

Bringing Ritual to Mind

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I. Introduction

By attending to Dick Neisser's principal methodological admonition in an unexpected domain, religious ritual, and his experimental findings in a more familiar domain, flashbulb memory, our understanding of both domains may improve. To consider how non-literate societies, in which some religious rituals may be repeated only once in a generation, transmit religious systems may snap into focus how research on flashbulb memory may illuminate these topics. Conversely, to consider the persistence and continuity of some non-literate, "traditional religions" for hundreds--perhaps even thousands--of years (at least until they faced such destabilizing forces as missionaries, colonialism, world wars, and industrialization) should begin to clarify why a broadly ecological study of such religious systems might prove suggestive for research on flashbulb memory and on memory in general.

Putting that last claim more sharply (and more tendentiously), the transmission of secret, infrequently performed, non-repeated religious rituals in non-literate societies¹ seems to pose as formidable a challenge for long term memory as social life is ever likely to present. Understanding that process, therefore, may offer insight into some variables that contribute to effective long-term recall. Alternatively and, even more tendentiously, the religious systems of some of the most isolated, technologically undeveloped cultures in the world have for millennia exploited many important variables shown to enhance recall in controlled, scientific research.

In the second section of this paper I will briefly examine some issues surrounding the transmission of religious systems from one generation to the next. I survey some general considerations concerning the role of memory in the transmission of cultural materials and consider the impact of literacy on this process. Finally, I will sketch a case for the special interest of the

transmission of infrequently performed, secret, non-repeated religious rituals in small, non-literate cultures for ascertaining how memory dynamics are enlisted in the transmission of religious systems.

Section III will review some suggestive findings from the last decade or so from the work of Dick Neisser and others concerning outstanding recall for some extraordinary events that occurred outside psychologists' laboratories and independently of any experimentalists' manipulations.

Be warned. This will be neither a comprehensive survey by an expert in the field nor a detailed examination of a narrow research program by a qualified experimentalist but something more like shamelessly opportunistic looting of some particularly suggestive scientific findings in the service of a speculative theory, which Tom Lawson and I advance in *Rethinking Religion* (1990) and subsequent work.²

The final section aims to substantiate--by means of a short illustration--the comments I made in the second paragraph.

II. Religious Transmission and Memory

Evolutionary thinking about the sociocultural realm has enjoyed a renaissance over the past two decades. Theories of cultural evolution, sociobiology, evolutionary psychology, and cognitive anthropology (in at least some of its incarnations) are (different) manifestations of this trend. Although evolutionary accounts of cultural phenomena at the psychological level suffer from some vaguenesses concerning both the ontological commitments and the mechanisms underlying the

processes in question, unlike sociobiology, they have postponed worries about biological determinism and eschewed dismissive conceptions of mental life.

Considering the psychological foundations of cultural forms within an evolutionary framework reorients research on a topic like religious ritual. Within this framework the central questions include how cognitive factors contribute to rituals' transmission and persistence. On this view tradition and cultural change are best understood as the propagation and mutation of "cultural representations" that provoke in people who possess them "public behaviours that cause others to hold them too" (Sperber, 1996, p. 100). Broadly, the argument is that the nature of the human cognitive system differentially encourages the generation or the learning or the recollection of some cultural representations as opposed to others and, therefore, that these cognitive considerations constitute selection pressures on cultural representations and, indirectly, on the cultural forms for which they are responsible.

On the face of it, religious rituals seem paradigmatic cases of such "public behaviors." Religious rituals are typically both provocative and public in all of the right ways. Explicitly connected with an entire constellation of cultural representations (which collectively make up what Lawson and I (1990) have called a "religious system"), religious rituals as cultural forms are not only self-perpetuating--sacrifices to the ancestors, for example, do not merely model subsequent performances of that ritual--but they also invoke a host of cultural assumptions about, among other things, the ancestors themselves. Performing the sacrifice increases the probabilities of replicating each of the associated cultural representations within the religious system. Distinguishing between actions and beliefs is perfectly reasonable, but in cultural evolution these two types of cultural representations often prove intimately intertwined.

Two characteristics of many religious rituals--the frequency of their performance and their stability--enhance the probabilities of their subsequent transmission (all other things being equal). Customarily, these characteristics jointly insure that religious rituals remain memorable--a necessary condition for their persistence as cultural forms.

Religious systems exploit frequency to solidify memory for many religious rituals. Participants must perform some religious rituals repeatedly--sometimes even daily (e.g., see Whitehouse, 1995)--so that such rituals become as familiar as any other daily routine.

Psychologists construe the cognitive foundations of such actions in terms of scripts. Arguably, a ritual is the prototype of a scripted action. A script is a cognitive representation for "a predetermined, stereotyped sequence of actions that defines a well-known situation" (Schank and Abelson, 1977, p. 41). The script shapes recollections of such actions. Although participants may be unable to distinguish particular past performances, the attributes that those performances share in common constitute the framework of the thoroughly familiar routine that the script represents. The scripts, rather than recollections of individual episodes, are the resulting knowledge structures.

When participants perform rituals routinely, their actions become habitual and automatic. Their memory for carrying out these action sequences is largely procedural. In non-literate cultures in particular, where exegetical traditions may be utterly unknown, participants may have a much richer sense of *how* to proceed than they have for *what* they are doing (Barth, 1975, chapter 25; Rubin, 1995). Even if participants are largely incapable of formulating this knowledge about how to proceed propositionally, they still know how to do what must be done. Their knowledge is *implicit* (Roediger, 1990; Reber, 1993).

The relative stability of many religious rituals results, at least in part, from their frequent performance. Frequently encountered instances of the same form leave less room for variation in memory. Each new performance forestalls distortions. That mechanism does not completely explain ritual stability, though, since, in part, it presumes it. At least two other considerations also contribute to the stability of religious rituals.

One of these considerations is the peculiar character of their publicity. Religious rituals regularly require activity that is both collective and coordinated. Such coordination presupposes participants' abilities to anticipate one another's actions. Since the success of religious rituals often depends upon the cooperation of numerous participants, this imposes important constraints on their performance.

A second consideration concerns the special sort of cultural representations associated with religious rituals. Reducing variation in action is a mark of ritual (Staal, 1979). Typically, religiously required ritual minimizes variation, *because* that is what the relevant culturally postulated superhuman agents ("CPS-agents" hereafter) usually demand. Many *religious* representations and those concerning CPS-agents, in particular, possess practical and epistemic authority that is renowned for being substantial, automatic, and unquestioned. If the gods dictate actions of a specific form, participants usually comply.

To summarize, then, both the frequency and the stability of many religious rituals facilitate their retention, which is a necessary condition for their transmission. To the extent that those rituals serve as cues for and implicate a host of further religious representations, their retention is also a prominent catalyst for the propagation of religious systems generally.

As many scholars have observed (e.g., Goody, 1987), however, literacy renders most of these concerns about memory superfluous, because literacy enables a religious community to standardize many (though not all!) aspects of rituals in books, manuals, and sacred texts. This largely eliminates any need either for elevated levels of recall or for any other extraordinary devices for reaching a consensus about such matters within a religious community. Various new technological and institutional forms reliably accompany the development of literacy. Formal education and schooling are among the most important. Such cultural arrangements can greatly affect the knowledge a culture possesses and the cognitive styles it fosters (Scribner and Cole, 1981).

Literacy may also change our standards for what counts as satisfactory recall. Hunter (1985) argues that extended verbatim recall for a text of fifty words or more occurs *only* in literate cultures.³ This should not be too surprising, since humans are notoriously weak at remembering extended passages word for word without the aid of an independent, authoritative text (or other form of inscription) to guide them.

Rubin (1995) in effect cautions against imposing unrealistic expectations--grounded on transactions in literate cultures--on memory and transmission in oral traditions. He notes that although the singers of epics within existing oral traditions (embedded in larger literate cultures) may claim the ability to sing familiar epics verbatim, even comparisons of multiple performances by the same singer fail to sustain those assertions.

On many fronts these singers' accomplishments *are* impressive, though. Through extensive exposure the singers of epics and ballads have developed a tacit mastery of their respective genres' constraints. Rubin shows how multiple constraints on the forms of such materials render them quite

regular on many fronts and jointly impose substantial restrictions on the range of viable variation, i.e., on the range of versions that the relevant community will recognize as tokens of the same type. Although the various constraints each genre imposes on its materials restrict their modification, by no means do they rule it out altogether.

Our conceptions of the conditions of transmission and of the resulting operative form of recall should not hinge on the model employed in parlor games and even in the laboratory much of the time. This model " . . . has been . . . to pass a piece from one person to the next with no individual seeing more than one version . . . In oral traditions, it would be unusual for this pattern to occur. Many versions of the same piece are heard, often from different people" (Rubin, 1995, p. 133). The interpersonal connections, according to Rubin, are multifarious like those between the nodes in a net rather than like the isolated, sequential links in a chain. Frequently, participants have multiple experiences with (what are regarded as) the same cultural materials. Nor are they typically restricted to a single performance, if they, in turn, transmit this cultural knowledge to others.

Often multiple versions of some cultural product circulate, all of which fall within the scope of admissible variation. Communities collectively uphold these practices, sanctioning opportunities for instruction, consultation, rehearsal, and performance as well as for tacitly negotiating the range of acceptable variants. It is at least as much through the practices of the engaged community as it is through any prodigious mnemonic accomplishments of individual cultural experts that these materials are retained and transmitted.

Rubin's study concentrates on oral traditions (e.g., ballad singing in North Carolina) embedded within literate cultures. Rubin holds, correctly I think, that these oral traditions largely enjoy lives of their own, comparatively insulated from the impact of literacy on both the

practitioners and the larger culture.⁴ This insulation bears on production. For example, Rubin (1995) reports that when asked to compose a new ballad about a train wreck, three of eight North Carolina ballad singers commenced singing their compositions *immediately* after reading the newspaper account of the incident. This insulation also bears on the assessment of performances. Although, when tested from six to twelve months later, these singers showed recognition memory well above chance for their own stanzas, not one could recall even a single stanza from the ballad he had composed. The point is that such limitations in no way impugn these subjects' status as expert ballad singers. Thus, cultural systems undergirding such practices enlist social and cognitive dynamics that operate to some extent independently of the influences of literacy. (See note one above.)

A useful strategy both for glimpsing these forces in isolation and for learning what other cognitive devices assist in the propagation of religious systems is to study the transmission of such materials in the absence of literacy and any other cognitive prostheses involving symbolic codes. This is to study the transmission of religious systems in settings that more closely approximate the emergence of such systems in prehistory.⁵ How do small communities of non-literate hunter-gatherers or practitioners of primitive forms of agriculture without sophisticated technology or permanent settlements remember and transmit religious rituals that are lengthy and elaborate? That question's import is especially striking once we contemplate two further factors.

The first is that in such conditions life is notoriously nasty, brutish, and short. The first two adjectives may no longer be politically correct, but the third is uncontroversial. The evidence about peoples at the dawn of human history as well as about traditional societies now indicates that average life spans are very short. Barth, for example, notes (1975) that the Baktaman of New

Guinea (whose ritual practices will undergo scrutiny in the final section of this paper) are "essentially limited to two living generations" (p. 25). (In 1968 only six of eighty-two persons below puberty had a living grandparent, and thirty-nine had lost one or both parents.) Such societies do not have the benefit of a large cohort of elderly cultural experts. Barth (1975) reports that neighbors of the Baktaman, the Augobmin, lost all of the members of their most senior generation in a very short time and, consequently, lost the final three stages of male initiation in their religious system.

Frequency effects cannot explain participants' memories of all religious rituals, because some occur quite rarely either in the life of the community or, at least, in the lives of individual participants. The classic rites of passage are the most obvious examples of these sorts of rituals (though they are not the only ones). Most religious systems--at least ideally--initiate, marry, and bury individual participants only once, hence these rites of passage are examples of what Lawson and I (1990) have called "non-repeated" rituals. (These rituals contrast with repeated rituals such as sacrifices.) Still, in many religious systems, including most in the United States, participants can observe such non-repeated rituals even when they are not directly involved in them themselves. So, frequency influences memory for these rituals too, when they are publicly accessible. In some religious systems, though, three further circumstances--either separately or in combination--pose additional barriers to proposals that look to frequency primarily for explaining participants' memories for these rituals.

First, in many religious systems these rituals are *not publicly accessible*. In these systems most participants only experience these rituals once, viz., on the one occasion when they go through them themselves. Second, often not only is each participant's experience private, but demands for

secrecy discourage after-the-fact disclosures. Many religious systems surround all or parts of these non-repeated rituals in *secrecy*, their frequent performance notwithstanding. Third, in some religious systems all of the members of an age cohort undergo a rite of passage at the same time. Depending upon the range of ages included, this can make for extremely infrequent performance of these rituals. Barth (1975) estimates that approximately ten years on average separates successive performances of any of the various degrees of male initiation among the Baktaman. For different reasons even some repeated rituals are performed quite infrequently. In areas in southwestern India, several years often separate performances of the Vedic Agnicayana ritual. (Somayajipad et al., 1983)

The comparative frequency with which repeated as opposed to non-repeated rituals are performed raises interesting theoretical issues. The general theory Lawson and I (1990) have defended, which concentrates on participants' cognitive representations of their religious rituals, explains a variety of those rituals' features. Although students of religion have long recognized many of these features, the theory accounts for them in a *unified* and *principled* fashion. The theory yields an ordered set of ritual types, categorizing rituals by how and where representations of CPS-agents figure in their formal descriptions. The typology sorts out all of those long-recognized features of religious rituals, including whether rituals are repeated or not. All of the rituals that fall into the odd-numbered types--those types where CPS-agents first appear within structural descriptions of rituals functioning *as agents*--are non-repeated rituals. The significant theoretical point (developed at length in McCauley and Lawson, 1998b) is that, contrary to appearances, *ritual form* and not *frequency of performance* is the decisive variable determining which memory dynamics predominate with any particular ritual (contrary, for example, to the position Whitehouse

(1992) endorses). Here, though, I must set these theoretical matters aside. The aim in this paper is simply to explore some mnemonic devices--*other* than the ones based on frequency or literacy (especially)--employed in the transmission of religious ritual.

III. Flashbulb Memory and Enhanced Recall for Actions

In the previous section I provided reasons why focussing on frequency effects at the level of individual psychology or on the effects of literacy at the level of culture may not suffice to explain the transmission of all religious rituals and, thus, the transmission of religious systems generally. If psychological research on memory is to aid in accounting for the transmission of those non-repeated religious rituals performed either highly infrequently or secretly or both--in the preliterate past or in contemporary non-literate cultures, then we must explore different quarters of that literature. The critical criteria for relevant studies will be (1) minimal reliance on frequency effects, (2) no reliance on literacy, and (3) evidence of comparatively impressive long-term recall for actions, especially, but for persons and places as well. (On most theories of *ritual*, and especially on mine and Lawson's, actions, settings, and persons are pivotal analytical concepts.)

What follows is a highly selective discussion of some promising findings in the recent experimental literature on memory for actions. The discussion explores some recent investigations of flashbulb memory, ending with a summary and short discussion of the extraordinary findings reported in Neisser, Winograd, Bergman, Schreiber, Palmer, and Weldon (1996). What is of interest about these studies are the variables that seem to make for virtually ceiling level effects--concerning accuracy and confidence in particular--for subjects' recall for actions, settings, and persons.

Typically, flashbulb memories concern our recall for features of the circumstances in which we learned of some startling event rather than our recall of the startling event itself, which we may *not* have experienced *even indirectly* (by way of some electronic medium). (Colegrove, 1899/1982)

These experiences are what Larsen (1988) has called "reception events." Brown and Kulik, who first proposed the flashbulb metaphor, characterize these memories as ones in which "almost everyone testifies that his recall of his circumstances is not an inference from a regular routine. It has a primary, 'live' quality that is almost perceptual. Indeed, it is very like a photograph that indiscriminately preserves the scene in which each of us found himself . . ." (1977, p. 74) Since flashbulb memories usually concern recollections connected with events that are isolated, unexpected, and arousing, they seem to arise independently of "such well-established determinants of memory as primacy or recency or repetition" (Brown and Kulik, 1982, p. 25). Brown and Kulik speculate that a special neural mechanism may automatically register all available information connected with the context when learning suddenly of a significant novelty that is emotionally arousing.

Brown and Kulik note that their metaphor variously suggests brevity, surprise, and indiscriminate illumination (of the circumstances at learning). The first two suggestions seem to make sense. All things being equal, brief episodes seem easier to remember than longer ones. Prolonged episodes not only introduce more material; they almost inevitably introduce more complex material as well. Similarly, surprise seems no surprise. In his study of Swedes' memories for how they heard about the assassination of Olof Palme, Christianson (1989) found that his subjects' initial assessments of how surprising they found the news proved a significant variable in predicting their overall recall a year later. On the other hand, though, surprise does not appear to be

a necessary condition for flashbulb memories. Winograd and Killinger (1983) found that many subjects had flashbulb memories for reception events concerning such events as the resignation of Richard Nixon or the death of a close relative after a prolonged illness, which were not very surprising--at least by the time they occurred.

As to the third of these suggestions, even Brown and Kulik (1982) emphasize that the illumination is not *altogether* indiscriminate. Some details surrounding such reception events seem to stand out while others seem less memorable. The former includes such details as our actions (and what was going on generally) just before learning the news, the place where we learned it, and at least some of the persons present. (These seem important items when thinking about memory for rituals.) The less memorable details include that indefinitely large class of apparently peripheral matters such as which shoes we were wearing or what was hanging on the walls or the color of the car in front of us.

In Christianson's study (1989) of memories for learning of the Palme assassination, subjects recalled central details reasonably well after one year. Their recall proved much less good, though, for a wide range of peripheral information. Christianson holds that what his subjects have remembered are the standard components or gist of a narrative account of the reception event. Following Neisser's (1982) earlier proposal that narrative structure "does more than explain the canonical form of flashbulb memories; it accounts for their very existence" (p. 47), Christianson also suggests that the rehearsal and conventions associated with the formulation of stable narratives rather than any special neural mechanisms are primarily responsible for the form of flashbulb memories, for the consistency of subjects' reports over time, and, therefore, for a good deal of their (apparent) accuracy as well.

Christianson's study does not provide overwhelmingly compelling evidence about accuracy, though, because he did not collect his initial data until six weeks after Palme was killed. It seems reasonable to suppose that those six weeks provided ample time for subjects to have told their stories repeatedly and, in the process, to have consolidated their narratives according to the conventions to which Christianson (1989), Neisser (1982), and others have pointed. (Rubin, 1992 suggests that what I am calling "narrative consolidation" may occur in as little time as a week.) The accuracy of Christianson's subjects about the gists of their narratives one year later may have resulted from nothing more than their simply telling an already familiar story with an utterly conventional form another time rather than accurately recalling their reception event for the Palme assassination. The fact that most of Christianson's subjects told the same general stories approximately fifty-eight weeks after this event as they told six weeks after it is interesting, but it does not show that those initial six week old stories were, in fact, accurate accounts of how they learned that Olof Palme had been assassinated.

Comparatively speaking, though, Christianson's study is exemplary on this front. The salient problem with most treatments of flashbulb memory (including Brown and Kulik's (1982) study) until the last few years has been the failure of researchers to determine the accuracy of their subjects' responses. In light of both their detail and the profound vividness and confidence regularly associated with flashbulb memories, this concern might seem needlessly scrupulous. But various studies of eyewitness memory have indicated that neither subjects' confidence about nor the precision of their recollections reliably predicts their accuracy. (Wells and Murray, 1984) The critical questions are, first, whether flashbulb memories are accurate and, second, whether similar dissociations between confidence and accuracy can arise even for flashbulb memories.

More than fifteen years ago Neisser (1982) supplied two anecdotes that suggested that flashbulb memories are not always accurate (though it has turned out that one of those examples, viz., Neisser's own memory of how he learned about the attack on Pearl Harbor, may not have been as inaccurate as he then thought--see Neisser, 1986). It was the explosion of the space shuttle Challenger that gave Neisser an opportunity to ascertain experimentally whether those two anecdotes were rare exceptions or genuine indicators that our confidence in such memories may often be unfounded.

Within twenty-four hours of the Challenger accident Neisser and Harsch (1992) obtained reports from subjects about the circumstances under which they learned of the explosion. They then tested subjects' recall two and half years later and then again about six months after that. (On neither occasion did subjects know in advance that they would be asked to recall this material.) Their findings were intriguing. Most important, many of Neisser and Harsch's confident subjects, who otherwise gave every evidence of possessing an accurate flashbulb memory in this situation, were *completely* wrong in their recollections about all of the tested items from their initial report. This group included three of their thirteen maximally confident subjects, who--with respect to the relative accuracy of their responses--said that they were "absolutely certain."

The visual vividness of subjects' recollections predicted their accuracy no more reliably than their levels of confidence did. Although some subjects reported highly vivid mental imagery associated with their memories, they too were, sometimes, completely wrong. Neisser and Harsch were so startled by these findings that they decided to interview their subjects, approximately six months later (roughly three years after the explosion of the Challenger). They wanted to see if,

among other things, their first test or the intervening six months affected subjects' recollections and to discover what cues, if any, might suffice to aid subjects' recall.

Those second interviews supplied the second of two findings, which, according to Neisser and Harsch, impugn "the simplest form of the emotional strengthening hypothesis . . ." (1992, p. 30). The first finding (from their tests at two and a half years) was the absence of any significant connections between emotion and recall. Although the initial questionnaire did not ask for precise measures of subjects' emotional states, it had elicited detailed statements about subjects' emotions. No coding scheme that Neisser and Harsch devised for subjects' responses yielded any grounds for regarding emotion as a predictor of subjects' accuracy. It is worth noting that Neisser and Harsch explicitly excluded (1992) expressions of surprise from these measures of emotion. Although what is surprising often produces strong emotions, it does not always do so. Second and even more telling, in the interviews the original memories (as recorded in their questionnaires) of the subjects who were mistaken "seemed to have disappeared entirely" (1992, p. 30). Neisser and Harsch could find no cues that could elicit the correct memories in their subjects. They even let subjects peruse their original questionnaires! Apparently, a couple of these subjects were *so* confident about the accuracy of their current recollections that, in order to discredit their responses to the initial questionnaire, they argued that people sometimes misreport events at first!

Besides raising problems for theories of flashbulb memory that look to emotional arousal as a decisive variable, Neisser and Harsch's findings also offer some support for Neisser's earlier conjectures about the central role of narrative. Although many of their subjects seemed utterly incapable of accurately recalling their original accounts of the events in question, the stories subjects

told at two and a half years did prove strikingly consistent with the stories they gave in their interviews six months later.

Neisser and Harsch's study provides abundant evidence for the fallibility of flashbulb memories.⁶ Many of their subjects totally missed the mark yet claimed to be highly confident about the accuracy of vivid memories concerning their reception of what they took to be emotionally stimulating news. Understandably impressed by these findings, Neisser and Harsch conclude that "[f]lashbulb memories . . . may be appreciably less reliable than other cases of vivid and confident recall" (1992, p. 30).

This conclusion is undoubtedly true about *some* of their subjects' flashbulb memories but not about all of them. Some of Neisser and Harsch's subjects, who were also "absolutely certain" about the accuracy of their recollections, had every right to be so confident, since they accurately recalled all of the items on which they were tested. Their flashbulb memories were completely accurate.

The explosion of the Challenger might simply not have been the sort of event that all of Neisser and Harsch's subjects found either sufficiently significant or sufficiently surprising. The question remained whether some events can produce accurate flashbulb memories across an entire population in the way that John Kennedy's assassination is popularly thought to have done. Neisser and his colleagues found evidence that the 1989 Loma Prieta earthquake did for those who experienced it.

Neisser and colleagues (1996) in both Georgia and California studied subjects' memories concerning the Loma Prieta earthquake in 1989. This was a standard study of memory for *reception events* for the subjects in Georgia, however, for the Californians, the study, in part, concerned memory for an event that subjects had *experienced* first-hand as well. Subjects in this experiment

filled out questionnaires from as little as twenty-four hours to as much as three weeks after the quake (see note seven below).

The experimenters tested subjects approximately eighteen months later, focussing in particular on three items for which they had data that apply to both direct experiences and reception events, viz., place, others present, and activity just before the target event. The experimenters compared Californians' memories of their experiences during the earthquake both with their memories for how they learned about the collapse of the Oakland Bay Bridge and with Georgians' memories of how they learned about the earthquake. The Georgians' memories proved least accurate. The Californians' memories for their experiences were most accurate, and the Californians' memories for how they heard about the Bay Bridge were in between. All of the differences were significant.

Those comparisons are interesting, but probably the most important finding in this study concerns the *character* of the Californians' memories for their *first-hand experiences* of the earthquake. The accuracy of their responses for the three target items as well as their confidence in that accuracy were at the highest possible levels. *None* of the Californians made the substantial errors that some subjects made about their reception events in the Challenger study or that some of the Georgians made in this study. Moreover, *all* of the Californians were quite confident that they had not made such errors. The study seems to demonstrate that some events can produce both startlingly accurate memories for actions, settings, and persons and thoroughly confident assessments of their accuracy by those doing the remembering.

Neisser et al. (1996) emphasize one obvious difference between the Californians' ceiling-level-accurate memories in this study and those of subjects in nearly all other experiments on flashbulb memory. The Californians were recalling not a reception event but an event that they themselves had *experienced*. Not only were these memories more accurate than the Georgians' memories of their reception events, but they were even more accurate than the Californians' (overwhelmingly accurate) memories of their own reception events concerning the news of the Bay Bridge. "Being personally involved in an event is evidently more memorable than just hearing the news of one" (Neisser et al., 1996, p. 346). Directly experiencing an isolated and unexpected event of significance seems to confer substantial mnemonic advantages over just receiving news of one. All else being equal, "*participants*" in such events are significantly more likely to remember accurately and to be confident about that accuracy than mere "observers" are. Still, as Neisser et al. (1996) note, "most life events and experiences involve 'participation' . . . [w]hat was so special about participating in an earthquake?" (p. 338).

Their comparative destructiveness, *which most people only learn about after the fact*, is usually what makes earthquakes momentous. Presumably, it is participation in momentous events, not earthquakes per se, that is special. Neisser et al. (1996) opt for the processes underlying narrative consolidation as the critical variables influencing subjects' enhanced memory here, though they remain uncommitted about which feature of this process is most important. They point out that it could be the simple process of shaping our own *distinctive* story about how we were involved. On the other hand, it could be the result of *rehearsal*, since these are precisely the sorts of stories we tend to tell repeatedly. (Even Brown and Kulik (1982) found a high positive correlation between

subjects' ratings of an event's "consequentiality" and their reports of rehearsals--see Brewer, 1992.) Or it could be both.

The one thing that Neisser and his colleagues stress is that emotional arousal does not seem to play any special role. They provide at least two reasons. First, most of their California subjects did not report great arousal at the moment they felt the quake. Earthquakes are common in California, and most of the subjects did not perceive any imminent danger to themselves. Second, the California subjects' various reports of their emotional arousal (during and immediately after the quake and upon learning about the Bay Bridge) did *not* correlate with the accuracy of their memories. That the processes undergirding the consolidation of narratives rather than emotional arousal are the principal variables funding the California subjects' extraordinary performance makes sense.⁷ As Neisser et al. (1996) emphasize, most of their subjects did not find the experience of the earthquake itself greatly arousing. Experiencing a non-arousing event would not seem to contribute to extraordinary recall. Moreover, the news of the earthquake's more serious effects accumulated bit-by-bit over a few hours (at least). Again, *by the subjects' own reports*, no single consequence (not even learning the news about the Bay Bridge) produced startling arousal levels. (The means of the two California groups' ratings of their level of affect upon learning of the Bay Bridge collapse was 5.28 and 5.29 on a 7-point scale.) Presumably, it would be learning of the event's *momentous* consequences (concerning the Nimitz freeway, the Bay Bridge, the damage throughout the region, etc.) that would provide the incentive for subjects to remember where they were at the time and to share that information with others. Gradually coming to realize--probably over many hours for most subjects--that they were participating in a (literally) earth-shattering event surely does produce a

benchmark in subjects' life stories--as Neisser (1982) maintained--even if it does not produce any specific moments of exceptional emotional arousal.

A hypothesis that looks to the processes behind narrative consolidation does make better sense of the earthquake findings than does any hypothesis that features emotional arousal. In light of other studies, though, it is not clear that a narrative consolidation hypothesis alone will suffice to explain all examples of accurate flashbulb memories. After all, in Christianson (1989) recall one year later for what were, presumably, well-consolidated, six week old narratives did *not* yield the sorts of ceiling-level effects for accuracy that the Loma Prieta earthquake produced (whether the original six week old narratives were accurate or not). (See Neisser et al., 1996.) Still, if the critical variable underlying narrative consolidation is rehearsal, perhaps destructive earthquakes in California simply provoke significantly more retellings (or rethinkings), at least among the public, than assassinations in Sweden (or even explosions of manned spacecraft) do. This, of course, is a matter about which these various studies provide little useful evidence. (See Neisser et al., 1996.)

Neisser and his colleagues (1996) are clear that their findings do not defeat an emotional arousal theory of flashbulb memory. On the assumption that they have interpreted those findings correctly, though, they certainly raise problems for theorists who hold that extraordinary emotional arousal is either a necessary condition or, *a fortiori*, a necessary and sufficient condition either for accurate flashbulb memories or for flashbulb experiences generally. The possibility remains, of course, that substantial levels of emotional arousal may still be a sufficient condition (or at least one of some number of jointly sufficient conditions) for flashbulb experiences--at least when those experiences are connected with personally or socially significant events.

In the next section, I will briefly sketch how various prominent variables considered in these psychological studies play out in the transmission of one non-literate culture's secret, infrequently performed, non-repeated religious rituals. While discussing the Baktaman system of male initiation, I will make a case for the following three claims:

- (1) that all of the psychological variables pertaining to flashbulb memory that researchers have noted are manipulated regularly (save, perhaps, one) in the Baktaman system,
- (2) that emotional arousal has an important role to play in memory for these rituals, whether it contributes to the recollection of the rituals' details or not, and
- (3) that the rehearsal associated with narrative consolidation does not appear sufficient to explain memory for these rituals.

IV. Memory for Ritual among the Baktaman

The seven stages of male initiation among the Baktaman of New Guinea are useful for examining how memory mechanisms are enlisted in the transmission of religious rituals. The Baktaman numbered 183 (with six deaths and three births) at the time of Fredrik Barth's fieldwork in 1968. All of the evidence indicates that prior to 1968 the Baktaman had only two fleeting contacts (in 1927 and 1964) with anyone outside related groups occupying the lands within thirty miles or so of their own territory. Barth describes the Baktaman as "persons entirely unacquainted with Man in any other form than themselves" (1975, p. 6).

Prior to colonial pacification in 1964, the Baktaman's relations with their neighbors were rocky. Although these groups are close enough to intermarry, to recognize clan relations across groups, and to invite one another to observe religious rituals, suspicions of sorcery and comparable

offenses were sufficient to instigate frequent wars. Barth's research indicates that one third of Baktaman deaths over the previous couple of decades had resulted from war.

The system of male initiation among the Baktaman fulfills all of the conditions outlined in section II above. In addition, this system introduces a few additional barriers to ready transmission that I have not discussed. The Baktaman are a *small, non-literate, isolated* group of hunters and subsistence farmers in central New Guinea. They move within their region every few years as nearby land for gardens is exhausted. Males go through seven degrees of (*non-repeated*) initiation in their lives. (A cohort of men--most of whom were in their thirties--had yet to undergo the seventh degree initiation in 1968.) Because entire age cohorts undergo these rituals together, they occur quite *infrequently*--roughly once every ten years (although occasional opportunities arise to observe comparable initiations among neighboring groups). The rituals are *long*, ranging from a few days to a few weeks. Posing another barrier to easy recollection, earlier initiation rituals are also *deceptive*. Later rituals often reveal how earlier rituals were misleading on one point or another. On at least one count, the deception is double layered (across three initiations).

All of the rituals include parts kept *secret* from non-initiates, i.e., from females and junior males.⁸ Baktaman expectations about secrecy are extraordinary. Senior males threaten initiates with death, if they violate ritual secrecy. Not only are initiates prohibited from discussing these secrets with non-initiates; most of the time they are also prohibited from discussing them among themselves. Incredibly, they even seem to exhibit "a wariness and vagueness in *thinking* about them" (Barth, 1975, p. 221). As far as Barth could tell, initiates respected the prohibitions on overt behaviors, at least. (One cult leader was so concerned with secrecy that he hid his clan's sacred relics in the forest, and when he died unexpectedly, these articles were lost.)

Barth maintains that Baktaman secrecy is inimical to ready transmission of the religious system's symbols in another way. The impact of these demands for secrecy is so substantial that it undermines any hope of forging widespread logical coherence among Baktaman beliefs. Barth argues at length that *analogic coding* grounds whatever order inheres in the cultural knowledge of the Baktaman (1975, pp. 207-231).

Mostly, he characterizes analogic coding negatively. It is not like a digital code. Although the Baktaman analogic code exhibits some compositional relations, its productivity is not based on any systematicity⁹ in the code nor on any logical closure nor on some limited set of alternatives (Barth, 1975, p. 208). Instead, each symbol turns on "a very simple non-verbal metaphor sketchily exploited" yielding "complex harmonies." (This and all further citations in this paragraph are from 1975, p. 229.) Apparently, the underlying "metaphors" are non-verbal, because the symbols are (non-linguistic) concrete objects and because the Baktaman either are generally unwilling to articulate these symbolic relations or are incapable of doing so or both.¹⁰ Barth insists that "an analogic code must . . . be understood in the context of its praxis," noting that secrecy and the complete absence of both exegesis and texts are the pivotal aspects of Baktaman praxis that give this code its form and that shape the processes of transmission. He underscores that the Baktaman not only have no writing; they are not even aware of its possibility. The tools the Baktaman have invented for retaining knowledge are meager.

The total corpus of Baktaman knowledge is stored in 183 Baktaman minds, aided only by a modest assemblage of cryptic concrete symbols (the meanings of which depend on the associations built up around them in the consciousness of a few seniors) and by limited, suspicious communication with the members of a few

surrounding communities. . . . such a corpus will only persist to the extent that its parts are frequently re-created as messages and thereby transmitted (1975, p. 255).

The inevitable vagueness surrounding the use of symbols in such an analogic code requires that an analysis of transmission highlight neither the sayable nor the said but only what is received, reactivated, and frequently re-created (1975, p. 255), i.e., those themes that catch on and are reused (1975, p. 229).

Barth explicates these themes in terms of general resonances among the concrete symbols that figure in Baktaman myth and ritual from one symbolic context to the next. He identifies broad themes (relations with the ancestors, fertility, security and welfare, etc.) with which various concrete symbols are associated in particular Baktaman rites. Barth headlines these thematic connections underlying the analogic code as the knowledge Baktaman initiations present. It is the repetition of the knowledge they [i.e., the initiations] contain in numerous other temple performances that is pivotal for their perpetuation (1975, p. 258, also see p. 101). To explain the retention and transmission of Baktaman ritual knowledge, then, Barth looks primarily to the *frequency* with which initiates engage, *in the repeated rituals* of the Baktaman, the *themes* underlying the analogic code at the heart of the (*non-repeated*) initiations. Barth seems to hold that the clusterings around these prominent themes--by way of associations among concrete objects in various symbolic contexts--impose enough constraints to explain as much transmission of Baktaman ritual knowledge as occurs. Thus, he lists the characteristic features of Baktaman ritual knowledge as "constantly communicated about [in the repeated rituals of the Baktaman] yet poorly shared and precariously transmitted . . ." (1975, p. 222).

Note that Barth does *not* look to the frequency with which initiates confront the *concrete symbols themselves*, since their connections to these themes are relatively loose (hence, the coding is - analogical) and many of those symbols are multi-valent from one context to the next. Thus, although Whitehouse's (1992) gloss on Barth's notion of analogic coding in terms of the *mental imagery* associated with the concrete symbols makes perfect sense cognitively, it is not obvious that this is what Barth intends.

Whitehouse stresses that the Baktaman manipulate concrete, non-linguistic symbols in their rites rather than memorize linguistic formulae. (The very *rare* formulaic utterances that occur in Baktaman initiations are extremely simple statements that never involve more than a few words and are usually sung.) Baktaman rituals, however, do stimulate all of an initiate's senses (more on this below). Barth remarks often on the wide range of sensory cues associated with Baktaman rituals and symbols, which provide the materials for subsequent mental imagery. Experimental research has revealed the ability of mental images to organize memories, to distinguish specific episodes, and to serve as cues--especially for spatially and dynamically related materials (Paivio, 1986 and Rubin, 1995).

In the absence of a fuller cognitive (or, for that matter, cultural) story about how familiarity with the broad themes underlying analogical coding in Baktaman initiations will suffice to explain the retention and transmission of such an extensive, secret, and elaborate set of rituals, it does not seem inappropriate to suggest that other cognitive dynamics may be involved. Frequently confronting these analogically represented themes need not signal the marginality of other variables influencing memory. Considering the character of these rituals, I think it reasonable to propose that

the psychological research on flashbulb memory points to additional variables that may influence the retrieval, reconstruction, and transmission of Baktaman rituals. The question is how these other factors affecting memory help in the retention of "what is received" so that it can be "constantly re-created." Presumably, such variables would be responsible, in part, for a symbolic idiom's "catchiness."¹¹

All religious systems enlist various cultural mechanisms--the most popular of which is literacy--to aid in their transmission. We have good reason to expect that--in cultural settings like that of the Baktaman, where many of these cultural mechanisms, and literacy in particular, have yet to be invented--persisting religious systems will evolve so as to (a) exploit *naturally* available mnemonic aids disproportionately (compared, for example, to religions in literate cultures) and (b) develop alternative *cultural* mechanisms that capitalize on just the variables experimental research is finding are relevant to enhanced memory. What follows is a quick inventory of how the system of Baktaman initiations fulfills those expectations.

Although these rituals are of interest precisely because the Baktaman are non-literate and they perform their rituals so infrequently, considerations of *frequency* still arise on two additional fronts. First, as noted, the Baktaman occasionally have the opportunity to *observe the rituals* of neighboring groups, which are similar to Baktaman rites. However, since the number of neighboring groups is small, since unhappy relations sometimes preclude invitations, since the invitations involve only parts of the performances, since these other groups perform these rites no more frequently than the Baktaman do, and since other groups' rites differ from those of the Baktaman on various fronts, these opportunities are less important aids to memory than they might initially appear. In addition, Barth reports that at least once within memory the resulting visit from

such an invitation provided the hosts with an opportunity to ambush and slaughter their guests! With such possibilities in mind, observers might be somewhat distracted.

What might be called the "*partial compositionality*" of Baktaman initiations constitutes a second sort of frequency effect. Familiar repeated rituals, such as sacrifices, occur as parts of these non-repeated initiations (not unlike the role of the repeated communion ritual in the non-repeated First Communion or confirmation rituals in Christianity). In both the fourth and fifth degree initiations, frequently performed, repeated rituals that are well known to the seniors serve as central components. They surely anchor memories for each initiation as a whole.

The structures of the other five initiations, though, depend less on such familiar rites. Moreover, even when familiar repeated rituals surface in these other initiations, they often amount to but a few among scores of separate actions that collectively constitute the initiation. So, since it seems unlikely that either opportunities to observe others' rituals or the partial compositionality of Baktaman initiations will prove to be toweringly effective aids to memory, it should come as no surprise that other variables also play a role.

Neisser and his colleagues (1996) suspected that *experiencing* the Loma Prieta earthquake *first-hand* and, thereby, having a sense of having *participated in an important event for the entire community* were critical variables in their subjects' astonishing performance. Their California subjects were not remembering when they heard the news; they were remembering when they *experienced* the news (even when they didn't!--see Neisser et al., 1996). Baktaman initiations almost certainly instill within initiates as much a sense of having participated in a significant event in the history of their community as experiencing an earthquake that eventually proves to be moderately destructive does in our own.

Defending the first side of this claim is less complicated than defending the second. Individual involvement is inherent in initiations. Typically, initiates do not sit idly by observing what goes on. At least in Baktaman initiations the initiates are constantly forced to do one thing or another, and they have plenty of things done to them. Here too initiates do not remember when they *heard* about an important event. Instead, they remember *participating* in it.

Two further Baktaman practices promote among initiates a sense of participation in these events. By *initiating entire age cohorts at once*, the Baktaman insure that although participation is individual, it is not isolated. Throughout their lives, initiates interact daily with age-mates with whom they have participated in their most culturally significant moments and who share their most culturally significant secrets. Baktaman practice also requires that the *most recently initiated cohort help the cult leader conduct the next performance* of the initiation (for the next age-cohort). This clarifies an expectation that initiates strive to remember what they have learned and what they have undergone. It also insures that the knowledge remains distributed throughout the various cohorts of initiates. Like the practice of using altar boys, the Baktaman opt for the most recently acquainted individuals (though, recall that the gap between two performances averages ten years) instead of the most experienced to serve as ritual assistants.

Turning to the second side of my claim, the Baktaman ritual system employs many means for impressing initiates with the social and cultural significance of these initiations. Besides both *secrecy and its enforcement*, the *duration* and *scope* of the initiations also mark their importance. For example, according to three independent informants, seventh degree initiation takes a couple of weeks, including a period of eight days when the entire population abandons the village. Barth (1975) notes that such measures suggest to the initiates that their whole community's fate is directly

connected with their own ritual accomplishments. Undoubtedly, the most important means for impressing participants with the importance of their initiations, though, is through *emotional arousal*.

Whether emotional arousal contributes to enhanced recall for the details of an event is not my concern here.¹² The critical point is that it can serve to *flag an event as one worth remembering*. Doing so need not initiate some special "now print" mechanism or contribute in *any* further way to the recollection of particulars. I am not endorsing Brown and Kulik's (1982) proposal but sketching an alternative, viz., that sudden, substantial emotional arousal is a kind of general alarm for the cognitive system. It is an especially efficient means for signaling events and materials meriting our attention. Emotional arousal may have nothing to do with filling in the details in memory but only with occasioning a heightened sense of an event's significance. The assumption is that that will increase the attention and cognitive resources we devote to it, which, in turn, will increase the probability of its subsequent recollection.

Neither possessing nor rehearsing flashbulb memories for reception events makes any sense, if subjects have not also remembered that those events are connected with some initially provocative event deemed personally or socially significant!¹³ The detail, vividness, confidence, and, perhaps, even accuracy associated with flashbulb memories may completely depend on perfectly ordinary processes. Emotional arousal may do nothing more than alert us that the events in question are ones worth remembering (even if they are not!).

Humans often react emotionally when they perceive present events to be important for their lives. Taking advantage of that association, Baktaman initiations manipulate initiates so that they feel considerable emotion during these rituals. This stimulation of initiates' emotions shapes their

perceptions of the relative importance of these rites, marking them as culturally significant events that merit their complete attention currently and their faithful recollection in the future. Barth (1975) states, for example, that "major discomforts characteristically follow immediately after the revelation of major secrets, and are consistent with their forbidden and esoteric character" (p. 54).

The Baktaman use two standard techniques for stimulating initiates' emotions. The first is *surprise*. Baktaman initiations begin unexpectedly. Many commence with senior men awakening initiates in the middle of the night and driving them into the forest. Once the initiations begin, seniors subject the initiates to a wide array of *sensory stimulation*. This is the second technique for arousing initiates' emotions, viz., to subject them to all sorts of positive and negative sensory excitement. Some initiations end with communal meals and celebrations, but usually before initiates reach those stages of these rituals, they will have often undergone extreme deprivation and excruciating torture.¹⁴ Substantial hardships and torture (and associated deceptions and surprises) invariably accompany the communication of each piece of previously forbidden knowledge.

The measures for stimulating initiates' emotions that the Baktaman have built into their rituals may enhance memory in another way. Rubin (1995) emphasizes that a genre's formal constraints can substantially reduce the range of possibilities at any particular point in a text. Analogously, the temporal coincidence of distinctive stimuli in multiple sensory modalities may also restrict the set of possible events that could have occurred. Simultaneously experiencing a specific constellation of stimuli across our various sensory modalities may serve to triangulate (*at least*) on some very small set of possible events and corresponding actions (to be remembered). In short, the sensory experiences in question may jointly define a *distinctive* action profile.¹⁵

Whether the extreme emotions such treatment is likely to induce enhance participants' memories for these rituals directly is unclear. Far tamer laboratory studies suggest that subjects' recollections for both central and peripheral information about emotionally arousing stimuli can exceed that for neutral stimuli (Heuer and Reisberg, 1990). At least one study of flashbulb memory (Bohannon and Symons, 1992) found that subjects' reports of their initial emotional arousal upon hearing about the Challenger predicted both the amount of information they generated and the consistency of their stories over time. As noted above, the earthquake findings notwithstanding, extreme emotion may be a one of some number of conditions that are jointly sufficient to produce such effects. (See Brewer, 1992.)

I won't be resolving that one here, but I do want to emphasize that it is not clear that *the processes of narrative consolidation and rehearsal* in particular can do enough of the work with memory for Baktaman initiations (no matter whether those memories are accurate or not). The reason is that many features of Baktaman culture, including taboos, hyper-secretiveness, a fear of sorcery, and "a more diffuse wariness and reluctance to speak about . . . occult forces" (Barth, 1975, pp. 258-259), militate against initiates rehearsing narratives about their initiation experiences (even in their own minds!). Initiates make up a "*mute* fellowship of privileged participation" (Barth, 1975, p. 221, emphasis added). Barth asserts that ". . . in their initiations and temple organizations the Baktaman have constructed a communicative apparatus which they themselves approach with such reluctance and trepidation as to endanger the very knowledge it contains" (1975, p. 260).

Presumably, during the short time between the seniors' decision to perform an initiation and the performance itself, some conversation about ritual details occurs. Although such review may

not invite full blown rehearsals of initiates' narratives, it encourages them to run through these events again in their minds.

Barth does report on one sort of circumstance where less inhibited discussion of the initiation rituals among the seniors is, apparently, acceptable, viz., when the decision to perform an initiation occurs during a power struggle over cult leadership. Such struggles can result from dissatisfaction with either the conscientiousness or the effectiveness of the current leadership or from sheer individual assertiveness by the pretender(s). Upon completion of the seventh degree initiation, men are eligible to take over cult leadership. Not only is succession to these posts open, but rivals can unseat current cult leaders. In the face of rivals' criticisms cult leaders may decide to consult with other seniors about their memories for ritual details and in the process try to garner their support as well.

Either the triumph of dissidents or a cult leader's flexibility in response to such dissent can result in innovations. For example, in the single instance of such conflict that Barth observed, the cult leader compromised. He agreed to changes in the performance of the sixth degree initiation that the dissidents had advocated on the basis of their knowledge of how neighboring groups to the west performed a similar ritual.

Two points deserve attention. First, this episode notwithstanding, Barth *repeatedly underscores* how formidable the cultural barriers are to discussions of myth, ritual, and cosmology. Most of the time Baktaman hyper-secrecy and associated taboos seem to preclude the rehearsal that makes for the consolidation of stable narratives. Note, I am *not* claiming that these cultural mechanisms preclude the formation of narratives, but only that whatever stability initiates' narratives possess does not look as though it results from their rehearsal. These are precisely the

considerations that lead Barth to place so much emphasis on analogic coding in his account of the transmission of Baktaman ritual knowledge. Whether frequent exposure to abstract themes underlying the analogic coding will suffice to explain the retention and transmission of Baktaman initiation rituals, I cannot say. However, that religious systems in such settings will evolve to take advantage of other aids to memory seems a reasonable proposal and that the Baktaman system of male initiation manipulates most of the variables on which researchers on flashbulb memory have focussed seems clear.

Second, *all* of those participating in the particular episode that Barth observed regarded these changes as *innovations*, i.e., everyone agreed that these adjustments were new and that they did not accord with what they *remembered* about previous performances. The resulting compromise, of course, shows that perfect fidelity to past practice is not an unwavering ideal for the Baktaman, but, more important, it also suggests that a collective view about accuracy in memory sustains such conversations.

Collectively, participants must retain enough knowledge of these rituals to preserve a sense of both continuity and community. The functionally relevant measure of continuity is participants' sense that what they are doing presently is the same type of ritual action that they or their forbears did before and (though not necessarily with the Baktaman) that their compatriots might be doing contemporaneously somewhere else. From such temporal factors as timing and sequence to such structural factors as the identities and properties of agents, various features of actions condition participants' judgments about the similarities and differences of religious ritual performances. (Lawson and McCauley, 1990, especially chapter 5)

Concurrence both about the criteria for ritual types and about the facts concerning particular ritual performances is diagnostic in identifying religious communities. Rituals, after all, are not incidental to religious systems. Their performance is integral both to situating individuals within the larger religious community and to sustaining that community.

The rivalry for cult leadership on which Barth reports shows unequivocally that innovations may be introduced into Baktaman initiations. But (1) the two factions participating in the discussion (and the resistance of the more conservative seniors especially), (2) the universal recognition that the proposed changes constituted innovations, and (3) the general acceptance of the eventual compromise each suggest that a common conception of what would count as a sixth degree initiation informed this dispute throughout.

Whatever participants' criteria for identifying types of ritual acts, though, usually the issue is not so much whether the current ritual undertaking, in fact, matches its predecessors on all relevant counts but simply whether enough of the current participants are satisfied that it does. Most of the time this seems to turn on the accuracy of participants' memories, but accurate memory is *not* the only means for accomplishing such an end. Reaching consensus about such matters may rely, in part, on any number of devices from coercion to codification. The history of the great world religions, alone, provides countless instances when religious authorities have readily resorted to ruthless methods for imposing consensus about matters of ritual and belief. Moreover, plenty of forms of social negotiation less extreme than those that prevailed during, say, the Counter Reformation, are available for resolving these problems, and these are forms of negotiation in which the question of the accuracy of memory is only somewhat more likely to arise in the explanation of

their operations (Barth, 1987). Arguably, these more subtle forms of social coercion are all the more effective precisely because they so often go undetected.

Without fierce coercion, though, and often even with it, memory is vital to these determinations and accuracy a prominent, if not preeminent, value. (Great dangers regularly accompany inattentiveness to the gods' decrees.) My claim here is not merely about desires for and perceptions of accurate memory at the object level but about genuine accuracy as an explanatory mechanism at the theoretical level. Collective recollection is not, after all, utterly unconstrained. Absent irresistibly powerful forms of coercion about such matters within a culture, some standards must restrict these negotiations or, otherwise, the problem of explaining the community's collective sense of continuity in these proceedings looms ominously. On the other hand, that said, recall Rubin's (1995) cautioning about what counts as accuracy in processes of cultural transmission where literacy plays no role. My emphasis in this discussion is not on the achievement of perfect accuracy in these settings but on the contributions of mechanisms that make for more faithful recall to this communal sense of continuity.¹⁶

Endnotes

1. On the ritual form theory that Lawson and I (McCauley and Lawson, 1998b) propose literacy is *not* the most critical consideration determining the variables a religious system enlists to aid in its transmission. Non-repeated religious rituals in literate cultures manipulate exactly the same variables, though usually less dramatically. (See the final paragraphs of section II.)

2. See Lawson and McCauley, 1993, McCauley and Lawson, 1993, 1996, 1998a, and 1998b, and McCauley, (forthcoming).

3. This claim is not uncontroversial. Harvey Whitehouse (personal communication, summer 1997) maintains that evidence exists of more substantial verbatim recall of linguistic materials in non-literate societies than Hunter (1985) allows for.

4. This and many other important points of agreement notwithstanding, Rubin's analyses are of limited usefulness for my purposes here. First, his study focusses on subjects' memories for linguistic materials. I am concerned with their memories for (ritual) actions. These two types of cultural materials are often intimately connected, but sometimes they are not. What interests me most are precisely the non-linguistic considerations that contribute to enhanced memory for *actions*. Second, Rubin holds (again, correctly, I think) that memory in oral traditions is usefully thought of as a "well practiced skill dependent on extensive experience." (1995, p. 146) Rubin holds, for example, that ballads and counting-out rhymes are considerably overlearned. As will become clear in the final section of this paper, extensive and elaborate rituals are performed only once per generation in some non-literate cultures with only limited preparation and rehearsal. In the case of the Baktaman (Barth, 1975), neither extensive experience nor overlearning are even possible for the initiations.

5. Rubin is less helpful here. His comments about the connections between literacy and religion reflect the prevailing biases of most contemporary scholarship on that topic, inadvertently favoring the few (text-based) "world religions" over the thousands of religious systems that have existed in completely non-literate settings in human history. Rubin suggests (1995) that it is quite difficult to imagine "religion without writing" (p. 320), yet religion as a cultural form predates the invention of writing and to this day some religious systems prevail exclusively in non-literate cultures. (See Lawson and McCauley, 1993.)

6. Brewer (1992) argues, though, that the inaccuracies of Neisser and Harsch's subjects may not be as grievous as their analysis suggests. He maintains that they were probably problems of retrieval not problems of reconstruction. He suspects that many were accurately remembering events from the day when they heard about the Challenger. They were just not remembering the events they described in their initial questionnaires. They were recalling "the wrong time slice."

What Neisser and Harsch (1992) called "TV priority" (p. 25) may be evidence for this conjecture. The difference between the large number of subjects who misremembered that they had first heard about the Challenger on television versus the small number who misremembered that they had not was significant.

7. Approximately a third of the California subjects were from Santa Cruz. Logistical difficulties prevented data collection with these subjects until the third week after the disaster. By Rubin's estimate (1992), this would be enough time for them to have consolidated their stories. Of course, conformity to narrative conventions may have subtly distorting effects on those stories' accuracy.

8. . . . however, not with someone, Barth, who was so clearly an outsider. The principal cult leader "bent rules" to make Barth "a participant in his religion" (1975, p. 5). Sharing knowledge with Barth was, apparently, regarded as relatively harmless, after Barth had gained the seniors' trust and made it clear that he would only reveal their knowledge to "others who had passed through all *our* initiations" in Barth's "distant homeland" (1975, p. 7). Finally, the only world the secrets of Baktaman initiations need stratify is their own (and, perhaps, those of the only neighbors they knew of). The crucial point was to keep these secrets from uninitiated Baktaman.

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9. For a discussion of the role of compositionality, productivity, and systematicity in symbolic systems, see Fodor and Pylyshyn, 1988.
10. Barth does not consider the possibility that such symbolic relations simply do not exist. (See Sperber, 1975.)
11. Barth provides two sorts of *indirect* evidence that pertain to the stability of these rites. He cites the coincidences among various informants' reports, which were collected independently of one another, and opportunities to observe corresponding rites among neighboring groups. By reviewing the place of these other mnemonically significant variables in Baktaman rituals and by examining the place of accuracy in forging a sense of community and continuity, I aim, in effect, to supply two additional forms of *indirect* evidence.
12. At least one Baktaman senior seemed to think not (Barth, 1975): "You know how it is during your initiation: your *finik* (spirit, consciousness) does not hear, you are afraid, you do not understand. Who can remember the acts and the words?" (p. 101).
13. Presumably, they will also remember why it was significant as well. See Brewer, 1992.
14. Consider some of the details from the third degree initiation:
Each novice is held and has his elbows pounded with sacred black stones. . . . The novices are also assured that this is the only hardship they will suffer.
As soon as this is completed, however, the seniors grab bunches of nettles and whip the novices over the face and chest . . . They are then presented with the leaf package of the dog's black gut contents and cooked penis. They are forced to eat the black mixture and at least lick and suck the penis . . . they are encouraged by the assurance that this is the very last trial they must endure.
. . . The novices are made to crawl on their hands and knees between the legs of the line of men; each man they pass under whips them with the burning nettles over back, legs, and particularly the genitalia. . . . the novices are then assured that this completes their tortures . . .
They are . . . made to sit around the two fires . . . crowding them closer as the flames grow hotter . . . This starts a four-day ordeal: blistered and burned by the fires they are now kept continuously awake . . . they are allowed no water . . . At irregular intervals they are again forced into the fires and burned. (Barth, 1975, pp. 64-65)
15. I am grateful to David Rubin for this proposal.
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