Given the context of the volume in which it appears, the title of this paper is misleading. 'Transformation' does not refer to changes in social status or roles, or to any of the more common senses that the term has within modern social anthropology and linguistics, but to a physiological process that takes place in the brain as a result of which emotional responses are stimulated. Keali'inohomoku states that

"A new paradigm is introduced in this paper, labeled 'Rites of Transformation'. It seems to account for what happens in and because of dance rituals more effectively than other paradigms, such as the 'Rites of Passage' model because it includes the bio-cultural interface" (p. 132).

The author does however admit that while Van Gennep's model is social and cognitive, hers is "physical and metaphysical" (pp. 132-133).

This assertion points to a fundamental problem with Keali'inohomoku's argument, for while she does indeed present a physical model of certain physiological processes that take place in the brain, she then applies them to conceptual entities that are social and cognitive, such as rites, religious ideas and dances. She seems to ignore the difference between a social and cognitive view, and one in which these entities are regarded as physical and physiological phenomena. The difference is not simply one of differing models but stems from two incompatible epistemological frameworks which make contradictory ontological assumptions about the entities concerned. Consequently she is led to make some curious correspondences between the data of the physiological model she uses and the data that she applies it to.

Keali'inohomoku's argument is based on a theory in behavioral psychology, which uses the findings of neuro-physiology to reverse the commonly accepted sequence:

stimulus --→ perception --→ emotions --→ behavior

in favour of the sequence:

stimulus --→ perception --→ appropriate behavior --→ emotion.

This theory, which proposes that behavior intervenes between stimuli and emotions, is taken as the basis for the proposition that ideas are transformed into emotions by behavior. The author then suggests that "religion ideas provide stimuli for meaningful behavior that triggers powerful emotions" (p. 137, underlines supplied). These phrases point to considerable confusion. 'Ideas' are equated with stimuli, and 'meaningful' behavior is supposed to 'trigger' emotions. Terms that
belong to a Behavioral paradigm are thrown in with others that come from a totally different way of regarding human action. Consequently the complex beliefs and ideological system of the Hopi are reduced to the status of stimuli, and meaningful dance movements are equated with formulaic motor behavior that is a mechanism for the release of peptides in the brain. There appears to be a total disregard for the fact that 'belief systems', 'ideas' and 'meaningful' belong to an epistemological framework which has been developed precisely because the Behavioral paradigm does not allow one to deal with meaning or with conceptual entities such as religious ideas. Usage of these terms in academic and scientific discourse means that one has made a set of assumptions about human beings, their natures, powers and capacities, that in many ways are opposed to those of the Behaviorists. To say that human beings 'have ideas and intentions', 'make meanings', and 'generate actions' is incompatible with saying that they 'respond to stimuli which trigger behavior'.

It therefore appears as if Keali'inohomoku wishes to keep her cake and eat it. While clearly operating from within a mechanistic view of human behavior, she tries at the same time to incorporate into her discourse concepts that are inadmissible by the very rules of the basic paradigm she subscribes to. Unwilling to ignore conceptual entities such as religious systems, rituals and dances, she is equally unwilling to cross over the epistemological gap that separates them from notions of 'stimuli' and 'automatic physical responses'; thus there are great inconsistencies in her argument. For example, we are told that

"the present operational use of the term human behavior concerns adaptive body movements that are performed in learned styles, in response to ideas, to reflect, modify, or otherwise convey those ideas through bodily encoding" (p. 137).

It is a nonsense to equate an undifferentiated 'adaptive behavior' with notions of learning, modifying and reflecting. One can either say that an organism 'adapts' or that 'a human being (as language-user) learns'. The first proposition belongs to a stimulus-response model of human behavior; the latter comes from a view of humans as rule-following beings who have the capacities to reflect on their knowledge, and choose a course of action from among a set of possibilities.

Elsewhere Keali'inohomoku says that "Dance manifestations are culturally informed, expressive of strongly held values, and subject to aesthetic judgements" (p. 137). Yet she continues with the statement that "The expression of beliefs with culturally accepted human behavior serve to maintain physiological, psychological, and social homeostasis for individuals and societies" (pp. 137-8). Are we, for a start, to understand that 'societies' have a physiology and a psychology? If so, the senses in which they do are surely metaphorical and should not be confused with the literal physiology of the human body. Failure to recognize the distinction between actual physiological processes and cognitive social processes leads Keali'inohomoku to equate neuro-physiological 'bodily changes' (such as the release of drug-like endorphins in the brain) with the voluntary movements involved in 'dance behavior'. 
In her ethnographic example of the different stages that a Hopi goes through as a katsina, she does not actually deal with dance movements at all, but with the physical discomfort that the dancers go through, first by fasting and depriving themselves of sleep and, later, by "the rubbing of the masks on their noses, the sweat pouring over their eyes within the masks, the tight binding armlets, the scratching of evergreens on their necks and backs, the pounding of the tortoise-shell rattles against their right calves, the thirst, the hot sun or bitter cold" (p. 139). The 'transformation' that the katsina undergoes is thus the result of these physical and physiologically based stresses and has little to do with what is commonly understood as 'dance movements'.

One of the problems with Keali'i'ino homoku's paper is the author's notion of a "tacit inclusion of the bio-cultural interface" (p. 132), for she seems to conflate the biological with the cultural, rather than show the relationship between physiological processes and cultural phenomena. Gell, who also tries to explain certain kinds of ritual observances with reference to neuro-physiological processes, specifies the kinds of physical movements used in Muria dances that result in a disembedded sensori-motor organization (1980). He then ties in the use of these movements in Muria rites with Muria notions about the realization of divinity. When Gell talks about the de-automatised states achieved by Muria mediums during their trances, he is clear as to what kinds of techniques of the body lead to the achievement of this intention on the part of the medium. He does not speak of religious ideas in general (nor does he regard them as 'stimuli') but of specific ideas that the Muria have about vertiginous activity and 'God-play'.

Gell's argument is skillfully constructed to relate non-normal neuro-physiological states with alterations in self-world relations. Throughout his paper he is careful to distinguish the neuro-physiological results of certain dance movements from dance movements in general. Keali'i'ino homoku on the other hand talks about physical exertion, physiological 'bodily changes' and dance behavior as if they were all the same things. Instead of showing the connection between biological processes and cultural processes, she speaks of them as if they were synonymous. One discovers that although she uses the language of scholars who regard society in terms of belief systems, her view of culture comes from a stimulus-response model in which "...human beings are culture-bearing animals who are socialized to make conditioned responses" (p. 135). Culture provides 'ideational models for behavior' which include appropriate emotional reactions, physical responses, verbal responses (cf. the Apache's 'reaction' at coming across a bear on p. 135) as well as a set of religious ideas that operate as 'stimuli'. In this schema, culture is a reified mass of input that both programs all physiological and physical responses to external stimuli and also provides the stimuli for those responses -- an intensely Behavioristic and tautologous model that out-does even early functionalist metaphors.

Without letting go of the above biological model of culture, and without reconsidering the consequences of subscribing to it, Keali'i'ino homoku enters the discourse of a very different view of culture. Consequently, not only does she display an extremely reductionist understanding of the discourse (about belief systems, ideas and the semantics of human action),
but she seems to lead us to conclusions that make no sense within it. One is bemused as to how dance as a "consciously and willfully performed activity" can be turned into a mechanism for 'galvanizing' ideas into tangible expression (p. 137). Given that emotions are regarded by her as the result of physiological changes within the dancer's brain, how does the dancer's performance of movements (supposed to bring these emotions about) effect responses in the rest of the community? Does simply watching a movement produce the same physiological response in the viewer as that which is "triggered" by a performance of it?

Regrettably, some of the questions posed by the author seem even more absurd than those prompted by a reading of the paper: viz. "If dance is a mechanism for manifesting religious emotions, then the question must be asked whether or not there is anything in dance per se that is intrinsically religious" (p. 141). One cannot help but wonder how a "mechanism" can be intrinsically religious? Although Keali'i inohomoku says that by 'religious' she "refers to an institutionalised ordering of beliefs and ideologies that reflect an ongoing world view of a given group of human beings about the natural, the supernatural and the paranatural" (p. 137), nowhere in her mechanical model is there room for reflection, or for dealing with conceptual structures. Having defined her terms she then proceeds on a completely different set of assumptions whereby "religious ideas" and "religious emotions" are left extremely vague. The only reference to a specific Hopi belief is that among the Hopis "every religious act is meant to bring benefits to all the world" (p. 138). We are given no clue as to how this religious idea can be a stimulus for an appropriate behavior which is then transformed into an appropriate emotion. Keali'i inohomoku mentions only one specific 'emotion' connected with dancing and that is the general sense of physical well-being and of feeling refreshed that results from the physical exertion of dancing (pp. 139, 140 and 147).

The naiveté of Keali'i inohomoku's arguments is embarrassing since they come from such a well-known writer and pioneer in the field of 'dance anthropology'. In the attempt to understand ritual dance behavior as a psycho-biological phenomenon in the context of a general understanding of ritual process, she leads her readers to conclusions about dance that in the end can only render disservice to dancers and to the notion of anthropological studies of dances. We are led to believe that dancers dance in order to induce the release of peptides in the brain which result in a natural emotional 'high', so that they 'feel good'. It is also suggested that dance "activates neuro-transmitters in the brain" and so serves as an intervening mechanism to promote a shift from right- to left-brain functions -- i.e. from mathematical, linguistic and logical thought to highly charged emotions that do not depend on logic (p. 136). As a professional dancer, who has spent a great part of a lifetime performing Indian Classical dance, I cannot but find this explanation insultingly inadequate. While saying that dance is a mind-body activity (p. 148) Keali'i inohomoku seems to reduce it to the realm of 'matter' and proposes that we think in terms of 'Matter over Mind' (p. 136), thereby reinforcing the very mind/body dichotomy that she seeks to avoid.
Because one takes the writings of a senior generation of pioneers in a struggling new area of enquiry seriously, perhaps one ponders too much over the implications of theoretical formulations. One cannot help note the grave consequences of these kinds of propositions. In fact, it seems to this writer that these theories reinforce all the myths about dancing as an illogical, non-rational phenomenon that is no more than mindless physical activity. While ostensibly trying to resolve some of the larger issues of philosophy and science, such as the innateness arguments, the mind/body dichotomy and the implications of the differences between right and left brain function, Keali‘inohomoku seems to propose a return to the hoary old myth that dance is the 'missing link' between animals and humans, culture and nature, ideas and emotions. At the same time she subsumes the notion of 'mind' and 'rites' into a set of physiological brain functions, and dance into 'all physiological and physical responses made by the body' (including the brain), ergo a "mind/body activity". "Every dance phenomenon is a Rite of Transformation" (p. 145) thus simply means that every physiological and physical response is a result of physiological brain functions, a proposition that is unarguable if (and only if) we can all agree that by 'mind' and 'rites' we mean physiological brain functions.

As I hope to have demonstrated earlier, Keali‘inohomoku overlooks the fact that we do not all mean the same things by 'religious ideas', 'rites' and 'dances'. Her brave but foolhardy attempts to resolve the epistemological gap that separates a view of 'mind' as a set of physiological responses to stimuli, and a view that treats 'mind' as a set of cognitive structures stems perhaps from a failure to grasp that the difference in ontological assumptions about these entities is incompatible, if not irreconcilable. One cannot iron out the differences by simply appropriating the terminology of cognitive and social modes of discourse. Instead one makes a nonsense of them, a practice that I fear is more detrimental to the cause of 'dance anthropology' than would be a straightforward admission of the fact that by 'dance' we do not all mean the same thing, and so are not talking about the same things.

A more useful approach, not only to dance but to movement studies in general, would be to begin with a realization that there need not be any consensus on 'what' the dance is. On the other hand, it is important for an investigator to make clear 'how' he or she categorises any specific instance of dance that he or she deals with and then go on to demonstrate how this can help us understand the data under consideration. All too often studies that purport to be about 'the dance' are in fact explanations of something that may at best be "usefully classified as dance". For those of us who have spent a considerable amount of time trying to re-think what we mean by 'dance', 'human action', 'human movement' and 'human nature' in a post-language-revolution, post quantum-theory universe of scholarly discourse, it is extremely disturbing to have this process reduced to a mere matter of 'differing models'. The difference between a Behavioral paradigm and a post-structural, semantically concerned paradigm is at a meta-theoretical level and requires fundamental shifts in the metaphysical assumptions that are made.2

It is not enough to indulge in 'dance research' on its own, but to place one's studies in the larger context of social anthropology,
linguistics and even the philosophy of science. 'Dance' is an area for heated discussion and debate about various kinds of models, epistemic paradigms, methodologies and such, and clearly a reviewer who is more in sympathy with Behavioristic approaches would look at Keali'inohomoku's paper with a less jaundiced eye, but the point is that these debates do not concern 'dance ethnography' or 'dance anthropology' alone. Yet if one is to make a contribution to the general social anthropological and social scientific context of the overall argument, it is necessary to remember the larger issues that are at stake.

At this stage in the study of dance and human movement we have only just entered the realm of semantic, post-structural discourse. I do not believe that we are at a stage where a "new paradigm" (i.e. a revolutionary shift in social theory) can be proposed. The prevalent paradigms need to be more fully explored in terms of 'dance' data. Alas, the talk of paradigm shifts is too often espoused by those who have not caught up with the implications of shifts that have already taken place. Consequently what is proposed as a 'new paradigm' is often no more than an attempt to rediscover the wheel, by getting caught up in the irregular spokes of yet another square contraption.

Rajika Puri

NOTES

1. For a more detailed discussion of the differences between 'dance movements' regarded (i) as conceptual 'entities and (ii) in terms of the mechanics of movement, see Puri and Hart (1982:72-73).

2. For a critical appraisal of Sheets-Johnstone (1981 and 1983), Varela also demonstrates how a failure to recognize the implications of a particular meta-theoretical position can lead to inconsistencies and absurdities (Varela, 1983).

REFERENCES CITED

