THE QUARTERLY NEWSLETTER OF THE

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THE QUARTERLY NEWSLETTER OF THE LABORATORY OF COMPARATIVE HUMAN COGNITION

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Introduction

What Place for Culture in Psychology?

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The human species is the cultural animal. For, humans are both creatures and creators of their world. Rather late in the 20th century, finally, a rapidly increasing number of psychologists have begun to systematically reconsider the riddle.

This precious insight, in fact, has originated in the 18th century. Although it has been envisioned by many philosophers and discussed by some of the founders of modern psychology in the late 19th and early 20th century, this science has chosen other premises for understanding humans. That may eventually turn out to be responsible for the puzzling position psychology takes today among the sciences as well as in practice. Undeniably, it is informed or misinformed action of humans that drives social systems and transforms nature. Dealing thus with a field of phenomena that should make it one of the four or five essential fields of empirical science, psychology holds, in fact and in spite of its quantitative successes, a rather marginal reputation and role in the concert of knowledge and wisdom.

How come? And how to repair that state of affairs? What place for culture in psychology? Such questions point to an enterprise of considerable dimensions. Any reasonable contribution towards its accomplishment must be welcome and any platform in particular whereupon to present and critically discuss proposals to its considered advancement is an asset.

All during the modern existence of scientific psychology there have been astute thinkers and researchers who have raised the issue. Among them is *Ernest E. Boesch,* Emeritus at the University of the Saarland in Germany. Born 1916 in Switzerland, after studying with Jean Piaget in Geneva and some years in educational counseling practice and extendend experience in a foreign culture, he stubbornly built his singular scientific career along side the mainstream of psychology, creating in a long series of articles and books from the early 1960s on what he later termed a symbolic action theory for cultural psychology (1991).

Ingredients borrowed from Pierre Janet and Jean Piaget, from Sigmund Freud and Kurt Lewin, from cultural anthropology and theories of art, from personal psychoanalytic practice and psycho-anthropological studies in Thailand and Africa, have engendered a unique, subtle and sensible manner of theorizing about humans in culture. To the amazement of many of his readers he did this without manifest influence from the Russian cultural-historical school. Looking back, this is fortunate enough, because the correspondences are confirming of a common general direction and divergences point to issues in need of clarification.

In culture, says Boesch (to paraphrase from his farewell lecture in 1982), a group of people living together structure their space of acting. Culture outlines boundaries, segregating the familiar and the foreign. Culture creates spatio-temporal ranges of action patterns: complexes of ways of comporting in various fields from family to art, from religion to business, etc. Culture suggests and enforces values: feelings and beliefs as to what kind of actions are desirable or threatening under what circumstances. In and by means of culture, people offer—or contrast—for each other a rich set of ways of acting, often in implicit forms ranging from myths to scientific models or from ideologies to law, etc. All these, existing in some way apart from people as well as dwelling within them, would be naught if not taken up and constantly elaborated and renewed by individuals in their inward fantasms and outward actions.

Boesch concluded his farewell lecture with an appeal to muster courage for independence and to conquer and cultivate this scientific territory anew. This is indeed what a group of scientists from psychology and related fields had in mind when they gathered in the fall of 1991 to honor this pioneer who, in the decades past, had it much harder to find congeniality and support in directing their attention to the issues in question than we have it now *The Merligen Symposium on the Cultural Environment in Psychology* produced a collection of papers and an amicable and fruitful exchange, part of which is presented in the pages below.[1]

Naturally, as all those interested in a culture-conscious psychology know well enough, it is difficult and perhaps too early to attempt an orderly lineup of approaches to culture in psychology. This should yet be a time to brainstorm and to try out potential entrances to

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promising territory. So the principal objective of the Symposiums was to fan out and compare a sample of perspectives for understanding person-culture relations. Some contributors did it by prototypical case studies, others by reflective abstraction or theorizing, others by their own personal mixture of the two.

The contributions gathered in the present issue and those in a companion publication[2] are no more than a sample of ideas tossed around and perhaps worthy of further discussion. An additional couple of papers could not be included for reasons of space or time. All contributions are in revised form and integrate much of what was discussed in the long and fruitful hours of thinking on culture, viewing nature in the remarkable form of Lake Thun and mythical Mount Niesen. In this introduction we will comment on the full range of articles so that *Newsletter* readers can glimpse the whole of which the present contributions are a part.

As we said above, some contributors study exemplary cases of the intertwinement of people and their cultural environment, notably *Ernest Boesch* himself. "What makes the sound of music?," is his catch question, "the player or the violin?" Obviously we cannot separate the two without loosing the chance of understanding either. Boesch also makes it clear that cultural psychology is necessarily developmental. It has to reveal the actual genesis of action as well as the life-long becoming a cultured person, nor can it exclude cultural history. The way violins—any cultural institution for that matter—are made and used at a particular time, is the result of a long and intricate process implying many individuals in various roles and including many branching roads travelled, including many that led astray or to being forgotten or to being preserved in some version in a museum. At the same time the present state of this stream is nothing but a foundation for potential further branching and eventual dissolution. Cultural history, ontogenesis and actual process are three levels of any human-culture-process. Their relatedness and mutual dependence is obvious; to reveal their specific distinctions is the task we are asked to take on.

All human-culture-systems are historical in nature. This must hold as well for scientific attempts to understand them, because these are, recursively, human-culture-systems themselves. Indeed, we hinted at the origins of the modern conceptions of "culture" in the 18th century. While the term culture is in use from antiquity, it formerly had to be used in conjunction with particular objects: *agricultura* (of acres), *cultura animi* (of the soul), etc. It was out of the dilemma of the early enlightenment, demonstrates *Wolfgang Pross*, that modern conceptions of culture have arisen. If some divine power can no longer be assumed to exist once and forever, in the view of those pioneers, what are humans for and what makes them distinct from (other) animals? If, on the other hand, humans do not like to think of themselves as mechanical in nature and preprogrammed like any machine, one is in need of a third way of understanding. So culture, or dialogical exchange with some instance or entity that is partly independent of humans, yet co-developing with them, opened a route to a viable alternative. That those eggs, astonishingly well framed by J.G. Herder and his contemporaries, took two centuries to breed and hatch, is our problem indeed, not theirs.

Their proposal, unfortunately, very early became a side-stream, deluged not only by the ideal of eternal, dependable laws of reason and nature, but also repressed by the fascination with the powerful ego-conscious subject "Man" who, subjugating nature for his own ends, strove to replace outmoded divinity. From around the middle of the 19th well into the 20th century, so *Christa Schneider* and *Martin Müller* review *Voelkerpsychologie* and *Ethnopsychology*, the embeddedness of individuals in, and their incessant contribution to their particular communality, has been propagated not only by the outsider Moritz Lazarus—by the way, apparently the first person in the world to officially hold a chair for psychology from 1862-1866 at the University of Bern—but also by that presumed prototype of the main-streamers, Wilhelm Wundt himself (see also Galliker, 1993). Alas, European and American psychologists alike have preferred to perceive and elaborate only half of their founding father's beliefs. Contradictions notwithstanding, these secular believers in science-based progress devoted themselves to formulating the eternal laws reigning human behavior and, at the same time, declared their civilization to be the model of man which humans of other cultures had fallen behind and should be brought to by all means including replacement of their indigenous cultures by that "advanced" version that itself did not even bother to understand human-culture-systems.

Obviously, there are *methodological assumptions* of alarming implicitness working in the course of our thinking as well as in scientific research. To what extent do our preconceptions enter our methods? How can we make certain that our methods do bring to the fore more than what we have put into them? *Jürg Wassmann* provides a convincing case, where interdisciplinary co-operation, here between psychologist and cultural anthropologist,

can open surprising horizons. When trying to disclose the cognitive order for foodstuffs used in a particular culture, they got at least three quite different classification systems depending both on situational context and on the methods used to make the implicit manifest. Contrasting ways of grouping food and attributing meaning are manifest contingent upon whether people speak to the researchers, converse among themselves, or act preparing meals.

Traces or "footprints" is also the metaphor, *Urs Fuhrer* suggests to explicate the concept of *"Cultivation"* originally proposed by Georg Simmel in attempting to relate what he called subjective and objective culture. Culture must be seen as "located" both inside and outside of subjects, and cultivation takes place on both intra-personal and on inter-personal levels. Fuhrer illustrates his dynamic conception of human-culture-systems by reviewing portions of his studies on place attachment and leisure mobility demonstrating cultivation processes directed at the home or the vehicle.

The home or residential settings is also the field *Roderick J. Lawrence* exploits in order to explicate his cultural and historical reinterpretation of the concept of structure. His analysis of various versions of structuralist theory from different disciplines points to the lack of differentiation between implicit cognitive and explicit institutional structures. If clearly distinguished, they can be shown to form an integrated corpus of shared knowledge, conventions and rules, that simultaneously enable and constrain individuals and groups to produce and reproduce material culture. Glimpses into studies on the development of urban housing and domesticity demonstrate the benefits of this integrated approach.

As no attentive reader will deny, these contributions to cultural psychology present no simple nor single place for culture in psychology. Is this a goal to attain or perhaps to avoid? In view of human and cultural diversity, should we strive for one universal conception or should we rather single out a multiplicity of facets of humankind's culturality? I believe it is too early to decide, but time to remind ourselves of the benefits of thinking on different levels of generality. If dialogue among distinctive approaches to the cultural environment in psychology is to take place and if culture is to become more than the speciality of another one of the many branches of psychology, discourse on at least one very general level is mandatory, whatever variety of approaches are appropriately cultivated in particular perspectives.

Indeed, our authors do not insist on any particular culture concept; they mostly do not even bother to define the term technically, and thus they leave room for various kinds of discourse. On the other hand, their recourse to concepts of action and interpretation in some form or other, reveals that they all obviously are guided by a common general organizing idea. We cannot better summarize this Leitmotiv than in the words of Georg Simmel's psychological analysis of the process. The mind, we translate from Simmel (1911, p. 116), "generates innumerable formations which go on to exist in peculiar autonomy, independent of the mind that produced them and also of any other who adopts or spurns them. [...] In the midst of this dualism [of the endless process between the subject and the object] dwells the idea of culture [...]: as the way of the mind to itself."

Culture, like life, cannot be predicted by natural law. At the same time, no such law is invalidated by life's or culture's unlikely careers. Like justice, nature itself appears to leave space for free movement amidst its lawfulness. And this must hold for its derivatives. Indeed, whatever is actualized in human-culture systems, it is from the vast expanse between the necessary and the impossible. So we believe that psychology has to reconsider its place in the concert of natural and cultural or mental sciences. Natural and logical necessities cannot be absolutely universal, because further possibilities arise with every new formation added, if we accept open cosmic, biotic, personal, and cultural evolution. If anything, humans live in a real world of which they are as much a part as they contribute specifically to its reality, because, by their very essence, they co-create themselves in culture.

Notes

[1]The editors, in their role as organizers of the Merligen Symposium, wish to express their gratitude for financial support to the Swiss National Science Foundation (Grant 11-31847.91), the Swiss Academy of Human Sciences and the Swiss Society of Psychology, the Max and Elsa Beer-Brawand Foundation and the Miigros Genossenschaftsbund.

[2]The following contributions in addition to those of Boesch and the editors are published in an issue entitled *Kulturpsychologie / Cultural Psychology / Psychologie Culturelle* of the *Swiss Journal of Psychology* (Schweizerische Zeitschrift fuer Psychologie / Revue Suisse de Psychologie), i.e., No. 2 of Vol. 52 (1993). Single issues are available at the price of sFr. 26.- + costs from the publisher: Verlag Hans Huber, CH-3000 Bern 9 (Fax: +31 24 33 80 / +31 302 33 80).

Allesch, Christian G. (Salzburg): The Aesthetic as a Psychological Aspect of Man-Environment Relations, or: Ernst E. Boesch as an Aesthetician

Cole, Michael & Subbotsky, Eugene (San Diego, CA. and Lancaster UK): The Fate of Stages Past: Reflections on the Heterogeneity of Thinking from the Perspective of Cultural-Historical Psychology

Krewer, Bernd (Saarbrücken): Action Theory and Cultural Psychology [in French]

Schneider, Christa & Müller, Martin (Zürich and Berlin). The Psychology of Peoples—Origin and Development in Cultural Psychology Perspective [in German]

Straub, Juergen (Erlangen): Collective Memory and Collective Past as Constituents of Culture: An Action-Theoretical and Culture-Psychological Perspective

References

Boesch, E. E. (1982). Von der Handlungstheorie zur Kulturpsychologie. Abschiedsvorlesung, Philosophische Fakultät der Universität des Saarlandes. Saarbrücken, 28. Juni 1982. 29 Pp. (see also: Handlungstheorie und Kulturpsychologie. *Psychologische Beiträge 30,* 1988, 233-247.

Boesch, E. E. (1991). *Symbolic action theory and cultural psychology.* Berlin: Springer

Galliker, M. (1993). Zur Verkörperung des Gedankens im Gegenstande: zur kontroversen Begründung der Völkerpsychologie. *Psychologische Rundschau 44*(1) 11-24.

Simmel, G. (1911). Der Begriff und die Tragödie der Kultur. In Das individuelle Gesetz. M. Landmann (Ed.). Frankfurt, Suhrkamp, pp. 16-147. (English : The conflict in modern culture. K. P. Etzkorn (Ed.). New York: Teacher's College Press, 1968.)

The Sound of the Violin

Ernest E. Boesch

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Let me start with the obvious: the sound of the violin is the result of an *action.* Thus, producing the sound must be somebody's *goal.* Yet, the musical sound is indeed an ephemeral, intangible goal of no practical use, and we would therefore have to face the problem of apparently gratuitous actions. Indeed, what kind of an action is "contemplating a flower" or "admiring a landscape?" What is the function of actions like skiing, reading a poem, collecting stamps or paintings - or of playing music? Such useless actions may confront us with the very general reasons for which we act.

I propose to start by considering the violin's evolution as a "species," or what I would choose to call here its "phylogenesis." I shall then look at its "ontogenesis," that is, how, from being a mere object, it becomes, for an individual, an instrument to be played. Third, I propose to focus for some time on the strange goal of producing the *beautiful sound,* and, by extension, the beautiful melody. These considerations will, I hope, make this particular object an example of man's relationship with the objects surrounding him and, thus, with the culture in which he lives.

The "Phylogenesis" of the Violin

According to historians, the first instruments with strings were plucked, like the zither or primitive harps. The bow would have been a later addition. The actual origins of these instruments remain unknown, but they certainly required complex inventions. A primitive hunter might easily have noticed the peculiar sound of the bow string upon shooting, but it probably needed a moment of relaxed playing with the bow to make him discover the *aesthetic* quality of the plucked string. To observe the different pitches, strings of different length and tension were needed next, but it was only after discovering, finally, that sounds could be amplified by connecting the strings with a hollow object, that the plucking string instrument would have been invented. Such simple instruments still can be found: The Thai *phin* basically consists of a bow with a single string to which half a bottle gourd is attached as a sound chamber (Figure 1). Inventing the violin, however, needed an additional, and crucial, step: somebody had to notice that by rubbing the string with a lengthy object it became possible to prolong the sound considerably. The creation of the violin, thus, required three discoveries: the sound differences of varying string tensions and lengths, the effect of a resonance body, and the stroking bow. As with every invention, these discoveries required a reorientation of attention and perception, a restructuring of actions, and thereby opened to man a new dimension of action, the *aesthetic* one.

The first violins were crude instruments, but their like are still played in many parts of Asia. Thus, the Siamese

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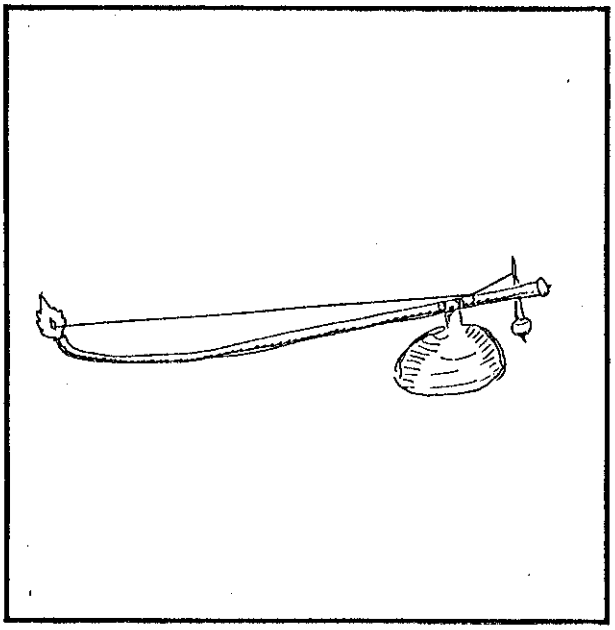

Figure 1

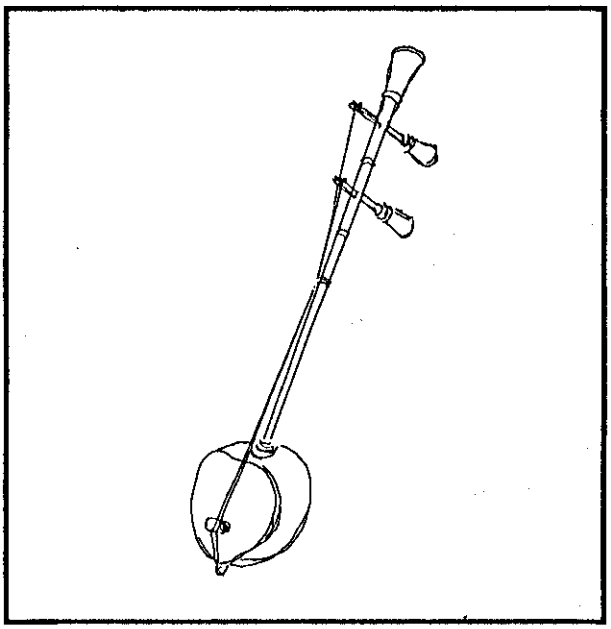

Figure 2

soo uu (Figure 2), similar to some Chinese instruments, consists only of half a coconut shell covered by a piece of skin to which a simple stick of hardwood with two strings is attached. Interestingly, in these instruments all the essential elements of our violins are already present: the strings are supported by a *bridge,* tightened by *tuning pegs,* the *sound box* (coconut shell) is pierced by *holes,* the function of which is said to be similar to our f-holes (which, though erroneously, are often believed to "free" the sound). Such similarities, certainly not copied from western models, indicate that producing and controlling the sound led to analogous technical solutions.

Historians say that the two types of bow-string instruments known in early Europe were imported from the Near East in the 11th century or before; the first was Arab, called *Rabab,* which engendered the European *Rebec.* It consisted of an elongated piece of wood, the larger end of which was hollowed out and covered with parchment for forming a sound box, while the narrower end constituted the neck. It was fitted with one or two strings played with a short bow. The second instrument is said to have been a *fiddle* from Turkistan, consisting of a spade-shaped sound box with added neck, fitted with two to three strings and played with a longer bow. The Far Eastern "violins" already referred to have similarities with both the rebec and the fiddle, but while those have been abandoned in Europe, the Chinese and Thai *soo* are still in use.

From these two initial forms derived a range of instruments bewildering in their variety. For our purpose let us simply keep in mind that the original crude instruments lead to a search for improvements, lasting over several centuries, experimenting with changes of the sound box, the shaft or neck including the kind and number of strings and their tuning, and the bow, these three elements becoming variously combined "across species."

In this progressive transformation of the instrument, of course, much *bricolage* took place, empirical testing of different woods and shapes; of size, place and form of the sound-holes; of kind and location of the inner stabilizers (bass bar and sound post); of glues and lacquers; of the strings and the bow; similarly, various positions for playing the instrument were tried out. By the 17/18th century this experimentation had apparently about exhausted the available options and became limited to variations in details; from now on the typical violin as we know it, with four strings tuned in fifths (g-d-a-e) remained constant, while the competing forms, mainly the fiddle and the gamba, were abandoned. Of course, this *bricolage* often led to individual solutions - the formulas for glues or lacquers for instance - which the violin-builder tried to keep secret.

The progressive construction of the violin, of course, was guided by the available materials, but no less by the human possibilities of handling. Both, however, were not *a priori* determining; a modern violin is certainly more difficult to play than an ancient viola held on the thigh and fitted with frets, and the typical shape of violins is due to

beauty as much as to functionality of handling. Somehow it appears that the old violin-builders felt quality of sound and beauty of shape to be closely related - only a beautiful instrument can sound beautifully.

This is, in short outline, the genesis of a truly cultural object, invented and led to perfection by man. What were the reasons for this development? Indeed, we may understand easily the continuous improvement of a loom from its primitive forms in an African village to a mechanized contraption: it serves ease of handling and, thereby, higher output. What output, however, would the development of violins have served? *Sound,* or to be more specific: *more beautiful sound*- unsubstantial, not measurable like lengths of cloth, and even undefinable. That such an elusive goal should have determined such a prolonged and complex development of an object, is indeed a vexing problem.

Let me add another consideration. The pursued sound was, of course, *unknown.* A violin-maker might have changed some aspect of the instrument, but on trying it out, the player could remark: "It sounds better, *but that's not yet it.*" What would have been this "it?" An intuition, an intangible anticipation, and although such an image became transformed over and again during the centuries long processes of improvement, it would have remained a *should-value* both inducing change and also controlling it.

This "sound-goal image" not only varied over historical periods, but differs also between cultures. Thus the Siamese *soo* and the Chinese *hu* also underwent modifications, but they were beautifications with only little impact on the sound. Similar beautifications by material or inlay, with mere decorative purpose, were also applied to European instruments, but those, again, differed fundamentally from other transformations. Look at one among many examples, the *bridge,* an inconspicuous element: it underwent multiple variations in form, size and position whose effect on the quality of sound - quite substantial - was tried out over centuries. However, to understand our long-lasting search for a more beautiful sound, somehow contrasting with other cultures, we have to look not at the instrument alone but also at its player.

The "Ontogenesis" of the Violin

"Ontogenesis," of course, is not used here as in developmental psychology, meaning the unfolding of a being from its conception to maturity; I would rather understand it in its original sense, "the coming into being." Indeed, a violin becomes really a violin only on being played.

Mastering the violin is a long and frustrating endeavor. The optimum age for starting to learn is likely to vary between 5-7 years, when the most gross difficulties of sensorimotor coordination have been overcome. The child will of course first be given a small violin, and will probably be eager to start learning. He or she may see mother or father playing and, as all children do, longs to imitate them. Such initial enthusiasm, however, would soon be supplanted by a rather ambivalent attitude, and in most cases it requires much parental coaxing and dragging in order to keep the child from abandoning the instrument. Indeed, practicing the violin provides at first only little intrinsic reward. It is probably fortunate that the ear of the young child lacks fineness of discrimination and that, while it acquires it, the skill of playing improves, too.

To start learning early is, of course, required in order to shape the child's motor skills and perception during the forming years. This is precisely of interest to the developmental cultural psychologist: that *learning to master an object implies shaping the development of the individual;* while, as we saw, the object was formed "phylogenetically," the individual is led to "fit" the object in its ontogenesis. This, of course, implies motor and sensorial adaptations - even transformations - of the learner. Let us consider them more closely.

Since about the end of the 18th century the violin is held between chin and collar bone. This position, more difficult but also more proficient than earlier ones, demands not only strengthening of the neck muscles, but also precise coordination of their innervations with movements of the left arm for position shifts - requiring an optimal balance between muscular tension and relaxation, between flexibility and precision of movements taking years to learn.

A second difficulty the learner has to master is the technique of the left hand. The child's fingers, particularly at an early age, need to gain strength and independence of movement, a precise "feel" for distances and pitches i.e., sensorial discrimination - particularly difficult since the space separating tone intervals diminishes the more the hand moves upwards. Finally, the left hand has to master the vibrato, important for giving volume and warmth to the sound.

All this will be compounded by the even more exacting bow work. The player holds the bow at one end, the "nut," and glides it in an apparently easy movement over the strings. Yet, how this is done will principally determine the quality of sound, and is therefore of major

importance. The bow touches the strings in the space between the bridge and the fingerboard. To produce an even sound, the bow should move in a steady straight line - less easy than one might believe, because the "natural" horizontal movement of the hand traces an arc. Particularly important for the quality of sound are the speed of the bow movement on the one hand, the pressure of the bow on the other. For an even sound, both speed and pressure need to remain constant. Since the weight with which the bow rests on the string varies along its length, keeping pressure constant requires compensatory regulations by the bow holding hand, and this, of course, at all speeds. Further, the sound quality is influenced by the number of hairs which stroke the strings. For this reason the player will hold the bow at a sideward inclination, which, thus, must be kept constant or varied according to the sound desired. Of course, the bow movements must be coordinated precisely with the fingerwork of the left hand. Add that straining the muscles of neck, shoulders and arms will be an impediment; accordingly, a delicate balance between relaxation and activation will have to be achieved. Any psychologist who has ever tested motor coordination of children will agree that such a complex interplay of movements is very difficult to learn; even advanced students will often have to concentrate on their bow much more than on the left hand.

The sensory and motor learning required, the development of discrimination, rhythm, muscular strength and coordination, is a process which takes years, with daily training hours definitely longer than many a psychology student is willing to spend on his books or experiments. Becoming a violinist allows no short-cuts, no jumping of chapters one doesn't like, no skipping of arguments one does not understand; ignorance cannot be glossed over by empty words. In music every negligence becomes cruelly manifest in the performance, and therefore the learner is bound by an unrelenting discipline - which inevitably will transform his person.

The initial results of learning, thus, would not be very rewarding. The sound remains crude, harsh, often disagreeable, the strings bite the fingertips, the skin of the chin gets irritated, and even social reinforcements, after a while, may become rare - the admonition to "close the door of your room when you practice" is not particularly encouraging. In spite of that, the child will have to practice daily, often at hours when other children play together. We can thus easily understand that the violin will become an ambivalent object, and that many young learners abandon after a while. The discomfort and constraints they experience become reminders of a limited action potential, of object-derived barriers and social constraints, and such an antagonistic object may even represent the «non-I» in general, the external world basically opposed to the «I» [as to this «I»-«non-I»-antagonism, see Boesch, 1983 and 1991].

Yet, some children "catch on." They accept the frustrations of learning because of the positive valence of some future goal. This future goal may be to conquer an adversity, to extend and confirm the individual action potential; it may also be social - to become a famous violinist, or at least to be able to play quartets like father. However, such explanations do not suffice to understand the child's motivation; they only displace the problem. Indeed, the reinforcement of an action potential would still have to explain why the child strives to achieve this **particular** mastery, and the explanation by social models would have to understand both the valence of the model for the child, and the motivation of the violinist he or she wants to emulate. And if playing the violin would earn social rewards, what then would make the public appreciate music? Explanations by social modeling or some unspecified mastery seem indeed inadequate for explaining the frustration tolerance and the perseverance of a learner.

In the terms I use, learning to play the violin is a *dominant* or *superordinate* goal. Superordinate goals are distant in time but command actions in the present, which - as with violin exercises - may not be pleasant in themselves. It is true that distant goals will usually be reached in steps, so that intermediate rewards may strengthen the motivation. Yet, the applause experienced on the way may provide encouragements to go on playing, but they will not suffice. The more the player advances, the more an additional audience will have to be satisfied: *he himself.* He will be critical of finger accuracy and speed, but as critically - if not more - he will watch and evaluate *his sound.* "His," it is here, and not the violin's. In fact, he may be hurt when a listener tells him "You must have an excellent violin, it sounds marvelous!" He wants to feel that it is his mastery which forces the violin to sound well. However if, his level of expectation rising, he feels disappointed with the sound, he may start haunting the violin-shops to have his instrument controlled, improved, or changed for a "better" one, and on doing so he will compare the "sound of violins." But then he will again spend hours a day only to improve *his* sound with the new instrument to reach that elusive quality of tone which he feels to be moving, "going to the heart," undefinable and yet inducing a reaction of content and fulfillment in the happy moments where he feels to have reached it.

Sound and Noise

What then is it which makes beautiful sound become such a dominating goal? In fact, sound is a very important quality of our perception. Sound says what words don't say. Words remain restricted to consensual taxonomies and are largely unable to express subjective states. Saying that I am angry does not necessarily mean that I *feel* angry - but the tone of my speech shows it. Tones betray our moods, convey love or anger, acceptance or rejection, joy or fear in a way which "grips" immediately - the tone of *our voice is the direct external trace of inner qualities.*

What, however, of the sound of *the violin*? Let us distinguish two aspects. The first is the action of *making objects produce sound*, the second is the *search for perfection of sound.* As a boy I used to tighten a blade of grass between the my thumbs and, by blowing into the gap formed in this way, produced a sharp, oboe-like sound. In spring I cut fresh branches from hazel or ash trees and made them into recorder-type flutes. Each time, doing so, I transformed nature into "culture," shaping natural raw materials into forms apt at producing sounds which did not occur in "pure" nature. Yet, the pleasure was immense and can be understood only by the extension of my childish action potential; it made me a creator, albeit in a tiny area. Making objects sound, thus, is a bit like taming animals: *it transforms a resistant non-I into a compliant extension of the I.*

Such sounds however, although exciting and pleasing, only rarely - and by accident - fulfill any standards of beauty. The *beautiful* sound is moving, it touches our feelings with a particular intensity. Myths and fairy tales illustrate the miraculous power of the beautiful sound: it tames wild animals and ghosts, heals the sick and appeals directly to the angels; Orpheus' voice even opened the doors to the underworld. Somehow we feel that producing a pure, immaculate sound provides the experience of an optimal action potential, able to realize perfection - although only for the fleeting moment of the sound's duration. The experience I mean is very pointedly expressed - although in the realm of color by the British artist Ben Nicholson who writes on seeing a painting by Picasso:

> And in the centre there was an absolutely miraculous *green* - very deep, very potent and absolutely real. In fact, none of the actual events in one's life have been more real than that, and it still remains a standard by which I judge any reality of my own work...(Summerson, 1948, p.7).

And Gauguin to express the strangely real-unreal quality of such experience, wrote: "The sound of my wooden clogs on the cobblestones, deep, hollow and powerful, is the note I seek in my painting" (TIME, May 9, 1988, p. 49). The statements are surprisingly similar - a certain tone of color or sound, experienced as *potent and powerful*, become standards, should-values, goals of aspiration.

We sometimes imagine a world entirely in harmony with our fantasms, entirely in tune with inner experience; we call it *utopia*, and reaching it is a topic of dreams and fairytales. Utopia, we might formulate, abolishes the «I»-«non-I» antagonism. The beautiful sound we aspire to would have to correspond to - or even to surpass - our ideal standards, conferring on them at the same time a reality external to us. Would it not then prove our potential to create utopia, even though in a very limited way? Being nothing but sound, a transient, vanishing trace of our skill, it still would symbolize the existence of perfection and our potential to attain it. This is, of course, not true for the beautiful sound alone, but for any creation of beauty; beauty bridges the chasm between I and non-I. Unlike other forms of art, however, the beautiful sound, by its very ephemeral nature, remains unreal and intangible and hence commands connotations and imaginations of a particular quality.

Beauty, however, is neither the same for everybody, nor in each culture or historical period. A Thai will appreciate other sounds than a European, and the sound of violins at the time of Bach differed from ours. Today we might say that a beautiful sound has, above all, to be *pure*, meaning, on the one hand, free of noise frequencies, on the other, accurately in tune. The first sounds a beginner tries to elicit from a violin will be noisy, scratchy, raw, and tend to be out of tune; in learning to play a main effort consists in eliminating these impurities. In addition, the sound must have *volume*, extended evenly over its duration. An uneven bow movement produces an unpleasingly vacillating tone, which, however, should not be confounded with the vibrato, an intended, rhythmic, although minimal variation not of volume, but of pitch. Sound, furthermore, should be *appropriate* both to the *"spirit" of the time and of the particular music* played. Thus, the tone of a jazz clarinet or of a Gypsy violin would not be appropriate to Mozart's concertos, but neither would a Mozart clarinet fit into a Swiss yodel band. Of course, beautiful sound will always be defined also according to *subjective standards* - whatever they be. The ideal a player pursues may veer towards more warmth, or towards more strength and clarity, the one will accentuate the vibrato more than the other - there will be subtle differences between players which sometimes only the initiate, or the player himself, will be aware of.

Purity of sound has obviously been of long lasting importance in European musical culture. Thus, the violin is tuned in quints which are the purest intervals, neither consonant nor dissonant. Until after the romantic period, European music favored consonant chords; dissonances, of course, occurred (as in Bach's polyphony), but were transitional, not "standing" chords, having to be resolved in harmony. It is only in the music of our century that dissonance has acquired an independent, more than transitional, value. In contrast, in Thai music consonant chords are of no importance; Thai music is linear, not harmonic, it coordinates melodies. Consequently perhaps, the purity of tuning appears to be of lesser importance; Morton speaks of a "'rough and ready' approach to precise tuning" (1976, p. 28). We might add another reason: It may be the *symbolism* of pure sound which is important - consider for instance that in Thailand, in contrast to Europe, religion played no significant role in the practice and development of music.

In *modern* Europe, however, we meet musical styles which not only do *not* aspire at a pure sound, but on purpose introduce *noise*. Louis Armstrong cultivated a hoarse voice in singing, and similarly the shrieking of saxophones and clarinets in modern pop music are intended by their players, and may even also require long training. They would not sound beautiful in every ear, but they are, in their own ways, congenially expressive.

Such examples might throw additional light on the meaning of sound. In modern rock concerts the hard jangling of metal guitars is combined with the hoarse shouting, screaming, screeching of singers - they seem to enjoy noise, and their public does so visibly and audibly. But also so-called "serious" modern music frequently makes use of various kinds of noise: purity of sound tends, in whole or in part, to be abandoned.

Noise is "sound dirt," and it seems no coincidence that rock musicians have also tended to cultivate a dirty look: unkempt, unshaven, ragged - or at least to affect "out of place" clothing, from torn jeans to Madonna's bras and girdles ("*Dirt*," says Mary Douglas, "*is matter out of place*" [1966, p. 35]). However, noise and dirt are normal occurrences of everyday life; to keep them away demands discipline, effort, and is related to much social constraint. Cleanliness is required in "good society," and purity, of body and mind, is needed in approaching sacred things and places - otherwise the approach might even be dangerous. Hence, dirt can become a threat, and so can noise - to oneself as well as to others.

In fact, the meaning of noise can differ widely. It accompanies bodily discharges and thus is directly related to dirt and disease; it marks catastrophes, accidents, disaster, war, aggression; it signals a threat from dangerous animals, and nowadays belongs as well to powerful engines roaring through our settlements. But noise can also herald happy events, the convivial feasting, the exuberant joy, the triumphant success, the exhibition of power - easily, however, degenerating into the noises of drunkenness. Noise (in the sense of not purified sound) can even possess aesthetic qualities: the rustling of leaves in a breeze, the murmur of water in a creek, the lapping of waves on the shore. [The German distinction between *Geräusch* and *Lärm* does not exist in English.] Altogether we might say that noise tends to belong to earthly, natural events, but also to out of ordinary occasions. Pure sound, on the contrary, rarely occurs in nature - with the exception of singing birds. The pursuit of beautiful sound, thus, is a truly cultural endeavor, and the long history of creating instruments able to produce pure sound, as much as the individual efforts at mastering them, prove the importance we attach to it. Pure sound is a *mytheme*, corresponding to a *myth of purity* which relates the individual to a social as well as spiritual order - and which, by the same token, opposes the anti-order symbolized by noise.

European music, often and for a long time, was a means for approaching God. *Soli Deo Gloria*, wrote Bach over his compositions, and even recently Sir George Solti, the famous conductor, confessed that Mozart had convinced him of the existence of God. Introducing noise in music, hence, implies rejecting the cultural mytheme representing purity, including both its social and its spiritual contents. In other words, it means shedding constraints and becomes the symbolic realization of unhampered freedom - somehow, it too represents utopia, but of a Dionysian kind (as opposed to the Apollinian - to borrow Nietzsche's dichotomy). The ecstasy such music can produce in many young and less young people relies on this symbolism which is reinforced by sensorial excitement. Sound ideals, thus, can cover a wide spectrum. Noise can be pursued as obsessionally as purity of sound, but they express different myths and fantasms.

Let us come back to the violin which, as we have seen, is the result of a culturally persistent quest for beautiful sound. It belongs to the ideational realm of purity. Hence, the young learner will from the very outset be caught between the cultural goal of purity and the natural propensity (not only of children) for noise and dirt. The violin, thus, may begin to symbolize not only the resistance of the

object world, but also the conflict between natural penchants and cultural requirements.

It will then follow almost necessarily that becoming involved in learning the violin must have an impact on the definition of the learner's *self.* Somehow, to some extent, the child will have to side with purity, he or she will veer towards the Apollinian side of utopia. This, of course, implies renouncing those sides of the "natural self" which prefer noise, dirt, disorder, so that mastering the violin then may symbolize this fight against the "darker side" of one's self. However, the violin, representing the - perhaps only anticipated, perhaps already experienced - potential of producing beautiful sound, will also symbolize the "aspired self." Thus, over and beyond simple mastery of a recalcitrant object, learning the violin would mean both overcoming the rejected sides of one's self and approaching one's self-ideal.

All this would also influence the learner's *view of his world.* He would tend to see it divided into a "we-world" and a "they-world." The "we-world" includes all those who embrace the same values, the same quest for the pure sound. They are the ones who support the individual's views and actions, and among whom he would choose the "alters" relevant for his self definition. The "they-world," of course, would be the others who either do not care for, or might even loath the pure sound and what it represents. In this more or less dichotomized world the violin becomes instrumental - not only in the sense of producing sound, but somehow also for propagating its message.

Sound, indeed, is a signal: it carries a *message*, but it also is the message. In this sense, using Raymond Firth's taxonomy (going back to Peirce), the pure sound is more than a signal, it is an *icon* i.e., "a sign that represents its object by resembling it" (1973, p. 61). The musician, thus, is both a messenger and represents the messsage. If I remember correctly, both Henryk Szeryng and Yehudi Menuhin carried diplomatic passports, and were considered "ambassadors" spreading a cultural message. Of course, such an ambassadorial role cannot simply consist in playing the violin, however fine that might be; it is perceived more or less consciously as "spreading the gospel of purity" - whatever values the individual may relate to it. Somehow this "messenger" quality is ritually enacted in every concert: The musicians, in an elevated position, dispensing their message to the public, whose reactions are carefully ritualized. In church concerts, by the way, even applause is forbidden: noise definitely does not belong to sacred places. But even in the concert hall, the applause is distinctly different from the one in rock concerts where noisy music and noisy manifestations of the public somehow create a bond of similarity between the two sides. The message differs, and so then do the rituals.

Sound is more than a message: it may also *carry power.* In *"L'histoire du soldat"* by Stravinsky and Ramuz the violin not only symbolizes the antipode of material wealth and might, but it conveys to the player the power of a different kind: To heal, to exorcise, to protect from evil forces. This belief in power related to the realm of purity and order is widespread. A magician has to beware of defilements in order to conserve his powers, and the ubiquitous fear of impurity - although differently defined according to culture (see Mary Douglas' analysis of pollution [1966]) - is a telling expression of this belief. The power of the sound derives, of course, from its spiritual symbolism, but it too requires purity of the player: Stravinsky's soldier had to renounce his worldly wealth and subdue the devil before being able to use the power of his violin. Purity of sound, purity of heart, purity of body, thus, all belong to the same myth - although with different connotations.

In this vein, the beautiful sound is pure, yet never as pure as the idea it expresses. Hence, the pursuit of the beautiful sound aims at a goal which will always remain "a step ahead": not the beautiful sound experienced, but the *more* beautiful sound is the real goal. It is a sound model, a should-value, never present and yet intuited. Nicholson, of course, did not intend to reproduce Picasso's green: his experience of it implied the intuition of a transcending perfection, yet pursued without knowing it. Such quest for the "still more perfect," the "still more satisfying" object or action corresponds to a widely shared myth; it expresses an intuitive anticipation of "realities beyond" the present, but also the anxiety of missing fulfillment, of losing power.

The sound of the violin, thus, is deeply embedded in cultural myths, and the individual becoming a violinist will, intuitively rather than consciously, be drawn into the orbit of these myths; but she or he will construct their personal meanings by merging them with subjective experiences and aspirations. Every musician will relate the "mytheme of the pure sound" to different kinds of purity and order, and the pursuit of the beautiful sound will for each carry his own private, and often unconscious, connotations. In this way myths, constituting cultural cadres of orientation, will be given personal relevance by the individual's fantasmic aspirations.

We can now understand the person-violin dyad as a kind of focus within an individual's total «I»-«non-I» relationship, polyvalent and interrelated with various areas of meaning. One aspect, however, appears to me to be of basic importance in the player's pursuit of beautiful sound: to be able, *by himself, to overcome the antagonism of objects*. The violin, we have seen, is a recalcitrant object, and to master it requires profound transformations of the individual. Yet, this accommodation of the player for assimilating the object promises, in the long run, particularly rewarding returns. Indeed, the sound felt to be perfect can be produced only by a perfect fit between instrument and player. Assimilation and accommodation cannot be separated anymore: artist and violin form a symbiotic whole, the I, so to say, blending into the object, and the object melting into the I. As long as it remains imperfect, the sound is experienced as antagonism, but when perfect it becomes the symbolic proof of unity, of a cleavage overcome - or in the words I already used, it symbolically confirms our very personal potential to reach utopia.

The Sound Trace

All these considerations, somehow, leave a feeling of incompleteness. *Beautiful* sound is certainly more than *pure* sound. But what is it that makes it beautiful? Let me recall here a paradigm I resorted to in several earlier publications: the one of the *trace*. Traces are, in the sense used here, the material imprints of our actions in the external world. We leave, of course, thousands of traces, but some of them possess particular qualities: they faithfully mirror the movement which produced them. I liked to use the example of a skier's track on a slope of fresh snow. We know that every change of movement in our legs, hips, shoulders or even arms would change the nature of the trace. Similarly, the violinist feels that the inclination of his wrists, the weight of his hand, the contraction of his shoulders would express themselves in the quality of the sound: the sonority of his violin mirrors faithfully, sometimes cruelly, the perfection, or even grace, of the movements - and thereby the person - of the musician. In the same way as our voice, manner of walking, or even the look of our face, the sound is indeed felt to be symptomatic of "our self."

Such symptoms, however, may express various aspects of our self, excitement or calm, anger or tenderness, serenity or worry, which, although being momentary affects, often signify permanent qualities as well. Thus, the musician might tend to substitute the word *expressiveness* for "beauty" of sound, thereby allowing himself to vary his sound from soft to harsh, from cool to warm; in a moment of wrath he may even abandon the ideal of purity and violently scratch his strings instead of stroking or caressing them. Aiming at expressing himself, the musician's sound turns into an idiosyncratic trace.

The quality of the sound being a faithful trace of the individual's movements, and those being felt to express his or her person, there thus will start a subtle process of self-regulation which reaches far beyond the mere efforts at improving one's sound. The so-called "technique," the acquisition of the correct movements, will be complemented, even guided, by a search for inner qualities. In our high-school orchestra, having difficulties in creating a high pitch, all of the sudden the conductor advised: "You have to **think** the note before playing it!" - and, to my surprise, it worked. The *inner* performance had to guide the actual one. Motor skill is not sufficient, but requires support by a mental discipline. Mastery of the instrument, then, turns into mastery of oneself.

A single sound may resemble a straight line, but traces result from movements in progression. Sounds tend to follow a course - they cannot just rest on a single note; any note somehow "searches" its completion, it "pulls" the player ahead. Thus, beauty of sound becomes, necessarily, the beauty of a melody; it includes flow, transitions, relations - in short, it resides in the quality of the trace. The trace of the skilled skier becomes aesthetically pleasing by an effortless elegance of its curves, and similarly the beauty of sound consists in a smooth flowing through the meanders of the melody.

Thus, sound becomes truly beautiful only by being extended, sustained throughout a melody. A single sound may be touching, like a soft word, but a soft word is not yet soft speech - the word would hint at, but not yet demonstrate softness. Only when purity of sound spreads over musical phrases and ranges can it symbolize the permanence and pervasiveness of inner qualities. Real mastery proves itself in the form and quality of a trace, but hints at a perfection beyond music.

However, a violinist may master a beautiful sound over long sequences, and yet may not move the listener. Beauty also requires "style," interrelated qualities such as rhythm with its hesitations and accelerations, volume with its crescendos and diminuendos, variations between softness and vigor. Style, by its elasticity and versatility, expresses inner freedom - to play a melody beautifully demonstrates the potential to *create* beauty. By his "inter-

pretation" the artist shows his ability to transform the dead matter of musical scores into a living, somehow "catching" experience - for himself no less than for a listener.

To do this, he needs the musical phrase which gives the sound its course and duration. But he also needs *contrast*. In fact, music is contrast - as we already found in comparing sound to noise. Imagine a Matakam youngster promenading in his village with the simple hand-harp shown in Figure 3; he nonchalantly strums the instrument

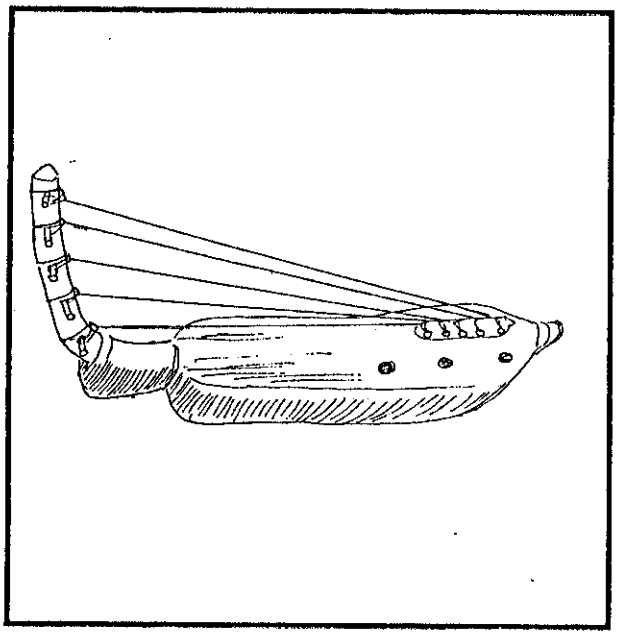

Figure 3

while parading among the girls whom he knows are peeping out of their homesteads. The soft, almost timid sounds of the instrument strangely contrast with the laughter, shouting, or the loud discussion of arguing men. Similarly, the sound of a violin would contrast with the blaring of trumpets or the bangs of a gong. It is certainly no accident that drums, trumpets and fifes were instruments for martial music, while harps, flutes, lutes or violins became instruments of relaxation, meditation, poetic imagination or courtship. Contrasting with the noise and clamour of everyday life, the invention of string instruments was significant for the development of those sides of man and culture which relate to inwardness, contemplation and spirituality.

Contrast, of course, also occurs within a melody: it belongs to the versatility required for expression. But contrast also occurs whenever a piece of music reaches its end. The trace not only evolves, but it strives toward what musicians call its *conclusion*. Musical phrases always come somewhere to rest: they necessarily end in silence.

In this, now, the melody differs from the ski-trace which, as an external reality, can last as long as no other skier obliterates it. The sound however, although real, even measurable like an object, has no permanence. Menuhin lowers the violin, the conductor halts the orchestra - and the sudden silence throws the listener back into his ordinary existence. Applause may offer a means for softening the transition, but we all have experienced the strange, unnameable uneasiness after a church concert where, lacking the release of applause, one has to steer oneself back into "reality."

The silence in which music ends has profound importance. It emphasizes that musical sound results from an intimate symbiosis of man and object which never can be more than a renewed attempt at overcoming the chasm which separates I from non-I, a reaching for a perfection which cannot last. But in the silence will also emerge the wish not only for repeating the experience, but for surpassing it. The pursuit of the *more beautiful* sound is born from the experience of beauty and the anxiety of losing it. Music, thus, continuously needs to be *re-created*.

Conclusions

We have now gone a long way, from the mere construction of a material object through its various stages of development to cultural myths and, finally, to object-subject relationships. Thus, the violin *as an object* is first, in Lang's (1992) terms, an "external memory," reminding man of potential uses, their requirements and rewards. Yet, the same object, by the same token, symbolizes myths and the values of the cultural group they entail: learning to master it, therefore is an action of taking sides. But the apprenticeship also implies a *promise*, the anticipation of a not yet realized potential of action. In this sense, the actual object is just the momentary focus in a continuous process of «I»-«non-I» interaction, implying transformations of the object in the attempt at improving it, as well as transformations of the subject in acquiring mastery.

We have, in these pages, mainly concentrated on the isolated action of playing the violin; we neither looked at the more complex performances of music, nor did we consider the extended social fabric within which the pursuit of a beautiful sound takes place. Indeed, much more would have to be examined should we like to make an encompassing study of the actions of building, learning and playing the violin.

Yet, "the sound of the violin" was a paradigm for more general problems; it exemplifies the cultural as well as individual construction of objects; it demonstrates the extent to which these processes do not simply produce some isolated mastery, but systems of meaning. Mastery is not independent of goals, and goals are polyvalent and anchored in networks of coordinated action, of thought, belief, rules and values. More than that, objects are in movement, they change with the flow of culture on the one hand, with the nature and progress of individual actions on the other.

Action and object, thus, concur to form combined structures; mastering the violin, we saw, will ultimately unite man and object in that intimate symbiosis resulting in the beautiful sound, and we are likely to find comparable interactions in man's use of other objects. Already the invention of an object implies *objectivation:* the subject transforms an idea into external reality. In mastering the object, the player will in turn assimilate, and thereby *subjectivize* it, while he or she will simultaneously be objectivized by accommodation. In addition, the creation of an object implies its *socialization* - it will be integrated in common frameworks of action and ideation, and hence the mastery of the object entails an *enculturation* of the user, but also, by the individual variations in style or ways of handling the object, an *individualization* of culture. The interaction circle <object - user - object> is at the same time an interaction circle <culture - individual - culture> and implies progressive transformations at all levels. Piaget's model of object construction turns out to be valid not only for physical, but also for cultural objects; the construction processes involved, however, will become more complex, both with respect to subject-object extensions and to layers of meaning, and the interaction subject-object will have to include both proactive (subject -> object -> culture) and retro-active (culture -> object -> subject) influences.

All this, I believe, will lead to much more adequate models of reality than traditional psychology could ever achieve. Cultural psychology, in this vein (and following Jerome Bruner's claim), would necessarily have to precede all other psychological investigations not because cultural psychology would tend to claim more importance, but because any psychological research would have to be localized within the total networks which action creates. We may, indeed, study the sound of the violin as a limited phenomenon, yet, only by being able to make evident its multiple implications would such a study become meaningful. Paracelsus coined the maxim "*nihil humanum mihi alienum esse potest,*" and it could fittingly be a maxim for cultural *psychologists;* the *humanum,* however, the human ways of being and acting, constitute complex systems, and should we neglect these, human reality will indeed remain alien to us. "Human reality"? Does not the incessant pursuit of a more beautiful sound reveal paradigmatically that a main trait of human reality is to transcend itself? Then, our example would have uncovered the very essence of culture formation.

References

Allesch, C. G. (1987). *Geschichte der psychologischen Aesthetik.* Göttingen: Hogrefe.

Bernstein, L. (1970). *Young people's concerts.* New York: Simon & Schuster.

Boesch, E. E. (1975). *Zwischen Angst und Triumph.* Bern: Huber.

Boesch, E. E. (1976). *Psychopathologie des Alltags.* Bern: Huber.

Boesch, E. E. (1983). *Das Magische und das Schöne.* Stuttgart: Frommann-Holzboog.

Boesch, E. E. (1991). *Symbolic action theory and cultural psychology.* Heidelberg/New York: Springer.

Boesch, E. E. (1992). Culture-individual-culture: The cycle of knowledge. In M. von Cranach, W. Doise, G. Mugny (Eds.), *Social representation and the social bases of knowledge.* Bern/ Göttingen: Hogrefe & Huber.

Bruner, J. (1990). *Acts of meaning.* Cambridge, MA: Harvard University Press.

Douglas, M. (1966). *Purity and danger.* London: ARK.

Firth, R. (1973). *Symbols. Public and danger.* London: Allen & Unwin.

Lang, A. (1992). Kultur als "externe Seele": eine semiotisch-ökologische Perspektive. In C. Allesch, E. Billmann-Mahecha, & A. Lang (Eds.), *Psychologische Aspekte des kulturellen Wandels.* Wien, Verlag d. Verb. d. wissensch. Gesellsch. Oesterreichs.

Lloyd, N. (1982). *Grosses Lexikon der Musik.* Guetersloh: Prisma.

Lorenz, K. (1990). *Einführung in die philosophische Anthropologie* Darmstadt: Wissenschaftliche Buchgesellschaft.

Melkus, E. (1973). *Die Violine.* Mainz: Schott.

Morton, D. (1976). *The traditional music of Thailand.* Berkeley: University of California Press.

Revers, W. J. (1970). *Das Musikerlebnis.* Düsselforf/Wien: Econ.

Sachs, C. (1930). *Handbuch der Musik-Instrumentenkunde.* Wiesbaden: Breitkopf & Härtel.

Summerson, J. (1948). *Ben Nicholson.* West Drayton: Penguin.

Van der Meer, J. H. (1983). *Musikinstrumente.* Muenchen: Prestel.

Reinterpretation of Cognitive, Institutional, and Material Structure in an Integrative Historical Perspective

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Structuralist theories and methods uphold that the comprehension of human societies, and notably human behaviour and material culture, cannot be limited to the study of observable phenomena but should also account for those tacit ideas and latent functions related to the conduct of daily life. Beyond this consensus, there is clear differentiation (and sometimes no common conceptual framework or methods) between structuralist studies in the social sciences including cultural anthropology, geography, linguistics, psychology and sociology. Nonetheless, it can be shown that there are two broad classes of structuralist interpretations into which most contributions can be classified. In the first class the term "structure" is used to describe the systematic nature of an object or an event (or sets of objects and events). This class of structuralist studies is labelled "descriptive structuralism" and is shown in Figure 1. References to the contribution of March and Steadman (1971) and Glassie (1975) can be cited as examples of this class of interpretation which has been applied to interpret the layouts and construction elements of old buildings. In his contribution, Glassie states that builders consciously or unconsciously used geometrical and compositional rules - which he calls the "architectural competence" - when they constructed vernacular houses. Glassie maintains that the human mind has an innate capacity to order material culture. Although, the architectural competence does have strong empirical support, Glassie provides no explanation of the reasons for it, nor the meaning of it, because he does not relate his study to other implicit and explicit characteristics of the construction, meanings and uses of the built environment. Consequently, he is unable to show that the rules of the architectural competence are signs of, or homologous with, other products and processes of human culture.

The second class of interpretations of structuralist theories and methods not only includes the first but it also represents a more distinctive corpus of concepts and methodologies derived primarily from studies in the fields of human cognition, linguistics and Marxism. This class of contributions postulates that the tacit and manifest characteristics of either personal cognitive structures or social institutional structures are interrelated by unobservable logics that are conceptual models of what structuralists commonly term "transformational interactions." This interpretation, also shown in Figure 1, is what the Swiss psychologist Jean Piaget termed "analytical structuralism." It is noteworthy that it has been used by groups of scholars to study human societies and their material culture from such diverse perspectives as architecture (Hillier and Hanson, 1984), human cognition (Lévi-Strauss, 1958), a Marxist interpretation of housing and urban planning (Castells, 1977) and structural linguistics (de Saussure, 1916). This diverse class of contributions cannot be considered as a unified set with a shared theoretical perspective and a common methodology. For example, the advocates of structural Marxism reject the overriding importance which cognitive structuralists (like Claude Lévi-Strauss) attribute to symbolic dimensions and also to a synchronic perspective. Beyond these kinds of divergences which are discussed in detail elsewhere (Lawrence, 1989) the debate about structuralist interpretations has not only failed to account for the variety of structural theories and methods, but it has also led to poststructuralist contributions, including the works of Pierre Bourdieu, Jacques Derrida, and Anthony Giddens. Hence, the notions of structure and structuralism can be considered within the history of ideas. This is not the intention of this short paper. Rather, it is meant to question those interpretations of structuralist theories and methods that overlook the diversity of contributions and thereby misrepresent them. This paper argues that both implicit, personal cognitive structures and explicit, institutional social structures can be reinterpreted as an integrated corpus of shared knowledge, conventions and rules that simultaneously

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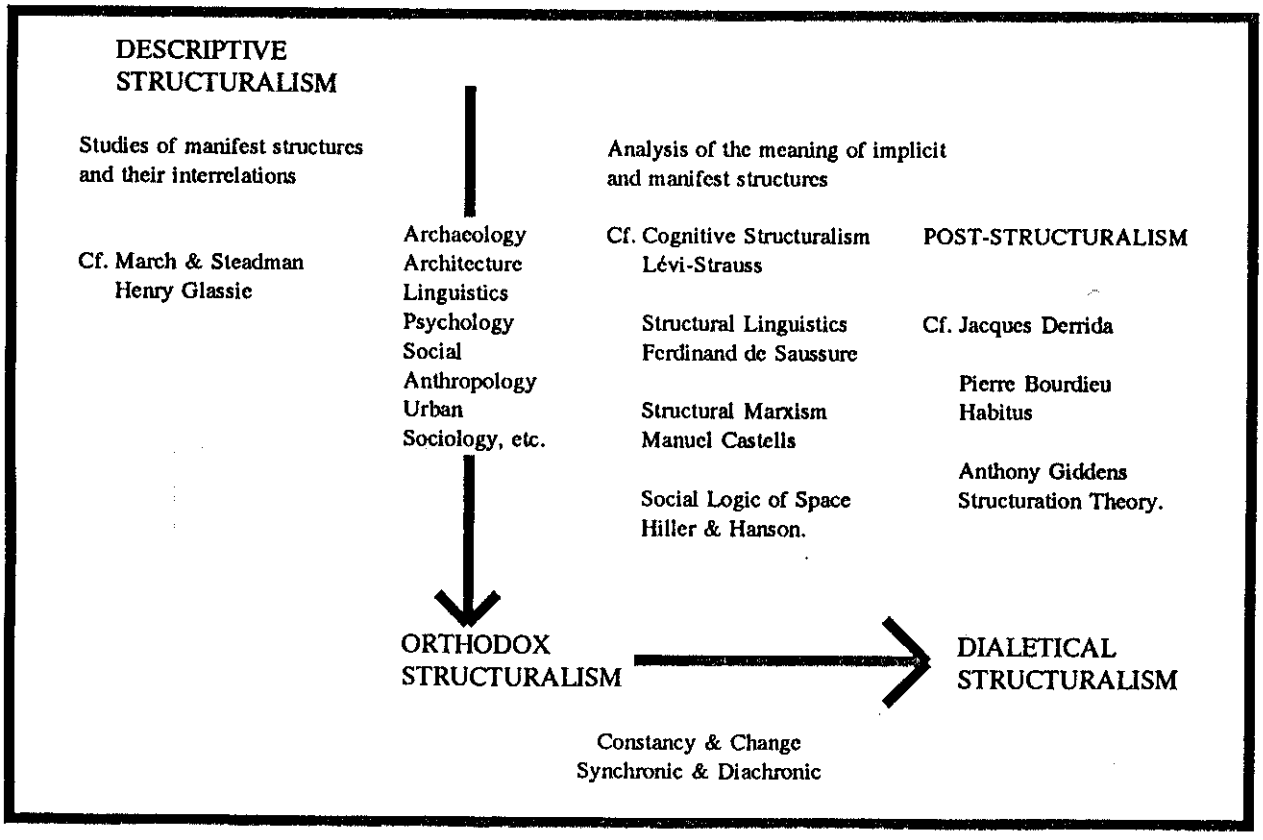

Figure 1: Analytical structuration

enable and constrain individuals and groups to produce and reproduce material culture. From this perspective, cultural, social and environmental psychologists can identify and comprehend those structures, processes and practices that define and are mutually defined by the interrelations between people and people, people and objects, and people and their milieu. The argument for a reorientation and reinterpretation of structuralist theories and methods is illustrated by recent studies of the construction, meanings and uses of the built environment.

Analytical Structuralism: Cognitive Structures

The wide range of analytical structuralist studies enables us to describe and explain the interrelations between the tacit and manifest structures of human societies. This capacity is enriched when diverse structuralist theories and methods are used in a complementary way to develop and apply an integrative perspective. The kind of perspective is useful given that many human products and processes are too complex to be represented by a single interpretation or model. There are many published ethnographies that illustrate the pertinence of applying an integrative perspective. Tambiah's (1969) study of the village of Baan Phraan Muan in northeast Thailand is one example. This study describes and interprets how three sets of human and non-human classifications, namely marriage and sex rules, spatial categories in the house, and sets of forest and domesticated animals, relate to the organization and use of behavioural, spatial and temporal boundaries in and around the orthodox village house. The arrangement of interior spaces is related to an east-west axis of orientation, and a progression of raised floor levels, beginning at the entrance to the house. These levels are not accidental, but are symbolic of the various hierarchical values assigned to the spatial areas inside the house. Tambiah analyzes the system of explicit ideas which the villagers have about their animals and property, and how they are related to the conceptual, behavioural and physical boundaries inside the house:

This ethnography shows that the organization of domestic space and the activities of people included or excluded from various domains of household life, are founded on a homology of ideas including the social categorization of people, space, plants and animals: *Principles of social classification* underline the boundaries delimiting human from non-human, as well as the creation and maintenance of various kinds of physical and non-material boundaries that order houses and domestic life. Nonetheless, this ethnography presents a synchronic analysis and understanding of these boundaries and orders, rather than a temporal perspective that can account for both continuity and change over time. Unfortunately, such static interpretations are commonplace. However, there are notable exceptions which explicitly account for the dynamic characteristics of daily life. Hugh-Jones (1979), for example, describes Pira-parana society "in terms of dynamic processes" which assume the characteristics of "repeated cycles" that define and are mutually defined by the conceptual and physical demarcations of objects, space, people and activities in the long-house communities. Hugh-Jones explicitly includes a temporal perspective to account for systems of classification that "seem to provide a fixed "static" framework for positive action" yet enable the interpretation of daily life "in terms of dynamic processes." This study examines the concepts, products and practices of domesticity with respect to methods of food production and consumption, the prescribed roles of males and females, characteristics of kinship and marriage, the life-cycle, rituals and myth. Hugh-Jones identifies five horizontal space-time systems composed of concentric and linear orders, plus a vertically layered system. These systems are expressed in the spatial, behavioural and temporal organization and use of long-houses and their immediate surroundings, thus overcoming the limitations of recurrent static interpretations.

Our reading of these two ethnographies raises a number of theoretical and methodological questions that go beyond the contrast between static/synchronic and dynamic/dyachronic interpretations. In particular, there are recurrent shortcomings in many contemporary structuralist contributions:

1. They assume the determinant influence of human cognition at the expense of a range of cultural and societal dimensions including political and economic factors. Or, conversely, in assuming the determinental influence of the "social fabric" they ignore individual differences and variations between social groups.

2. An historical perspective that can account for constancy and change over short and long periods of time is often omitted.

3. There rarely is an account of both "micro" and "macro" socio-political dimensions, such as the formulation and regulation of societal obligations, rules and conventions concerning daily life (e.g., concerning food consumption, marriage, kinship and sexual intercourse).

This paper argues that there are no inherent reasons for these limitations of structuralist theories and methods. For example, in contrast to a cognitive structure which is absolute and therefore unchangeable (as Lévi-Strauss and his followers have claimed) it is increasingly recognized by anthropologists and psychologists that these structures are produced and reproduced by human products, processes and plans; these are relative with respect to the contextual conditions in which individuals and groups act. From this perspective, human actions, objects and plans are interrelated to a wide range of societal dimensions; for example, "the social fabric," in particular social organization and interpersonal communication, as Boesch (1991) discusses in relation to social action theory, or as Rochberg-Halton (1986) suggests in his interpretation of culture as cultivation. In other terms, this perspective can not only account for the anthropological roots of cognitive structures but also the psychological ones. Furthermore, the meaning of tacit, cognitive structures can be examined in relation to idiosyncratic connotations and personal values, as well as the shared, denotative characteristics of social and institutional structures. Consequently, it is necessary to adopt an integrative perspective in order to account for the multi-dimensional nature of structures. This means that the institutional and structural characteristics of society should be considered explicitly in tandem with the implicit cognitive structures of individuals and groups in precise situations at a specific point in time. In order to achieve this goal, a reinterpretation of institutional and social structures will now be briefly presented.

Analytical Structuralism: Institutional and Social Structures

The majority of structural Marxists have applied their theoretical concepts and methods to examine products and processes in contemporary socialist and capitalist societies. These contributions consider the explicit and implicit institutional and structural characteristics of societies, especially authoritative ones including the distribution of power, social control and mechanisms of regulation. These characteristics have been related to the construction, management and use of the built environment, usually at the level of urban and regional development rather than that of individual buildings. Diverse interpretations of this kind have been the subject of debate amongst social

scientists (Lebas, 1982). Rather than focusing on this debate, the following paragraphs will illustrate how it is possible to relate the institutional and structural characteristics of societies to the actions, roles and responsibilities of individuals and groups.

The localized structure and functioning of human societies should not be dissociated from the rights and obligations of individuals and groups. These can be illustrated by studies of the ownership, control and use of property, in general, and land and buildings in particular. From this perspective, it is necessary to bypass the traditional distinction between public and private in order to identify and comprehend the *number and kinds of parties* (e.g., landlord, leaseholder, caretaker, tenant) as well as the *division of responsibilities* between the parties (e.g., individual, collective, public) and the *definition of rules and conventions* between the parties (e.g., administrative, mandatory, formal, conventional, informal, or optional). Together, these characteristics define the claims and responsibilities of individuals and groups across diverse scales or levels of society. These claims and responsibilities may be tacit and conveyed by unwritten conventions, or they may be explicit and prescribed by regulations. Consequently, they can both enable and constrain individual action and group practices. Moreover, this interpretation interrelates both implicit and explicit structures, either with respect to an individual or group, or in relation to the less tangible cultural and historical context to which each individual and group are inevitably associated. On the one hand, the historical context not only provides an abstract temporal framework for human actions and plans, but it also defines and is mutually defined by the tacit and manifest meanings of implicit and explicit structures. On the other hand, the cultural context provides a framework for individual and group actions and plans that include active, process-oriented knowledge about societal rules and conventions, institutional power and social control, which collectively enable and constrain daily affairs.

Analysis of Urban Housing and Domesticity

Some of the preceding theoretical and methodological principles have been applied to analyze the development of urban rental dwelling units built in Geneva, Fribourg and Le Locle, three French-speaking towns in Switzerland with divergent cultural, economic, geographical and political backgrounds (Lawrence, 1986). This research comprises two interrelated studies:

1. First, an historical study of the evolving design and use of public, collective and private spaces and facilities in residential quarters built between 1860 and 1960; and a longitudinal study of household size and composition, the local housing stock, and housing tenure during this period. This longitudinal study involved a tripartite analysis of three sets of sources which included:

   (a) A sample of the 100 sets of architectural plans of extant and non-built housing schemes (such as projects for competitions) in Geneva, Fribourg, and Le Locle; descriptions and articles by architects on housing; site visits to existing buildings;

   (b) A sample of official publications, including reports of government agencies, philanthropic societies, health and housing reformers of building regulations and tenancy agreements;

   (c) Some novels, autobiographies, brochures and newspaper articles.

   This study has been published (Lawrence, 1986).

2. Second, an ongoing study of 525 households in the Canton of Geneva from a representative sample supplied by the government statistical office. A household survey includes plan analysis of residential buildings and their immediate surroundings; documentation of changes to the layout and furnishing of dwelling units; and an interview with directed, semi-directed and open-ended questions about the daily activities of the household, and each respondent, both inside and outside the dwelling unit; his or her residential biography; and questions about the dwelling unit, the residential building, the immediate surroundings, and the neighbourhood and its facilities and services. (As the results of this study are still being processed the remainder of this chapter will present some of the findings of the historical study.)

Analysis of the spatial ordering of residential quarters. Since the mid-19th century, the small increase in the size of urban dwelling units can be contrasted with the significant improvement in the provision of private domestic services, and a marked decline in the number of persons per household. Hence, demographic, socio-economic and technological factors have been implicated as much as architectural ones in the decline of residential densities and changes to the use of public, collective and private spaces and facilities. In this respect, the development of an integrative approach, in which architectural and other societal characteristics are explicitly interrelated can provide a comprehensive understanding of changes to the layouts, meanings and uses of spaces and

facilities over time. These developments warrant a brief consideration.

Apart from changes in the design and use of private, interior spaces and facilities in urban residential buildings, there were also significant transformations in the design and use of external and internal shared spaces and facilities during the same period of time. Analysis of floor plans and field work show that collective interior spaces (such as the lobby at the ground level, and the staircase and its landings at the upper levels) were significantly changed from the late 19th century, by a reduction in size and decoration, the suppression of natural daylight from windows and/or skylights, elimination of subtle changes in floor level, and the privatization of shared facilities, especially for ablutions. These trends have transformed the collective spaces that linked the front doorstep of each dwelling unit to the public realm of the street into a passage of minimal dimensions that could serve no other purpose than pedestrian circulation. Consequently, residents could no longer personalize the space adjacent to the front door step; children could no longer play in these shared spaces during inclement weather; and thus it became increasingly unlikely for neighbours to meet informally. It is instructive to examine why this occurred.

According to our research, the catalysts for the transformation of internal collective spaces and facilities were numerous, so that they can only be summarized here. First, they included technical developments, especially the introduction of the lift as the principal means of vertical circulation. Over an extended period of time, the stair became a fire-escape. Second, innovations in domestic technology as well as the distribution of public services (e.g., gas, electricity, and water), meant that private facilities for ablutions, cooking and laundering were promoted. Last, but not least, a fundamental, idea shared by many housing reformers of the late 19th century, was that different spatial relationships in urban dwellings engender different degrees of human interaction. This conceptual ordering of people became the foundation of a principle of domestic culture that architects, landlords, stewards and reformers upheld and applied for the construction and management of urban dwelling units by:

(1) Reducing the size of internal, collective spaces and by eliminating shared facilities, notably sanitary services, thus making a stronger demarcation between private and shared space and facilities. This reduction in the quantity of space as well as the redefinition of collective facilities was meant to minimize interpersonal contact between residents and reduce maintenance costs.

(2) Providing private facilities in each dwelling unit, which could be charged to the tenant by increasing the rent. The tenancy agreement stipulated that the tenant was responsible for the maintenance and repair of these facilities, and concurrently, that domestic activities should not occur in the shared, interior spaces.

(3) Prescribing how both interior and external spaces and facilities ought to be used by tenants: These prescriptions included codes of conduct that were intended to regulate conceptual, behavioural and temporal boundaries that defined where and when the daily activities of tenants should occur. Often caretakers were employed to ensure that the residents did not transgress these prescribed boundaries.

Beyond the realm of interior collective spaces and facilities, immediately outside and around residential buildings, there were also significant changes during the period of study. Both field work and plan analysis show that from the last decade of the 19th century it became increasingly common for residential buildings to be set back from rather than aligned along streets, alleys and courts, as had been the custom in Swiss towns until that time. This gradual change (which increased after the First World War) meant that the collective, interior space was no longer directly linked to the public realm of the street; an external, uncovered space simultaneously linked and separated these two domains. It has been observed that this external space was often a small garden between each building and the footpath. However, since the 1930s this small garden has increasingly become a vast, landscaped area, sometimes with car parking, that frequently encircles all four sides of residential buildings. This outdoor space is neither "public" in the sense of a street nor "private" in the sense of the garden of a villa. It is a collective space, which is commonly not demarcated from the public realm of the street. Consequently, many contemporary residents interpret it as an ill-defined space between their dwelling unit and the street. Furthermore, owing to the fact that this space is rarely used for leisure activities (if these are permitted by the tenancy agreement), it is attributed, at best, a neutral value, and at worst, an anonymous value; and, if it is not well maintained by the caretaker or housing authority, it not only becomes abandoned but also vandalized, and is considered a "no-man's land." Research has indicated that no building or town-planning regulations prescribed these changes, nor did government or local populations intervene in an attempt to suppress them. Although these transformations are interesting, the underlying reasons from them evoke the need for further research, which cannot be achieved

solely by the study of building plans and field work. In this case, an analysis of diverse documentary sources has also been completed.

Analysis of these documents illustrates the concern of politicians and members of benevolent and learned societies to resolve the problem of accommodating the increasing urban population in sanitary dwellings at a reasonable rent. There was a debate about the merits and shortcomings of tenements and cottages, and about associated and self-contained dwellings. It was generally accepted that tenement buildings with self-contained units had to be constructed to meet quantitative demand as economically as possible. The ambitious intentions of benevolent societies and reformers to accommodate several households in one building, yet provide autonomous dwelling units, produced a dilemma for landlords and speculators, who wanted to minimize maintenance costs yet provide a "clean building." This dilemma prompted the regulation of the use of internal space by explicit codes of conduct. These codes were introduced by landlords and estate agents in Geneva from 1893, in Le Locle from 1932 and in Fribourg from 1943. These regulations were intended to regulate behavioural, spatial and temporal boundaries, notably the occurrence of specific activities, especially childrens' play, drying clothes and cleaning household wares in the interior collective space. That these activities were intentionally prohibited suggests that they occurred regularly, thus contradicting the behavioural, spatial and temporal boundaries imposed by landlords and estate agents. Analysis of the tenancy agreements indicates the power and strategy of landlords and estate agents. They intended the interior collective space of rented dwelling units to be a coercive passage between the inside and the outside, and between the private and public domains of residential buildings. Therefore, the daily activities of tenants had to be regulated, and this was achieved by architectural and administrative interventions which transformed the design and intended use of the interior collective space. It remains to explore how the residents were affected by impositions of this kind; how they valued the space and facilities provided and how they appropriated them.

Deciphering the residents' connotation and use of space. To discover the activities, customs and lifestyles of the residents during the whole period of this study an analysis of narratives has been completed. Text analysis of autobiographies, diaries, and novels enables the designs, meanings and uses of dwelling environments to be deciphered. In general, analysis of these documents shows that during the 19th century the definition of those physical boundaries delimiting public and private space was not explicit, because the design and use of collective spaces and facilities in each building or court enabled the enlargement of the dwelling unit beyond the architectural, judicial and symbolic barriers defined by the entrance door. It has been noted that it was commonly at the border between the private and collective spaces (by the entrance door, or at the windows) that residents expressed their behaviour toward their kith and kin. These thresholds were appropriated with decorated wares, and internal, collective spaces were used for diverse activities (such as household chores and childrens' play). Such practices tempered the stark physical boundaries of each dwelling. Spatial meaning was expressed by unwritten social rules and conventions about how and when residents used collective spaces and facilities. These rules and conventions were known to all the residents, but they could choose whether they would respect or contradict them. Some codes of conduct would have been interpreted from different spatial dispositions, (like the main door to the flat being left ajar being a code for access to the private realm, and the bedroom door remaining shut being a code for nonaccessibility to that room). This interpretation illustrates that the meaning and use of space cannot be prescribed by deterministic associations between human activities and the spatial organization of buildings, as some structuralists like Hillier and Hanson (1984) have maintained. In principle, there is no one-to-one relationship between architectural and behavioural boundaries. Yet, this is what was intended by the introduction of tenancy agreements, and the explicit spatial reordering of the interior collective spaces and facilities. Together, they have usurped those tacit rules and conventions associated with daily life in the tenement buildings, by imposing new administrative, physical and judicial barriers, which are still enforced today.

Synthesis

The development of rental dwelling units in Switzerland reveals *how* and *why* the boundaries between private, collective, and public spaces were realigned and redefined during the period considered. Whereas, the interior collective domain provides the prime example of a transition space during the 19th century, it has been transformed into a cavernous, coercive passage devoid of any potential use other than circulation. Moreover, it is more strongly demarcated from both the private and public realms of residential areas than in the past. This transformation has occurred concurrently in the four following ways; by the realignment of *physical boundaries* that explicitly delimit public, collective, and private spaces by means of walls or other architectural elements; by the redefinition of *sym-*

bolic markers, such as the suppression of those household objects commonly furnished by the residents around the entrance door and windows of their dwelling unit; by the introduction of *judicial borders* as explicitly defined in tenancy agreements that prohibit the use of collective spaces for private activities; and by the maintenance of *administrative limits* to regulate the use of space, such as the surveillance of residents' activities by a caretaker.

In sum, the study of the construction, management and use of urban residential environments presented herein addresses and illustrates some important theoretical and methodological principles discussed in earlier sections of this paper. In particular, although these sections argued for the pertinence of social classification in order to analyze the multi-dimensional nature of tacit and manifest structures, it is now clear why these sections also criticized those contemporary studies that adopted a selective interpretation of structure and structuralism. The study in this paper confirms that:

1. Individuals and groups use implicit and explicit structures to define and delimit both physical and non-material characteristics of culture. These conceptual structures simultaneously enable and constrain the interrelations between people, objects, spaces and events.

2. Both personal cognitive structures and social institutional structures are contextually defined. Moreover, as they are value-laden, they are not absolute, nor static. From this perspective it is instructive to identify group and individual differences, such as the point of view of architects, estate agents, caretakers and tenants in the above-mentioned study.

3. In principle, both implicit and explicit structures serve at least a three-fold capacity:

(a) As conceptual templates for the social classification of people, objects, spaces and events in relation to all processes and products of individuals, groups and social institutions.

(b) As instruments for the ordering of people, objects, spaces and events according to explicit rules and conventions that define and are mutually defined by the rights and obligations of parties (i.e., both individuals and groups).

(c) As a corpus of shared knowledge that simultaneously enables and constrains individuals and groups to act either positively or negatively in a particular situation at a specific point in time.

Conclusion

This paper has requested and illustrated an integrative perspective for the study of how cognitive, personal structures and social, institutional structures are simultaneously implicated in the processes, products and practices of daily life. The multidimensional nature of these two different kinds of structures, as well as the interrelations between them, have rarely been identified by contemporary structuralist interpretations. It is suggested that this is not an inherent limitation of structure, but owing to the fact that structuralist theories and methods have rarely adopted an integrative perspective and historical research methods. The preceding sections of this paper show that a reorientation and reinterpretation of structuralist theories and methods enables scholars to identify and study the contextual conditions that define and are mutually defined by tacit cognitive structures and manifest societal structures. Collectively these structures frame the milieu of individuals, groups and institutions. When these structures are studied using an integrative perspective then it is possible to identify the shared knowledge, conventions and rules associated with human actions, products and processes, as well as the spatial ordering, the meanings and uses of the built environment. In this respect it is hoped that this paper provides cues for cultural, environmental and social psychologists to identify and study the multiple interrelations between people and the various components of their milieu. After all, human culture is not only thought and lived thought but also lived!

References

Boesch, E. (1991). *Symbolic action theory and cultural psychology*. Berlin: Springer.

Castells, M. (1977). T*he urban question: A Marxist approach. London: Edward Arnold.* (Translated from *La question urbaine* by A. Sheridan. Paris. Maspero, 1972).

Glassie, H. (1975). *Folk housing in middle Virginia*. Knoxville: University of Tennessee Press.

Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge: Cambridge University Press.

Hugh-Jones, C. (1979). *From the Milk River: Spatial and temporal processes in northwest Amazonia*. Cambridge: Cambridge University Press.

Lawrence, R. (1986). *Le seuil franchi ... logement populaire et vie quotidienne en Suisse romande, 1860-1960*. Geneva: Georg Editeur.

Lawrence, R. (1989). Structuralist theories in environment-behavior-design research: applications for analyses of people and the built environment. In E. Zube & G. Moore (Eds.), *Advances in environment, behavior and design, Volume 2.* (pp. 37-70). New York: Plenum Press.

Lebas, E. (1982). Urban and regional sociology in advanced industrial societies: A decade of Marxist and critical perspectives. *Current Sociology, 30* (whole No. 1).

Levi-Strauss, C. (1968). *Structural anthropology.* London: Allen Lane. Translated from *Anthropologie structurale* by C. Jacobsen and B. Schoepf. Paris: Plon, 1958).

March, L., & Steadman, P. (1971). *The geometry of environment.* London: Royal Institute of British Architects Publications.

Rochberg-Halton, E. (1986). *Meaning and modernity.* Chicago: University of Chicago Press.

Saussure, F. de (1974). *Course in general linguistics. Glasgow:* William Collins. (Translated from *Cours de linguistique generale* by W. Baskin. Lausanne: Payot, 1916).

Tambiah, S. (1969). Animals are good to think and good to prohibit. *Ethnology 8*(4), 424-459.

Living in Our Own Footprints - and in Those of Others: Cultivation as Transaction[1]

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The "Footprint" Metaphor

Whenever and wherever people act they leave their footprints or create their "traces" (Boesch, 1991). These footprints symbolize an extension of a person's inner world into the external world. Whenever others make use of these footprints or even make them a part of their own traces, footprints become somehow detached from their creators and, therefore, become cultural systems with more or less enduring qualities. In this sense, cultural systems represent footprints of individual or collective actions and bridge the gap between the inner world and the outer world of their participants (Fuhrer, 1990).

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Yet the footprints are not fixed; our interpretation and use of them is in constant flux. What individuals identify as their footprints later becomes historical evidence about themselves. Not only social norms, even material things, homes, urban spaces or behavioral settings run the risk of transformation and destruction (cf. Relph, 1976; Dovey, 1985; Wicker, 1987). And one would expect that these transformations are actual manifestations of how people cope with the given footprints of others and their own envisioned footprints. In fact, to get over this separation of the inner world or the self and the outer world or the environment might be seen as an important starting point for understanding cultivation.

Culture as Cultivation: The Legacy of Georg Simmel

Debate has raged for several academic generations over defining the term "culture." In the present paper, I do not intend to add another attempt to define the term. Nevertheless, I would like to point to two basic ways one can interpret the term: culture as structure or collective (shared) representation versus culture as process or cultivation.

Usually, the term culture points to the sum of all man-made products. In this view, cultural patterns have an intrinsic double aspect (Geertz, 1973). They give meaning, that is, objective conceptual form, to social and psychological reality both by shaping themselves to it and by shaping it to themselves. It is, in fact, this double aspect which sets true symbols off from other sorts of significative forms. Along these lines of reasoning, culture can be thought of as a community of individuals who see their world in a particular manner and who share "social representations" (cf. von Cranach, 1991). In a similar vein, Posner (1989) assumes in his semiotic explication of culture that cultural activity is mainly convention-based semiosis, i.e., signification including mentifacts (codes), artifacts (texts), and institutions (sign users).

Many things, however, that one would want to call "cultural" are not completely or even generally shared. For example, the meaning of an object goes beyond its collectively shared, denotative qualities and beyond its "cultural connotations" (Boesch, 1991). On the one hand, the fact that a Swiss alphorn represents, at least in advertising campaigns of Swiss companies, "Switzerland," implies connotations about which there exists a common consensus within a particular community: they are "cultural" ones. If the likelihood of similar connotations becomes high and, therefore, things become loaded with

a shared symbolism, they become "public symbols" (Boesch, 1991). On the other hand, the fascination an alphorn exerts on a particular player, the ideas of nostalgia or melancholy he or she connects with it, are his or her private connotations. These private connotations tend to induce the true symbolic qualities. Many people, however, will recognize a symbol to be public for others. Although an American knows the famous figure of William Tell to be a symbol for others, for him or her it remains only a sign. In both senses, however, they are meanings attached to a thing, a situation, or an action which are not essential to the objective quality of the thing "as such" (Boesch, 1991). Thus, culture encompasses both the public and the private meanings or symbols of actions, settings, and objects.

However, it is still not quite clear whether culture is to be found inside or outside the human mind. We are concerned here with the relation between "subjective culture" and "objective culture" (Simmel, 1971). *Subjective culture* consists of internalized psychic structures such as cognitions and emotions, whereas *objective culture* encompasses objects, languages, institutions and so on and can be interpreted as objectified ("Subjektivierung" versus "Objektivierung" in Boesch's terms). This objective part of culture was already extensively discussed by philosophers of the 18th, 19th, and 20th century and was as "objective mind" of central importance for Wundt's, Lazarus' and Steinthal's Völkerpsychologie (cf. Galliker, 1993), and later for the French sociologists of the Durkheim school who introduced the term "collective memory." In a similar vein, social geographers described places in the sense of a "collective mind" to point out to the man-made and attributed features in space (Relph, 1976).

Thus, in the sense in which Simmel (1971) preferred to use the term, culture refers to the cultivation of individuals through the agency of external structures. The extent to which individuals assimilate these products for their personal growth is the domain of subjective culture. *Culture as cultivation*, then, is a process of "transaction" (Dewey & Bentley, 1949) between subjective and objective culture encompassing "internally-oriented cultivation" and "externally-oriented cultivation" (Fuhrer, Kaiser & Marxer, 1992). Thus, Simmel's view of culture emphasizes the transaction of the unique subject with the object that becomes product of the transaction, and how the subject and object reciprocally cultivate each other. Simmel stressed that, from the perspective of subjective culture, there are inherent qualities that must be realized, that enter into the cultivation process as part of its aim. Cultivation considered from the perspective of the self is that development of meaning "which follows the inherent proclivities of the being and as such may be called its culture" (Simmel, 1971, p. 229). Simmel was not trying to claim that the self is absolutely determined in advance, only that there is a unique configuration of determining factors in every individual that give the individual unique potentials. He did not believe that cultivation was simply the unfolding of inner stages of development, in which the objects of experience do not make a qualitative difference in development (as someone like Piaget might hold); instead, he made a strong claim for the otherness of interaction as constitutive.

> For culture exists only if man draws into his development something that is external to him.

The forms of comportment, the refinement of taste expressed in judgments, the education of moral tact which make an individual a delightful member of society - they are all cultural formations in which the perfection of the individual is routed through real and ideal spheres outside the self (Simmel, 1971, p. 230).

Thus, culture is a process of transaction between the forms of subjective culture and objective culture. There can be no subjective culture without objective culture, though objective culture is partially independent from subjective culture in that its cultivated and cultivating objects are more general and are available for cultural purposes reaching beyond its immediate subject (Rochberg-Halton, 1986).

Yet, the overarching goal of culture remains internally oriented cultivation or subjective cultivation in Simmel's perspective. Along the same lines of reasoning, for Rochberg-Halton (1986) cultivation means the web of meaning that is a medium for the self and that is not merely a noun, "culture" - not merely a static, conventional "system of symbols" - but an active process of interpretation requiring both care and inquiry. In this sense, meaning is transaction, triadic semiosis that not only includes subject and object as constituent but also as modes of transaction between them (Rochberg-Halton, 1986).

In applying Oerter's (1991) theorizing on the development of self-object relations to the transactional relationship between objective culture and subjective culture (cf. Fuhrer, Kaiser & Marxer, 1992), cultivation is constituted by the combination of four different processes: internalization, externalization, subjectivation, and objectivation. Both externalization and internalization are

intertwined with subjectivation and objectivation. Piaget's (1959) epistemological interest, for instance, focused exclusively on internalization, i.e., the process of both adapting the action possibilities of the culture into an internal schema (assimilation) and adapting an internal schema toward the cultural reality of action possibilities (accommodation). With regard to externalization, a point which has not been touched by the Piagetian approach, the environment is constructed and reconstructed according to one's own internal psychic structures toward an increase of new action possibilities, such as personalizing the home territory or creative painting. Objectivation, in turn, as a correspondent of Piaget's accommodation, focuses on the change of the cultural environment according to the objective requirements of actions in a given culture, such as building a house, making tools, or creating scientific theories. Generally, cultivation can be understood as being composed of all four facets whereby one combination might be more accentuated than the other depending on the quality of both internal structures and external structures. Internal structures are characterized by their relative briefness and their spatial concentration on a single individual, whereas external cultural structures are quite stable and available to many people (Lang, 1992 a,b,c).

A self, however, exists only in and through communication. In the views of Cooley, James, Baldwin, Dewey, Mead, and others in the American social psychological tradition, the essence of the self consists in a communicative relationship with its objects, a relationship that includes the real social or physical objects as well as its representation in mind. Through our communicative transactions with these objects we cultivate the self, and these things are representations of the self (cf. Rochberg-Halton, 1986). Thus, the self is cultivated through a progressive internalization of the verbal and nonverbal dialogue with its surroundings, and for this reason the foundation of the self can be seen as both an interpersonal and an intrapersonal "self-dialogue" (see the next section).

In sum, culture is "located" both inside and outside; inside in the form of subjective culture, outside in the form of objective culture, whereby both forms of culture are in a steady flux of transforming each other. Thus, cultivation involves much more than the mere assimilation of cultural contents; above all, it requires that these contents be relevant and integrated into the central core of the self.

Interpersonal and Intrapersonal Processes of Cultivation

From the foregoing, it should be clear that people communicate with themselves and with others by the symbolic qualities of external structures. We assume that cultivation is motivated by interpersonal and intrapersonal processes (cf. Fuhrer & Kaiser, 1992a).

Interpersonal processes. The question of why individuals follow certain patterns when they establish and decorate a home of their own has been largely neglected. Only a few psychologists have pointed to the value of residential histories as a useful method for identifying how concerned people are to preserve a relationship to their past homes when they create a new one (e.g., Tognoli & Horowitz, 1982). The rationale behind the method of residential biography is the assumption that childhood memories seem to affect our image of what home is and what it is not. Many authors mention that there is a tremendous discontinuity between our childhood home and our current residences and that we often put a great deal of energy into trying to reconstruct aspects of our past in our current homes - often unconsciously. For example, much of the personalization of home environments is best understood not only as self-expression but also as self-preservation or as the externalized autobiography. Personalizations of both semi-private spaces in socially cohesive neighborhoods (Werner, Peterson-Lewis & Brown, 1989) or private spaces in elderly homes present a rich illustrative material (Lang, Oberli & Bühlmann, 1987). Others have even more extensively explored the meanings people attribute to the past, and how they discuss some of the consequences of preserving things they regard as old, obsolete, or antiquated (cf. Kamptner, 1989) or as essential "reminders" of social or even intimate relationships (Kraft, 1992).

Moreover, home owners and ethnic or socially cohesive groups personalize or mark their territories; these personalizations also serve to communicate ownership and function as meaningful symbols of the residents' internal mind to other people, i.e., rooms, homes, and even neighborhoods present the "face" of their residents to the public (e.g., Rivlin, 1982). Others, in turn, will then be able to confirm, to varying degrees, that one is the person that one is expected to be. Within the private space of the home such personalization is even more pronounced in the selection of decor, furniture, photographs, and so on (cf. Csikszentmihalyi & Rochberg-Halton, 1981; Slongo, 1991; Dittmar, 1992). External structures used to multiply the self through physical objects are not only oriented to the cultivating individual but also to others; external structures are not only individual symbols, they also represent social symbols to mark, for instance, one's desired level of autonomy or of social integration (cf. Lang, Bühlmann & Oberli, 1987). In fact, the act of personalization through

external structures enhances the sociability among the residents of a neighborhood (e.g., Werner, Peterson-Lewis & Brown, 1989).

As George Herbert Mead (1934) might say, we engage in "conversations" through these things and personalizations, communicating the "generalized other," embodied in the objects of the home and near-home environment. In this sense the home and even the near-home territories are crafts to be cultivated. They form an important part of both the individual and the family self, as well as representing the wider culture (cf. Rochberg-Halton, 1986). Moreover, if we present our "face" to others through external structures, they are also forced to deal with our "face." Therefore, one can see a more or less subtle tendency to manipulate social partners via socially transmitted external structures or "role models" (Mead, 1934). The possibility to be the other by transforming oneself into another represents a common way to achieve socially or interpersonally motivated forms of cultivation (cf. Boesch, 1991).

Intrapersonal processes. When homes function as external structures of personal and collective identities, these places themselves become symbols for affective meanings of individuals (cf. Stokols & Shumaker, 1981). As stimuli, these meanings can enter psychological processes. We would expect that people interpret both things and homes (as well as other places) in terms of social emotions; when homes convey social information, they can either become a kind of social partner or they can represent the intentions, actions and so on of real social partners (Fuhrer & Kaiser, 1992a; Kaiser, 1992).

Throughout the literature, three basic affective qualities are distinguished that determine the regulation of social actions: autonomy, arousal, and security (Bischof, 1985; Dovey, 1985). I would expect that a necessary condition for cultivation is the perception of incongruencies between the desired level of affective states (partly determined by external cultural structures) and the achieved level of affective states. At the intrapersonal level, cultivation can then be interpreted as an inventive means to reduce incongruencies between these two levels of affective states. Both affective (in-)congruencies (on the intrapersonal level) and "cultural discrepancy" (on the interpersonal level) represent "internal signs" that determine cultivation. To reduce the affective incongruencies, cultivation has to fulfill at least a certain degree of personal autonomy, arousal, and/or security that people can cultivate themselves through external structures (of which the home is just one part). To understand why an individual cultivates him- or herself the way he or she really does, one has to analyse for each person both the achieved levels of affective states in relation to the desired levels and the cultural systems of which an individual is a part.

Cultivation and People-Place Transactions

Some of the preceding theoretical principles have been applied to analyze people-place transactions, especially the affective bases of attachment to home and near-home territories, and the relations between this attachment and leisure mobility. The study explored the relations between place attachment, neighborhood traffic intensity, and residents' leisure mobility. Attachment to and affective meanings of home and vehicle plus the tendency to see one's vehicle primarily as a tool (i.e., the instrumentality meaning of the vehicle) were assessed through a questionnaire administered to 543 people distributed along six streets that differed in traffic intensities. The streets are located in two neighborhoods in Berne, Switzerland and are of comparable architectural heterogeneity. Measurement of mobility came through subjects' estimates of total distances travelled by various modes per weekend and per year, and through diaries in which subjects recorded all changes between places during a one week period. The study has been published in more detail elsewhere (cf. Fuhrer, Kaiser & Hartig, under review).

In exploring the dynamics of place attachment, we have adapted a model for emotional regulation that was originally conceived as an explanation for interpersonal relations (cf. Fuhrer & Kaiser, 1992). Applied to person-environment transactions, the model has features in common with other theoretical analyses bearing on emotion and environment, both in terms of basic constructs (cf. Russell & Snodgrass, 1987) and in terms of operations (cf. Altman, 1975). Looking at the relationship between attachment and mobility, we see the various affective meanings of place and vehicle influencing mobility, both during leisure time and in general. As expected, place attachment is inversely related to leisure-time mobility. Those who find their desired autonomy, security, and arousal within their home and near-home territories have less need to cultivate themselves with alternative territories, mobile or otherwise, to satisfy their desired affective states. Moreover, the results indicate an inverse relationship between the vehicle-as-mere instrument-perspective and the kilometers travelled with the vehicle. That is, the people who interpret their vehicles as just useful tools to connect places rapidly are less mobile over the weekends than those people who have vehicles as "cultivating objects." Vehicle symbolism is one of a set of nonverbal

mechanisms that people use to communicate messages about themselves, their background, social statuses, and world views to others (Csikszentmihalyi & Rochberg-Halton, 1981).

The tendency to see one's vehicle as a source of status, power and independence (i.e., the autonomy meaning of the vehicle) also explains a significant portion of leisure-time mobility. The higher the vehicle is evaluated in terms of its meaning for autonomy, the more kilometers travelled during leisure time. Vehicles can be seen as devices for achieving congruence between desired and achieved affective states. The use of such means for achieving congruency among affective states is also seen as central to privacy regulation. When the permeability of those boundaries are under the control of a person, a sense of autonomy develops. Car use is one example of a means to control social contact. If people can extend the limits and scope of their social control by using their cars, then car use can represent social power for them, with all of its consequences for the self and its boundaries.

The results based on mobility diaries give more insight into the relationship between place attachment, affective meanings of places and vehicles as both "cultivating things" and "cultivated things," and particular forms of leisure activity. Perhaps of greatest significance are the relationships with social activities. Travel for these activities constitutes the largest proportion (60%) of the distance travelled by our respondents during their leisure time. Leisure-time mobility motivated by a desire for social contact is determined by both the arousal and the security meaning of the vehicle and the autonomy proportion of attachment to the home. The relationships are all negative. With respect to the arousal meaning of vehicles, the finding is quite plausible. Arousal and fear may correspond in this context, and those more likely to be afraid in their vehicle will be less inclined to travel much, at least for visiting acquaintances and other possible sources of arousal. With respect to the security meaning, a similar argument might be ventured. If the security meaning of the vehicle is high, leisure-time mobility for social contacts may be low, because the desired level of security is lower than the achieved level. An excess of security might be the consequence. Those who find too much security in their vehicle as a mobile territory may be less inclined to seek security through affiliation with others.

The negative relationship between travel for social contacts and the autonomy proportion of attachment to the home and near-home territories has relevance for the idea of cultivation, i.e., the transactional process through which we take aspects of our world into our being and are in turn changed by our world. It involves both a "caring" for a place and a "taking" of that place into our own. Cultivation is rooted, therefore, in actions through which we anchor self-identity to aspects of the world (Rochberg-Halton, 1986). Those who can express autonomy through their home are less inclined to seek autonomy through social contacts outside their home. Security and autonomy represent the most important determinants of social affiliations. For most people, both friends and relatives represent sources of security and autonomy. These affective meanings may represent self-experience on the dimensions me/other, isolation/community, and privacy/public contact (cf. Dovey, 1985).

The findings related to social activities are supplemented by the finding that attachment to home and near-home territories is inversely related from contact with people. That is, the higher the attachment, the lower the leisure-time mobility for social contact. The relationship is plausible. Withdrawal implies a need for fulfilling particular emotional states and for reconstitution of the self. Homes to which people are highly attached should be particularly helpful in bringing achieved levels of affective states into congruence with desired levels (Dovey, 1985). In this they may serve a vital cultivating function. Overall, the findings illustrate the power architecture has on the way urban residents cope with the inability to regulate their emotions within their home and near-home territories.

The previously mentioned findings have been characteristic of many approaches to housing problems throughout this century (cf. Dovey, 1985), in which the house was conceived as a "machine-for-living-in." Based on the previously mentioned research on the relationship between place attachment and leisure-time mobility, we assume that many people live in the wrong house and, therefore, they go out of their way to find places where they can cultivate themselves more successfully. Thus, the rapidly increasing leisure-time mobility mirrors the frustration of a still growing number of residents who cannot manage their cultivation at the place where they live. What happens is a subtle transformation of a rather spatially concentrated form of living to a style of dwelling which is anchored in multiple places. This change from "mono-local living" to "multi-local living," as we named these phenomenons, result in the cultivation of a growing number of small-scale "niche cultures" or second homes. Finally, some people tend to live in "eccentric homes," such as old-fashioned farmhouses, factories, or ghost-

town houses in which they are able to "experiment" more successfully with their self-identity via physical means than within houses and places which are just created as "pieces of technology" (Hutzli & Hoffmann, 1992).

Empirical work on the more elusive qualities of place attachment is still limited. Nevertheless, some research addresses the positive emotional states that accompany territoriality among home owners. For example, the emotional connotations of objects used to personalize semi-private territories carried meaning to their owners beyond their territorial marking function. In fact, our own findings indicate that people who don't show (physically) their "face" to others by personalizing semi-private and/or semi-public spaces are less strongly attached to the home environment than people who are engaged in a kind of non-verbal self-presentation or impression formation via physical means (Kaiser, 1992). In fact, these impressions may cultivate people's identities through the interactions between residents and visitors (e.g., Werner, Peterson-Lewis & Brown, 1989).

In sum, the study presented here illustrates some important theoretical principles discussed in earlier sections of this paper. In particular, the results indicate that place attachment is the result of a transactional process of cultivation which is based on the affective meanings inhabitants attach to physical aspects of home and near-home territories, rather than on the purely physical qualities of these territories. Moreover, higher attachment scores, which, in turn, indicate more opportunities for both internally- and externally-oriented cultivation, are associated with lower mobility levels over weekends and per year. Affective and instrumentality meanings people attach to their vehicles are also associated with mobility. Places and vehicles as means to connect places are discussed with regard to their potential for cultivation, i.e., bringing current affective states into congruence with desired affective states.

Conclusion

If we are to make progress in the field of cultural psychology, we must turn our focus to the question of what motivates people to externalize their internal minds into external structures; and we must seek to understand the transactions between internal and external structures. With our own empirical work on dwelling, place attachment and the question of how computers as "interactive things" cultivate their users (a topic which was not touched in the present paper; cf. Fuhrer & Kaiser, 1992b), we are on our way to tackling these transactions between the inner world and the outer world. To understand why people create for themselves (and for others as well) the external structures that they do and why other people sometimes transform these external structures in a way that they become a part of their external structures is of central importance for a cultural psychology. It is a cultural psychology which focuses on how one's own footprints and those of others make each other up.

Note

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References

Altman, I. (1975). *The environment and social behavior.* Monterey, CA: Brooks/Cole.

Bischof, N. (1985). *Das tsel Oedipus.* München, Zürich: Piper.

Boesch, E. E. (1991). *Symbolic action theory for cultural psychology.* Berlin: Springer.

Cranach, M. von (1991). The multi-level organisation of knowledge and action - an integration of complexity. In M. von Cranach, W. Doise & G. Mugny (Eds.), *Social representations and the social bases of knowledge* (pp.10-22). Bern: Huber.

Csikszentmihalyi, M., & Rochberg-Halton, E. (1981). *The meaning of things.* New York: Cambridge University Press.

Dewey, J., & Bentley, A. F. (1949). *Knowing and the known.* Westport, CN: Greenwood Press.

Dittmar, H. (1992). *The social psychology of material possessions.* New York: St. Martin's Press.

Dovey, K. (1985). Home and homelessness. In I. Altman & C. M. Werner (Eds.), *Home environments* (pp. 33-64). New York: Plenum.

Fuhrer, U. (1990). Bridging the ecological-psychological gap: behavior settings as interfaces. *Environment and Behavior, 22*(4), 518-537.

Fuhrer, U., & Kaiser, F. G. (1992a). Bindung an das Zuhause: Die emotionalen Ursachen. *Zeitschrift fr Sozialpsychologie, 2,* 105-118.

Fuhrer, U., & Kaiser, F. G. (1992b). Inwiefern kultiviert der Umgang mit Computern unseren Denkstil? *Medienpsychologie, 2,* 115-136.

Fuhrer, U., Kaiser, F. G., & Marxer, M. (1992). Quartiere kultivieren Quartierbilder - Quartierbilder kultivieren Quartiere. *Geographica Helvetica, 4,* 136-142.

Fuhrer, U., Kaiser, F. G., & Hartig, T. (under review). Place attachment and leisure-time mobility. *Journal of Environmental Psychology.*

Galliker, M. (1993). Die Verkörperung des Gedankens im Gegenstande. Zur kontroversen Begründung der Völkerpsychologie. *Psychologische Rundschau, 44,* 11-24.

Geertz, C. (1973). *The interpretation of cultures.* New York: Basic Books.

Hutzli, E., & Hoffmann, C. (1992). Wohnen in alten Strukturen: Basteln am Selbstbild? Unveröeffentlichte Vordiplomarbeit. Psychologisches Institut der t Bern.

Kaiser, F. G. (1992). *Mobilität als Wohnproblem: Ortsbindung als emotionale Regulation.* Bern, Frankfurt: Peter Lang, im Druck.

Kamptner, N. L. (1989). Personal possessions and their meaning in old age. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of aging* (pp. 165-196). London: Sage.

Kraft, C. (1992). Zeichen in Paarbeziehungen. Unveröeffentlichtes Arbeitspapier. Psychologisches Institut der FU Berlin.

Lang, A. (1992a). On the knowledge of things and places. In M. von Cranach, W. Doise & G. Mugny (Eds.), *Social representations and the social bases of knowledge* (pp. 112-119). Bern: Huber.

Lang, A. (1992b). The "concrete mind heuristic" - Human identity and social compound from things and places. In C. Jäger & M. Nauser (Eds.), *Human ecology: an integrative approach to environmental problems.* London: Routledge.

Lang, A. (1992c). Kultur als "externe Seele": eine semiotisch-ökologische Perspektive. In C. Allesch, E. Billmann-Mahecha & A. Lang. (Eds.), *Psychologische Aspekte des kulturellen Wandels* (pp. 11-32). Wien: Verlag des Verbandes der wissenschaftlichen Gesellschaften Österreichs.

Lang, A., Oberli, E., & Bühlmann, K. (1987). Gemeinschaft und Vereinsamung im strukturierten Raum: Psychologische Architekturkritik am Beispiel Altersheim. *Schweiz Zeitschrift fr Psychologie und ihre Anwendungen, 47*(3), 277-289.

Mead, G. H. (1934). *Mind, self, and society.* Chicago: University of Chicago Press.

Oerter, R. (1991). Self-object relation as a basis of human development. In L. Oppenheimer & J. Valsiner (Eds.), *The origins of action* (pp. 65-100). New York, Heidelberg: Springer.

Piaget, J. (1959). *Play, dreams, and imitation.* New York: Norton.

Posner, R. (1989). What is culture? Toward a semiotic explication of anthropological concepts. In W.A. Koch (Ed.), *The nature of culture* (pp. 240-295). Bochum: Brockmeyer.

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: physical world socialization of the self. *Journal of Environmental Psychology, 3,* 57-83.

Relph, E. (1976). *Place and placelessness.* London: Pion.

Rivlin, L. G. (1982). Group membership and place meanings in an urban neighborhood. *Journal of Social Issues, 38*(3), 75-93.

Rochberg-Halton, E. (1986). *Meaning and modernity.* Chicago: Chicago University Press.

Russell, J. A., & Snodgrass, J. (1987). Emotion and the environment. In D. Stokols & I. Altman (Eds.), *Handbook of environmental psychology* (pp. 245-280). New York: Wiley.

Simmel, G. (1971). *On individuality and social forms.* D. Levine (Ed.). Chicago: University of Chicago Press.

Slongo, D. (1991). Zeig mir wie Du wohnst. Lizentiatsarbeit, Psychologisches Institut, t Bern.

Stokols, D., & Shumaker, S. A. (1981). People in places: A transactional view of settings. In J. H. Harvey (Ed.), *Cognition, social behavior, and the environment* (pp. 441-480). Hillsdale, NJ: Erlbaum.

Tognoli, J., & Horowitz, J. (1982). From childhood home to adult home: environmental trasnformations. In P. Bart, A. Chen & G. Francescato (Eds.), *EDRA 13.* Washinghton, D.C.: EDRA.

Wicker, A. W. (1987). Behavior settings reconsidered: Temporal stages, resources, internal dynamics, context. In D. Stokols & I. Altman (Eds.), *Handbook of environmental psychology* (pp. 613-654). New York: Wiley.

Werner, C. M., Peterson-Lewis, S., & Brown, B. B. (1989). Inferences about homeowners' sociability: Impact of Christmas decorations and other cues. *Journal of Environmental Psychology, 9,* 279-296.

When Actions Speak Louder Than Words: The Classification of Food Among the Yupno of Papua New Guinea

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The Uniformist Dilemma

No doubt, traditional boundaries between the neighbouring disciplines of anthropology and psychology are still very powerful.

Anthropologists examine how people generally understand their world. They seek to understand and describe normative knowledge on a collective level. Their attitude is often characterized by cultural relativism. Mostly, they work "in the field" and with a few key informants only. This is why their descriptions, as a rule, are representations of systems which neglect the active, creative individual person who finds herself or himself in "real life situations" (Cole, 1978, p. 630).

Psychologists, on the other hand, examine in which way people are similar or different. They aim at uncovering the processes working on the individual level. As a discipline, psychology is process-oriented with a view to panhuman regularities. Psychologists usually work on an experimental basis in the laboratory or in laboratory-similar situations either with individual persons or with many test persons selected according to particular criteria. This is the reason why their descriptions are individual-oriented and thus often ignore the cultural dimension. Usually, it is impossible for psychologists to evaluate or interpret their results on a cultural level.

This specialization has led both disciplines into a difficult situation which might be described as the "uniformist dilemma" (Lave, 1988, p.12). The anthropologist recognizes the plurality of cultures but treats the individuals within these cultures uniformly. The psychologist, for his part, acknowledges the plurality of individuals but ignores cultural pluralism. In both cases, an important part of reality is thus faded out in a "black box" manner.

Both separated camps have started to move, however, and there is a rapprochement between at least parts of the disciplines of anthropology and psychology.

Cognitive anthropology (as a subdiscipline of anthropology) has aimed at grasping "the native's point of view" from the beginning. It's aim has always been to find out which one of the many (although not infinite) possible ways of perceiving and organizing respectively the environment and "culture" a certain group of "natives" actually chooses, in other words, which "order out of the chaos" they make their own. This "order" (i.e., the cultural knowledge about their own world and culture) is at the center of the cognitive approach. Cognitive anthropologists ask what kind of knowledge this is (contents), but they are mainly interested in finding out how it is organized (structure). They are convinced that this structure is directly connected with the individual's thinking processes. The questions of how cognitive processes work within the individual and how they should be described are being thought about differently today than 10 years ago. Since it beginnings in 1956, until far into the 1970s (i.e., for almost 20 years now) cognitive anthropology has relied on ethnoscience. Cognitive anthropologists directly connected the structuring of knowledge on the cultural level with that on the individual one, because they departed from assuming a parallelism between culture (description of a system) and individual (organization of knowledge as examined by the cognitive sciences).

The error of this reasoning consisted in the fact that cognitive anthropology believed in the possibility of deducing the contents and structures of thought or even the thinking processes of the particular members of a culture from the descriptions of the system provided by a few selected informants (specialists in certain domains). Usually, it was the organization of nomenclatures in certain cultural domains that played the most important role: the structure of kinship systems, the classification of animals, plants, colours, etc. In 1987, N. Quinn and D. Holland, sobered down, observed with regard to the individual:

> However, the organization of lexicon ... offer only limited insight into the organization of cultural knowledge [in the individual, J. W.] (Quinn & Holland, 1987, p. 14; cf. D'Andrade, 1976; Randall, 1976; Lave, 1977).

These are only "collective representations" the description of which is fully legitimate. Yet one should not be misled into thinking that it is possible to make any conclusions about individual processes or structures from

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them (Jahoda, 1982, p. 214; cf. Harris & Heelas, 1979). Unfortunately, C. Frake's early challenge had not been taken seriously: "We must get inside our subjects' heads" (1964, p. 133). It is, however, only possible "to get inside the individuals' heads" if they are made the object of research.

Cross-cultural psychology must take notice of the cultural context of the individual under examination. It must be aware of the fact that every cross-cultural approach harbours the danger of ethnocentrism. This danger can only be avoided if the individual is defined as a cultural being from the outset - as done by the new "cultural psychology" (Valsiner, 1989; Jahoda, 1990; Krewer, 1990; Shweder, 1990; Stigler, Shweder, & Herdt, 1990; Boesch, 1991). Y. Poortinga, for example, is still convinced that the main aim consists in looking for similarities by "peeling the onion called culture ... until in the end they (the cross-cultural differences) have disappeared and with them the variable culture" (Poortinga, Van der Vijer, Joe & Van de Koppell, 1987, p. 22).

One must object to this that it is the culture which provides the contexts within which the individual must become active. Culture decides about the quality of the competence which should be attained through the socialization process in the interaction between adult and child. To put it in a simple way: knowledge is not hereditary, it must be gained actively. A psychology that takes this into consideration may perhaps lose some of its methodological stringency, but certainly gains relevance also in its answers to its own questions concerning panhuman laws. It must be admitted, however, that formulating questions of this kind induces the researcher to look for contexts or cultures as different as possible from each other for the themes to be investigated.

> However, the research topic should be dictated by a theoretically interesting contrast between the cultures concerned (Berry, Poortinga, Segall, & Dasen, 1992, p. 224).

Many anthropologists in the tradition of cultural relativism would not subscribe to this, as they are primarily interested in understanding a particular culture *per se*. Nevertheless, cooperation is possible and the "uniformist dilemma" too, can be resolved as soon as the two neighbouring disciplines define themselves as parts of the newer "cognitive science" (Gardner, 1985) and thus focus on the individual social "actors" within one particular cultural everyday life situation.

Thus, the "just plain folks," the "jpfs" (Rogoff & Lave, 1984; Lave, 1988) become the center of the interest: the "average" members of a culture who in their everyday lives and as well as in other contexts gain, memorize, activate, recall and re-employ knowledge in order to interpret new experiences, derive new knowledge from it and make new decisions. Thus, there is a shift in focus from the description of systems typical of traditional anthropology (paradoxically investigated by questioning a few key informants only) to the investigation of variability (Gardner, 1976) and the distribution of knowledge by questioning and observing many informants in their everyday lives.

If "jpfs" is one key word, "everyday cognition" (Rogoff & Lave, 1984; Segall, Dasen, Berry & Poortinga, 1990, p. 186f) respectively "savoirs quotidiens" (Dasen & Bossel-Lagos, 1989) is the other.

Everyday cognition is the knowledge which is gained informally (i.e., outside of the institutions, "in the street") (Chamoux, 1981; Strauss, 1984; Rogoff, 1990; Guberman & Greenfield, in preparation; Lave & Wenger, in preparation) and used in everyday life (Rogoff & Lave, 1984; Lave, 1985). It is "practical intelligence" (Sternberg & Wagner, 1986), "indigenous cognition" (Berry, Irvine & Hunt, 1988), "bricolage": "the mundane daily cognitive activities," a term "to refer to work of an odd-job" (Berry & Irvine, 1986, p. 271; cf. Lévi-Strauss, 1962; Gardner, 1973). Such knowledge is used by a housewife when she goes shopping (Lave, Murtaugh, & de la Rocha, 1984), a dairyman when he distributes his dairy products to his customers according to a certain pattern (Scribner, 1984), or a Yakan in the Philippines when he wants to enter a house correctly (Frake, 1974).

Everyday cognition is not the static knowledge of a *sujet epistemique* (Dasen, 1993), but applied knowledge serving particular functions. The present object of research is not so much to find out how this knowledge is statically organized but primarily how it practically "functions" (and if we know how it functions we infer its organization). Everyday cognition is directly linked to actions which determine its structure, but more than that, it also activates actions, sets them goals and guides them. In other words, the starting point of every cognitive analysis is the use of knowledge (cf. Aebli, 1981; Boesch, 1991). As a matter of course, the contextual behaviour of the "jpfs" is also examined, since linguistic abstractions only (i.e., that which can be questioned verbally) do not suffice in order to actually grasp everyday cognition.

> What we need is ethnography that analyzes cognition as specific sets of activity engaged in on specificable occasions" (Cole, 1978, p. 630).

Everyday cognition is not so much conceptual, but rather process-oriented knowledge. It is not only an "understanding system" but also an "acting system" (D'Andrade, 1984, p. 91).

The aim of the present paper is to point out the cultural knowledge of the "jpfs" in a particular area of importance to them, to describe its structure, trace its distribution among the individuals, find out whether there are variations and describe how it is used in everyday life. The cognitive approach is used in order to get "closer" to the individual - this is done with the help of methods from psychology which unmistakably stand in the tradition of J. Piaget and J. Bruner ("sorting task"). In addition to this, the danger of a too high degree of individualization inherent in this approach is counteracted by the fact that we also present a traditional ethnographic description of the system obtained from key informants. We thus try to show what is collective and what is the role of the individual within this collective system. As a consequence, the tension between "culture" and individual knowledge as well as the structuring and application respectively of this knowledge is the theme proper of this paper. Data will be presented which were obtained in common field research done by a cultural anthropologist (J. Wassmann) and a cross-cultural psychologist (P.R. Dasen). It was carried out among the Yupno, an ethnic group in the high mountain region of Papua New Guinea. Food is the area of knowledge of interest here. The research question is: Is the taxonomy, derived from asking the Yupno about food, really significant in the everyday life of the "jpfs," or do the classification schemes differ according to varying contexts?

A Taxonomy - Elicited by the Anthropologist

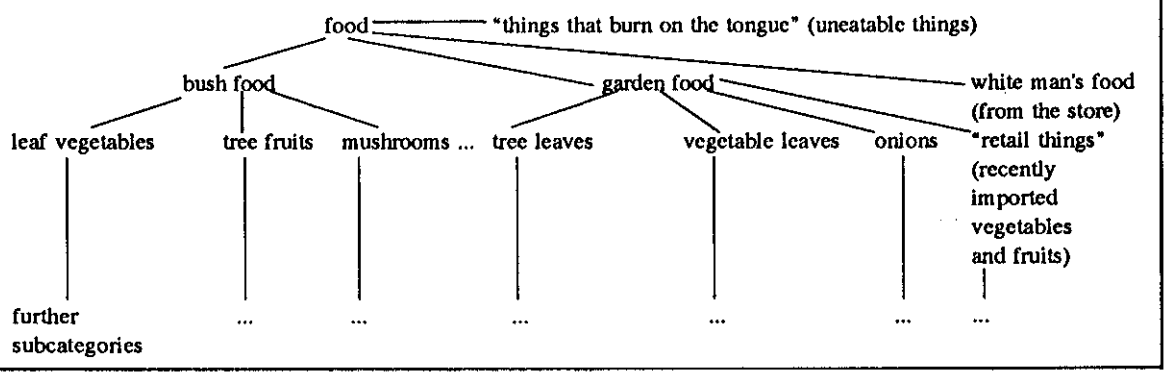
If the key informants are asked individually for the "eatable things," they provide a basic distinction which is used by everybody. It is the one between "food" (*njaap*) which is eatable and all those things which "burn on the tongue" (*esipmo*), things which are not eaten by man.

The "eatable things" are divided into two groups within a **taxonomy**. The first group consists of the food that comes from the bush and grows wild (*koron njaap*, whereby *koron*: bush; *njaap*: food). The second group comprehends all those foods which come from man-cultivated gardens (*njaap kot*, whereby *njaap*: food, *kot*: garden, to work). Beside the "bush food" and the "garden food," there is also a third group which is, however, clearly distinguished from the others. This is "the food of the white man" (*kiap njaap*, whereby *kiap* is the Tok Pisin term [Melanesian Pidgin English] for the formerly white Australian, today native administrative officer of a district; *njaap*: food). This term is used to denote everything that can be bought in the store and which is therefore linked with "the white man": rice, canned fish, sugar, salt, coffee, cigarettes and biscuits. It is also the practice to use paraphrases for this kind of food, such as "packed wrapped food" (*njaap njup*, whereby *njaap*: food; *njup*: old, stale, something cooked in the evening is "*njup*" in the next morning).

Within the two categories "bush food" and "garden food," which both refer to their **origins**, the following subcategories are made (in order of their appearance). Within the category of "bush food": leaf vegetables (again comprising other specific kinds; this holds for all further subgroups), tree fruits, mushrooms, tree kangaroos, birds, ground rats, tree rats, frogs.

The "garden food" is further subdivided into: (eatable) tree leaves, vegetable leaves, onions, beans, ginger, sweet potatoes, potatoes, bananas, yams, taro, water cress, cultivated sugar cane and wild sugar cane. Beside these traditional kinds of food there are still further, only recently imported (mostly by the Mission) garden plants, which are termed in a slightly derogatory manner as "retail things": corn cobs, oranges, tomatoes, passion fruits, pumpkin leaves, cucumbers, carrots, etc.

The above list can be represented by the following taxonomy:



An Arrangement in Four Groups - in Conversation Among Each Other

In everyday conversations, be it in the garden or in the evening when everybody sits by the fire talking about garden work, food is referred to by **four categories** (which lack the taxonomic subdivision into "bush food" and "garden food"). These groups are:

- "sweet potatoes" (oñden) meaning all kinds of sweet potatoes;
- "bananas" (*nalok*, literally: to smack) denoting all kinds of bananas;
- "tree fruits" (*kandap tavil*, whereby *kandap*: tree, wood, fire, *tavil:* fruit, ball, round) denoting oranges, passion fruits, avocados, tomatoes, tree tomatoes from the garden or bush;
- "eatable leaves" (*njaap tam*, whereby *njaap*: food, *tam*: leaf, finger, something that sticks out) denoting all eatable leaves, whether they come from the bush or garden or are traditionally cultivated or have only recently been imported.

This classification results from the **everyday practical way** of dealing with the food. It is partially identical with the categories mentioned in the taxonomic list above, but does not fully correspond to them, since they do not precisely distinguish between something that stems from the bush or the garden, as this is of no importance later for the cooking. In practical everyday life these four simplifying categories are understood as groups of foods. But terms like "beans" (*mbirap*), "potatoes" (*kalabili* or *katopel*, a word taken over from the German missionaries), or "sugarcane" (*yaat*) are used instead as single, non-generic terms, even if there exist subspecies which might be understood as groups as well. While doing so, people of course never forget that these things differ in origin, that certain foods had always been planted, whereas others had been introduced by the Mission; or that certain things are eaten raw while others need to be cooked.

When people use these four terms, they are aware of the following equations:

"sweet potatoes"	= garden	= traditional	= cooked
"bananas"	= garden	= traditional	= cooked or raw
"tree fruits"	= garden or bush	= recently introduced	= raw
"eatable leaves"	= garden or bush	= traditional or new	= cooked.

An Arrangement into Two Categories - During the Cooking

Beside this grouping into four categories resulting from everyday practice, there is a further classification of foods. It plays the leading part again in everyday life, namely in the evening during the **cooking process** by the long fireplace. Nobody talks about it, it is implicit knowledge and may, if at all, find its verbal expression in the sentence that a real good meal always consists of sweet potatoes and leaves. Yet, it is the basis for the cooking and "correct" (desired) composition of a meal.

In this respect, we must ask an additional question: What do the Yupno mainly eat? The answer is definitely: sweet potatoes.

In the morning (after waking up) and during the day (i.e., in the gardens or the bush) only sweet potatoes are roasted as a rule. The main meal takes place in the evening, shortly after the night has fallen. Men and women have returned from their work in the garden or bush. A fire is lit by the long fireside in the house. People gather there, exchange news, warm up. The houses are entirely dark and full of smoke, now and then a flame flashes up. Women and children prepare vegetables and potatoes in order to fill them together into bamboo canes, which are laid into the fire. Sweet potatoes are directly put into the glowing fire. People increasingly also cook in metal pots. Men and women eat the same and they drink water, which is brought up in long bamboo canes.

A two week survey of four households provided the following results. In the evening, they roasted in the fire: 48 times sweet potatoes, 6 times potatoes, 4 times "pitpit" (wild sugarcane) and 2 times corn cobs. They cooked in bamboo canes: 16 times pumpkin leaves, 16 times cabbage, 8 times *kwawil*-leaves and 6 times each potatoes and beans. They prepared in the pot: 14 times pumpkin leaves, 12 times beans, 6 times potatoes, 4 times "pitpit" (wild sugarcane). Sporadically, they ate raw sugarcane and bananas.

Only roasted and cooked things, which are therefore hot and eaten wholly, count as full eatables. Raw food (fruits, sugarcane) or eatable parts of a larger also otherwise used plant (e.g., shoots of wild sugarcane), do not count as full accordingly. Meat, the "thing that smells" (kovañton, whereby kovañ: odour, smell, toñ: to be) is of no importance in everyday life. On exceptional occasions, after a dance or after a transfer of a bridewealth, they eat pork. After hunting, they sometimes eat the meat of a marsupial.

The ideal meal - and this brings us back to our initial question - is the one that combines sweet potatoes with eatable leaves. This refers to the above-mentioned categorization of food relevant for cooking. It is the division of foods into a group that "helps the blood" (*pan pugolok*, whereby *pan*: plural, *pugolok*: helper) and into another group that "strengthens (the bones)" (*tevantok*: "vital energy"). It is not the origin or the practice-oriented, everyday classification which is decisive here, but the effect on the human body. Fruit and eatable leaves as well as sugarcane count as "blood helpers." Sweet potatoes, some bananas and potatoes are considered to be "bone strengtheners."

The motivation for this (which was only given when the female informants were confronted with their own behaviour while cooking and eating) is connected with the "hot-cool-cold"-conception (see below). For, all "blood helper"-eatables (those that are raw, shrink in the cooking process and loose a lot of liquid) help people by slightly "cooling" them down. Contrary to this, the "bone strengthening" food very generally helps man by supplying him with "vital energy," a "heat" needed for talking, moving, carrying things. In both cases, the "soul substance" (moñan) of the various eatables is the agent which is directly transmitted to man. It thus becomes obvious why a "good meal" should consist of sweet potatoes and eatable leaves: it both "heats up" and "cools down" so that the ideal middle state is reached.

One might object to this, that this categorization is not traditional, that it is based on modern influences, for there is too obvious a similarity with the health programmes for the improvement of nutrition propagated on posters at the Health Centers or Aid Posts. This is not so. It is precisely the old men and women (who cannot read) who are aware of this distinction (although they do not verbalize it spontaneously). The younger people are less acquainted with it.

The "hot-cool-cold"-conception is a collective cultural model, an organizational pattern regulating the relationship between the Yupno and their surrounding world (cf. Wassmann & Dasen, in press). Everything the Yupno know, the objects of their environment, village, gardens, bush, animals and peoples are constantly in a state varying from "hot" through "cool" to "cold." The terms are used both literally to describe the physical reality (temperature), and metaphorically to refer to a qualitative state. "Hot" and "cold" are extreme states and therefore undesirable. A "hot" state is dangerous, because it cannot be controlled. Somebody who gets too "hot" may "burn" (i.e., die). On the other hand, a "cold" state produces immobility. Somebody getting too "cold" finds himself/herself in the speechless social offside. The ideal state is marked by "coolness." A "cool" person is well-balanced, neither passive nor arrogant, finds himself/herself on one level with other people, taking the ideal position: slightly bent. Now, these states are variable. They can be influenced and manipulated. But, whereas every Yupno knows about the three states, only a few experts know how to change them. These experts are the sorcerers. The everyday Yupno life is marked by their constant efforts to manipulate the states of the environment. A constant "cooling down" or "heating up" of people, village, gardens, and areas in the bush is going on. The manipulations are the most talked about issue in daily conversations, and all kinds of mishaps and accidents are explained with reference to the manipulations: illness, sudden death, crop failures, problems in pig raising, bad hunting luck, etc. The "hot-cool-cold"-pattern provides the Yupno with an "understanding system," the manipulations with an "acting system" (D'Andrade, 1984, p. 91). Manipulations are achieved through the principle of transmission through contact. Something that needs to be "heated up," is brought into contact with objects that are already "hot." The goal of the manipulations is always either to be useful or harmful. If the object was "cold" initially, the manipulation will be useful (raising its temperature until it is "cool"), otherwise harmful. The transmission is brought about by the adding or taking away of "vital energy" ("heat") to or from the soul substance.

Food is a part of this cultural model, for there are eatables that are "cold" (fruits, vegetables), and others that are "hot" (sweet potatoes, bananas, potatoes). The former "cool down" (blood helpers), the latter "heat up" (bone strengtheners).

Posing the Problem and Setting of the Tasks

Let us summarize. If the key informants are questioned about the individual kinds of food, they invariably provide a taxonomic listing which clearly distinguishes between the origins (bush/garden) of the foods. This distinction corresponds to what is represented with the utmost regularity in the traditional anthropological literature (on the basis of interviews). Yet, the researcher who goes one step further, observes the Yupno-"jpfs" in daily life, listens to their conversations and finds that there a classification into four categories plays the prominent role. This classification results from the everyday, practical way of dealing with the eatables. Again, in everyday life, during the cooking process in the evening, there exists

a further implicit classification, which is not verbalized. It is the division into food that "helps the blood" and food that "strengthens the bones." Here, the effect on the human body is the decisive factor. This action-based classification forms part of the general "hot-cool-cold"-conception.

Now, which of the three classification models is used spontaneously when the Yupno are confronted with food outside of any of these three contexts? In order to find this. These were: three (different) sweet potatoes, three bananas, two tree fruits, as well as nine eatable leaves (three traditional ones from the garden, three recently imported ones from the garden, three traditional ones from the bush).

The choice was made according to two criteria. First, the kinds of food shown are the "best examples" (prototypes) of each category (this was found out in a preliminary test). Second, these eatables can be subdivided according to five dimensions (three of which correspond to the classification described above), namely:

origin:	bush/garden	(classification 1)
practical way of dealing with the food:	sweet potatoes/ bananas/ tree fruits/eatable leaves	(classification 2)
effect:	"bone strengthening"/ "helping the blood"	(classification 3)
preparation:	raw/cooked	
kind:	traditional (old)/ recently imported	

The "order" behind the eatables presented in the sorting task is shown in Diagram 1 (next page).

None of the Ss had either school training nor any knowledge of Tok Pisin. No further male test subjects could be obtained, others broke the experiment off.

The 17 different eatables lie in an unorderly way on a tray in front of the test person. The test person is then asked to put together what "belongs together." Finally, the person is asked to explain verbally why he/she chose a particular grouping.

The following question is asked: "Listen, now everything lies on this plate in an unorderly way: sort everything and put together what, in your opinion, belongs together. If certain objects share a common feature, form a group of them!"

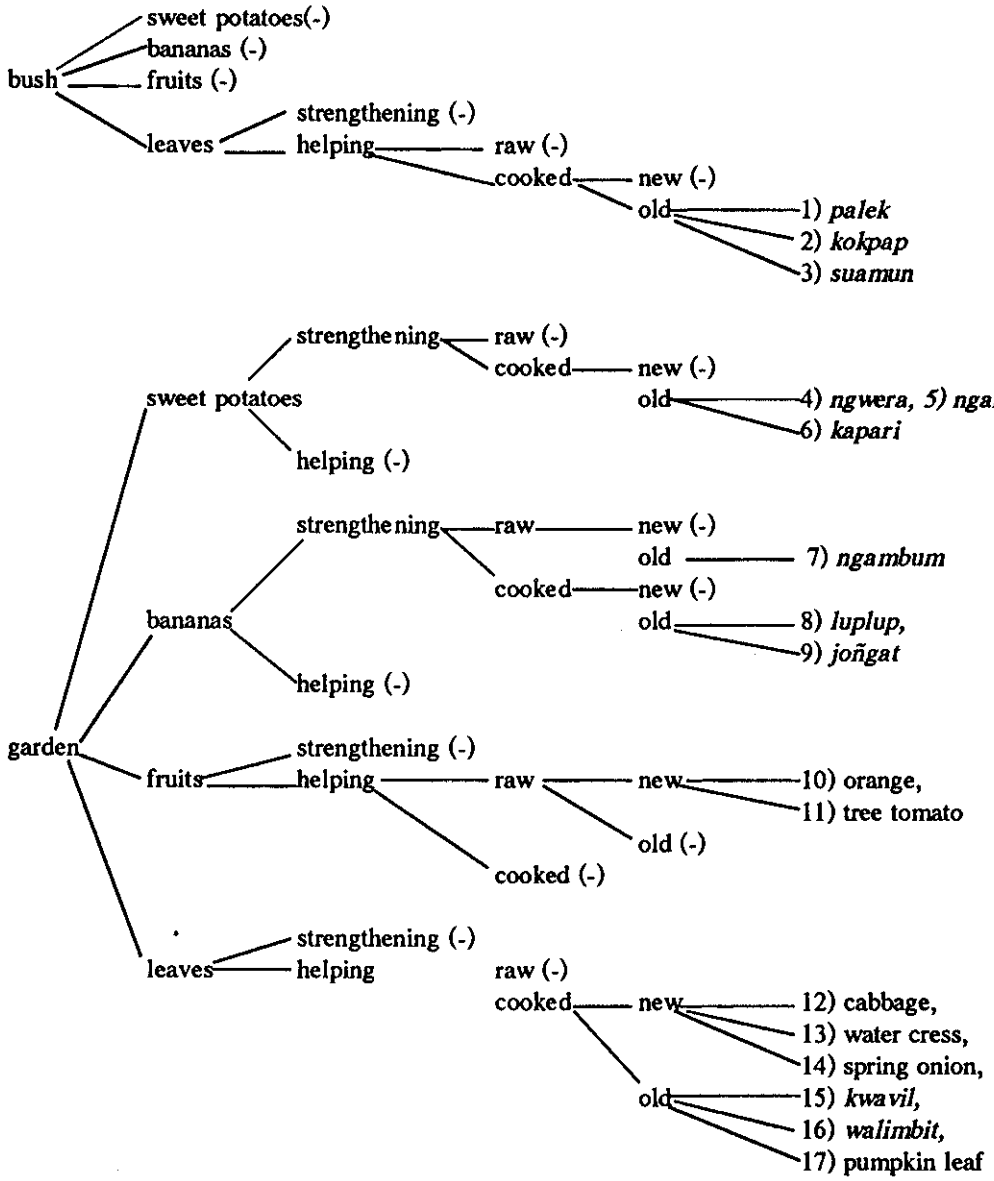
Strips of cardboard 20x30 cm. are prepared, on which the test person should put the foods in groups; this is explicitly pointed out. At first, two strips of cardboard are presented, further strips lie within eye's sight. They too are explicitly pointed to. The persons present were: the test person (alone), the anthropologist and the psychologist and one more man (always the same), who helped if sudden difficulties of communication arose.

Results

The results of the sorting task are summarized in Table 1. Table 1 shows that the majority of the test persons (women) classify the foods into the four groups "sweet potatoes," "bananas," "fruits" and "leaves." Twice, the "leaves" were further subdivided into "garden leaves, new," "garden leaves, traditional" and "bush leaves." A few other Ss (women) spontaneously subdivide into "bone strengtheners" and "blood helpers" by marking off sweet potatoes and bananas against fruits and leaves and explaining their motives for doing so accordingly. In both cases, fruits pose a problem: partially they are unknown to the older women, who then call them "juice," partially their position vis a vis the other groups is insecure (as a consequence, they are shoved to and fro). The classification into "traditional"/"new" seems to be rather a speciality of the males. Surprisingly, the origin of food ("bush"/ "garden") does not play any role whatsoever (although it might be hidden behind the criterion "traditional"/"new").

Finally, still another simplified procedure was chosen, because the test situation obviously caused problems, especially for the older Ss. The anthropologist and psychologist divided the 17 kinds of food into six different groups (sweet potatoes, bananas, fruits, garden leaves/ new, garden leaves/traditional and bush leaves). They were then shown to the Ss with the request to form two groups (and only two) from six groups. The results are shown in Table 2.

In this test (almost) all women (whether old or young) classified the foods according to the distinction "strengthener"/"helper." Only two of six male test persons did the same. The criterion "traditional"/"new" seems



The subject (Ss) were:

A four old women over 50,
B six middle-aged women, between 30 and 40 years old;
C five girls, about 14 years old;
D five old men, over 50;
E three boys, about 14 years old

Diagram 1: The "order" behind the foods presented for the sorting task

Table 1: The results of the sorting task (part 1)

	bush/ garden (1. classif.)	sweet p./bananas fruits/leaves (2. classif.)	"bone-strengtheners" "blood-helpers" (3. classif.)	raw/cooked	trad./new
A		IIII			
B		III	II	I	
C		IIII	I		
D		II	I	II	
E		I		II	

(A: old women; B: middle-aged women, C: girls; D: old men, E: boys.)

to be important for the young. The other criteria are seldom used.

Discussion

The taxonomy - a construct. It is obvious that only two of the three classifications play a role in everyday life, each in its own context. Which of these two classifications is the more important and more "available" one cannot be decided. When asked to classify foods shown to them, the informants prefer the classification into four groups (if the foods are presented in an unordered way) as well as the "bone strengthener"/"blood helper"-distinction (if the food was already presorted). In any case, other possible dimensions beside the criteria "practical usage" and "effect" (i.e., "hot"/"cold") play only a minor role (preparation: raw/cooked; kind: traditional/recently imported) or none at all (origin: bush/garden). The verbally elicited classification, (the taxonomic classification with its distinction between bush food and garden food) does not have any relevance for the everyday life of the Yupno. At best, it is an instrument for mastering reality, an abstraction "post hoc," made to satisfy the anthropologist's insistent inquiries. But, it is precisely taxonomic classifications that abound in the anthropological literature. For this preference of systems without reference to everyday life two reasons can be stated. On one hand, descriptions of systems are based on the assumption of the homogeneity of a culture. This assumption is expressed by the dogma that "culture reproduces culture through socialization." As a consequence, the "real life situations" (Cole, 1978, p. 630) are neglected and with them the active, creative individual. On the other hand, they are based on the researcher's concentration on what "is good to think." C. Lévi-Strauss (1962) distinguishes between things which are "useful" and things which are "of interest." For too long a time, anthropologists have limited themselves to the "interest" aspect.

> However, the fact that cultural knowledge of the natural world might also be practically useful has been treated as beside the point, almost an embarrassment (Hunn, 1985, p. 117).

Knowledge, however, is mainly goal-oriented. The knowledge about food does not exist in order to create a taxonomic classification, but it serves above all the preparation of food.

One knows how to do, but does not do. Many male Ss did not want to participate in the sorting task. "Food" was just simply not their "subject matter." Here lies a problem which has been neglected by psychology. The central question is not so much to investigate how Ss use their knowledge (as with tests), but above all the central concern must be whether they are allowed to make use of their knowledge. Like other cultures, the Yupno too observe a strict division of labour among the sexes. Men are responsible for the manipulation of the "hot-cool-cold" states and for the ritual complex. Women, for their part, take care of the knotting and dying of net bags, the feeding of the pigs, but mainly of gardening, transporting food and

Table 2: The results of the sorting task (part 2)

	"bone strengtheners" "blood helpers"	trad./new	raw/cooked	bush/garden
A	IIII			
B	IIIII			I
C	II	II		
D	II		I	
E		III		

(A: old women; B: middle-aged women; C: girls; D: old men; E: boys.)

its daily preparation. Thus, every woman knows of the "hot-cool-cold"-manipulations in sorcery, and every man knows how fibers are dyed: but they are not allowed to do it themselves. The methodological problem thus consists in the fact that, undoubtedly, the competence for doing something exists, but doing it is not desired for cultural reasons, (i.e., there is a lack of performance: "one knows how to do, but does not do" Chamoux, 1981). It would, however, be false to believe that the lack of the "doing" is at the same time the lack of knowing "how to do." Thus, there is a simple reason for the fact that many men did not want to participate in the classification of the foods, or broke off the test: they would have been forced to behave in a culturally undesirable way. But they too are in possession of the (tacit) knowledge about food. This could be confirmed in a separate, short inquiry of some selected Ss. When they were asked to identify 13 different kinds of sweet potatoes in an identification test, the 17 male test persons were equally successful with the 14 female test persons. In a blind taste test of 7 kinds of sweet potatoes, 4 were at once recognized by men and women.

A necessary collaboration. If the subject "classification of food" had been investigated only "anthropologically," probably a taxonomy would have been the only result. If, on the other hand, the approach had been merely "psychological," the men would have come off very badly. However, neither the description of the system nor the individual results which are not interpreted on a cultural level correspond to what actually happens in the everyday life of the Yupno.

It is obvious that a method relying on interdisciplinarity is able to provide a more differentiated picture of the Yupno culture. This approach consists of two steps: the first is that of questioning not only a few, "well-trained" informants, but as many "jpfs" as possible. The second consists in the observation of the "jpfs," be it in real everyday life situations - as far as this it possible at all - be it in experimental situations. It becomes thus possible to get "closer" to the various individuals. This does not only hold for the knowledge of foods with its three models of classification differing according to context of usage, as it is presented in this paper.

Thus, for example in the field of knowledge of numbers and counting it could be shown (cf. Wassmann & Dasen, in press) that, surprisingly, an enormously high number of individual variations exist (same/different) - surprisingly, because a counting system is actually a normative matter. The variations among the individuals as well as within the same informants became so numerous in the course of time, that we can no longer talk of a true collective model in this case.

Contrary to this, the "hot-cool-cold"model is known by all Yupno (cf. Wassmann & Dasen, in press). This is a true collective model, which, however, is available in differing degrees (more/less): only those who actually "work" with it (the sorcerers) (i.e., not only know about it) use it spontaneously when confronted with "hot" respectively "cold" things in a sorting task.

Each of the fields of knowledge mentioned above illustrates a certain aspect of the main topic: an aspect of the tension between "culture" as a collective phenomenon and the individual respectively group-specific knowledge relevant in everyday life. This tension, however, can only be described if anthropologists and psychologists collaborate in common field work.

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References

Aebli, H. (1981). *Denken: Das Ordnen des Tuns.* Stuttgart: Klett-Cotta.

Basso, K., & Selby H. (Eds.). (1976). *Meaning in anthropology.* Albuquerque: University of New Mexico Press.

Berry, J. W., & Irvine, S. H. (1986). Bricolage: savages do it daily. In R. J. Sternberg & R. K. Wagner, (Eds.), *Practical intelligence: Nature and origins of competence in the everyday world* (pp. 271-306).

Berry, J. W., Irvine, S. H., & Hunt, E. B. (Eds.). (1988). *Indigenous cognition: Functioning in cultural context.* Dordrecht, Boston, Lancaster: Martinus Nijhoff. (NATO ASI series, series D, Behavioural and social sciences no. 41).

Berry, J. W., Poortinga, Y. H., Segall, M. H., & Dasen, P. R. (1992). *Cross-cultural psychology: Research and applications.* Cambridge: Cambridge University Press.

Boesch, E. (1991). *Symbolic action theory and cultural psychology.* Berlin: Springer.

Chamoux, M. N. (1981). Les savoir-faire techniques et leur appropriation: le cas des Nahuas de Mexique. *L'Homme (21),* 71-94.

Cole, M. (1978). Ethnographic psychology of cognition - so far. In G. D. Spindler (Ed.), *The making of psychological anthropology* (pp. 614-636).

D'Andrade, R. (1976). A propositional analysis of U.S. American beliefs about illness. In K. Basso & H. Selby (Eds.), *Meaning in anthropology* (pp. 155-180).

D'Andrade, R. (1984). Cultural meaning systems. In R. Shweder & R. LeVine (Eds.), *Culture theory: Essays on mind, self and emotion* (pp. 88-119).

Dasen, P. R. (1993). Schlusswort. Les sciences cognitives: Do they shake hands in the middle? In J. Wassmann & P. R. Dasen (Eds.), *Alltagswissen: der kognitive Ansatz im interdiszipliren Dialog.* Fribourg: Universitätsverlag.

Dasen, P. R., & Bossel-Lagos, M. (1989). L'étude interculturelle des savoirs quotidiens: revue de la litterature. In J. Retschitzky, M. Bossel-Lagos & P. R. Dasen (Eds.), *La recherche interculturelle* (pp. 98-114).

Dougherty, J. W. D. (Ed.) (1985). *Directions in cognitive anthropology.* Urbana and Chicago: University of Illinois Press.

Frake, C. O. (1964). Notes on queries in ethnography. *American Anthropologist (66),* 132-145.

Gardner, H. (1973). *The quest of mind.* New York: Knopf.

Gardner, H. (1985). *The mind's new science: a history of the cognitive revolution.* New York: Basic Books.

Gardner, P. M. (1976). Birds, words and a requiem for the omniscient informant. *American Ethnologist (3),* 446-468.

Guberman, S. R., & Greenfield, P. M. (in prep.). *Learning and transfer in everyday cognition..*

Harris, P., & Heelas, P. (1979). Cognitive processes and collective representations. *Archives Europeennes de Sociologie (20),* 211-241.

Holland, D. C., & Quinn, N. (Eds.). (1987). *Cultural models in language and thought.* Cambridge: Cambridge University Press.

Hunn, E. (1985). The utilitarian factor in folk biological classification. In J. W. D. Dougherty (Ed.), *Directions in cognitive anthropology* (pp. 117-140).

Jahoda, G. (1982). *Psychology and anthropology: A psychological perspective.* London: Academic Press.

Jahoda, G. (1990). Variables, systems, and the problem of explanation. In F. J. R. Van de Vijer & G. J. M. Hutschemaekers (Eds.), *The investigation of culture* (pp. 115-130).

Kagitcibasi, C. (Ed.). (1987). *Growth and progress in cross-cultural psychology.* Amsterdam: Swets & Zeitlinger.

Krewer, B. (1990). Psyche and culture - Can a culture-free psychology take into account the essential features of the species "homo sapiens?" *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition (12)* 1, 24-37.

Lave, J. (1977). Cognitive consequences of traditional apprenticeship training in West Africa. *Anthropology and Education Quarterly (8),* 177-180.

Lave, J. (1985). The social organization of knowledge and practice: a symposium. *Anthropology and Education Quarterly (16),* 171-213.

Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life.* Cambridge, MA: Cambridge University Press.

Lave, J., Murtaugh, M., deLaRocha, O. (1984). The dialectic of arithmetic in grocery shopping. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 67-94).

Lave, J., & Wenger, E. (in prep.). *Situational learning: legitimate peripheral participation.* University of California, Los Angeles.

Lévi-Strauss, C. (1962). *La pensee sauvage.* Paris: Plon.

Poortinga, Y. H., Van der Vijer, F. J. R., Joe, R. C., & Van de Koppel, J. M. H. (1987). Peeling the onion called culture: a synopsis. In C. Kagitcibasi (Ed.), *Growth and progress in cross-cultural psychology* (pp. 22-34).

Quinn, N., & Holland, D. (1987). Culture and cognition. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 3-40).

Randall, R. A. (1976). How tall is a taxonomic tree? Some evidence for dwarfism. *American Ethnologist (3)* 3, 543-553.

Retschitzky, J., Bossel-Lagos, M., & Dasen, P. R. (Eds.). (1989). *La recherche interculturelle.* Tome II. Paris: L'Harmattan.

Rogoff, B. (1990). *Apprenticeship in thinking: cognitive development in social context.* New York and Oxford: Oxford University Press.

Rogoff, B., & Lave, J. (Eds.). (1984). *Everyday cognition: Its development in social context.* Cambridge, MA: Harvard University Press.

Scribner, S. (1984). Studying working intelligence. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 9-40).

Segall, M. H., Dasen, P. R., Berry, J. W., & Poortinga, Y. H. (Eds.). (1990). *Human behavior in global perspective: an introduction to cross-cultural psychology.* New York: Pergamon Press.

Shweder, R. (1990). Cultural psychology - What is it? In J. W. Stigler, R. A. Shweder & G. Herdt (Eds.), *Cultural psychology* (pp. 1-43).

Shweder, R,. & LeVine, R. (Eds.). (1984). *Culture theory: Essays on mind, self and emotion.* Cambridge: Cambridge University Press.

Spindler, G. D. (1978). *The making of psychological anthropology.* Berkeley, Los Angeles, London: University of California Press.

Sternberg, R. J., & Wagner, R. K. (Eds.). (1986). *Practical intelligence: Nature and origins of competence in the everyday world.* Cambridge: Cambridge University Press.

Stigler, J. W., Shweder, R. A., & Herdt, G. (Eds.). (1990). *Cultural psychology.* Cambridge: Cambridge University Press.

Strauss, C. (1984). Beyond "formal" versus "informal" education: Uses of psychological theory in anthropological research. *Ethos (12),* 195-222.

Valsiner, J. (Ed.). (1989). *Child development in cultural context.* Göttingen: Hogrefe.

Van de Vijer, F. J. R., & Hutschemaekers, G. J. M. (Eds.). (1990). *The investigation of culture.* Tilburg: Tilburg University Press.

Wassmann, J. (1993). *Das Ideal des leicht gebeugten Menschen: Eine ethno-kognitive Analyse der Yupno in Papua New Guinea.* Berlin: Reimer.

Wassmann, J., & Dasen, P. R. (Eds.). (1993). *Alltagswissen. Der kognitive Ansatz im interdiszipliren Dialog. Les savoirs quotidiens. Les approches cognitives dans le dialogue interdiciplinaire. Everyday cognition: Interdisciplinary perspectives.* Fribourg: Universitätsverlag.

Wassmann, J., & Dasen. P. R. (in press). Yupno number system and counting. *Journal of Cross-Cultural Psychology.*

Wassmann, J., & Dasen, P. R. (in press). Hot and cold: classification and sorting among the Yupno of Papua New Guinea. *International Journal of Psychology.*

Comments: Sylvia Scribner as a Methodologist

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The papers presented here, marking initial stages of two major phases of Sylvia's work, illustrate important shifts in her biographical development from theoretical speculation into active research. In the 1968 literacy paper, Sylvia wrote in "a free- ranging and speculative manner" about the conceptual system of writing and its

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idealized consequences for cognition. This seems a natural entry into the discipline for Sylvia, for she was a writer, reflective of how her experience with language had semanticized and continually transformed her own thought. In the 1983 paper about her first workplace study, her initial framing of literacy, referring to the research she and Michael Cole had since conducted, was considerably changed. There she wrote, "Our expectations were dashed," and from this emerged altered conclusions and, most importantly, the foundations of a methodological conversation that she held with herself and others throughout her lifetime.

Sylvia's reflection upon how her early notions came to relate to the data in the course of the research process is a window into the development of this conversation. The data depicted quite a different reality than that which Sylvia had anticipated and described in 1968. The variances pointed to the importance of not only competence in writing, but actual practice; further, they revealed the variation of literacies across languages and the tendencies of languages towards particular kinds of use. These considerations did not eclipse the importance for Sylvia of abstract cultural systems and their cognitive significance, but rather they reorganized and materialized Sylvia's perspective toward a research focus on the resources, constraints, and practices that characterize these conceptual systems in actual use.

Her theoretical attention to the conceptual systems underlying culture translated into research of the systems of practice that expose it, as theory and expectations confronted contradiction in the data. Sylvia continually transformed the lessons from this process into methodological development toward refined levels of description. In fact, much of her work's pursuit became to elaborate the methodological wellspring that she had discovered and amplified in Activity Theory. Like her mentor, Vygotsky, she was unfailingly committed to methodology and to the issues embedded in constructing the question.

The transformations that emerged through Sylvia's work on literacy carried into her design of the dairy work research and were further fleshed out in her later manufacturing work projects. Through her work, she developed a sophisticated strategy of research, whose course ran from ethnography to quasi-experimental probing and finally to simulation. Consistent with her privileging of methodologies and questions, Sylvia put forth throughout her analyses the notion of "multiple solutions" to problems, through which lived the distinction between the employed wisdom in a situation and the answer. Where "knowledge of" presided as a theoretical postulate in her early speculative work on literacy, "practice of" became the central issue in her ensuing scholarship on work and her directed pursuit of the relationship between activity and cognition.

This focal conversion across the texts, here presented, is a rare glimpse into the essence and direction of Sylvia's approach. It points to her essential commitment to methodology as a research object, tool and goal. Each stage of the research process occurred for her as a transformative conversation in which theory and data eventuate in principled methodology. In fact, it is Sylvia's dialogic approach to theory building through the research process that survives as inheritance to many with whom she worked.

Manifold Rationalities. On Reading Sylvia Scribner's Works

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When I first encountered Sylvia Scribner's writings, I was a Psychology student who was feeling a deep crisis in his motivation, since psychology was turning to the rationalist stance. Cognitive development was intended to be a matter of inner mental structures, which could be studied *per se*, in isolation; cultural factors were intended to have only indirect consequences on cognitive growth, as though they had pertained to a different realm of reality, and culture acquisition to be a mere learning of contents.

During this time, I became concerned with an Italian debate, started in the late 1970s, about what knowledge is; some researchers (Gargani, 1979) challenged the classical idea of Rationality as a natural, abstract, invariant structure, which could have contained all the possibilities of human knowing from the very beginning, which would have been the ideal model every human knowledge should have been related to.

Aldo G. Gargani (1985) has argued that a new idea of rationality should be more narrative than analytical, consisting in the public discussion of one's own "deep understanding" of the voices in the dialogues one has been

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engaged in, in order to relativize what one experiences as her/his principles of knowing.

The historian Carlo Ginzburg (1986) shed light on "minor" ways of knowing, an archipelago of manifold, circumstantial, presumptive rationalities, which live at the borders of formal thought, challenging its power.

My question was whether this approach could have been connected to any line of research in cognition. Sylvia Scribner's 1977 work about the cultural basis of the inferential procedures was the affirmative answer, and my enthusiasm increased.

I was impressed by her radical approach in opening decisive questions about the human mind, whereas academic scholars close their research, as if they had solved the issues. As she pointed out, cultural genres not only help humans in their activities, but, more radically, the tools (such as conceptual devices) humans use to shape their environment in turn lead to significant transformations of their minds. It is impossible to disentangle the study of the universals in human mind from the analysis of its complexity.

She was able to depict the intricate, varied but meaningful ways in which cultural and mental factors relate to each other in the intellectual life: differences in performance between schooled and non-schooled people on verbal problem solving rely on the different biases affecting the subjects. Searching for the internal relationships (theoretical bias) vs judgements for evaluating the kind of evidence to be accepted as truth (empirical bias), must be related to the use of different cultural genres of organization of the content; she could state that verbal logic problems are not a neutral method, but one of the specialized language that cultures define. She criticized the idea of an underlying abstract code in thinking and communication, in favour of a multiplicity of specific genres people can use according to their purposes.

Sylvia's papers presented in the issue of this *Newsletter* devoted to her (October, 1992) confirm how far she moved from the assumptions of the mainstream cognitive psychology. In many respects we can find new starting points: she felt uncomfortable with the strict, "objective" definitions scholars had attributed to the terms "generalization," "abstraction," "concept-conceptual"; she argued for new, more effective, distinctions in order to overcome the wrong idea that oral thought is lacking something: "As we elaborate more refined tools of experimentation and a more analytic and theoretical approach, we may in time develop a scheme that will do full justice to both the universals in mental functioning and to its diversity and complexity" (1968, p. 95).

Through the results of their fieldwork, she and Michael Cole found no general effects of literacy on cognition; these findings have led them and others to not think about literacy as a uniform, homogeneous involvement with written language intended to be the same everywhere, anymore. As she stated, "We began to think of literacy as a term applying to a varied and open set of activities with written language" (1983, p. 104). Again, it was a new starting point for her: the socially- constructed practices, involving bounded knowledge domains and determinate technologies, such as symbol systems, became the object of her studies.

In her "mind in action" approach, Sylvia Scribner put forward her contrast to the conventional psychological model of learning, which assumes a progression from the particular and concrete to the general and abstract; she put forth evidence for skill acquisition in practice as moving in the direction of mastery of the concrete. Moreover, she criticized the formal model of reasoning as deductive linking, by noticing that people free themselves from rules, by inventing flexible strategies. Sylvia showed that solutions to practical problems in an activity change with experience, and variability cannot be accounted for in formal models of problem solving (1983). As Sylvia pointed out, the strategies humans construct and utilize in a lived world cannot be formalized and generalized.

Sylvia has provided us with new insights about the nature of mental life in a cultural world, by focusing on subjective, local, manifold, and actual rationalities by which humans are able to detect little differences in the events they deal with: workers, explorers, midwives, lovers: they hold this kind of expertise.

Through Sylvia's research, we are able to think about how human minds are shaped by cultural systems and how cultural systems exist only by human lines of appropriation.

References

Gargani, A.G., (Ed), (1979). *Crisi della ragione.* Torino: Einaudi.

Gargani, A.G. (1985). *Lo stupore e il caso.* Bari: Laterza.

Ginzburg, C. (1986). Spie. Alle radici di un paradigma indiziario. In Ginzburg, C., *Miti Emblemi Spie.* Torino: Einaudi. English translation in Eco U., & Sebeok T.A., (Eds), *The sign of three.* Bloomington, IN.: Indiana University Press.

Scribner, S. (1977). Modes of thinking and ways of speaking. In Johnson-Laird, P.W., & Watson, P.C., (Eds.), *Thinking: Readings in cognitive science.* Cambridge: Cambridge University Press.

Scribner, S., & Cole, M. (1981). *The psychology of literacy.* Cambridge: Harvard University Press.

Scribner, S. (1992a). The cognitive consequences of literacy. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 14*(4), 84-102.

Scribner, S. (1992b). Mind in action: A functional approach to thinking. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 14*(4), 103-110.

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