postura de tipo materialista o idealista, esa decisión tiene que ser adoptada inevitablemente en el terreno del lenguaje. A mi modo de ver, el ámbito en que el debate se desarrolla es el lenguaje, de manera que, tanto si usted sostiene que la base de todo es la economía o si cree, por el contrario, que lo esencial es el factor lingüístico, tanto si usted prefiere los argumentos lingüísticos como los no lingüísticos, el campo de batalla es el lenguaje. Afirmar que la decisión es lingüística en sí misma no es lo mismo que atribuir la prioridad al lenguaje. Simplemente considero que el medio o el factor para ese cambio de opción es necesariamente el lenguaje, que la disputa teórica se libra en el terreno lingüístico. Espero que, en este punto, estén de acuerdo conmigo.



Koselleck con Javier Fernández Sebastián y Juan Francisco Fuentes durante la entrevista

JFS.- *Como usted sabe, Juan Francisco Fuentes y yo mismo, contando con la colaboración de casi una treintena de historiadores, publicamos en 2002 un* Diccionario de historia de los conceptos políticos y sociales de la España del siglo XIX, *y actualmente dirigimos un proyecto para prolongar esta obra con un nuevo volumen correspondiente al siglo XX, que esperamos vea la luz en el año 2006. En esos trabajos nos hemos inspirado parcialmente en el método de la* Begriffsgeschichte, *si bien hemos tenido muy en cuenta otras propuestas metodológicas, en particular las provenientes de la llamada escuela de Cambridge. Al igual que Melvin Richter y Kari Palonen, pensamos que no sólo es factible, sino conveniente, combinar las sugerencias y reflexiones de ambas escuelas. Al sostener esta postura ecléctica coincidimos con las consideraciones de Palonen sobre las ventajas de simultanear los análisis histórico-semánticos de la* Begriffsgeschichte *y la atención a los aspectos pragmáticos y a las estrategias persuasivas de los actores, autores y locutores que caracteriza a la metodología de Quentin Skinner y la escuela de Cambridge. ¿Cree posible la integración de ambas perspectivas para un acercamiento apropiado a la semántica histórica de los conceptos y discursos políticos?*

RK.- En el pasado asistí a debates con Skinner y Pocock que continúan hoy con Richter y Palonen, y la cuestión en que insiste Palonen me parece que es la tesis según la cual cada concepto tiene su propia temporalidad interna. Quiero creer que yo mismo he contribuido a descubrir por mi análisis del lenguaje que cada concepto indica estabilidad o cambio, y que la división entre pasado y futuro está internamente contenida en el mismo, porque la mudanza o evolución conceptual significa naturalmente la pérdida de una parte de la carga de pasado que cada concepto internamente conlleva y el aumento correlativo de sus expectativas de futuro, un fenómeno que puede observarse sobre todo a partir del siglo XIX. Si queremos analizar el elemento progresivo, transformador, necesitamos distinguir, desde luego, entre pasado y futuro. Es precisamente la estructura temporal interna de algunos conceptos la que produce dife-

rencias temporales en la conciencia de los hablantes. Otros conceptos, sin embargo, pueden estar sometidos a cambios muy pequeños a través del tiempo y resultan por tanto altamente repetitivos. Cuando digo «table» puedo referirme a la «tabula» de los romanos o la «table» de los británicos o de los franceses, sin que tal concepto [*mesa*, en español] implique grandes matices o cambios temporales en el estilo y en la función.

Pero, volviendo a la posibilidad de aproximación entre nuestro propio método y el del grupo de Cambridge, el término «temporalidad» al parecer plantea algunos problemas. En todo caso, creo que tanto Skinner como Pocock han captado bien su significado, y tengo la impresión de que podrían profundizar más en la comprensión de esta cuestión crucial, pero en nuestros encuentros temo que mi inglés no es lo suficientemente bueno para contestar de forma convincente a sus objeciones. Con respecto a Skinner, que es un historiador muy estricto en el terreno de la historia hermenéutica, la verdadera diferencia es que, a mi juicio, su capacidad analítica está muy volcada hacia lo normativo. Sus análisis de los conceptos de «freedom» y «liberty» sobre bases republicanas en el siglo XVII me parecen muy normativos[4], comparados con el lenguaje vehemente de los teólogos presbiterianos y los argumentos de los revolucionarios británicos, impregnados de teología, de los tiempos de la Guerra Civil. Así que Skinner me parece un historiador convencional cargado de conceptos normativos. Es una pena que no podamos encontrarnos para discutir de estas cuestiones... Por mi parte, estoy encantado de desprenderme de los conceptos normativos (hablo, naturalmente, como historiador; otra cosa distinta es si entrásemos en el terreno de la política). Sé que alguien podría contestar a mi afirmación diciendo que no hay conceptos que no tengan capacidad normativa, pero para mí ésta es una cuestión política, y no me parece adecuado aplicar retrospectivamente esta normatividad implícita en los conceptos del último siglo y hacer análisis históricos a partir de ellos. Tengo que escuchar lo que dijeron las gentes del pasado e intentar ver cuáles se supone que fueron sus intenciones originales, aunque las respuestas a esa clase de cuestiones sólo podré encontrarlas si desarrollo hipótesis adecuadas.

JFS.- *Tal vez lo más interesante últimamente en los trabajos de Skinner sea su aproximación muy fina a los recursos retóricos puestos en juego por los agentes históricos.*

RK.- Sí, esa es una aproximación nueva que ha aplicado, por ejemplo, en su reciente interpretación de Hobbes[5]. Pero en el fondo de ese planteamiento subyace una típica estructura repetitiva. A propósito de estos temas haré algunas observaciones y abundaré en mi conferencia de mañana. Obviamente los tópicos lingüísticos se sustentan en la repetición y, por tanto, la retórica es un recurso que puede ser usado tanto a favor como en contra del cambio. Desde luego, es posible crear algo nuevo a partir de una topología dada, pero su potencia lingüística innovadora estriba en el poder repetitivo de la retórica.

JFS/JFF.- *En los últimos meses hemos emprendido un ambicioso programa de historia conceptual comparada del mundo iberoamericano, que en una primera fase abarca una decena de conceptos, y por el momento se extiende a los casos de Argentina, Brasil, Colombia, España y México durante el período de la transición 1750-1850*[6]*. Por otra parte, como usted sabe, Lucian Hölscher y otros académicos alemanes han propuesto la puesta en marcha de una historia comparada de los conceptos políticos de alcance europeo. Usted que, refiriéndose a los casos de Alemania, Inglaterra y Francia, ha hablado en un artículo memorable de «Tres mundos burgueses/civiles»*[7]*, ¿qué opinión tiene sobre esa empresa de historia europea de los conceptos? ¿Le parecería factible intentar al menos el estudio comparado de un puñado de conceptos en las cinco principales lenguas de Europa occidental?*

RK.- Bien, un proyecto así tal vez sea posible, pero me parece extremadamente difícil. Yo lo intenté en los sesenta, cuando comenzaba mi dedicación a la historia conceptual. En París visité a un catedrático de literatura comparada. He olvidado su nombre (ya sabe que a mi edad los nombres desaparecen). De forma espontánea, me dijo: «Hagamos un lexicón de historia conceptual comparada que abarque el pensamiento francés, inglés, alemán...». Sin embargo, yo creo que es casi imposible, porque un proyecto de esas características presenta una enorme complejidad y su realización tendría que superar grandes dificultades que tienen que ver con la interrelación entre lenguas, tiempos y culturas. Veamos un ejemplo: el uso de la palabra francesa *état*, en el sentido de «orden» (grupo o categoría social), esto es, de estamento o «clase» dentro de la sociedad, y todavía no de «Estado». El significado nuevo de «Estado» resulta de la transformación del anterior y sólo empieza a prevalecer en el siglo XVII. Esa duplicidad de significados –*état*, al mismo tiempo como estamento y como Estado– también se da en alemán con la palabra *Staat*. También en lengua alemana *Staat*, que se refirió durante mucho tiempo a estamento o posición social, empezó en un cierto momento a significar Estado, pero no en el siglo XVII, sino a finales del XVIII; por tanto, en este aspecto se produce un retraso de un siglo y medio con respecto al francés. Así pues, si se hace un análisis comparativo, además de las diferencias históricas, léxicas y semánticas de todo tipo, habría que señalar quién toma la delantera en estos procesos de cambio, y quiénes «se retrasan», así como los grados de simultaneidad en la evolución de cada concepto en las distintas lenguas y culturas. A las diferencias entre tradiciones y experiencias históricas, habría que añadir, pues, las diferencias cronológicas, lo que hace de ese proyecto una empresa muy compleja y llena de dificultades. En suma, me parece enormemente difícil resolver los problemas metodológicos de forma convincente.

JFS.- *Tal vez el problema principal estribe en encontrar un lenguaje común...*

RK.- Exactamente, sería necesario un metalenguaje. Eso está claro. Necesitaríamos un lenguaje que incorporase las diferencias histórico-sociales que tienen su reflejo en la lengua, porque esas tres experiencias de las que antes hablábamos dan lugar a tres mundos distintos[8]: aunque sociológicamente hablando podamos decir que en un momento dado esas tres experiencias históricas se encuentran en el mismo período capitalista, lo cierto es que cada una de ellas se sitúa muy lejos de las otras dos.

En cuanto a su proyecto de historia conceptual comparada del mundo iberoamericano, ¿por qué no comparar los lenguajes cambiantes de los colonos y de las poblaciones iberoamericanas fruto de las diferentes experiencias de los españoles y portugueses en Europa y en América? Se trata sin duda de un proyecto más abarcable y de más fácil realización. En comparación, es mucho más viable que comparar los casos francés, inglés, alemán y de las lenguas eslavas, puesto que estas últimas no tiene un origen latino. El francés, el italiano, el español y el inglés tienen un origen latino, de forma que cada traducción, cada adaptación de la lengua románica a la vernácula, esto es, al lenguaje ordinario de la vida cotidiana, supone efectivamente una transformación, un cambio del que Saussure se ocupó convincentemente. Ahora bien, esa continua y gradual transformación desde el latín a la moderna terminología política de los pueblos occidentales no se encuentra en Alemania, en Escandinavia, en Rusia o en Polonia. Por supuesto, tienen una educación latina, pero necesitan o bien integrar las voces latinas en su lengua o bien inventar palabras nuevas, lo que supone una forma muy diferente de experimentar diferentes lenguajes. Es un tema apasionante y entiendo que estaría muy bien hacerlo, pero es verdaderamente muy difícil. □

(Continuará en el próximo número de la revista)

1 «Wiederholungsstrukturen in Sprache und Geschichte» («Estructuras de repetición en el lenguaje y en la historia»), que pronunció al día siguiente de la grabación de esta entrevista –esto es, el 6 de abril de 2005–, en el Centro de Estudios Políticos y Constitucionales de Madrid. La versión española del texto de esta conferencia, a cargo de Antonio Gómez Ramos, aparecerá en un próximo número de la *Revista de Estudios Políticos*.

2 Koselleck enuncia aquí sumariamente las cuatro grandes transformaciones del lenguaje político en el umbral de la modernidad (*Demokratisierung, Politisierung, Ideologisierbarkeit, Verzeitlichung*), que expuso con más detalle en su «Einleitung» al primer volumen de su monumental diccionario (conocido generalmente por sus iniciales GG): *Geschichtliche Grundbegriffe. Historisches Lexikon zur politisch-sozialen Sprache in Deutschland*, compilado por Otto Brunner, Werner Conze y Reinhart Koselleck, Stuttgart, Klett-Cotta, 1972, vol. I, pp. xiii-xxviii, especialmente pp. xvi-xviii.

3 Koselleck alude a nuestro *Diccionario político y social del siglo XIX español*, Madrid, Alianza, 2002.

4 Entre los varios trabajos de Skinner sobre esta cuestión destaca su ensayo *Liberty before Liberalism*, Cambridge, Cambridge University Press, 1998.

5 *Reason and Rhetoric in the Philosophy of Hobbes*, Cambridge, Cambridge University Press, 1996.

6 Puede consultarse un breve resumen de este proyecto en el sitio *web* del Foro Iberoideas, sección Miscelánea: http://www.foroiberoideas.com.ar/htm/news/misc.aspx.

7 Reinhart Koselleck, Willibald Steimetz y Ulrike Spree, "Drei bürgerliche Welten? Zur vergleichenden Semantik der bürgerlichen Gesellschaft in Deutschland, England und Frankreich", en Hans-Jürgen Puhle (ed.), *Bürger in der Gesellschaft der Neuzeit. Wirtschaft, Politik, Kultur*, Gotinga, Vandenhoeck & Ruprecht, 1991, pp. 14-58. Existe una versión reducida de este artículo en inglés: «Three *bürgerliche* Worlds? Preliminary Theoretical-Historical Remarks on the Comparative Semantics of Civil Society in Germany, England, and France», en Reinhart Koselleck, *The Practice of Conceptual History. Timing History, Spacing Concepts*, Stanford, Stanford University Press, 2002, pp. 208-217.

8 Koselleck se refiere a las tres trayectorias históricas que están detrás de las grandes diferencias entre los campos semánticos referentes a los conceptos de burguesía y ciudadanía en los idiomas francés, inglés y alemán. Véase *supra* nota 7.

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Historia conceptual, memoria e identidad (II) Entrevista a Reinhart Koselleck

Esta es la segunda parte de la conversación mantenida por los autores con Reinhart Koselleck el 5 de abril de 2005 durante una estancia en Madrid del historiador alemán, fallecido el pasado 3 de febrero. La primera parte se publicó en el número anterior de «Revista de libros».

JFS/JFF.- *Otras dos categorías o conceptos analíticos que la historiografía ha sacado a primer plano en las últimas décadas son los de memoria e identidad colectiva. Comenzando por este último concepto, ¿no cree que algunas identidades políticas fuertes, de partido, clase, nación o género, podrían verse como el resultado de la asunción efectiva (y afectiva) por parte de determinados individuos de ciertos conceptos vividos que les hacen entenderse a sí mismos como pertenecientes esencialmente –e incluso a veces exclusivamente– a tal o cual colectivo o comunidad de referencia? Estamos pensando en particular en ciertos contraconceptos asimétricos de carácter identitario, que son vividos de manera excluyente y dan origen a lo que un especialista en historia del nacionalismo ha llamado «contraidentidades».*

RK.- De entrada, yo diría que la oposición entre nación lingüística y nación política es una invención de los siglos XIX y XX. El primer concepto ha sido muy utilizado desde el Tratado de Versalles hasta la actualidad como una ideología peculiarmente alemana, porque desde el punto de vista lingüístico somos mucho más una nación cultural que una nación política, y de ahí la insistencia en el aspecto lingüístico. Los franceses poseen también, desde luego, una nación lingüística, puesto que, como no permitieron el desarrollo de minorías lingüísticas en su territorio, todos tienen que hablar exclusivamente en francés. Los alsacianos, los vascos o los habitantes de Bretaña hablan francés e históricamente fueron presionados en ese sentido mediante políticas lingüísticas muy enérgicas. Así pues, la nación lingüística no es sólo una invención alemana, también es una práctica francesa. Pero la ideología, que es muy distinta en uno y otro caso, es otra cuestión. Así, si uno se fija en los detalles, podría encontrar diferencias nacionales que están lingüísticamente enmascaradas por diferentes ideologías.

En cuanto a la identidad y a la memoria colectiva, yo creo que depende fuertemente de predecisiones lingüísticas de hablantes impregnados de ideología. Y mi posición personal en este tema es muy estricta en contra de la memoria colectiva, puesto que estuve sometido a la memoria colectiva de la época nazi durante doce años de mi vida. Me desagrada cualquier memoria colectiva porque sé que la memoria real es independiente de la llamada «memoria colectiva», y mi posición al respecto es que mi memoria depende de mis experiencias, y nada más. Y se diga lo que se diga, sé cuáles son mis experiencias personales y no renuncio a ninguna de ellas. Tengo derecho a mantener mi experiencia personal según la he memorizado, y los acontecimientos que guardo en mi memoria constituyen mi identidad personal. Lo de la «identidad colectiva» vino de las famosas siete «pes» alemanas: los *profesores* que producen las memorias colectivas, los *párrocos*, los *políticos*, los *poetas*, la *prensa*..., en fin, personas que se supone que son los guardianes de la memoria colectiva, que la pagan, que la producen, que la usan, muchas veces con el objetivo de infundir seguridad o confianza en la gente... Para mí todo eso no es más que ideología. Y en mi caso concreto, no es fácil que sea convencido por ninguna experiencia que no sea la mía propia. Yo contesto: «Si no les importa, me quedo con mi posición personal, individual y liberal, en la que confío». Así pues, la memoria colectiva es siempre una ideología, que en el caso de Francia fue suministrada por Durkheim y Halbwachs, los cuales, en lugar de encabezar una Iglesia nacional francesa, inventaron para la nación republicana una memoria colectiva que, en torno a 1900, proporcionó a la República francesa una forma de autoidentificación adecuada en una Europa mayoritariamente monárquica, en la que Francia constituía una excepción. De ese modo, en aquel mundo de monarquías, la Francia republicana tenía su propia identidad basada en la memoria colectiva. Pero todo esto no dejaba de ser una invención académica, un asunto de profesores.

JFF.- *De ahí aquella definición de Mohan del intelectual como «fabricante de mitos»* (mythmaker)...

RK.- Max Weber fue muy perspicaz respecto a este tema al analizar los orígenes de las naciones como consecuencia de la acción de los intelectuales, a través del lenguaje. Weber aplicó una perspectiva muy sobria, muy profesoral.

JFS/JFF.- *Quisiéramos a continuación, si nos lo permite, continuar con algunas cuestiones relacionadas con la memoria histórica. Sus trabajos sobre la memoria de las dos guerras mundiales han aportado mucha luz sobre la repercusión de esos dramáticos acontecimientos en la conciencia de los europeos, en particular de alemanes y franceses. En estos días en que se conmemora el sexagésimo aniversario de la liberación de Auschwitz, ¿tiene la impresión de que los jóvenes alemanes, nietos de la generación que luchó en la guerra, han logrado por fin asumir y superar un pasado que durante tanto tiempo ha pesado como una losa sobre la conciencia de sus compatriotas?*

RK.- La conciencia de la joven generación parece clara. No participaron en los hechos, exponen libremente sus interpretaciones y dicen lo que dicen con facilidad. No hay entre ellos confrontación basada en sus experiencias y, para ser franco, en cuanto a las diferencias entre franceses y alemanes, me parece que la mejor disputa es aquella en que, aunque se discuta desde posiciones abiertamente diferentes, existe un acuerdo básico sobre el común desacuerdo. A partir de ahí, se cuenta con una buena base para tratar en común sobre el pasado, lo cual resulta mucho más difícil con el pasado judío, porque la aniquilación de los judíos fue tan increíble que en esta cuestión no existe base para un debate libre: hay que esperar hasta que la gente muera, y entonces dispondremos de postacontecimientos y de nueva información, de manera que, sin resentimientos personales, todo resultará más fácil. Pero es extremadamente difícil. Tengo muchos amigos judíos en Estados Unidos e Israel, pero sigue siendo un tema delicado. Es difícil mantener un debate libre, que sólo se produce muy rara vez, porque hay ciertos prejuicios que son inevitables y uno tiene que vivir con ellos. Esas diferencias son parecidas a las que hay entre los alemanes y los polacos, porque la conducta de los alemanes con los polacos durante la guerra fue muy parecida a la que tuvieron con los judíos: ellos despreciaban a los polacos y también a los rusos. De ahí mi empeño, fallido, en conmemorar la supervivencia de las gentes de origen polaco y de origen ruso. Yo dije: «Nosotros aniquilamos a seis millones de judíos, a tres millones de polacos y a mucho más que seis millones de rusos, y estamos obligados a conmemorar esas muertes increíbles que tuvieron lugar en el pasado». Pero los judíos siempre se opusieron a esa conmemoración de los eslavos, porque insisten en la singularidad del exterminio de los judíos, pues se supone que los judíos fueron aniquilados todos juntos a causa de la ideología de Hitler. Y es cierto... Es muy difícil entrar en este tipo de debates, porque los prejuicios siguen contaminando los recuerdos. Por tanto, como decía, el debate no es tan fácil como entre franceses y alemanes. Sabemos que la colaboración de muchos franceses en tiempos de Hitler fue muy intensa. Pero la simple conciencia de haber colaborado prueba la disposición a ese debate común sobre el pasado nacionalsocialista. Tal vez lo que sucede en España con sus problemas internos acerca del pasado franquista sea algo similar. Estoy seguro de que se dan algunas analogías entre ambas situaciones.

JFS/JFF.- *Dado que, por diversas razones, los españoles estuvieron ausentes de las dos guerras mundiales, y que nuestra experiencia en este terreno fue forjada sobre todo por la sangrienta guerra civil de 1936-1939, creemos que la memoria de tan traumáticas vivencias difiere en varios aspectos de las de nuestros vecinos europeos. Así, el éxito de la transición española a la democracia tras la muerte de Franco se asentó precisamente, según no pocos observadores, en una sabia gestión de la memoria y el olvido*

por parte de quienes, desde los dos bandos, franquista y antifranquista, fueron capaces de reconciliarse y ponerse de acuerdo en algunos puntos mínimos sobre cómo dejar atrás la dictadura y conducir la transición al nuevo régimen liberal-democrático. En aquel momento se resaltaba muy a menudo que la experiencia dolorosa de la guerra había hecho reflexionar a todos (y en particular a los vencidos) sobre las circunstancias que desencadenaron la catástrofe, con el fin de convertir esa amarga experiencia en conocimiento, y sacar enseñanzas para evitar su repetición. Ahora bien, en los últimos años estamos asistiendo al surgimiento de un cierto revisionismo que pone en cuestión ese modelo de transición, y en algunos casos propone una completa reevaluación de los hechos. Tal actitud es especialmente frecuente entre quienes se erigen a sí mismos en guardianes de la memoria de los derrotados y en herederos de la Segunda República española. La ola de «memorialismo» que actualmente vivimos en España –incluyendo la voluntad de exhumación de los fusilados en fosas comunes por parte de diversas asociaciones, y otros aspectos más anecdóticos, como la reciente retirada de los monumentos a Franco– obedece en parte a ese movimiento revisionista. Un movimiento que, al menos en ciertos sectores de la izquierda militante, evidencia una voluntad vindicativa que no pocas veces choca con la actitud mucho más flexible y contemporizadora de los escasos supervivientes y de los familiares directos de las víctimas. Incluso, en ocasiones, se utiliza una retórica revanchista que, al servicio de distintos propósitos –por ejemplo, en el caso de los nacionalistas vascos radicales, es evidente que su pretensión se orienta claramente a relativizar la memoria reciente de las víctimas del terrorismo en el País Vasco, contraponiendo y superponiendo a esa memoria la de las víctimas lejanas de la Guerra Civil–, no duda en reabrir viejas heridas no del todo cicatrizadas, pese a las más de seis décadas transcurridas desde el final de la Guerra Civil (y treinta años después de la muerte del dictador). A partir de la experiencia alemana que usted conoce bien, y aunque no se trate ni mucho menos del mismo caso, ¿sobre qué bases cree usted que ha de construirse o recomponerse una memoria común en un país desgarrado por una guerra civil ideológica, como lo fue la española?

RK.- Mi regla en este tema consiste siempre en mantener las diferencias, debatir sobre las diferencias sin máscara. De este modo, cada uno tiene la oportunidad de mantener su independencia respecto al otro gracias al reconocimiento mutuo. El reconocimiento de ambas partes supone de entrada una predisposición hacia la paz. Pero si uno niega la independencia de los otros, entonces te ves sometido de inmediato a la presión de suprimirlos. Creo que insistir en las diferencias es la mejor manera de contribuir a la paz y a la memoria común, puesto que la memoria está dividida. Y aceptar esto último, aceptar que la memoria está dividida, es mejor que inventarse una memoria única, de una sola pieza. Me parece que esta debería ser la norma, la regla general en este tipo de asuntos. Se trata de un criterio que podría aplicarse a toda Europa, a israelíes, polacos, alemanes, franceses, etc. Y creo que, por analogía, también a los españoles. A mi juicio, es el único camino.

JFS/JFF.- *En cuanto a sus investigaciones sobre monumentos y memoriales de guerra, nos gustaría que nos aclarase si existe alguna relación metodológica entre sus estudios sobre monumentos de homenaje a los caídos o sus trabajos en curso sobre las estatuas ecuestres, por una parte, y la historia de los conceptos, por otra. Y, en tal caso, ¿podría explicarnos someramente qué puntos comunes podrían establecerse entre la metodología de la* Begriffsgeschichte *y de la historia de los monumentos conmemorativos? ¿Cuál sería, en su opinión, la principal diferencia entre su manera de abordar el estudio de estos temas y el tipo de aproximación consagrada en Francia en los años ochenta con los famosos* Lieux de mémoire *de Pierre Nora? ¿Estaría usted de acuerdo grosso modo con el diagnóstico de François Hartog, quien en su libro* Régimes d'historicité (2003) *ha sugerido que estamos entrando en una época de presentismo y de memorialismo que, paradójicamente, mata la historia?*

Reinhart Koselleck y Javier Fernández Sebastián durante la entrevista

RK.- Conozco bastante bien a los dos. En general, estoy de acuerdo con la semiirónica posición de Hartog. La ola de memorialismo se produce, paradójicamente, debido a una determinada actitud hacia la historia. Es una moda que puede olvidarse en veinte años, al menos eso espero. Pero yo no sobreviviré a ella. En realidad, supone una abdicación de la historia objetiva en favor de la historia subjetiva, según el sentido tradicional de estos dos adjetivos. Si se insiste en la memoria está diciéndose que la historia subjetiva es mucho más importante que el análisis objetivo de los historiadores, y eso es un disparate. Qué duda cabe de que hace falta lo subjetivo, y yo mismo abogo por respetar la experiencia subjetiva, como la mía, pero el análisis de lo que ocurre no depende sólo de lo subjetivo. El auténtico análisis del pasado histórico requiere una aproximación teórica que va más allá de las vivencias subjetivas, de los recuerdos de esos acontecimientos reales que, sin duda, se reorganizan luego ideológicamente. Puesto que los *Lieux de mémoire* de Pierre Nora se refieren sólo a Francia, los conflictos entre Alemania y Francia, y supongo que entre Francia y España, quedan subordinados a todo aquello que constituye la identidad francesa, que es el foco hacia el cual se orienta la obra. Estoy seguro de que allí se supone que Estrasburgo fue liberada por los franceses de la dominación alemana, cuando la realidad es que se trata de una vieja ciudad medieval alemana con un alto nivel cultural, producción literaria, religiosa y teológica, y que fue ocupada de resultas de la presión provocada por la invasión de Austria por los turcos... Pero puedo asegurarle que usted no encontrará esta versión de la historia en libros franceses del tipo de los *Lieux de mémoire*. El hecho es que, en tanto que intérpretes de la común historia europea, necesitamos ambos puntos de vista y a partir de ahí puede discutirse. Pero es mejor tener esa disputa y estar abiertos a ella, con nuestras diferencias, que inventar una ideología común.

JFF.- *¿Qué le parecen las obras de George Mosse y Mario Isnenghi sobre la memoria de la Primera Guerra Mundial en Italia?*

RK.- Al segundo no lo conozco, en cambio a Mosse le conozco bien por haber venido a mis seminarios. Sus trabajos y mis análisis de los memoriales de guerra, la iconografía y los mensajes simbólicos son casi idénticos. El tipo de identificación emocional provocado por un monumento conmemorativo en Francia, Italia, Alemania e Inglaterra es muy parecido. La diferencia está sólo en los cascos y en el tipo de uniforme, pero el mensaje es el mismo. Por tanto, tenemos una experiencia simbólica común a los participantes europeos en las guerras, y mi principal argumento radica en el San Jorge matando al dragón, que empezó en Escocia, siguió en Inglaterra, y luego, a través de Holanda, pasó a Baviera, Polonia, Rusia... San Jorge siempre aparece matando al dragón que representa a su vecino inmediato, pero si mata siempre a su vecino de al lado, en el siguiente país estaría matándose a sí mismo... Este es el mejor símbolo para la situación aporética en que desemboca la conmemoración de las absurdas guerras que hemos estado librando entre nosotros durante siglos.

La última cuestión planteada en su pregunta anterior es si existe una diferencia precisa entre la visualización y la racionalización desde el punto de vista de la historia conceptual. Creo que ambas aproximaciones son muy similares. Si tomamos, por ejemplo, un concepto específico en diferentes lenguas, como vimos en el trabajo al que hemos hecho referencia anteriormente relativo a las distintas palabras relativas a la burguesía/ciudanía en francés, inglés y alemán, observamos una pluralidad de mundos burgueses/ciudadanos[1]. Pues bien, algo muy similar sucede cuando se estudian los monumentos. Tenemos, por un lado, símbolos comunes en forma de palabras y, por otro, una manera común de utilizar ese otro tipo de símbolos que son los monumentos. Símbolos que difieren sobre todo en su articulación específica, aunque no en su estructura icónica. Así pues, la analogía existe muy a menudo y, si examinamos las inscripciones de monumentos, encontraremos por todas partes una inscripción común: *Dulce et decorum est pro patria*

mori. Franceses, alemanes, ingleses e italianos utilizan siempre la misma inscripción, que sugiere lo bello que es morir por la patria de cada cual, puesto que todo el mundo lo dice. Una buena respuesta a esa aserción es la de Erasmo de Rotterdam, cuando dijo que la guerra es bella sólo para quien no la conoce (*Dulce est bellum inexpertis*). Pero el que la conoce tiene una posición distinta y estoy seguro de que esta opinión basada en la experiencia es más común de lo que imaginamos.

JFS.- *Para los que la conocen debe de ser más bien amarga...*

RK.- Por supuesto. Pero la amargura de la guerra se transforma en una forma de dulzura si uno consigue sobrevivir. Por otra parte, esa es la única posibilidad de reflexionar sobre tal experiencia, porque en caso contrario uno pierde toda oportunidad de hacerlo...

JFS/JFF.- *Se cumplen ahora treinta años desde la publicación de su artículo «Geschichte/Historie», aparecido en el segundo volumen del diccionario* GG (Geschichtliche Grundbegriffe) *en 1975. En ese texto fundamental, recientemente traducido al español, reconstruía usted magistralmente la génesis y evolución del moderno concepto de historia*[2]*. Sin embargo, tenemos la impresión de que los cambios sociales y culturales acaecidos durante las últimas décadas y la propia crisis de la historia como disciplina están produciendo una profunda erosión en el concepto, hasta el punto de que nos preguntamos si no estaremos en vísperas de una nueva transformación semántica de gran calado. Por decirlo rápidamente, tenemos la impresión de que la historia, tal cual fue concebida en la Europa del siglo XVIII –por ejemplo, como metaconcepto globalizador de vocación universalista que subsume en un colectivo singular trascendental una multitud de experiencias humanas–, está siendo desafiada por una profusión de historias particulares que, con el auge del multiculturalismo, podrían llegar a propiciar una nueva fragmentación del concepto englobante de historia (y en este punto tal vez convenga recordar que para Maurice Halbwachs, a comienzos del siglo pasado, las memorias colectivas eran tan numerosas como los grupos sociales que las mantienen, mientras que la historia era sólo una; ahora bien, si nuestra observación es correcta, hoy podríamos decir que la historia empezaría a ser tan múltiple y fragmentaria como la memoria). Nuestra pregunta sería si cree usted posible esa evolución en el concepto de historia, y en caso de serlo, hasta qué punto podría interpretarse tal cambio como una especie de retorno a un estadio anterior del concepto. Además, es posible que el caso del concepto de historia, con ser importante, no sea un caso aislado, sino más bien el síntoma definitorio de un proceso más amplio. Así, la crítica de los grandes relatos* (grands récits: *Lyotard) por parte de los autores posmodernos, y la disgregación de pilares tan fundamentales de la modernidad como son los conceptos de historia, libertad o progreso, que estarían dejando de ser nombres singulares colectivos para volver a sus orígenes pre-*Sattelzeit *(cada vez se resalta más sus aspectos pluralistas, sectoriales y contingentes y, sintomáticamente, vuelve a hablarse más de historias, de progresos o de libertades que de Historia, Progreso o Libertad), parecerían indicar que, como sugieren algunos, hemos emprendido una especie de «camino de vuelta» de la modernidad. ¿Le parecen exagerados tales pronósticos, o considera que hay suficientes indicios de que pudiera estar incoándose un proceso de esas características?*

Por otra parte, si bien es cierto que, como decíamos hace un momento, siempre ha existido una brecha entre la realidad factual y su aprehensión lingüística, ¿no tiene usted la impresión de que esa brecha se ha hecho últimamente demasiado grande como consecuencia de la esclerotización de muchos conceptos políticos y sociales nacidos o transformados en su sentido moderno hace doscientos años, que habrían agotado su capacidad de generar expectativas y que ya no son capaces de dar cuenta satisfactoriamente de las nuevas realidades de comienzos del siglo XXI? En el mundo actual, con la creciente aceleración del tiempo y la ansiedad hacia un futuro inminente y desconocido, el horizonte de expectativa parece haberse estrechado considerablemente, al mismo tiempo que el campo de la experiencia en muchas ocasiones nos es de escasa utilidad, puesto que se refiere a un mundo que enseguida se queda viejo, a un estado de cosas rápidamente periclitado.

Podría decirse que, de manera similar –pero también diferente– a lo que sucediera hace doscientos años, se ha quebrado el equilibrio entre experiencia y expectativa, en la medida en que el carácter insólito y opaco del futuro –que cada vez es más difícil pensar como simple prolongación del presente– hace muy difícil la extrapolación hacia el porvenir de conclusiones extraídas de situaciones anteriores. Ahora bien, si damos por buena esa obsolescencia de nuestro universo conceptual, esa suerte de implosión de los conceptos políticos y sociales, ¿no cree que podríamos estar en el umbral de otra Sattelzeit *de signo inverso a la gran transformación semántica abierta en la segunda mitad del siglo XVIII, una especie de* Sattelzeit *al revés? Y, en ese caso, a la vista de lo que sabemos de la primera revolución conceptual del mundo moderno, ¿no le parece que tal vez valdría la pena emprender una suerte de «historia prospectiva» o historia de los conceptos del tiempo presente? Y, para finalizar, ¿considera todavía válido en algún sentido el viejo aforismo ciceroniano «Historia magistra vitae»?*

RK.- En primer lugar, en cuanto a la *Sattelzeit* he de decirle que inventé el término y lo utilicé por primera vez en los textos de propaganda comercial que se hicieron para dar publicidad al *GG*, para vender más ejemplares [*Koselleck ha acompañado toda esta frase con una clara sonrisa irónica*]. Desde luego gané algún dinero con el lexicón, pero el término en sí mismo (*Sattelzeit)* no me gusta mucho, porque es muy ambiguo. Como saben, uno de sus significados (de *Sattel*) se refiere a los caballos, al ámbito ecuestre, y el otro significado alude a la situación que se produce cuando usted asciende a la cumbre de una montaña y desde allí se le ofrece la posibilidad de contemplar un amplio paisaje[3]. Pero el término no alude de forma específica a la aceleración, que es el aspecto crucial de la experiencia moderna del mundo. Por tanto, desde el punto de vista teorético, *Sattelzeit* es un término bastante débil. Pero, en fin, no está mal. Ahora bien, si lo que buscamos es el reflejo en las expresiones lingüísticas del cambio en las experiencias históricas, tenemos también una *Sattelzeit* en Francia: como observó Paul Hazard, hacia finales del siglo XVII, tras el final del reinado de Luis XIV, vino el gran impulso innovador que representó el lenguaje de la Ilustración. Por tanto, ese cambio radical de lenguaje empieza en Francia a principios del siglo XVIII, antes que en Alemania. Y la *Sattelzeit* de los italianos podría arrancar desde las grandes innovaciones conceptuales de la época de Maquiavelo.

JFS.- *Probablemente también en el caso español los siglos XVI y XVII podrían haber sido muy importantes en la renovación del lenguaje político, aunque se tratase de una renovación construida en parte sobre bases tradicionales (neoescolástica). Pero, por otra parte, es indudable que el período correspondiente a la* Sattelzeit *alemana, de mediados del siglo XVIII a mediados del XIX, resulta también un tracto cronológico decisivo en la modernización del léxico político español.*

RK.- Sin embargo, todos esos períodos o umbrales de cambio conceptual no tienen las implicaciones teóricas de la *Sattelzeit* que nosotros planteamos hace años, porque la principal característica de aquella transición es que se abrió una brecha profunda entre las experiencias y las expectativas de las gentes de la época. Maquiavelo, por supuesto, produjo también una ruptura en el campo de la ciencia política, que de un modo u otro afectaría a todos en el futuro inmediato. Sin embargo, Maquiavelo sigue recurriendo sistemáticamente a la historia como fuente de enseñanzas para el futuro. Ahora bien, con la *Sattelzeit* el argumento histórico pierde su poder de convicción, porque las explicaciones basadas en el pasado encajan mal con lo que sucede en unos momentos de aceleración histórica en los cuales los cambios se producen de manera cada vez más rápida. Por tanto, ya no es posible aplicar la experiencia pasada de manera inmediata a esas novedades, y el futuro se vuelve más imprevisible.

Sin embargo, a largo plazo es evidente que las propias estructuras de aceleración también pueden analizarse y es posible encontrar problemas comunes, similares o repetidos también en el siglo XIX, e incluso en el siglo XX. Si se analiza la estructura de aceleración de la historia, encontramos varios estratos temporales que corresponden a distintas experiencias. Todo esos niveles se mezclan e interfieren de diversas maneras y, por supuesto, es posible extraer enseñanzas del estudio de esa pluralidad de experiencias. Tal es en esencia mi teoría y mi respuesta a la crisis del tópico *historia magistra vitae*[4].

JFS.- *Sus reflexiones sobre la transformación del concepto de historia en los tiempos modernos, y muy en especial la conformación del macroconcepto de Historia como gran «colectivo singular»* (Kollektivsingular) *en el que convergen todos los relatos particulares, capaz de abrazar la totalidad de las historias en un gran escenario compartido para la acción humana a lo largo de los siglos, me sugiere que, en nuestros días, como consecuencia del multiculturalismo, se han alzado numerosas voces que, por ejemplo, en Estados Unidos, reclaman el derecho de cada grupo o colectivo diferenciado –mujeres, afroamericanos, hispanos, etc.– a escribir su propia historia. Me pregunto, entonces, si una de las consecuencias de la posmodernidad no será precisamente la ruptura de este concepto global y universalista de Historia que se forjó a finales del siglo XVIII como gran concepto regulativo de todos los procesos y experiencias pasadas, presentes y futuras. ¿Acaso no estaremos asistiendo en estos comienzos del siglo XXI al* big bang *de la*

historia, que estaría dejando de ser ese gran «colectivo singular», a la vez objeto de estudio y sujeto de sí misma, para fragmentarse de nuevo en una multitud de pequeñas historias particulares?

RK.- Yo creo que la globalización es también parte de la experiencia moderna, al tiempo que la individualización y proliferación de tribus y pueblos diversos, el surgimiento de pequeñas unidades de acción, en suma, resulta no menos evidente (lo veíamos recientemente en los Balcanes). Por otra parte, las condiciones de esta pluralización son hoy día comunes y universales y, en este sentido, la globalización no es una invención ideológica, sino más bien una consecuencia de la expansión económica de las naciones más grandes y más poderosas. Pero, además, en el interior de esas grandes naciones, que suelen ser sociedades antiguas y consolidadas, aparecen a su vez nuevas diferencias. Sin embargo, creo que esa pluralización de historias a la que usted se refería prueba más bien la necesidad del colectivo singular «historia» como instrumento de análisis.

JFS.- *Sin embargo, parece cierto que la gran retórica política de quienes apelaban a la Historia con mayúsculas –del tipo «la Historia me absolverá», de Fidel Castro, o la pretensión de Franco de responder sólo «ante Dios y ante la Historia», por poner dos ejemplos diferentes y similares a la vez– ya no está de moda...*

RK.- Se refiere a la pretensión de ciertas gentes, sobre todo de ciertos políticos en apuros, que reaccionan ante la presión o la crítica generalizada, declarándose responsables ante el futuro, en un gesto de autoafirmación y autojustificación... Es cierto que esa retórica se escucha cada vez menos, y creo que podemos alegrarnos de que esa concepción de la historia como tribunal universal de última instancia casi haya desaparecido. Pero no por eso se ha borrado la historia como totalidad: por el contrario, en términos de análisis, creo que sigue siendo pertinente el estudio de los cambios globales a escala universal.

JFF.- *Se diría que la globalización destruye algunas identidades y al mismo tiempo crea otras nuevas...*

RK.- En efecto, y por el momento es muy difícil saber hacia dónde se orienta ese proceso...

JFS/JFF.- *Permítanos, por último, que le transmitamos la pregunta de João Feres, del Instituto Universitario de Pesquisas do Río de Janeiro (IUPERJ), un investigador brasileño con el que colaboramos en el proyecto de historia conceptual comparada del mundo iberoamericano*[5]*. Feres le plantea lo siguiente: «En su crítica a la defensa radical que hace Gadamer de la* Sprachlichkeit*, usted se refiere reiteradamente a los elementos extralingüísticos de la condición humana. Si lo entiendo bien, su posición respecto a la relación entre historia conceptual y lenguaje es de proximidad, pero no de adhesión total. A pesar de la abrumadora recepción del giro lingüístico en el mundo académico actual, usted no es el único en resistirse a él. En sus escritos sobre la cuestión del reconocimiento* (Annerkenung)*, Axel Honneth ha insinuado un argumento similar sobre la apariencia de las demandas sociales en la esfera pública. Observa este autor que el grado de sufrimiento del ser humano no consigue crear un discurso político articulado compartido por un grupo de gente comprometido en el debate público. Si esto es cierto, se plantean inmediatamente varias preguntas sobre la relación entre historia conceptual e historia social. Dejemos el problema del estudio de "lo no dicho", de los elementos reprimidos de la interacción humana, y examinemos las cuestiones que directamente afectan a la historia conceptual. Si, por una parte, los* Grundbegriffe *(conceptos fundamentales) representan la parcela de la experiencia social que conquista el espacio público y, por otra, hay aspectos cruciales de experiencia social, en todas las sociedades, que son insuficientes para ella, ¿puede esta experiencia ser considerada menos importante que la expresada por los* Grundbegriffe*? ¿Constituiría esta experiencia también "lo político"? ¿Cómo puede manejar la historia de los conceptos esos aspectos de la experiencia social? El estudio de los conceptos administrativos, culturales o técnicos, por citar unas pocas categorías, y también de los contraconceptos asimétricos, ¿sería una tarea acuciante para la historia conceptual? En suma, ¿por qué los historiadores de los conceptos se centran tanto en los* Grundbegriffe *y prestan tan poca atención a esas otras categorías de conceptos?».*

RK.- Bueno... mi concepción de los *Grundbegriffe* no excluye las experiencias negativas que han sido silenciadas. Precisamente mi crítica a Gadamer desde el punto de vista metodológico se centra en su entendimiento del lenguaje (*Sprache*) como la única y exclusiva fuente de todas las experiencias. Yo creo, por el contrario, que las experiencias van más allá de su interpretación lingüística, pero es cierto que, para quienes reducen todo al lengüaje, la concentración exclusiva

Berlín, agosto de 1945. Robert Capa

del estudio en ciertos *Grundbegriffe* podría provocar el silenciamiento de otras experiencias. Así podría limitarse indirectamente la implicación social de lo que a través de cualquier serie de conceptos básicos podríamos descubrir y aquello que quedaría silenciado u oculto por ellos. También los conceptos contrarios asimétricos (*asymmetrischer Gegenbegriffe*), sobre los cuales escribí un ensayo hace tiempo[6], tienen mucho que ver con el arte de silenciar. Se trata de la atribución a los otros, a los que no pertenecen a nuestro grupo, de una conceptualización binaria fuertemente unilateral y denigratoria, hasta dejarlos reducidos a un campo puramente negativo. Algo parecido ocurre con los monumentos a los caídos en las guerras, que muestran y silencian al mismo tiempo. Cualquier memorial de este tipo muestra una parte y silencia el resto, y eso vale para todos los monumentos. Aquellos que celebran a los vencedores silencian a los vencidos, y aquellos que rememoran a los vencidos omiten a los vencedores. Lo cual plantea, por supuesto, un problema moral. Así pues, la relación de silencio y manifestación en el lenguaje y/o en los símbolos reproduce una y otra vez un problema perenne que implica siempre preguntarnos por los conceptos políticos silenciados, que según esto serían aquellos que *no* se consideran conceptos fundamentales (los «no *Grundbegriffe*»). No veo, por tanto, ninguna dificultad en ocuparnos de este problema, en la línea preconizada por Walter Benjamin, quien reivindicaba la conmemoración de los derrotados e invitaba a ver las cosas también desde el punto de vista de los vencidos. Así que, por qué no, la historia de los conceptos debería estar siempre obligada a conmemorar a los excluidos. Eso se halla implícito metodológicamente, al estudiar las dos caras de los contraconceptos asimétricos. ¿Cuál es la diferencia entre griegos y bárbaros, entre cristianos y herejes, entre seres humanos y no humanos? (puesto que calificar de *no humanos* a otros seres humanos implica la conceptualización asimétrica más extrema, la que divide más radicalmente al género humano).

Como ya he dicho, el lenguaje es siempre ambiguo y al mismo tiempo receptivo y productivo, porque, por un lado, indica los cambios sociales y, por otro, el propio lenguaje es un factor esencial que permite tomar conciencia de esos cambios en la realidad. Gadamer no aceptaba esta ambigüedad del lenguaje. Para él, tras los pasos de Heidegger, el lenguaje llevaba implícita la totalidad de la experiencia. Es indudable que, al transferir muchos conceptos de la lengua griega al lenguaje filosófico alemán, la filosofía hermenéutica de Gadamer hizo del lenguaje la clave de toda la realidad humana: un argumento muy fuerte, pero para mí, como historiador, imposible de aceptar como la única y exclusiva verdad. Como historiador no puedo quedarme en el nivel lingüístico: he de ocuparme también de lo que –lingüísticamente– ha de ser dicho. □

1 Reinhart Koselleck, Willibald Steimetz y Ulrike Spree, «Drei bürgerliche Welten? Zur vergleichenden Semantik der bürgerlichen Gesellschaft in Deutschland, England und Frankreich», en Hans-Jürgen Puhle (ed.), *Bürger in der Gesellschaft der Neuzeit. Wirtschaft, Politik, Kultur*, Gotinga, Vandenhoeck & Ruprecht 1991, pp. 14-58. Existe una versión reducida de este artículo en inglés: «Three *bürgerliche* Worlds? Preliminary Theoretical-Historical Remarks on the Comparative Semantics of Civil Society in Germany, England, and France», en Reinhart Koselleck, *The Practice of Conceptual History. Timing History, Spacing Concepts*, Stanford, Stanford University Press, 2002, pp. 208-217.

2 Véase la excelente (aunque incompleta) versión, a cargo de Antonio Gómez Ramos, del texto de Koselleck: *Historia/Historia*, Madrid, Trotta, 2004. El libro fue recensionado por Antonio Valdecantos en *Revista de libros,* núm. 102 (junio de 2005), pp. 5-7.

3 Como es sabido, *Sattelzeit* es el término utilizado generalmente por Koselleck (también se ha servido otras veces de la expresión *Schwellenzeit*, período-umbral) para referirse al gran cambio semántico que se habría producido en el universo de la política, al menos en el área germanófona, entre 1750 y 1850 aproximadamente, y que habría dado paso al mundo conceptual contemporáneo. Para traducir esta palabra alemana –que alude a un tiempo-silla de montar o, lo que es lo mismo, a un período bisagra, de transición entre dos épocas– se han propuesto diversas soluciones. El historiador Juan José Carreras, en un encuentro reciente, nos proponía traducir el término por la expresión «tiempo a caballo». El supuesto de la *Sattelzeit* es una de las hipótesis más discutidas de la teoría koselleckiana de la historia.

4 Véase sobre esta cuestión el ensayo clásico de Koselleck «Historia magistra vitae», en *Futuro pasado. Para una semántica de los tiempos históricos*, Barcelona, Paidós, 1993, pp. 41-66.

5 Véase la primera parte de la entrevista en el número anterior de *Revista de libros*.

6 Puede consultarse una versión española de este ensayo (a cargo de Norberto Smilg), «Sobre la semántica histórico-política de los conceptos contrarios asimétricos», en Koselleck, *Futuro pasado*, *op. cit.*, pp. 205-250.

Social History and Conceptual History

Reinhart Koselleck

Whoever is occupied with history—whatever that is—and defines it as social history obviously limits his or her theme. And the individual who narrows history to conceptual history obviously does the same thing. Nevertheless, with both determinations it is not the usual limitation of special histories which general history embraces within it. England's economic history, perhaps, or the history of diplomacy of early modernity or Western ecclesiastical history are special themes of this type which were materially, temporally and regionally present and worthy of investigation. Then it is a question of particular aspects of general history.

It is otherwise for social and conceptual histories. From their theoretical self-foundation, there arises a general claim which can be extended and applied to all special histories. Because what history has not in any case something to do with interpersonal relationships with social configurations of some type or with social strata, so that the characterization of history as social history involves an irrefutable—anthropological, so to speak—lasting claim that it is implicated in any form of history. And what history could there be which would not be conceived as such before it gels as history? The investigation of concepts and their linguistic transformation is so very much a minimal condition for cognizing a history as its definition of having to do with human society.

I. Historical Retrospective

Both social history and conceptual history have been explicit hypotheses since the Enlightenment and the discovery of the historical world at that time: when the former social structures were breaking up and when linguistic reflection felt the pressure of change of a history which itself was newly experienced and articulated. If one follows the history of historical reflection and historical representation since then one finds both grasps again and again whether it is

through mutual elucidation as with Vico, Rousseau or Herder or by separate paths.

The claim that all historical manifestations of life and their transformations are to be based on and derived from social conditions has been advanced since the historical philosophies of the Enlightenment up to Comte and the young Marx. Following them are the histories of society and civilization, the cultural and folk histories of the 19th century which were already proceeding positivistically methodically, up to the regional histories including all areas of life, the synthetic achievement of which by Moeser through Gregorovius up to Lamprecht can rightly be named social-historical.

On the other hand, since the 18th century there have been consciously thematized conceptual histories[1]—obviously the expression comes from Hegel—which have retained their permanent place in histories of language and historical lexicography. Of course they were thematized by all disciplines working historico-philologically which must secure their sources by posing hermeneutic questions. Any translation into one's own present implies a conceptual history, the methodological inevitability of which Rudolf Eucken has shown in his "History of Philosophical Terminology" to be exemplary (paradigmatic) for all intellectual and social sciences.[2]

In the practice of research, then, reciprocal references also occur which bring special social and constitution-historical analyses together with conceptual historical questions. Their mutual connection was more or less reflected, always present, in ancient sciences and the scholarship of the Middle Ages, because what circumstances could be known, especially with sparsely available sources, without knowing the manner of its former and present conceptual shaping? Indeed it turns out that the reciprocal entwinement of social and conceptual history was first systematically treated in the 1930's; one thinks of Walter Schlesinger or above all of Otto Brunner. From closely related regions there were Rothacker for philosophical conceptual history, Carl Schmitt for legal sciences and Jost Trier for linguistic sciences who sponsored the sharpening of historical methods.

With respect to the politics of research, the combined social and conceptual history was oriented towards two different directions which dominated both in the 1920's: once it circumvented the differentiation of ideo- and spiritual-historical concepts, which were followed without their concrete political-social context, as it were, for the sake of their own value. On the other hand, it circumvented operating with history primarily as a political history of events to then inquire after the presuppositions maintained for so long.

Otto Brunner intended, as he maintained in the preface to the 2nd edition of *Land and Domination*[3] "to inquire about the concrete presuppositions of the politics of the middle ages, but not to represent them." It then occurred to him to draw into view longterm structures of social composition and their—never instantaneous—transformation, and in so doing the respective linguistic self-articulation of the social groups, associations or strata as well as their concepts and interpretive history were expressly thematized. And it is no accident that the "Annals," which came from an analogous research interest, provided the rubric "Words and Events" in 1930. For Lucien Febvre and Marc Bloch, linguistic analysis was an integral component of their social historical investigations. In Germany, Gunther Ipsen acted as a trail blazer for modern history in supplementing his social-historical, special demographic researches through linguistic knowledge. Werner Conze took up all these suggestions when he founded the study group for modern social history in 1956-57.[4] Thanks to Conze's initiative, the bringing together of social-historical and conceptual-historical questions, as well as their differentiation, belong among those enduring challenges which are at issue in the following.

II. The Impossibility of a 'Total History'

Without searching for social formations together with their concepts, by virtue of which—reflectively or self-reflectively—they determine and resolve their challenges, there is no history, it cannot be experienced, interpreted, represented or explained. Society and language insofar belong among the meta-historical givens without which no narrative and no history are thinkable. For this reason, social historical and conceptual historical theories, hypotheses and methods are related to all merely possible regions of the science of history. So at times, however, the wish to be able to conceive a total history creeps in. If for pragmatic reasons, empirical investigations or social or conceptual historians deal with limited themes, then this self-limitation still doesn't diminish the claim to universality that follows from a theory of possible history which must presuppose society and language in any case.

Under the pressure or methodologically required specializations, the social- and conceptual-historical grasp must necessarily proceed in an interdisciplinary way. Nevertheless, it doesn't follow from that, that its theoretical claim to universality can be posed absolutely or totally. Indeed, they are compelled to presuppose the

entirety of social relations as well as their linguistic articulations and systems of interpretation. But the formally irrefutable premise that all history has to do with language and society does not admit the wider-ranging consequence that by virtue of its content it is possible to write or even merely to conceive a "Total History."

As numerous and plausible as the empirical objections to a total history are, there is one objection against its possibility which follows from its attempt at autonomous thinkability. Because the totality of a history of society could never be represented by the totality of its language. Even if the empirically unverifiable case is posed, that both regions would be thematized a finitely limited totality, an irreconcilable difference between any social history and the history of its concepts remains.

The linguistic conception neither takes in what happens or what was actually the case, nor does something occur that is not already altered through its linguistic shaping. Social history or history of society and conceptual history stand in an historically conditioned tension, both refer to one another without being able to supersede each other. What you do is first said to you the other day. And what you say becomes an event as it escapes from you. What occurs socially, among individuals and what is said at the time or about it, causes an always changing difference which prevents any "Total History." In anticipation, history takes place imperfectly/incompletely, so any interpretation appropriate to it must do without totality.

It is a characteristic of historical time that the tension between society and its transformation and its linguistic preparation and shaping is reproduced again and again. Every history draws on this tension. Social relations, conflicts and their resolutions and their changing presuppositions are never congruent with the linguistic articulations by virtue of which societies act, conceive themselves, interpret, change and form anew. This thesis should be tested in two respects, once in view of history occurring *in actu* or currently, and secondly from the point of view of past history which has happened.

III. Occuring History, Speech and Writing

If social history and conceptual history are related to each other, then that qualifies their respective claim to universality. History does not become apparent in the way that its conception does, yet it is not thinkable without this.

In everyday events their connection is present without distinction. As a being endowed with language, the human individual originated with social existence. How can the relationship be determined? It is comparatively clear that individual events, in order to be realized, must admit to being expressed linguistically. No social activity, no political action and no economic action is possible without speech and reply, without discussion of plans, without public debate or secret utterance, without command—and obedience—or consensus of the participants or articulated disagreement of the contesting parties. Any everyday story in daily performance is oriented by language in execution, by talking and speaking, just as no love story is thinkable without at least three words—you, I, we. Any social event in its manifold connections is based on preparatory communicative acts and achievements of linguistic mediation. Institutions and organizations, from the smallest club to the United Nations are oriented by whether in spoken or written form.

As obvious as this is, it is just as obvious that this observation must be limited. What actually occurs is evidently more than the linguistic articulation which has led to it or interprets it. The command or the collegial resolution or the elementary cry to kill are not identical with the act of killing itself. The expressions of lovers are not merged in the love which the two individuals experience. The written rules of an organization or its spoken executive instructions are not identical with the action of the organization itself.

There is always a difference between a spontaneously occurring sequence of events or its story and its linguistic potentialization. The speech act which helps to prepare, cause and execute the act is not the act itself. Indeed it must be granted that often a word causes irrevocable consequences; one recalls Hitler's command to invade Poland to name a striking example. But precisely here the relationship is clear. A story does not evolve without speech, but it is never identical with it, it cannot be reduced to it.

Thus, beyond spoken language, there must be other preparatory performances and manners of execution which make events possible. Here perhaps the region of semiotics, which goes beyond speech, can be named. One thinks of the body's gestures in which a merely encoded language is imparted, of magic rituals including the theology of the sacrifice that has its historical place not in words but on the cross, of the power of its symbol ground into the behavior patterns of groups or of modern traffic signs: they all concern a symbol for speech which is understandable without words. All the symbols named can be verbalized. They are also reducible to language but their achievement lies precisely in that spoken language must be abandoned so that the symbols can evoke or control the corresponding actions, attitudes or patterns of behavior.

Other explicit preconditions for possible stories need only be recalled; spatially near or far, distances which are either pregnant with conflict or retardant of conflict, temporal differences between the ages within a living generation or the bi-polarity of the species. All of these differences harbor events, strife and reconciliation which are made possible prelinguistically, even if they can, but must not, be performed by virtue of linguistic articulation.

Thus there are pre-linguistic and post-linguistic elements in all actions which lead to a unit of events or to a story. They are rooted in the elemental, geographical, biological and zoological conditions which affect the human constitution all together in social events. Birth, love and death, eating, hunger, misery and disease, perhaps even happiness, at times plunder, triumph, destruction and defeat, all these are also elements and ways of performing human history which extend from the everyday to the identification of sovereign political entities, and the explicit givens of which are difficult to deny.

Within the concrete context of actions giving rise to events, the analytical schisms encountered here can hardly be reconstructed. All pre-linguistic givens are taken up by individuals in speech and mediated with their deeds and afflictions in concrete discussions. Language which is spoken and writing which is read, the effective or overhead discussions in the actual performance of the happening are knit into the event which is always composed from extra-linguistic and linguistic elements of action. Even when speaking ceases, remaining in the linguistic foreknowledge that inherent in human individuals is the capability to communicate whether with people, things, products, plants or animals.

And the more highly aggregated human units of action are, as in modern work processes together with their economic interconnections or in more and more complex spheres of political action, the more important linguistic conditions for communication become in order to retain the ability to act. This is shown in the expansion of linguistic mediation: of the audible range of a voice through technological conveyers of news, writing, printing, the telephone, the radio, up to the screen of a television or a computer—together with the institutions involved with the technical aspects of their traffic, from messengers through the mail and press to news satellites—as well as the ramifications for any linguistic codification. It has always involved either extending the range of spoken language for coming ages in order to capture events or to extend and accelerate it in order to anticipate events so they can be resolved or controlled. This example may be sufficient to show the interpenetration of "social history" and "linguistic history" in any performance of speaking and doing.

Discussions which have been uttered or writing which has been read and the events taking place *in actu* cannot be separated; they can only be divided from one another analytically. When one is overwhelmed by a speech, one experiences it not only linguistically but throughout the entire body; and when one is silenced by a deed, her or his dependency on language is experienced all the more in order to be able to move again. This personal relationship of exchange between talking and doing can be carried over to all levels of social units of action which are becoming increasingly complex. The interpenetration of so-called speech-acts with "factual" events extends from individual discussions and deeds to their multifarious social networks by virtue of which events are placed in their contexts. This finding, in spite of all historical variations, is essential to any story which occurs and has a considerable effect on the portrayal of past histories, on their types, especially on the difference between social and conceptual history.

IV. The Representation of Past History and its Linguistic Sources

The empirical connection between doing and talking, acting and speaking outlined so far is ruptured as soon as the view reverts back from history taking place *in eventu* to the history with which the professional historian is occupied, that which has already occurred, *ex eventu*. The analytic separation between an extra-linguistic and a linguistic level of action takes on the status of an anthropological given without which no historical experience at all could be transformed into everyday or scientific expression. It is only through talking or writing that I can learn what has happened beyond my own experience. Even if in the performance of action and emotion language may be—at times—merely a secondary factor, as soon as an event has transpired in the past, language returns to being a primary factor without which no recollection and no scientific transposition of this recollection is possible. The anthropological priority of language for the representation of history taking place thereby takes on an epistemological status. This is so because whether what happened in the past was linguistically conditioned or not must be decided linguistically.

Anthropologically any 'history' is constituted through oral and written communication of the generations living together, who mediate their own experiences amongst themselves. And only if through the dying out of old generations, the range of orally transmitted recollection dwindles, writing reverts to the first-ranking conveyer of historical mediation.

Certainly there are numerous extra-linguistic remains which give evidence of past events and situations: ruins from catastrophies; coins from economic organization; buildings which indicate community, rule and servitude; streets which show activity or war; cultural landscapes; work carried out over generations; monuments which testify to triumph or death; weapons which show struggle; implements which show invention and application; in sum, relics, respectively, 'findings'—or pictures—which can attest to everything at the same time. Everything is prepared by special, historical disciplines. To be sure, what may have occurred "factually" can be verified only through oral and written tradition, through linguistic testimony. The linguistic sources allow one to decide what in the past is to be recorded as "linguistic" or as "factual" in occurrence. From this perspective types and their differentiation can be reclassified.

What belonged together *in eventu* can still only be communicated *post eventum* through linguistic evidence; and with each association with this linguistic conveyance, oral or written tradition, the most different types come together and separate from each other.

Characteristic of mythology, fairy tales, drama, epics and novels is that they all presuppose and thematize the original connection between speaking and doing, of emotion, speaking and silence. The representation of such a history as it occurs generates the meaning which remains worthy of recollection. And it is precisely this that all (hi)stories achieve which use true or fictitious speeches in order to become truly convincing, or which call upon those words which give evidence of the amalgamation of talking and doing in written sources.

There are the non-reversible situations which drive out their own transformation and behind which then something like 'fate' can appear, which remains a challenge to be explored and handed down for any self- and world-interpretation. All memoires and biographies more or less accomplished belong in this category, in English emphasizing the interplay between life and language—"Life and Letters"—further, all stories which trace causes and events in their imminent dynamic. "He said this and did that, she said that did such and so, which caused something surprising, something new that changed everything"—numerous works have been built up according to this formalized schema, especially those which, like histories of political or diplomatic events and, thanks to the situation of sources, are able to construct proceedings *in actu.* Regarded from their linguistic achievement, these stories fall into a series which extends from mythology to the novel.[5] Only as objects of knowledge do they live from the authenticity—to be verified—of linguistic sources, which stand up for the totum of the formerly presupposed entwinement of speech-acts and deeds.

What is analytically separable, the pre-linguistic and the linguistic, is brought together again thanks to the linguistic achievement "analogous to experience": It is the fiction of the factual. Since what has actually taken place—looking backward—is real merely in the medium of linguistic fiction.

In contrast to the speech of action in which history is taking place, language thus acquires an epistemological primacy, which always urges one to judge how language and acting have been related.

Then there are types which, placed under this alternative, are articulated extremely one-sidedly. There are annals which merely record events which have taken place, not how they came about. There are reference books and the so-called narrative works of history which deal with deeds, success or failure, but not with the words or discussion which led to them. Whether it is that great individuals are acting or that highly stylized subjects of action become active as it were without speech: States or dynasties, churches or sects, classes or parties or what is otherwise reified as units of action. Seldom, however, are the linguistic patterns of identification examined, without which such entities could not act at all. Even where spoken discussion or its written equivalent is brought into the portrayal, the linguistic testimony falls all too quickly under ideological suspicion or is read merely instrumentally as alleged prior interests and evil intentions.

Investigations undertaken from the historico-linguistic side which primarily thematize linguistic testimony itself—on the other side of our scale—also easily fall into the danger zone—that of sketching a real history which itself must first be constituted linguistically. But the methodological difficulties, to which especially socio-linguistics sees itself exposed, in relating speech and language to social conditions and changes, remain trapped in the *aporie* which is common to all historians of having to first produce the subject domain linguistically about which they prepare to speak.

For this reason one also finds the other extreme in the guild: the editing of linguistic sources as such, the written portion previously spoken or written discussion. Then, where the difference between extra-linguistic and linguistic action has been expressly thematized, transmission is left to chance. Everywhere it is the task of the good commentator to track down here the sense of the written fragments which could not be found at all without the differentiation of speech and facts.

In this way we have stylized three types, which under the alternatives speech-action and deed-action either relate both to each other or, in the extreme case, thematize them separately. Epistemologically a two-fold task always falls to language: it refers to the extra-

linguistic connections of occurrences as well as—while it does that—to itself. Historically understood, it is always self-reflective.

V. Event and Structure: Speech and Language

Whereas up to now we have only spoken about and investigated history that has occurred or is taking place, how talking and doing have related to one another *in actu*, as it were, in a synchronous pattern, the issues broaden as soon as diachrony is thematized, too. Here too, as with the relationship of speaking and acting in the performance of an event, synchrony and diachrony cannot be empirically separated. The conditions and determinants, which being temporally various and deeply graduated extend from the so-called past into the present, include the occurrence at the time in the same way that acting parties act "simultaneously" from their projections of the future at that time. Any synchrony is *eo ipso* diachronic at the same time. *In actu,* all temporal dimensions are always meshed and it contradicts any experience to define the so-called present as perhaps one of those moments which are added together from the past into the future—or which conversely slip from the future into the past as fleeting points of transition. Purely theoretically, all histories can be defined as permanent present in which the past and the future are contained—or, however, as the lasting meshing of past and future which constantly makes any present disappear. In one case, which is intensified on synchrony, history becomes depreciated as a sphere of pure consciousness in which all temporal dimensions are contained at once, whereas in the other case, which is intensified on diachrony, the active presence of human individuals would have no sphere for acting socially and politically. This thought experiment should merely indicate that the differentiation introduced by de Saussure between synchrony and diachrony can be analytically helpful everywhere, without being able to do justice to the complexity of temporal overlapping in spontaneously occurring history.

With this reservation, the analytic categories of synchrony, which tends toward the actual presentness of the occurrence at the time, and diachrony, which tends toward the temporal dimension of depths and is likewise contained in each actual occurrence, may be used. Many presuppositions influence spontaneously occurring history in the long-run or middle-run—and naturally also in the short-run. They limit the alternatives for action while they make possible or release only determinate alternatives.

Now it is characteristic of social and conceptual history that both—even if in different ways—theoretically presuppose just this connection. It is the connection between synchronic events and diachronic structures which is investigated social-historically. And it is the analogous connection between speech uttered at the time, synchronically, and the given language which always acts diachronically, which is thematized conceptual-historically. What occurs at some point in time may be unique and new, but it is never so new that longer-term, pre-given social conditions had not made the one-time event in question possible. A new concept may be coined which had never before expressed experiences or expectations which had been present in words. But it can never be so new that it was not virtually laid out in the pre-given language at the time and even drawing its sense from its conventional linguistic context. The interplay of speaking and doing in which events occur is thus extended by the two directions of research around its—variously defined—diachronic dimensions. Without this, history is neither possible nor comprehensible.

This can be elucidated with one series of examples. Marriage is an institution which besides its pre-linguistic biological implications represents a cultural phenomenon that exhibits numerous variations in the entire history of humanity. Since it concerns a social form of two or more individuals of different sex, marriage is one of the genuinely social-historical topics of research. At the same time it is obvious that something can only be discussed socially-historically if written sources inform us about how any given type of marriage has been brought to its concept.

Then two methodological versions, in abbreviated model form, can be constructed. One is primarily oriented towards events, actions in speech, writing and deed—the other is primarily directed to diachronic presuppositions and their long-term transformation. Thus it looks for social structures and their linguistic equivalents.

1) So an individual event can be thematized, perhaps a royal marriage about which dynastic sources offer us abundant information; what political motives came into play, what contractual conditions, what dowry was negotiated, how the ceremonies were staged and more of such matters. Also, the course of this marriage can be reconstructed and recounted again and again with the sequence of events, up to the terrible consequences if, say, with the death of a spouse the succession allowed for contractually was followed by a war to decide it. An analogous, concrete history of marriage can also be reconstructed today from the personal circle of the lower classes—an exciting theme of everyday history which employs numerous, previously unused sources. Both times at issue are unique, individ-

ual histories which are likely to contain their unsurmoutable tension between happiness and misery and which in both cases remain embedded in the religious, social and political context.

2) Social and conceptual history could not do without such individual cases, but exploring them is not its primary interest. To characterize the second methodological version, both are oriented—again in abbreviated model form—towards long-term conditions acting diachronically which have made the individual case possible, and they investigate the long-term events which can be derived from the sum of individual cases. Applied in another way, they investigate structures and their transformation. They inquire about the linguistic givens under which such structures have entered into social consciousness, been conceived and also changed.

Next we will follow specific social-historical, then specific conceptual-historical manners of procedure.

The synchrony of individual marriages and of the discussion or letters which were exchanged about them is not socially-historically faded. Rather it will develop diachronically. So, for example, under social-historical inquiries, the number of marriages will be prepared statistically in order to establish the increase of population by class. When did the number of marriages begin to exceed the number of houses and homesteads already present in the realm which had their limited area for subsistence? How did the number of marriages relate to the corresponding salary and price curves, to good or bad harvests to be able to balance the economic and natural factors for reproduction of the population against one another? How can the number of legitimate and illegitimate births be related to each other to measure the extent of social conflict? How do the figures for births and deaths of children, mothers and fathers behave towards one another in order to explain the long-term transformation of a typical married life? How does the curve of divorces run, which also permits conclusions on the type of a marriage? All such questions, almost randomly chosen here, have in common that they help to construct "factual" events of a long-term nature which as such cannot be directly contained in sources.

Arduous preparatory work is required to make evidence from sources comparable, to compile series of figures from it, and finally—and foremost—systematic deliberation is necessary to be able to interpret the aggregated series of data. In no case is linguistic evidence from sources sufficient to be able to immediately derive from it evidence of longer-term structures. The sum of concrete and established individual cases occurring synchronically is itself mute and cannot "prove" long- or middle-term, in any case diachronic structures. In order to extract lasting evidence of past history, prepara-

tory theoretical work is thus necessary. Technical terminology must be used which alone can ferret out connections and interactions about which the individuals concerned at the time could have had no awareness.

What has happened "factually"—and not perhaps linguistically—over the long-run in history remains social-historically a scientific construction, evidence of which depends on the credibility of its theory. To be sure, any theoretically grounded evidence must be submitted to the methodological control of sources to be able to maintain past factuality, but the character of reality of long-lasting factors cannot be adequately grounded from individual sources as such. For this reason, as in the train of Max Weber, ideal types can be formed which compile different criteria for the description of actuality so that presupposed connections can be interpreted consistently. So—drawing from our series of examples—the ideal types of a peasant and an underprivileged marriage and family can be developed, into which go the respective average figures of births and deaths, the correlation to salary—and price indices or to a succession of crop failures, to the period of work and to the tax burden in order to find out how a peasant marriage and family can be distinguished from an underprivileged marriage and family and how they have both changed in the transition from the pre-industrial to the industrial age.

It is not the individual cases themselves, then, but the factors which can be structured so that the economic, political and natural presuppositions—each according to the importance of salary and price structures, the tax burden or the yield of the harvest—become insightful of a typical marriage specific to a class. The questions about which factors are similar for how long, when dominant, when recessive, then permit the determination of terms, periods or epochal thresholds according to which the history of peasant and underprivileged marriages can be classified diachronically.

Up until now, our series of examples was deliberately selected on the basis of such clusters of factors that primarily extra-linguistic series of events could be structured diachronically and related to one another. As stated, the presupposition is a social-historical theory which with a technical terminology (here demography, economy and financial disciplines) permitted the constitution of duration and transformation which are never to be found in the sources as such. The theoretical claim thus grows in proportion to the distance which must be observed for the "self-expression" of the sources in order to constitute long terms or typical social formations.

But naturally there is yet another cluster of factors which goes into the history of marriages to be posed as "typical" than those named

so far. These concern those factors which could not be investigated at all without interpretation of their linguistic self-articulation. With this we come to the required conceptual-historial procedures which—analogously to the differentiation of event and structure—must distinguish between actual speech and its linguistic pre-given nature.

Theology and religion, law, civility and custom set conditions for the sphere of any concrete marriage which are diachronically present before the individual case and commonly outlast it. On the whole it concerns institutionalized rules and interpretative patterns which found and limit the living space of a marriage. Indeed, there are also established "extra-linguistic" patterns of behavior but in all of the cases named, language remains the primary vehicle of mediation.

Linguistically articulated givens extend from custom through legal proceeding to sermon, from magic, through sacrament to metaphysics without which (even if to a dwindling extent) a marriage would neither be agreed to nor conducted. Thus various socially stratified texts must be examined in which marriage has been brought to its respective conception. These tests could have originated spontaneously like diaries, letters or newspaper reports; or in the other extreme case, they could have been formulated with normative intention such as theological treatises or legal codes together with their interpretations. In all cases traditions linked to language act here to diachronically fix in writing the living sphere of a possible marriage. It is only, then, when marriage has been brought to a new conception, that changes emerge.[6]

So dominating into the 18th century is the theological interpretation of marriage as an indissolvable institution established by God the main purpose of which is the preservation and reproduction of the human species. Matching this were the conditions pertaining to class perogatives that a marriage was only permissible if the economic basis of the household was sufficient to nurture and raise children and to insure the mutual assistance of the married couple. In this way, many individuals were legally excluded from the opportunity to agree to a marriage. As the nucleus of a household, marriage was only permissible if the economic basis of the household was sufficient to nurture and raise children and to insure the mutual assistance of the married couple. In this way, many individuals were legally excluded from the opportunity to agree to a marriage. As the nucleus of a household, marriage remained tied to class perogative. This changed in the wake of the Enlightenment which newly founded marriage by contract law within the Prussian common law (Allgemeines Landrecht). The economic ties with the past were loosened and the freedom of the spouses as individuals came to extend so far that divorce—theologically forbidden—became admissible.

Common law had in no way relinquished theological or class-perogative conditions, but the concept of marriage shifted—which can only be recorded conceptual-historically—by distinct nuances in favor of a greater freedom and self-determination of each partner.

Finally we find at the beginning of the 19th century a completely new concept of marriage. The theological foundation was dissolved through an anthropological self-grounding and the institution of marriage was stripped of its legal framework in order to provide room for ethical self-actualization of two persons who love each other. The *Brockhaus Encyclopedia* of 1820, extolls the postulated autonomy in emphatic words and raises up the innovative concept—marriage of love. With this, marriage loses its former primary purpose of producing children; the economic ties faded out and Bluntschli later goes so far as to declare a marriage without love as unethical. It becomes a duty to dissolve the marriage.

In this way three conceptual-historical periods would be outlined which at definite points innovatively re-structured the traditional normative household of argumentation at the time. The conceptual formation of Prussian common law and romantic liberalism has linguistic-historically, as it were, the character of the event. It then re-acts on the whole structure of language from which marriage could be conceived. It is not the diachronically given language as a whole which has changed but actually its semantics and the new pragmatics of language set free with it.

Now, it can in no way be derived from conceptual-historical procedures that the history of factual marriages had taken place along this linguistic self-interpretation. The economic forces portrayed in the social-historical perspective which limit, complicate and burden marriages continue to remain in effect. And even if legal barriers would be lowered, social pressures continue to be operative which keep the type of a marriage of love from being the only empirically normal case. To be sure, a lot can be said for the hypothesis that the conception of a marriage of love, once developed in temporal anticipation, as it were, has found increased chances for its actualization over the long-run.

Conversely, it cannot be denied that, before the formation of the romantic conception of marriage of love, love as an anthropological given had even found its way into marriages of class-perogative that do not mention it.

For the determination of the relationship of social and conceptual histories it follows from this that they need and refer to one another without being able to coincide with each other. Since what was "factually" operative over the long-run and has changed cannot be derived entirely from handed-down, written sources. Theoretical

and terminological preparatory work is needed for this. And what, on the other hand, can be shown conceptual-historically—in written documents handed down—in fact refers us to the linguistically bounded sphere of experience and provides evidence of innovative breaches, intended to initiate or record new experiences. Inference to factual history, however, is still not thereby admissible. The difference between acting and speaking which we referred to for history taking place also keeps social "actuality", in looking back, from ever converging with the history of its linguistic articulation. Even if in the synchronic cross-section, which is itself an abstraction, speech-acts and deeds remain entwined, the diachronic transformation which remains a theoretical construction does not occur "real-historically" or "conceptual-historically" in the same temporal rhythm or temporal sequence. Actuality may have changed long before the transformation has been brought to its concept and similarly concepts may have been formed which have released new actualities.[7]

And yet there is an analogy between social and conceptual history which can be pointed out in closing. What occurs uniquely in history taking place is possible only because the conditions which must be supposed repeat themselves with a long-term regularity. The act of marriage may be subjectively unique; all the same, repeatable structures are articulated in it. The economic conditions of a marriage, dependent on the annually fluctuating harvest yield or on tax burdens which monthly or annually upset the planned budget—entirely apart from the regular services of the rural population—all these presuppositions are operative only by virtue of the regular repetition of greater or lesser constancy.

The same holds true for the social implications of a marriage that can only be specifically grasped linguistically. The pre-givens of custom, of legal strictures and possibly even theological interpretation, all these institutional bonds are only operative *in actu* in that they are repeated from case to case. And if they do change, they do so only slowly without rupturing their repetitive structures. What is called "long duration" is historically actual in that each unique period of the event harbors repeatable structures, which range at a different velocity than the event itself. The thematic of all social history lies determined in this variant relationship, only inadequately defined through "synchrony" and "diachrony."

The transformative linkage of any actual talking and pre-given language is to be determined analogously but not uniformly. If a concept, say of marriage, is employed, in it there are linguistically accumulated long-term actual experiences of marriage which have supported the conception. And the pre-given linguistic context like-

wise regulates the scope of its interpretive strength. With any actual application of the word "marriage," linguistically conditioned pregivens are repeated which structure its sense and understanding. There are also linguistic structures of repetition here which release as much as limit the sphere of discussion. And any conceptual change which becomes speech-event takes place in the act of semantic and pragmatic innovation which enables the old to be conceived differently and the new to be conceived at all.

Social and conceptual histories have various velocities of change and are grounded in different repetitive structures. For this reason, the scientific terminology of social history remains directed to the history of concepts in order to ascertain experience stored linguistically. And conceptual history must continue to consult the results of social history in order to keep the difference in view between vanishing actuality and its linguistic testimony which is never to be bridged.

Reference Notes

1. H. G. Meier, "Begriffsgeschichte" ("Conceptual History"), in *Hist. Wb. Phil.* 1, Sp. 788-808.
2. Leipzig 1879, ND Hildesheim 1964.
3. Bruenn Munich Vienna, p. XI.
4. About this compare Werner Conze, "Zur Gruendung des Arbeitskreises fuer moderne Sozialgeschichte" ("On the Foundation of a Study Group for Modern Social History"), in: *Hamburger Jahrbuch fuer Wirtschafts- und Gesellschaftspolitik (Hamburg Yearbook for Economic and Social Policy),* 24 Jg. 1979, *Festgabe fuer Karl Jantke (Gift Presentation for Karl Jantke),* pp. 23-32. Conze himself preferred the term "structural history" in order to avoid use of the word "social," being close to the delimitation of "social questions." Otto Brunner was happy to adopt the term "structural history" in order to avoid the temporally conditioned determination of a "folk history" which from his theoretical start as early as 1939 tended towards structures. For this, compare the 2nd edition of *Land und Herrschaft (Land and Domination),* 1942, p. 194 with the fourth, revised edition, Wien-Wiesbaden, p. 164: A good example for showing that politically conditioned interests of knowledge could lead to theoretically and methodologically new insights which outlast their initial situation.
5. For this Hayden White, *Tropics of Discourse,* Baltimore and London 1982, 2nd edition, German translation, Stuttgart 1986.
6. For this compare Dieter Schwab, "Familie" ("Family"), in: *Geschichtliche Grundbegriffe (Fundamental Historical Concepts),* compiled by Otto Brunner et al. Stuttgart 1975, Vol. 2, pp. 271-301 and Edeltraud Kapl-Blume, *Liebe im Lexikon (Love in the Dictionary),* MA thesis, Bielefeld 1986.
7. One may refer to the following books for the state of research in conceptual history: Eugenio Coseriu, *Synchronie, Diachronie und Geschichte (Synchrony, Diachrony and History),* Munich 1974. Hans-Georg Gadamer, *Die Begriffsgeschichte und die Sprache der Philosophie* (Arbeitsgemeinschaft fuer Forschung des Landes Nordrhein-Westfalen, Geisteswissenschaften, Haft 170), *[Conceptual History and the Language of Philosophy* (Study Group for Research of Landes Nordrhein-Westfalen, Intellectual Sciences, Notebook 170)], Opladen 1971. Reinhart Koselleck (editor), *Historische Semantik und Begriffgeschichte (Historical Semantics and Conceptual History),* Stuttgart 1978, J. G. A. Pocock, *Virtue, Commerce and History,* Cambridge 1985, especially the introduction: The state of art. Rolf Reichardt, *Einleitung zum Handbuch politisch-sozialer Grundbegriffe in Frankreich 1680-1820 (Introduction to the Handbook of Fundamental Political and Social Concepts in France 1680-1820).* Regine Robin, *Histoire et Linguistique (History and Linguistics),* Paris 1973.