Another perspective "On Edward Chase Tolman's default in tribal leadership".

In this article we first review a contribution to the sociology of science by Campbell (1979a). The quote in our title is a proposed title for a more comprehensive report. The thesis in the present article is that there are implicit assumptions in Campbell's article which should be critically analyzed. In the next section we review a much broader perspective by Galtung (1977) which will then serve to bring out and critically discuss Campbell's implicit assumptions. This is the topic for the third section.

1. Campbell's perspective.

In his preliminary report Campbell (1979a) discusses the "social structural requirements" for a scientific community to be a viable social system. "The requirements of achieving this tribal continuity come first, even if they compete and interfere with the cognitive task of increasing the validity of the image of the physical world which the tribe carries." (p. 185).

The dual aspect continuity/increasing validity mirrors his general treatment of the perceptual and cognitive systems as extensively treated by Campbell (1979b), see also Tschudi (1986) for a discussion of his general position.

Below we list three requirements which Campbell mentions in a form which clearly reveals this dual aspect: (we use Campbell's own phrasings, cf. 1979a p. 185)
To make these requirements more vivid Campbell contrasts two leading theorists in psychology in the U. S. in the 1930s and 1940s: Tolman and Spence, and compares their impact by drawing on questionnaire responses for students and close associates as well as interviews, anecdotal narratives and the published literature. These two theorists were selected for maximum contrast on both "leadership effectiveness and personality and leadership style". (p. 187)

Campbell, himself one of Tolman’s students, poses the following puzzle:

"Why were Tolman’s students the least loyal, when, of all the learning theories of the 1930s, Tolman’s can now be seen to have been clearly the best?" (p. 187)

Lack of loyalty is assessed by the fact that "Tolman’s students with rare exceptions stopped doing recognizable Tolmanian studies or using Tolmanian concepts once they left Berkeley." We should, however, carefully note that many of the students later dedicated books to him. On the other hand "Spence’s students continued to loyally use the Hull-Spence paradigm long after they left Iowa." (p. 187). As for the superiority of Tolman’s learning theory Campbell notes that it was the only cognitive theory of the
1930s: of all the competing theories it was the one coming closest to exciting current developments in "cybernetics, servosystem engineering . . . and artificial intelligence." (p. 187).

"The puzzle is further increased when it is noted that Tolman was a charismatic leader, attracting the best graduate students, and a source of intellectual ferment for students in clinical and social psychology as well" as well as being "the most personally beloved" of the theorists studied. (p. 188)

We will return to the questionnaire data in the third section, but here we note that Campbell makes much of Tolman's "playful self-deprecation". As an example we give part of a long quote from Tolman's introduction to his major work: "Once set up, a system probably does as much harm as good. It serves as a sort of sacred grating behind which each novice is commanded to kneel in order that he may never see the real world, save through its interstices". (p. 189)

In passing we may note an interesting similarity to G. Kelly who had the same playful mood regarding his own personal construct theory: "By its own admission it may once turn out to be nonsense".

It would be an interesting sociological study to compare Kelly's influence (his theory is alive and prospering) with that of Tolman. We do, however, defer judgement as to whether this should lead us to look for "greater leadership ability" in Kelly than in Tolman. Perhaps the greater insularity from mainstream psychology has made it easier for Kellyians to maintain an identity as "Kellyians", but see Neimeyer (1985) for an "inside", comprehensive study of the personal construct movement.
2. Galtung’s perspective.

Galtung (1977, ch. 1) launches the broad hypothesis that there is an isomorphism between the three realms:

- social structure
- scientific and professional structure
- structure of scientific products

To develop this hypothesis he needs what we might call a "universal typology". This is accomplished by means of two dichotomies. The first one starts with the basic sociological concept interaction and distinguishes between the one hand inequitable (e.g. exploitative), or vertical interactions, and on the other hand equitable or horizontal relations. Put otherwise the basic division is between asymmetric and symmetric relations. Galtung notes that such pure structures would both tend to be uniform - collectivistic, and consequently introduces variation by making the structures less pure. In the vertical case this is done by introducing vertical links between horizontal structures, and in the horizontal case "by means of a certain detachment, even down to the individual, making the structure less connected. Detachment, however, should not be confused with mutual isolation; detachment is self-sufficiency with contact; isolation is self-sufficiency without contact" (p. 18).

The resulting fourfold table is reproduced below from Galtung (1977, p. 20, Table 1.3) (with minor changes).
Galtung's typology of social structures

<table>
<thead>
<tr>
<th>Type of interaction</th>
<th>UNIFORMITY-COLLECTIVISM</th>
<th>DIVERSITY-INDIVIDUALISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>INEQUITY VERTICAL</td>
<td>Model 1: CONSERVATIVE</td>
<td>Model 2: LIBERAL</td>
</tr>
<tr>
<td>interaction:</td>
<td>interaction:</td>
<td>interaction:</td>
</tr>
<tr>
<td>purely vertical</td>
<td>purely vertical</td>
<td>vertical and horizontal</td>
</tr>
<tr>
<td>replacement, not</td>
<td>replacement, not</td>
<td>vertical mobility</td>
</tr>
<tr>
<td>mobility</td>
<td>mobility</td>
<td></td>
</tr>
<tr>
<td>Motto: SERVICE</td>
<td>Motto: SUCCESS</td>
<td></td>
</tr>
<tr>
<td>(&quot;feudal&quot;)</td>
<td>(&quot;capitalism&quot;)</td>
<td></td>
</tr>
<tr>
<td>EQUITY HORIZONTAL</td>
<td>Model 3: COMMUNAL</td>
<td>Model 4: PLURALIST</td>
</tr>
<tr>
<td>interaction:</td>
<td>interaction:</td>
<td>interaction:</td>
</tr>
<tr>
<td>purely horizontal</td>
<td>purely horizontal</td>
<td>hor. with detachment</td>
</tr>
<tr>
<td>replacement, not</td>
<td>replacement, not</td>
<td>hor. mobility,</td>
</tr>
<tr>
<td>mobility</td>
<td>mobility</td>
<td>self - selection</td>
</tr>
<tr>
<td>Motto: SOLIDARITY</td>
<td>Motto: SELF - REALIZATION</td>
<td></td>
</tr>
<tr>
<td>(&quot;socialist&quot;)</td>
<td>(&quot;communist&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

The marxist equivalents are put in parentheses, but Galtung dissociates himself from any strict marxist typology since his typology is not limited to the structure of production. Furthermore, Galtung does not intend his typology to be tied down to a (deterministic) theory of successive stages, the only order of transition being 1 - 2 - 3 - 4" (p. 20).

The prototypical example of Model 1 is "the master and the disciples forming a school where the disciples would try to converge towards the insights attained by the master" (p. 24 - 25). The ultimate criterion of truth would here be the subjective insights of the master. In Model 2, however,
knowledge had to be redefined as that which is intersubjectively shared (communicable and reproducible) within a competence group (p. 25). Notice how the IwP nodes at the top in Model 2, where two should be taken to signify more than one.

Galtung claims that Model 2 (and to some extent Model 1) are the most dominant in our culture, and we indicate how he spells out the relation between the social structure and the structure of the scientific productions. There will of course be the well-known academic hierarchies with professors at the top and students at the bottom, but in accordance with the general isomorphism thesis: "in order to arrive at such rankings, however, there has to be some rankings of the products: knowledge also has to have a top, middle and bottom level." (p. 27). Furthermore there will be isomorphism between the scientific structure and the structure of the scientific products. "The verticality is defined in theoretical systems by means of the relation of inference or implication, with the antecedent being 'higher' than the consequences." (p. 30)

Related to this there will be a "division of labour": "Typically, the assistant produces singular sentences, the middle range scientific worker produces propositions, and the axioms are reserved for the top level." (p. 30) But whereas this holds both for Model 1 and Model 2, in Model 2 there will be much more mobility: "for those located at lower levels in the scientist structure will try to break the rules of the game and reach out for original work at the very top of the theory, challenging axioms, not to mention basic assumptions and paradigms underlying the axioms." (p. 30).

Galtung develops an interesting criticism of Kuhn: "If the
challenger succeeds not only has he risen to the top, but a scientific revolution has been produced. Kuhn describes this phenomenon well in his famous book (itself an example of this strategy) but, probably because of trained incapacity to see social structure, he fails to see and analyze structural mechanisms behind scientific revolutions" (p. 31). In another terminology, Kuhn: "provides us with insight into the dependent variable" (p. 250) but fails to analyze the "independent variables".

In this context Model 3 need not be elaborated: the closest example Galtung discusses is the people's communes during the cultural revolution in China.

Personally Galtung loves Model 4. This is evident from the dedication of his book to the Norwegian philosopher Arne Naess, "friend and teacher", hailed as a proponent of Model 4 scientific activity. Galtung does not elaborate too much on this model since he regards it as model of the future.

In a Model 4 society there would be no pressure on the horizontal units to develop the same type of science but rather pressure to work within the framework of horizontal science while exploring different, diverse possibilities." and "pluralistic rather than universalistic science. . . would be the leitmotif. . . Needless to say one condition for anything like this to develop would be a much more pluricentric world, economically, politically, military and culturally than we have at present." (p. 39)

This presentation fails to bring in the whole scope of Galtung's typology. He also deals with a variety of other institutions from the same perspective, as for instance art and law, to further clarify and apply the broad implications. On the
other hand other distinctions could be brought in to make the
analysis even more concrete when dealing with e. g. specific
scientific communities (tribes). But the material we have
presented here will be sufficient for a critical look at
Campbell's treatment of Tolman.

3. A critique of Campbell's analysis of "Tolman's leadership".
Our thesis is:

Campbell uses Model 2 (and Model 1?) criteria for judging
Tolman. But Tolman more clearly is a proponent of Model 4
science, and Campbell's criteria are thus of doubtful relevance.

From his preliminary analysis it is clear that Campbell is
steeped in vertical models. This is evident from his
"structural requirements" especially "leadership required" and
"build ingroup loyalty".

The clearest evidence that Tolman can be classified as a Model
4 scientist comes from the quotation from Tolman's major work
previously cited. His view of a system as probably doing as much
harm as good is worth repeating: "serving as a sort of sacred
grating behind which each novice is commanded to kneel. . ." is
obviously in line with Galtung's view of a Model 4 scientist
"there would be no pressure . . . to develop the same type of
science". What Campbell finds a liability: "Tolman failed in
leadership by failing to convey to his students the conviction
that he offered them a theory worth dedicating their lives to"
(Campbell 1979a, p. 169), is in line with Galtung's view of a
Model 4 scientist.

Tolman was not steeped in vertical interactions. In seminars
his "style welcomed his students as equal status fellows" (p.
190), and "spent all of his lectures sharing his creative play of ideas" (p. 190).

Campbell makes much of the fact that Tolman's students did not further develop his position. But this implies that the goal of science should be to further hierarchically structured theoretical systems. Instead of emphasizing this as a "failure", we should instead take a closer look of the kind of influence Tolman did have. Notice first the wide range of his influence: "a source of intellectual ferment for students in clinical and social psychology as well". There is also the fact of book dedications. We do not think such dedications are made without much consideration and perhaps also love. This is one way of expressing gratitude, recognizing another as an equal, or put otherwise, a dedication can be seen as an exchange of gifts. Since there are few signs of "subordination", dedications can safely be interpreted as an horizontal relation. This fits well with the observation that: "In the anecdotal material there is much testimony to Tolman's active discouragement of discipleship." (p. 190).

We suggest that such recognition is an important consideration when assessing isomorphism in a Model 4 world. Galtung's dedication to Naess has already been noted, and I will not hesitate to classify Galtung himself as epitomizing Model 4 science in his far reaching treatment of cosmologies. While he earlier in his career worked closely with Naess, he later rarely quotes him, but he still acknowledges the great influence. (Occasionally Galtung propounds Model 1 theories, but it is with such humour and self-irony that he defies the "master" model.)

Campbell himself, by his own work may also, perhaps paradoxically, be taken to illustrate the present point of view.
Campbell classifies himself as not loyal to Tolman. In his perspective on his own scholarly career, however, he writes that he turned down an offer of an assistantship from Tolman but "in spite of this choice. Tolman, Brunswick, and Tryon have been the most influential of my teachers" (Campbell, 1981, p. 458). We find it significant that Tolman is mentioned first in this context.

From the impressive range of his work, and his non-dogmatic attitude (cf. Tschudi, 1986) there are clear signs of the Model 4 scientist in Campbell's own work. A superficial comparison indicates some more abstract similarities between Tolman's cognitive, gestalt-like theories and the strong cognitive emphasis in Campbell's work.

Perhaps there is a similar kind of relation between Tolman and Campbell as between Naess and Galtung.

The basic point in the present context, however, is that from a Model 4 point of view "loyalty" is an inadequate criterion, and quite different criteria need to be developed in order to assess Model 4 type influence. Some variant of hermeneutic methods (cf. Campbell, 1986, for references) would probably be much better suited to this task than reference-counting type criteria.

Spence, however, clearly epitomizes a Model 2 or perhaps even a Model 1 scientist. He is described as an "effective fanatic leader .. as a St. Paul, a disciple to the collective product initiated by Hull."(p. 190) So we have Hull at the top node in a Model 1 structure, and Spence just below!

The pronounced differences between Spence and Tolman and also most of the ratings seem to conform well to the distinction Galtung draws between Model 1 (and 2) versus Model 4: On the
following descriptions applicability to Spence never strays below 84%.

Convicted of value of own systematic position
Took himself seriously
Expected strong commitment to his approach from me
Authoritarian
Aggressive
Strong-willed

while for Tolman the highest value is 46% (the first of the characteristics above).

The reverse pattern of differences is even clearer in the following descriptions:

Accepted criticism well
Allowed me autonomy in choice of research problems
Openminded
Humorous

Here Spence never scores beyond 20%, while Tolman never strays below 86%.

The first set of characteristics (typical of Spence) seems to epitomize a Model 1 or 2 leader, while the second set (typical of Tolman) seem well suited for a Model 4 scientist.

Campbell accepts the first set as desirable and further considers developing a thesis about "military style of leadership in science . . . theories of machismo . . . " (p. 122).

From a Model 4 point of view, however, we think it would be more profitable to explore feminist critiques of science (e.g., Keller, 1978).

Campbell emphasizes the role of personality. The picture of a "beloved man" further emerges from the general characteristic Campbell gives of Tolman: "exceptionally well-adjusted, free of neurotic defenses" (1979a, p. 191).

The next step he wants to take is to explore "psychodynamic hypotheses", and he suggests an Adlerian analysis of role-differentiation in a two-boy family (Tolman had an elder brother
who was an eminent physicist where the younger brother would be
capitalizing on "his initial advantage of baby-lovableness" (p.
191).

We do not want to dispute this specific hypothesis, but from an
attributional point of view this hypothesis may have unfortunate
consequences. A retreat to "personality" may stop us thinking in
terms of external social structures. Here there is a similar
weakness in Campbell's approach as Galtung points out in regard
to Kuhn.

On the other hand it may well be the case that different
personality styles would tend to gravitate into different type of
Models (provided the external social structure has sufficient
flexibility to accommodate various Models). Galtung does not
mention this topic, but the picture we get of Tolman may provide
a beginning lead in this new problem area. Might it be the case
that a Model 4 style requires "exceptionally well-adjusted"
persons? We would further like to add a strong sense of humour
as a possible requisite (see also Tschudi, 1966). Conversely,
especially Model 1 does not seem to be a profitable arena for
displaying humour. In order to further develop such hypotheses
it would be most interesting with a personality profile of
Spence. Was he a "macho type", "military" mind? Following
Galtung's pervasive emphasis on isomorphy, there should be
distinct patterns of personality differences between persons
belonging to different Models.

A Concluding comment.

Implicit in this article there is the pervasive question of
values. If one has a strong preference for say a Model 1 world,
than clearly it is justified to call attention to "Tolman's
defect in leadership. But I cannot bring myself to think that Campbell really has a preference for this kind of world. It runs counter to his general style. By bringing in broader structural considerations, as Campbell has yet not done, the picture seems quite different. As argued more fully in another paper (Tschudí, 1986) there are several arguments for a more pluralistic outlook than seems to be dominant at the present time.
References


