

THE ARCHAEOLOGY OF HUMAN ANCESTRY

Power, sex and tradition



ROUTLEDGE


edited by
JAMES STEELE *and* STEPHEN SHENNAN

T
—
A
—
G



THE ARCHAEOLOGY OF HUMAN ANCESTRY

THEORETICAL ARCHAEOLOGY GROUP (TAG)

In this series:

Cultural Identity and Archaeology
The Construction of European Communities
edited by Paul Graves-Brown, Siân Jones and Clive Gamble

Managing Archaeology
edited by Molcolm A. Cooper, Antony Firth, John Carman and David Wheatley

Theory in Archaeology
A World Perspective
edited by Peter J. Ucko

Time, Tradition and Society in Greek Archaeology
Bridging the 'Great Divide'
edited by Nigel Spencer

THE ARCHAEOLOGY OF HUMAN ANCESTRY

Power, Sex and Tradition

Edited by James Steele and Stephen Shennan



First published 1996 by Routledge

Published 2017 by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN
711 Third Avenue, New York, NY 10017, USA

Routledge is an imprint of the Taylor & Francis Group, an informa business

Copyright © 1996 James Steele, Stephen Shennan and contributors

Typeset in Bembo by Florencetype Ltd, Stoodleigh, Devon

The Open Access version of this book, available at www.tandfebooks.com,
has been made available under a Creative Commons Attribution-Non
Commercial-No Derivatives 4.0 license.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data
A catalogue record for this book has been requested

ISBN 978-0-415-11862-0 (hbk)

CONTENTS

List of illustrations	vii
List of tables	ix
List of contributors	x
General editor's preface	xiii
Acknowledgements	xv
Introduction	1
<i>James Steele and Stephen Shennan</i>	
PART I: COMPARATIVE APPROACHES TO HOMINID SOCIOECOLOGY	38
Editors' note	40
1 Finite social space and the evolution of human social behaviour	42
<i>Robert Foley and Phyllis Lee</i>	
2 African ape social networks: a blueprint for reconstructing early hominid social structure	60
<i>Alexandra Maryanski</i>	
3 Sexual dimorphism in fossil hominids and its socioecological implications	82
<i>Henry M. McHenry</i>	
4 On the evolution of temperament and dominance style in hominid groups	100
<i>James Steele</i>	
PART II: ORIGINS OF THE ARCHAEOLOGICAL RECORD	120
Editors' note	122
5 The frameworks of early hominid social systems: how many useful parameters of archaeological evidence can we isolate?	124
<i>John Gowlett</i>	
6 Archaeological inference and the explanation of hominid evolution	169
<i>Mark Lake</i>	
7 Social learning and cultural tradition: interpreting Early Palaeolithic technology	187
<i>Steven Mithen</i>	
8 On predicting hominid group sizes	207
<i>James Steele</i>	
9 Making tracks: hominid networks and the evolution of the social landscape	230

PART III: THE SEXUAL DIVISION OF LABOUR IN MODERN HUMAN FORAGING SOCIETIES	253
Editors' note	255
10 Foraging differences between men and women: behavioural ecology of the sexual division of labour	256
<i>Kristen Hawkes</i>	
11 Female strategies and collective behaviour: the archaeology of earliest <i>Homo sapiens sapiens</i>	276
<i>Camilla Power and Ian Watts</i>	
12 Darwinism and collective representations	297
<i>Chris Knight</i>	
13 Their commonwealths are not as we supposed: sex, gender and material culture in human evolution	311
<i>Paul Graves-Brown</i>	
PART IV: COGNITION AND CULTURAL DYNAMICS IN MODERN HUMAN SOCIETIES	323
Editors' note	325
14 Social inequality and the transmission of cultural traditions in forager societies	326
<i>Stephen Shennan</i>	
15 On the evolution of language and kinship	341
<i>Robin Dunbar</i>	
16 A socio-mental bimodality: a pre-hominid inheritance	357
<i>Michael Chance</i>	
17 Social interaction and viral phenomena	378
<i>Ben Cullen</i>	
Index	390

CHAPTER FOURTEEN

SOCIAL INEQUALITY AND THE TRANSMISSION OF CULTURAL TRADITIONS IN FORAGER SOCIETIES

STEPHEN SHENNAN

The object of this chapter is to sketch out the basis of an archaeological approach to examining the interrelationships between cultural traditions, inequality and the maintenance of social groups through time. The approach is intended to be of general relevance, but the discussion will be concentrated on the anthropology of foraging societies, since, for a variety of reasons, these are generally agreed to be of most relevance to providing a perspective for the analysis and discussion of inferred patterns of long-term human evolution.

The idea that there are links between patterns of social inequality and how groups define and organize themselves is familiar enough, but that these should be connected in some way to cultural traditions is perhaps less obvious. The fact that it now seems a worthwhile issue to raise can be ascribed to the development of what Durham (1990, 1992) has called 'evolutionary culture theory', in effect the study of 'cultural descent with modification', based on recent accounts of the mechanisms of cultural transmission and the factors affecting it (Cavalli-Sforza and Feldman 1981, Boyd and Richerson 1985, and see Introduction). However, with the exception of a recent paper by Aldenderfer (1993), the subject of hierarchy and inequality has not been much discussed in this context, even though debates about their nature and extent are regarded by many as central to any understanding of long-term social change. The aim of this chapter is to outline a model which suggests that hierarchy and the cultural transmission process are in some respects closely linked, even in foraging societies, which have tended to be seen as relatively egalitarian.

CULTURAL TRADITIONS

It has long been argued that what differentiates humans from other animals is the existence of cultural traditions, which mean that cultural responses to change have largely superseded genetic ones. The presumption has always been that such cultural traditions were adaptive, in that they enabled people to survive more successfully, and therefore gave a selective advantage in terms of reproductive success over populations which did not have such traditions. A great deal of attention has been devoted to identifying the functional-adaptive role that particular traditions, for example, the production of artefacts, might have had, but the processes by which they are handed on from one

(cultural) generation to the next have been considered self-evident and unproblematic. However, the cultural learning on which traditions depend has costs as well as benefits and until recently there has been little attempt to evaluate these and their implications. It turns out that in some circumstances there will be selection for cultural learning even though it does not give any adaptive advantage over trial-and-error learning (see Rogers 1989 and Introduction). Moreover, a variety of factors affect the process of transmitting knowledge from one generation to the next which are largely independent of any adaptive role the knowledge may have. For these reasons the processes of cultural learning and the factors which affect them cannot be left out of any consideration of the role of cultural products in human evolution.

The view taken here is that cultural transmission involves a *sui generis* set of processes, including language transmission, which have the effect of giving cultural attributes a considerable degree of independence from any specific set of bearers of those attributes (Cavalli-Sforza and Feldman 1981, Boyd and Richerson 1985, Shennan 1989, 1991, see also Cullen, this volume, and the introduction to this section). Given that this is the case, the object of this chapter is to examine some relationships between the social arrangements of populations and the transmission of certain kinds of cultural information, beyond the obvious point that social arrangements have an impact on the biological survival and reproductive success of populations, and thus of the cultural attributes associated with them.

EGALITARIANISM AND AUTHORITY IN FORAGER SOCIETIES

From the beginnings of the study of the development of human societies until very recently, foragers have been regarded as the baseline of human social organization (cf. Gamble 1992), from which subsequent social 'complexity' developed. This tendency for such societies to be seen as a rhetorical antithesis to our own reached its apogee in the characterization of the !Kung Bushmen as a totally egalitarian society without any forms of institutionalized leadership, characterized by an ethic of sharing and canonized by Sahlins (1968) as 'the original affluent society'.

More recently, the idea of forager egalitarianism has been taken up by authors interested in developing Darwinian models of the evolution of human social behaviour. Thus, Erdal and Whiten (1994) argue that what they regard as the universality of egalitarianism in forager societies is an ancient evolved pattern contrasting with the hierarchical patterning of other primate societies, and suggest that there must have been a fitness advantage to individuals in resisting domination by other group members but not attempting to achieve domination themselves. Erdal and Whiten propose that egalitarianism may have been associated with the appearance of big-game hunting and the importance of sharing, seen as deriving from the desirability of dividing up large meat packages. A similar point is made by Boehm (1993), who argues for the existence of 'reverse-dominance hierarchies' in which a strong anti-dominance ethic prevails, again suggesting that adult males in particular give up their individual possibilities of domination over others in order to be certain that no one may dominate them, and that egalitarian political arrangements derive not from special ecological or social structural

circumstances but from moral sanctions (but contrast Gulbrandsen 1991). Knauff (1991) too has argued for a strong tendency towards egalitarian behaviour over a significant proportion of human evolution, proposing that a significant primate tendency towards social dominance was not extinguished but effectively constrained by strong counter-measures during much of this period, until the appearance of 'complex hunter-gatherer' adaptations relatively recently

In fact, it has become increasingly apparent since the early 1980s that assertions of forager egalitarianism are much overdone. It is not simply that 'complex hunter-gatherers' (Price and Brown 1985) emerge in later prehistory with a subsistence system based on sedentism and storage, and thus a foundation for material inequalities, or that transport technology makes a very significant difference to the possibilities of material accumulation among foraging groups, as Burch (1988) has shown in the case of the role of the *umiak* and the dog sled among the Inuit groups of north-west Alaska. More important is the impact of so-called revisionist accounts of the Bushmen and similar foraging groups (Wilmsen 1989, Shott 1992). Conceptually central to this discussion is the idea of 'encapsulation' (Woodburn 1988), which in turn depends on a distinction made earlier by Woodburn (1980, 1982) between immediate-return and delayed-return foraging systems:

An immediate-return system is one in which activities oriented to the present (rather than to the past or the future) are stressed; in which people deploy their labour to obtain food and other resources which will be used on the day they were obtained or casually over the days that follow...in which people do not hold valued assets which represent a yield, a return for labour applied over time, or valued assets which are held and managed in a way which resembles and has similar social implications to delayed yields on labour; in which people are systematically disengaged from assets, from the potential in assets for creating dependency.

A delayed-return system is one in which, in contrast, activities are oriented to the past and the future as well as to the present; in which people hold rights over valued assets of some sort, which either represent a yield, a return for labour applied over time, or, if not, are held and managed in a way which resembles and has similar social implications to delayed yields on labour.

(Woodburn 1988:32)

In his discussion of 'encapsulation' Woodburn raises the issue of whether the immediate-return system and associated egalitarianism of the !Kung, the Mbuti or the Hadza are not a response to the fact that their societies have had hundreds of years of contact with outside societies and are, in effect, encapsulated within them. On this view, the existence of adjacent agricultural and pastoralist groups and the establishment of relations with them would have led on the one hand to the demise of existing delayed-return foraging systems and on the other to the emergence of oppositional forms of organization. In this way sharing and egalitarian levelling mechanisms analogous to the egalitarian solidarity present in some working-class or millenarian movements would have developed, as a reaction against the possibility that some members of the group might want to increase

their power by establishing alliances with outsiders, who in turn might see this as a possibility of exercising control over the foraging group (Woodburn 1988:62). In the event, Woodburn concludes that encapsulation is insufficient as a general explanation of immediate-return systems, which have probably long been a viable social form, but that in no sense can they be considered as a universal social evolutionary baseline; rather, in fact, that the past saw a greater variety of systems, among which delayed-return systems with their inequalities were certainly more frequent.

Woodburn's analysis raises doubts about 'egalitarianism' as an 'ancient evolved pattern' and may be developed further. Most of the arguments in favour of forager egalitarianism centre on the importance of food-sharing as evidence of equality (e.g. Boehm 1993, Kent 1993), and when they acknowledge the existence of hierarchically organized forager societies account for these in terms of ecologically specific possibilities for the control of material resources. While the relevance of material resources cannot be denied, the assumption that they are the only resources that matter arises from an entrenched view derived from nineteenth-century analyses of social class that material disparities are the only significant ones, so the lack of concern with them on the part of most foragers, combined with the importance of food-sharing, means that they must be egalitarian.

Such arguments neglect two important areas crucial to any evolutionary account. In the first place, there is some evidence of differential reproductive success, at least among males, related to hunting prestige (Hill and Kaplan 1993). Second, and much more important from the point of view of the argument presented here, there are inequalities in access to ritual 'knowledge' in foraging societies. Such 'knowledge' (even if it is not construed as having a large propositional content, Bloch 1974, Boyer 1990), and differential access to it, play a central social role. In many such societies the transmission of ritual 'knowledge' and control over it through initiation and other rites are one of the main social focuses of the people concerned. In fact, the control of cultural transmission of such knowledge is often the only legitimate locus for the generation of inequality among the members of forager societies, not the material goods or food with which anthropologists have been so obsessed (cf. Giddens 1984:260–262, on authoritative versus allocative power resources and the importance of information storage). Furthermore, in some contexts such control is actually hereditary, again in complete contrast to what are usually asserted as the key characteristics of forager societies.

RITUAL AND INEQUALITY IN FORAGER SOCIETIES: SOME EXAMPLES

Examples of the link between ritual and inequality in forager societies are widespread. Thus, Myers (1988), in a discussion of Pintupi land 'ownership' in Australia, argues that 'ownership' is control over stories, objects and ritual associated with mythological ancestors at a particular place, and because such knowledge is highly valued and vital to social reproduction men seek to gain it and be associated with its display and transmission:

From the Pintupi point of view, the emphasis is just as much on the social production of persons who can ‘hold’ the country, that is, on initiating young men and teaching them the ritual knowledge necessary to look after the country, as it is on getting the country. The Pintupi image of social continuity is effectively one in which ‘country’ as an object is passed down—‘given’—from generation to generation. The Pintupi regard this ‘giving’ as a contribution to the substance and identity of the recipient, a kind of transmission of one generation’s (or person’s) identity to the next. By learning about the Dreaming and seeing the rituals, one’s very being is altered.... Certainly, while younger recipients are supposed to reciprocate the gift of knowledge—hunting meat for those who give the knowledge and deferring to them—they cannot really repay what has been given... Pintupi stress that men must hold the Law and pass it on. In fact, men are enormously concerned to pass on their knowledge and their identification with places to their ‘sons’ and ‘sister’s sons’.

(1988:66)

But even among those claiming identity with a particular place only a certain number control the relevant rituals and decide whether particular individuals should be ‘taught’, a privilege easily granted to close kin but not necessarily to others: ‘With its origin in the Dreaming, “country” constitutes a form of valued knowledge that is esoteric, transmitted... to younger men, but restricted in access’ (1988:67), although it may also be exchanged between equal men.

Even among the MarduJarra in Western Australia, where ecological conditions are such that significant secular inequalities do not emerge, there are relations of inequality in the sphere of ritual and specifically initiation:

In the MarduJarra case, the control exerted by older men over their younger counterparts is a generalised one. It is based on the older men’s monopoly of esoteric knowledge, which will be transmitted only if young men conform to the dictates of the Law, and are willing to hunt meat in continuing reciprocal payment for the major secrets that are progressively revealed to them...

What is being indelibly imprinted on the novices is the imperative that they ensure, through conformity and active participation in the religious life, the continued release of power from the realm of the Dreaming into the physical and social world.

(Tonkinson 1988)

Again, we have the same emphasis on the importance of transmitting the tradition, associated with relations of authority. Even among the Hadza, one of his archetypal ‘immediate-return’ societies, Woodburn notes, ‘the initiated men’s group maintains important privileges over certain joints of meat of large game animals. These privileges are linked with exclusive possession of secret sacred knowledge and ritual to which all women and young men are denied access’ (Woodburn 1988:21).

The same point can be made in relation to the foragers of the North American Great Basin. As described by Julian Steward (e.g. 1936, 1938), they are generally regarded as one of the classic egalitarian societies. However, Whitley (1994) presents a different

view. Not only was there inequality between men and women, but also among men, in particular between those who were shamans, and thus had access to supernatural power, and those who weren't. Village and band headmen were almost always shamans, and shamanism, like headship, was largely hereditary:

It was only through the acquisition of shamanistic power that men could truly become political actors and gain prestige and status in Numic society. In turn, this advantaged them in a number of ways: women desired such men as preferred marriage partners, and the population at large respected them, largely out of fear of their potentially malevolent [power]. And in that shamanistic power was partly inherited, but in any case limited to a small segment of the population (estimated at about 2%), it is apparent that a very restricted, incipient elite group, comprised of shaman/headmen, existed within the ostensibly egalitarian Numic society.

(Whitley 1994:366–367)

A related argument has been developed at length by Riches (1992) in his discussion of the role and significance of shamanism. He points out that 'the cosmologies of nomadic hunting and gathering societies are predominantly shamanistic' (1992:383) and associates the presence of shamanism with relatively decentralized forms of organization, where descent principles are not strongly emphasized. However, this is not to say that they are thoroughly egalitarian. Among the Canadian Inuit on whom his discussion is mainly focused, although superior hunting ability is not allowed to form a basis for the development of social inequalities, the role of shaman does provide such a basis. The success or failure of hunters is seen as depending on the community's relations with the spirit world and maintaining these in good order depends on the observation of taboos. The shaman is the mediator between these two worlds and has the responsibility for the cultural evaluation process in terms of which some actions are regarded as taboo. The role is seen as a highly skilled one requiring a specialist and the skills are passed on from expert to novice through an apprenticeship. As a result of his mediating position with the spirit world, the shaman has power, privileges and position which are unavailable to anyone else. Riches argues that such cultural forms as taboos and systems of classification are sustained through the strategic work of individuals, in this case shamans; that is to say, they have a key role in determining what are approved and disapproved modes of behaviour, and in transmitting these and the cultural framework on which they are based.

AUTHORITY AND CULTURAL STABILITY

The kind of situation described in the previous section, in which there is a strong association between the transmission of ritual knowledge and relations of authority has been contrasted by Brunton (1989) with the observed cultural instability of certain tropical forest egalitarian foraging societies. These are immediate-return or encapsulated societies in Woodburn's terms (see p. 367) and are indeed strictly egalitarian, in that there is an automatic entitlement to equality of social outcomes. Such societies, tend to be

culturally fluid in many respects, Brunton argues, susceptible to acculturation and relatively limited in their collective representations. The Paliyan, for example, have no formalized bodies of knowledge, their rituals are highly variable and may not be performed at all; their knowledge is based on personal experience rather than collective representations and their transmission (Brunton 1989:676). This arises because of the structural nature of genuine egalitarianism, since it can never provide a basis for ensuring a correct version or interpretation of that which is communicated. Any attempt to distinguish what is valuable from what is not requires an act of evaluation, which in itself implies inequality:

To the extent that evaluation, and exclusion on the basis of evaluation, takes place, egalitarianism is compromised. To the extent that egalitarianism is thoroughgoing, such cultures can be little more than heaps of randomly associated elements, whose persistence is always fortuitous.

(Brunton 1989:678)

On this view, egalitarianism can only be maintained by according little value to cultural products, which indeed accounts for the general indifference to such products in the egalitarian societies Brunton discusses. In delayed-return systems on the other hand, as we have seen, 'intergenerational inequality, as well as inequality between household heads in terms of power, wealth and status are commonly present' (Brunton 1989:674). These circumstances not only presuppose social group continuity, they are also closely linked with cultural continuity in ritual and other spheres since, as we have seen, the transmission process is often the locus of inequality and strong cultural evaluation takes place; furthermore, group continuity itself provides a better basis for the consistent transmission of particular sets of social practices than a situation in which large numbers of individuals move at frequent intervals from one group to another (cf. Braun 1991). In summary, what is being postulated here, other things being equal, is a relationship between the strength of authority relations and the persistence and linkage of cultural elements, and another relationship between group continuity and cultural continuity (cf. Douglas 1978 and her concepts of 'grid' and 'group', where social arrangements related to the importance of the group as a unit and to within-group, usually hierarchical, distinctions, are similarly seen as having important cultural consequences). Group continuity in this context refers to the continued co-association of a group of people and their descendants over a period of time.

Such a suggestion raises interesting issues for the study of cultural and social continuity and change in the evolution of human societies. If some cultural feature emerged which had the effect of encouraging the process of cultural evaluation, through which some cultural variants rather than others are designated as acceptable or even mandatory, and of encouraging a positive evaluation of itself as acceptable or mandatory in particular, it would spread at the expense of others in the same sphere of relevance which did not have this effect. Furthermore, the potential could exist for a runaway process analogous to sexual selection, in which the development of authority relations encouraging cultural evaluation and accurate transmission went hand in hand with the selection of cultural attributes encouraging authority relations, at least until some

selective pressure from elsewhere cut in (see Figure 14.1). The links we have seen above between inequality and transmission processes in foraging societies are in keeping with these suggestions; other things being equal, cultural attributes not linked in this way would generally be less successful in terms of their reproduction through cultural generations.

But a further aspect of groups relevant to their continuity must also be considered. The possibility of group fission in the face of co-operation

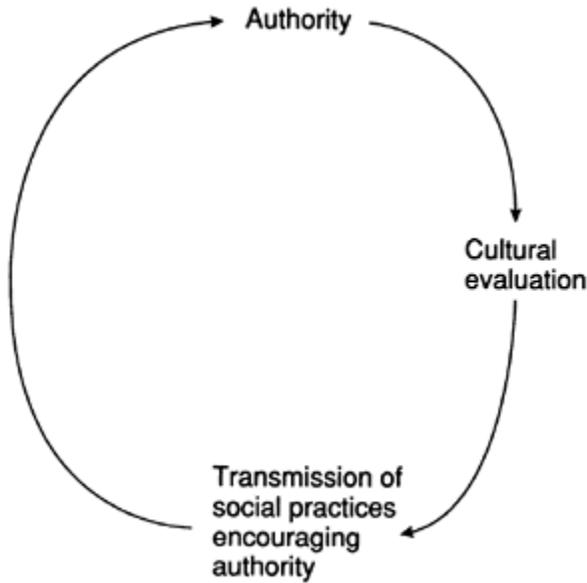


Figure 14.1 Links between authority and cultural/ritual transmission

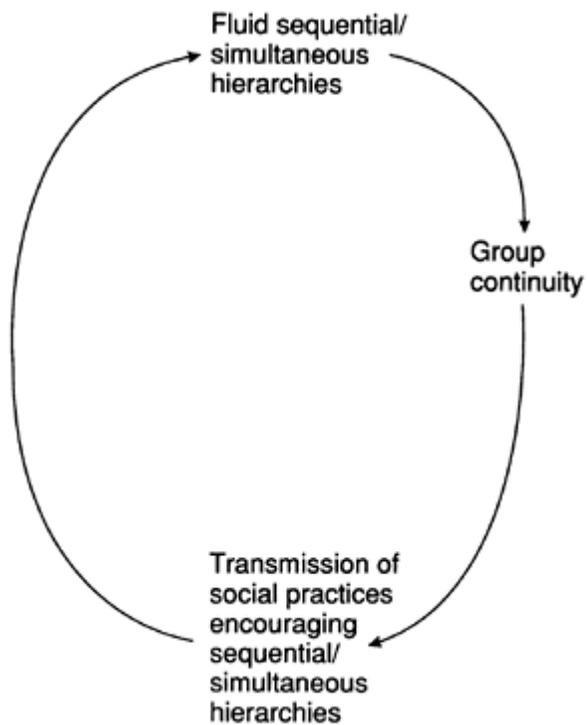


Figure 14.2 Links between group continuity and cultural/ritual transmission

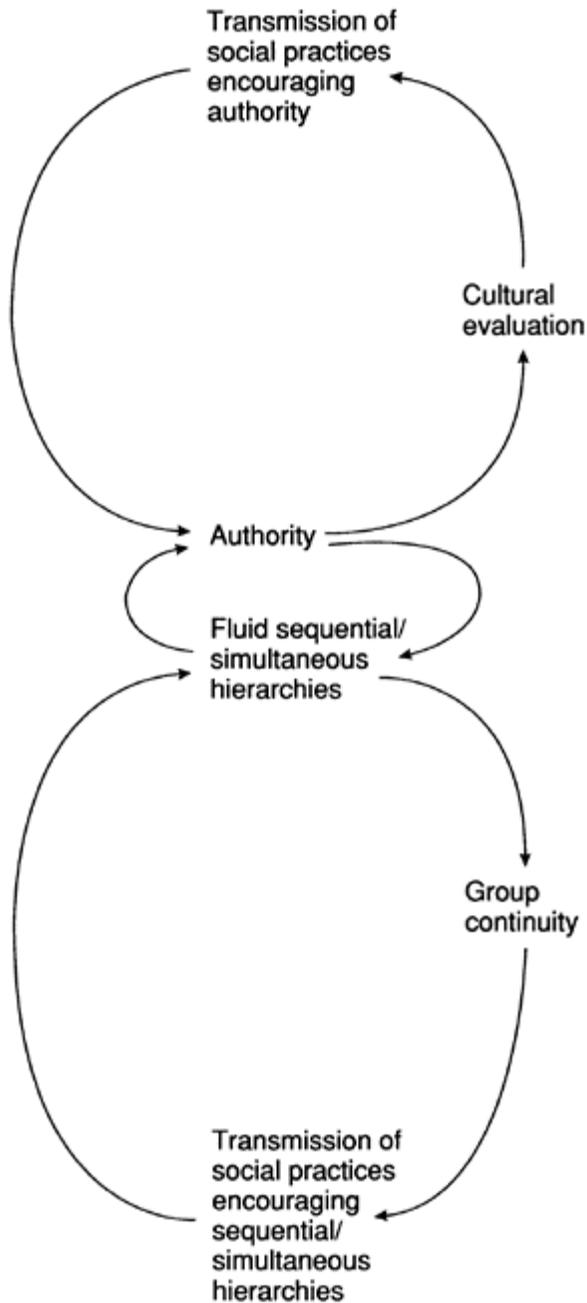


Figure 14.3 Authority, group continuity and cultural/ritual transmission linked together

problems is always present. Simulation studies of the maintenance of co-operation in the face of social dilemmas (e.g. Glance and Huberman 1994a) have shown that it will be promoted in situations where individuals have a long future expectation of co-operation and where groups are structured flexibly but hierarchically; not necessarily in the manner of a conventional social hierarchy but in the sense that members of a large group do not interact equally with one another. They interact closely with members of a small group and small groups interact with one another via representative individuals and organizations (Glance and Huberman 1994b, cf. Johnson 1982). Groups based on such forms of organization will tend to be perpetuated through time more successfully than those which are not and thus so will their particular sets of cultural practices. Furthermore, those practices will be more successful which themselves are conducive to this form of group organization and thus to group continuity. So here too a positive feedback loop may be created—in this case between cultural practices and group continuity (Figure 14.2). This loop may in turn be linked to the authority and inequality loop discussed above, in that those who are authoritative guardians of cultural traditions are also likely to be the group representatives in the interactions between groups discussed above, more often than not older males (Figure 14.3).

However, the two linked loops will only be mutually reinforcing up to a point, in that the unbridled expansion of authority and inequality may be detrimental to some group members' interests and thus create tensions which lead, for example, to group fission (cf. Aldenderfer 1993, Steele, chapter 4 this volume). How such incompatibilities play themselves out over time will be a contingent process, dependent among other things on how closely particular attributes are tied to particular groups by processes such as conformant transmission (Boyd and Richerson 1985; see also Introduction to this volume and Editors' Note). In addition to group fission, other possibilities include the destruction of authority and the maintenance of an equilibrium in which negative feedbacks emerge to counter the continuing development of authority beyond a certain point. In all cases there will be implications for the fidelity with which transmission occurs and for the content which is transmitted, both of which will in turn have an impact on the social processes, because of the existence of the links described above.

CONCLUSION

The argument of this chapter may be summarized as follows. I have tried to show, following the work of Woodburn and others, that many if not most forager societies are not as egalitarian as traditionally assumed (cf. also Flanagan 1989, Paynter 1989). The traditional view derives from a belief that inequality must be based on differential access to material resources, of which foragers, for good reasons, possess little, or to food, which is largely shared and thus again provides no basis for inequality. In fact, the locus of inequality is the cultural transmission of ritual knowledge and the link between inequality and transmission has runaway properties. Authority which defines the 'correct' version is important for transmission and at the same time cultural attributes which act to enhance authority tend to be preferentially adopted; authority and conformant transmission in the sphere of ritual go together. However, in the context of foraging

societies there are usually fairly strict ecological limits to such processes, arising, for example, from the importance of mobility, which mean that inequalities will not easily extend to other spheres (cf. Aldenderfer 1993).

But further limits arise from the fact that group continuity will also have a positive feedback relationship with successful cultural transmission: group continuity will be conducive to fidelity of transmission but attributes which encourage group continuity will increase their own chance of success. Such groups may well be genetically related sets of individuals and their descendants through time but need be no more than the set of people subscribing to a particular ritual tradition through conformant transmission.

Up to a point, hierarchy, group continuity and successful transmission will all be positively associated with one another. However, as Aldenderfer (1993) among others as pointed out, there comes a point when the growth of ritually based hierarchy and authority becomes incompatible with the maintenance of group continuity, because it leads to group fission, which has the further effect of increasing the probability of cultural loss through small sample drift effects. It was only with the rise of the state that this incompatibility was overcome.

This line of argument accords cultural transmission the importance it might be expected to have if cultural traditions are so central to the evolutionary success of the human species and acknowledges the fact that cultural attributes, or 'memes' as Dawkins (1976) calls them, are not just aspects of people's phenotypes as 'interactors' but have their own lineages as 'replicators', more independent of their bearers than in the genetic case because of the asymmetries of cultural transmission (Boyd and Richerson 1985, Cullen, this volume). However, as with biological evolution, both 'interactors' and 'replicators' are necessary entities in any account of evolutionary change; neither can be reduced to the other (cf. Mitchell 1987).

In some respects the argument presented here is similar to that made by Aldenderfer (1993), who also accords ritual a priority as a basis for hierarchy in foraging societies and sees hierarchy and inequality as being extended to other spheres of life as a result of various kinds of circumscription processes. However, despite his professed adherence to the cultural evolutionary framework adopted here, he sees ritual from a more traditional anthropological perspective in which ritual is a source of both individual and group benefits and of ideological manipulation, and does not assign the active role to the transmission process and the cultural replicators themselves which is at the core of this chapter.

When might such processes have arisen? The answer surely must be the Upper Palaeolithic, when the evidence for ritual and artistic traditions in the archaeological record first becomes compelling. Although there are indications of symbolic/ritual behaviour before this (see e.g. Hayden 1993), they are infrequent and isolated (cf. Rolland 1990). However, as Hayden (1993) argues, we should be careful about assuming a qualitative break between the Upper Palaeolithic and what went before. If the origins of symbolism are associated with the kinds of runaway transmission processes discussed here, we would expect the chronological trend of its uptake to be sigmoid in form, with an earlier stage in which ritual and symbolic behaviour were low in frequency and a later one in which they were widely prevalent, separated by a relatively short phase of exponential growth. In terms of the degree of resolution of archaeological evidence,

points near the beginning and the end of this single trend could easily be taken as relating to two qualitatively different states, before or after some event or state change in a different system, such as hominid biology.

But why did it not occur earlier? The answer may be connected with points made by Cullen and Gamble elsewhere in this volume. Successful transmission is partly a function of population density and encounter frequency: when populations are small, there is a high probability of random loss of cultural attributes. It may be that it was only at this time that population densities in many regions were sufficiently high that ritual traditions, which may have started many times before, had a chance to take hold, while the greater spatial extent of contact which Gamble (this volume) documents for the Upper Palaeolithic indicates that the potential for spreading such traditions now existed to an extent previously unparalleled.

ACKNOWLEDGEMENTS

An earlier version of this paper was presented at the LSE conference on Evolution and the Human Sciences in June 1993 and I am grateful for comments and questions on that occasion, in particular from James Woodburn. I also wish to thank Clive Gamble and James Steele for their critical comments on an earlier draft, although I have not been able to follow up all their suggestions.

REFERENCES

- Aldenderfer, M. (1993) 'Ritual, hierarchy and change in foraging societies.' *Journal of Anthropological Archaeology* 12:1–40.
- Bloch, M. (1974) 'Symbols, song, dance and features of articulation: is religion an extreme form of traditional authority?' *Archives Européennes de Sociologie* 15: 55–81.
- Boehm, C. (1993) 'Egalitarian behaviour and reverse dominance hierarchy.' *Current Anthropology* 34:227–254.
- Boyd, R. and Richerson, P.J. (1985) *Culture and the Evolutionary Process*. Chicago: University of Chicago Press.
- Boyer, P. (1990) *Tradition as Truth and Communication*. Cambridge: Cambridge University Press.
- Braun, D.P. (1991) 'Are there cross-cultural regularities in tribal social practices?' In S.A. Gregg (ed.) *Between Bands and States*, pp. 423–444. Carbondale: Center for Archaeological Investigations, Southern Illinois University at Carbondale.
- Brunton, R. (1989) 'The cultural instability of egalitarian societies.' *Man* (n.s.) 24:673–681.
- Burch, E.S. (1988) 'Modes of exchange in north-west Alaska.' In T. Ingold, D. Riches and J. Woodburn (eds) *Hunters and Gatherers, Volume 2: Property, Power and Ideology*, pp. 95–109. Oxford: Berg.
- Cavalli-Sforza, L.L. and Feldman, M.W. (1981) *Cultural Transmission and Evolution: A Quantitative Approach*. Princeton: Princeton University Press.
- Dawkins, R. (1976) *The Selfish Gene*. Oxford: Oxford University Press.
- Durham, W.H. (1990) 'Advances in evolutionary culture theory.' *Annual Review of*

Anthropology 19:187–210.

Durham, W.H. (1992) 'Applications of evolutionary culture theory.' *Annual Review of Anthropology* 21:331–355.

Douglas, M. (1978) *Cultural Bias*. London: Royal Anthropological Institute (Occasional Paper No. 35).

Erdal, D. and Whiten, A. (1994) 'On human egalitarianism: an evolutionary product of Machiavellian status escalation.' *Current Anthropology* 35:175–178.

Flanagan, J. (1989) 'Hierarchy in simple "egalitarian" societies.' *Annual Review of Anthropology* 18:245–266.

Gamble, C.S. (1992) 'Archaeology, history and the uttermost ends of the earth—Tasmania, Tierra del Fuego and the Cape.' *Antiquity* 66:712–720.

Giddens, A. (1984) *The Constitution of Society*. Cambridge: Polity.

Glance, N.S. and Huberman, B. (1994a) 'Dynamics of social dilemmas.' *Scientific American* 270:76–81.

Glance, N.S. and Huberman, B. (1994b) 'Social dilemmas and fluid organisations.' In K.Carley and M.Prietula (eds) *Computational Organisation Theory*, pp. 217–239. New Jersey: Lawrence Erlbaum.

Gulbrandsen, O. (1991) 'On the problem of egalitarianism: the Kalahari San in transition.' In R.Grønhaug, G.Haaland and G.Henriksen (eds) *The Ecology of Choice and Symbol*, pp. 81–110. Bergen: Alma Mater Forlag.

Hayden, B. (1993) 'The cultural capacity of Neandertals—a review and reevaluation.' *Journal of Human Evolution* 24:113–146

Hill, K. and Kaplan, H. (1993) 'On why male foragers hunt and share food.' *Current Anthropology* 34:701–706.

Johnson, G. (1982) 'Organisational structure and scalar stress.' In C.Renfrew, M.J.Rowlands and B.A.Segraves (eds) *Theory and Explanation in Archaeology*, pp. 389–421. New York: Academic.

Kent, S. (1993) 'Sharing in an egalitarian Kalahari community.' *Man* (n.s.) 28: 479–514.

Knauff, B. (1991) 'Violence and sociality in human evolution.' *Current Anthropology* 32:391–428.

Mitchell, S.D. (1987) 'Competing units of selection? A case of symbiosis.' *Philosophy of Science* 54:351–367.

Myers, F. (1988) 'Burning the truck and holding the country: property, time and the negotiation of identity among Pintupi Aborigines.' In T.Ingold, D. Riches and J.Woodburn (eds) *Hunters and Gatherers Volume 2: Property, Power and Ideology*, pp. 52–74. Oxford: Berg.

Paynter, R. (1989) 'The archaeology of equality and inequality.' *Annual Review of Anthropology* 18:369–399.

Price, T.D. and Brown, J. (eds) (1985) *Prehistoric Hunter-gatherers: The Emergence of Cultural Complexity*. Orlando: Academic.

Riches, D. (1992) 'Shamanism: the key to religion.' *Man* (n.s.) 29:381–405.

Rogers, A. (1989) 'Does biology constrain culture?' *American Anthropologist* 90: 819–831.

Rolland, N. (1990) 'Middle Palaeolithic socio-economic formations in western Eurasia: an exploratory survey.' In P.Mellars (ed.) *The Emergence of Modern Humans: An Archaeological Perspective*, pp. 347–388. Edinburgh: Edinburgh University Press.

Sahlins, M. (1968) 'Notes on the original affluent society.' In R.Lee and I. DeVore (eds) *Man the Hunter*, pp. 85–89. Chicago: Aldine.

Shennan, S.J. (1989) 'Cultural transmission and cultural change.' In S.E.van der Leeuw

- and R. Torrence (eds) *What's New? A Closer Look at the Process of Innovation*, pp. 330–346. London: Unwin Hyman.
- Shennan, S.J. (1991) 'Tradition, rationality and cultural transmission.' In R. Preucel (ed.) *Processual and Postprocessual Archaeologies: Multiple Ways of Knowing the Past*, pp. 197–208. Carbondale: Center for Archaeological Investigations Southern Illinois University at Carbondale (Occasional Paper No. 10).
- Shott, M.J. (1992) 'On recent trends in the anthropology of foragers: Kalahari revisionism and its archaeological implications.' *Man* (n.s.) 27:843–871.
- Steward, J.H. (1936) 'Shoshoni polyandry.' *American Anthropologist* 38:561–564.
- Steward, J.H. (1938) 'Basin Plateau Aboriginal sociopolitical groups.' *Bureau of American Ethnology Bulletin* 120.
- Tonkinson, R. (1988) 'Ideology and domination in Aboriginal Australia: a Western Desert test case.' In T. Ingold, D. Riches and J. Woodburn (eds) *Hunters and Gatherers Volume 2: Property, Power and Ideology*, pp. 150–164. Oxford: Berg.
- Whitley, D. (1994) 'By the hunter, for the gatherer: art, social relations and subsistence change in the prehistoric Great Basin.' *World Archaeology* 25: 356–373.
- Wilmsen, E.N. (1989) *Land Filled with Flies: A Political Economy of the Kalahari*. Chicago: University of Chicago Press.
- Woodburn, J. (1980) 'Hunters and gatherers today and reconstruction of the past' In E. Gellner (ed.) *Soviet and Western Anthropology*, pp. 95–117. London: Duckworth.
- Woodburn, J. (1982) 'Egalitarian societies.' *Man* (n.s.) 17:431–451.
- Woodburn, J. (1988) 'African hunter-gatherer social organisation: is it best understood as a product of encapsulation?' In T. Ingold, D. Riches and J. Woodburn (eds) *Hunters and Gatherers Volume 1: History, Evolution and Social Change*, pp. 31–64. Oxford: Berg.