

SOME TYPES OF SOCIETY FOSTER LIMINAL CONSCIOUSNESS, OTHERS SHATTER IT

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The Study of Child Behavior and Human Development in Cultural Isolates.

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In a variety of isolated human enclaves high levels of liminal awareness and response were the outstanding means by which people related to one another and their natural surroundings. When these enclaves were absorbed by the aggressively competitive social systems common in the world today, that type of awareness deteriorated along with the human concord it fostered. A three decade diachronic study of such populations reveals that emphasis during childhood on verbalized conceptualization and abstract rules of conduct obstructs ontogenesis of high levels of liminal consciousness. There are evolutionary implications.

Intellectual Considerations. With roots in Aristotle's *Organon*³, Western science held for more than two millennia that consciousness is principally a matter of language: viz, Humboldt's hypothesis that humans perceive the world through language,⁴ Whorf's view that the language people learn governs their perception and thought,⁵ and the Chomsky quest for a universal "generative grammar".⁶ Empirical research in the last decade, largely by neuroscientists and cognitive psychologists, has ravaged this long-held view and opened a door to studies of consciousness beyond verbiage.⁷ This is one such study.

Linguists and anthropologists have long been aware that patterns of cognition (and therefore of consciousness) can vary markedly from society to society, environment to environment, and across time. Most know that these can blind one to crucial aspects of an alien way-of-life. They have two classic remedies: 1) plotting cognitive patterns from what the people say about themselves and their way-of-life and 2) long periods of direct personal engagement within that way-of-life to accumulate experiential understandings. The first relies on interviews with local informants, the second on behavioral immersion.⁸ Gil speaks of the importance of "unlearning Eurocentrism".⁹ If he himself had not done so, we would not know today, that native youths in the Riau Archipelago of Indonesia (and elsewhere in Southeast Asia) speak among themselves in linguistic variants devoid of relative clauses and of such fundamental structural features as nouns and verbs. In the West a failure to distinguish nouns from verbs would be considered pathological, a language disorder. But among Gil's Riau youths it enriched sociality by dynamically linking memorized terminology to collective experiences-of-the-moment and thus to the immediacy of the world around. In this way, as they spoke, they automatically updated established verbiage. He discovered this not by routinely applying the analytical techniques provided by his European education but by interactive naturalistic research with youths who use such argots.

Definitions. "Liminal consciousness", as used herein, is similar to subliminal consciousness in that it is nonverbal. But unlike the subliminal variety, it is cognitively reflective and deliberately responsive. Popularly spoken of as "in the mind's eye", it can be seen in athletes who maintain their edge through seemingly instantaneous responses and in ordinary citizens when instantly avoiding looming accidents. Young children with entirely different spoken languages rely on it when playing

happily for hours with each other. It has intellectual dimensions in music, dance, and drama, and was recognized by academicians as early as the 7th century—e.g., as valid cognition by Dharmakirti,¹⁰ empirical psychology by William James,¹¹ and recently as “lived experience” by Throop.¹² “Modernization,” here means adoption of the technologically advanced, commercially competitive Westernized way-of-life now moving into most corners of the world. “Sociosensuality” is a non-erotic type of tactile comradeliness which has spawned high levels of liminal rapport in a variety of isolated cultural enclaves.

Summary of Prior Research. This study of liminal consciousness did not start out as such. It emerged by chance when unorthodox child handling practices were dimly noticed on the side of medical research in a part of New Guinea just contacted by the outside modern world (Figures 1 a-c).¹³ They could easily



Figure 1a. The first thing to catch our eye was toddlers and very young children safely handling potentially dangerous objects on their own (such as axes and knives) without supervision or interference (Fore 1963).



Figure 1b. The next thing that stood out was the tendency for young children to cluster in groups in which interests oscillated between individuality and solidarity. Adults did not get involved or interfere (Fore 1963).



Figure 1c. As soon as babies began taking interest in things around them, even slightly older children incitefully began catering to their interests, moods, and needs and squiring them about. Here an exploring toddler wants to nurse. The girl has squashed sweet potato onto her finger to adapt to his nursing habits (Fore, 1963).

have been ignored as irrelevant to the research at hand, or as an insignificant localism. But the rareness of their isolated remoteness presented an opportunity to apply recent ideas on the investigation of exotic and nonrecurring phenomena.¹⁴ When time permitted, film records were made that could then be studied away from the bustle and pressures of fieldwork. When these film records were examined in the laboratory—repeatedly, comparatively, and at varying speeds—patterns of mental and behavioral development undetectable in daily living came into view.¹⁵



Figure 1d. On the verandah of a local house sociosensuality among children of mixed ages triggers zestful individualistic solidarity (S. Kratke, 1978)

Old World War II military aerial photographs of these unexplored regions then revealed ecological correlates.¹⁶ Last remaining doubts about significance vanished when similar patterns of infant nurture were seen elsewhere in Oceania, and then independently on the opposite side of the world.¹⁷ A cover article in *Science* recommended a worldwide effort to acquire and preserve such data from vanishing cultural isolates.¹⁸ Funds then became available for a widespread search. Many isolated human enclaves were soon examined where similar patterns of behavior emerged from the same type of sociosensual infant nurturing.¹⁹ Within such nurture a sophisticated tactile mode of communication emerged long before onset of speech²⁰ that enabled infants and children to be simultaneously “in touch and free” (Figure 2).²¹ A nonaggressive type of society was the result²² in which individuality and solidarity conjoined as a single entity—in a crosscultural contradiction of what Western languages and logic allow.²³

At first this type of awareness was thought to be an adaptation to the vast free-ranges of the prehistoric world. It was then found in circumscribed areas: on islands in Oceania, Himalayan valleys, and in other territorially hemmed-in areas. It was called “preconquest consciousness” because it was not found in societies that had been conquered by aliens.²⁴ When these preconquest communities were overrun by brutal invaders, their liminally cohesive way-of-life collapsed. Under conditions of vicious conquest, an existential crisis occurred from which the “noble savage”, so admired by 19th century scholars, emerged a “savage-savage”²⁵ (viz. Joseph Conrad’s *Heart of Darkness*,²⁶ Fanon on North African insurgencies,²⁷ Anderson’s analysis of the Kikuyu Mau Mau movement,²⁸ and the Malay pirates infamous throughout the Indo-Malaysian region from the 18th through the 20th centuries.²⁹)



Figure 2. Another trait that caught our eye early was tactile sociality. It opened possibilities for the merging of individuality and solidarity seen here as two boys explore the local jungle (Gimi 1964).

New Findings. Where intrusive contact from outside was relatively benign, transformation proceeded along different lines. Instead of anomie, it generated three basic dyadic contradictions which generated a more evenly paced cultural transformation: 1) monetized economy vs subsistence economy, 2) governance by formal rule vs liminal adaptation to real-life circumstances, and 3) hortative instruction vs knowledge gained by exploratory interaction. Ancillary sub-conditions were sometimes part of one or more of the basic conditions: e.g., markets, missionaries, police, and public routes for travel where none previously existed.³⁰ As the three contradictions faced off, the liminal focus of preconquest life began crumbling and a cognitive orientation based on verbalized abstractions fitfully moved in to replace it.

Two of the three basic intrusive forces (the impact of monetization and formal governance) were hard to pin down. They would wax and wane unpredictably in response to distant unseen political and economic conditions. That precluded a precise gauging of the weight they contributed to the cultural transformation. Formal classroom education however, once established, remained sufficiently durable for steady examination. While its effect was easier to detect, the degree of its influence was still ambiguous—a problem later rectified by examining an isolated enclave which provided a view of the effect of hortative pedagogy in the absence of the other two main influences (detailed below). First we turn to what happened in preconquest societies.

Non-brutal conquest in preconquest enclaves. In preconquest societies children gathered knowledge,



Figure 2a. The classical experiential ambience of infancy in preconquest milieus (Mbotgate, 1973).



Figure 2c. Young lad experiments with handling a winnowing tray as adults work nearby (Jyapu, 1977).



Figure 2e. Young girl sociosensually clues a younger one to something that might interest her (S. Kratke, 1977).

even as babes in arms, by liminal exploration within a local circle of children and adults (Figures 2a-d). When very young children deviated exploratively from the circle, they would often be insightfully and delicately attended by an older child who tuned into their interests, yens and predilections so as to help without discomposing them (Figure 2e). As they grew, tots joined agemates for exploratory play (Figure 2f).

The spontaneous ad hoc nature of this approach to learning could not be reconciled with classrooms requiring: 1) attentiveness to scheduled prepackaged subject matter, 2) verbalized cognition and response, and 3) competitive evaluation of the students.

When classrooms began taking up most of their daytime hours, children were no longer able to sustain their traditional unceasing liminal links to the community and ecology or exercise their customary spontaneity. And outside the school, they began to face competitive monetization of the economy and arbitrary law. Their traditional mental and behavioral habits began to change.

It quickly proved impossible

to unambiguously detect enduring changes over short intervals due to the dizzying tendency of the new and old to wax and wane unpredictably. Even month-to-month changes were usually too unstable to rely on. To sensibly identify and map the bubbling situation, we discovered that clearly persisting



Figure 2b. Children learn the skills and lore of life by associating with practitioners. Thus this boy returns with his mother from a garden with a machete in his hand (Mbotgate, 1973)



Figure 2d. A small boy and girl attracted by the local economic activity exploratively pitch in as a pig is butchered (Fore 1968).



Figure 2f. Instincts produced by a preconquest nurture impel a boy cavorting in a tree with comrades to dangle down to dovetail with and abet the interests of a younger girl (Canela 1977).

changes were most effectively revealed by visits of a month or more separated by approximately a year. Checklists of behaviors to watch for soon emerged. A progressive sequence of transformations of behavior (and their related mental foci) then came into view. With the mapping of its spectrum, it became possible to identify the particular modernization-stage of partially transformed communities found thereafter. The range of societies examined includes nomadic hunter-gatherers, migrating hunter-gatherer-gardeners, primordial sea nomads, subsistence agriculturalists, isolated tiny island populations, insular coastal fisherfolk, and traditional nomadic herders.³¹ The basic sequence of change proceeded as follows:

1. As spontaneous liminal behavior of children was foreclosed most of the day by classrooms, it began declining outside the school as well.
2. Among these children awareness of and responsiveness to the concerns and feelings of others began to fade.
3. Mergings of individuality and solidarity were less often seen.
4. Uncertainty set in as to whether one should reveal what was really on one's mind.
5. Universal candor among these children vanished.
6. The once ubiquitous inquisitory and affirmatory dances of eye-contact gave way to aversion of eye-contact.
7. Open hearted comradeliness narrowed to a few close personal friends.
8. Open interest in novelty declined.
9. As the human solidarity spawned by sociosensuality withered, eroticism arose to take its place.
10. Elements of defensive sociality began appearing in the community (aloofness, aversion, contempt, disgust, and later pretentiousness).
11. Games of open-ended exploration declined as the children gravitated to rule-governed competitive games introduced by the school.
12. When these children graduated and became part of the adult community, they brought the behavioral changes implanted by the school with them.
13. As market economics became the norm, cheating and deception began occurring.
14. Anger linked to rule violations began breaking out.
15. As community solidarity fractured, the government brought in police to maintain order and courts to regulate property and disputes.

Notes and References

1. Text and photographs copyright E Richard Sorenson © 2006. All photographs presented are candid. Particular activities produced just photograph them were not sufficiently representative of indigenous norms and were avoided. This was relatively easy where cameras were still unknown. In areas already familiar photographs, an initial period of frequent snapping at almost anything (usually with no film in the camera) was usually needed to desensitize the community before candid photography was attempted.
2. Over its many years of activity this Study of Child Behavior and Human Development in Cultural Isolates benefitted from grants from the National Endowment for Humanities, the National Institute of Mental Health, the National Institute of Child Health and Human Development, the National Science Foundation, the Institute for Intercultural Studies, the Rachelwood Foundation, and several smaller foundations and private benefactors. For the seven years of its visual data collection phase, it was supported by a line-item appropriation from the U. S. Congress.
3. Aristotle, *Organon*, 4th century BC.
4. W. von Humboldt, *On the Diversity of Human Language Construction and its Influence on the Mental Development of the Human Species* (Cambridge Univ. Press, Cambridge, 1999).
5. B. L. Whorf, *Language, Thought, and Reality: Selected Writings* (MIT Press, Cambridge, MA, 1964).

6. N. Chomsky, *On Language: Chomsky's Classic Works* (New Press, New York, 1998).
7. Bates and colleagues proved that the development of language requires pre-linguistic cognitive input involving statistical analysis, pattern perception, means/ends awareness, and sociality [E. A. Bates, J. L. Elman, in *Brain Development and Cognition*, M. Johnson, Ed., Blackwell, Oxford 2002, pp. 420-440]. The Premacks showed that, to produce language, infants must draw on "inborn modules" of numerical relation, analogical reasoning, and physical laws [D. Premack, A. J. Premack, *Original Intelligence: the Architecture of the Human Mind* (Mcgraw Hill, NY, 2003)]. Elman found that interactions between different parts of the brain bring meaningfulness to language [J. L. Elman, in *The Emergence of Language*, B. MacWhinney, Ed., Lawrence Erlbaum, Hillsdale, N. J., 1999]. Edelman then demonstrated how consciousness emerges from neural groups which perceptually categorize experiences and thus enable higher functions of consciousness to arise [G. M. Edelman, *Neural Darwinism: The Theory of Neuronal Group Selection*, Basic Books, NY, 1987 and *The Remembered Present*, Basic Books, NY, 1989]. Crick and Koch found that separate areas of the brain cooperate to produce vision [F. Crick, C. Koch, *Seminars in the Neurosciences* 2, 263 (1990)], and then theorized that "neuronal correlates of consciousness" underlie all states of consciousness [F. Crick, C. Koch, *Cerebral Cortex* 8, 97 (1998)]. This view gained stature from a rapidly growing body of research which identified many such correlates notably detailed by Metzinger [T. Metzinger, *Neural Correlates of Consciousness: Empirical and Conceptual Questions*, MIT Press, 2000] and from more recent studies touching into subtle aspects of consciousness: "intention" [E. Kohler, C. Keysers, et al, *Science*, 297, 846 (2002)], "feelings of regret" [N. Camille et al, *Science*, 304, 1167. 2004)], "empathy" [J. Decety, P. L. Jackson, *Behavioral and Cognitive Neuroscience Reviews* 3(2), 71 (2004)] , "concept of gravity" [I. Indovina, et al, *Science* 308, 416 (2005)], "shape recognition" [G. M. Boynton, *Nature Neuroscience* 8, 541 (2005)] and "geometry" [summarized by C. Holden, *Science* Vol. 311, 317 (2006)]. Yet merely knowing the neuronal (or neural) correlates of mentality does not reveal the content of shifting thoughts, fantasies, imaginations, and intentions. Nor do they show what mind might dream up, opt for, or do next. Koch concluded that actual consciousness and its neural correlates are too different to be completely reduced to each other [C. Koch, *The Quest for Consciousness: a Neurological Approach* (Roberts & Co., Englewood, CO (2004)]. Chalmers finds it impossible to clearly establish neural correlates as independent tests for consciousness [D. J. Chalmers, in *Toward a Science of Consciousness II*, S. Hameroff, A. Kaszniak, A. Scott, Eds. (MIT Press, Cambridge, MA, 1998)]. Searle, while agreeing that consciousness cannot occur without its neurophysiological underpinnings, is troubled by our inability to ontologically reduce "higher" aspects of consciousness back to their neural correlates [J. R. Searle, *Mind: a Brief Introduction* (Oxford Univ. Press, New York, 2004)]. McGinn poses "mindsight", "imagining" and "imaging" as prime examples of such higher aspects [C. McGinn, *Mindsight: Image, Dream, Meaning* (Harvard Univ. Press, Cambridge, MA, 2004)]. Thus the suggestion has remained that neural correlates are the cause but not the totality of consciousness. Thus we now also have concepts of "evolvability" and "contingent evolution". Crick and Koch determined that billions of neurons are involved in a single mental precept [F. Crick, C. Koch, *Nature Neuroscience*, 6, 119 (2003)]; Hussain and Sheng speak of trillions of synapses [N. K. Hussain, M. Sheng, *Science* 307, 1207 (2005)]; and Penrose and Hameroff describe consciousness as a quantum mechanics type of indeterminacy in which massive numbers of simultaneous unrealized potential possibilities exist in every neuron [S. R. Hameroff, R. Penrose, in: *Toward a Science of Consciousness - The First Tucson Discussions and Debates*, S. R. Hameroff, A. W. Kaszniak, A. C. Scott, Eds. (MIT Press, Cambridge, MA, 1996), pp 570-540]. Such works persuaded the Nobelist Edelman to speak of "imagination emerging out of matter" as a "phenomenal gift wider than the sky" [G. M. Edelman, *Wider than the Sky: The Phenomenal Gift of Consciousness* (Yale Univ Press, New Haven, CT, 2004)]. Bateson sees mind as an enormously complex network of individual, societal, and ecological relationships [G. Bateson, *Steps to an Ecology of Mind* (Univ of Chicago Press, 1999)].
 What these physiologically oriented researchers have not explained is what mind dreams up, opts for, or does next. For example, merely knowing the neurophysiological foundations of language does not tell us what languages will emerge, how they will change over time, or which will sweep the world or simply pass away. Similarly, knowing the neurophysiological foundations that enable shifting thoughts, fantasies, imaginings, and intentions of consciousness in action does not explain their workings, effects, accomplishments, and consequences.
8. Young and Goulet show how immersion enables corrections in perception to occur and for coherence to settle in as one is changed by fieldwork [D. E. Young, J. G. Goulet, *Being Changed by Cross-Cultural Encounters: The Anthropology of Extraordinary Experience* (Broadview Press, Peterborough, Ontario, Canada, 1994)].
9. D. Gil, in *Linguistic Fieldwork*, P. Newman, M. Ratliff, Eds. (Cambridge Univ. Press, Cambridge, 2001).
10. Dharmakirti, (Library of Congress call no. BC25D4715199, 7th century); J. P. Dunne, *Foundations of Dharmakirti's Philosophy* (Wisdom Publications, Somerville, MA, 2004); C. S. Vyas, *Buddhist Theory of Perception with Special Reference to Pramana Vartika of Dharmakirti* (South Asia Books, Columbia, MO, 1992).
11. William James, *The Principles of Psychology* (H. Holt, New York, 1890).
12. C. J. Throop, *J. of Consciousness Studies*, 7(3), 27 (2000).
13. D. C. Gajdusek, *Transactions Royal Soc. of Trop. Med. and Hygiene*, 57, 151 (1963).
14. E. R. Sorenson, D. C. Gajdusek, *Nature* 200, 112 (1963).
15. E. R. Sorenson, *The Edge of the Forest: Land, Childhood, and Change in a New Guinea Protoagricultural Society* (Smithsonian Inst. Press, Wash. DC, 1976).

16. E. R. Sorenson, P. E. Kenmore, *Current Anthropology* **15**, 67 (1974).
17. J. Liedloff, *The Continuum Concept* (Knopf, NY, 1977).
18. E. R. Sorenson, *Science* **186**, 1079 (1974).
19. Cultural isolates were examined in Afghanistan, Bhutan, Borneo, Brazil, Cook Islands, India, Laos, Mexico, Micronesia, Myanmar (Burma), Nepal, Pakistan, Panama, Papua New Guinea, Philippines, Polynesia, Sri Lanka, Sudan, Sulu Sea, Tanzania, Thailand, Tibet, and Vanuatu.
20. E. R. Sorenson, in *Before Speech: The Beginnings of Interpersonal Communication*, M. Bullowa, Ed. (Cambridge Univ. Press, Cambridge, 1979), pp. 289-305.
21. E. R. Sorenson, *Smithsonian Magazine*, **8**, 107 (1977).
22. E. R. Sorenson, in *Learning Nonaggression: The Experience of Non-literate Societies*, A. Montagu, Ed., (Oxford Univ. Press, 1978), pp. 12-30.
23. It did so despite Western languages excluding such a possibility. Western consciousness, however, didn't affect them since their cognitive patterns evolved along a different path of development. See E. R. Sorenson & W. H. Crocker. *Individuality and Solidarity among the Canela: A Research Report Film* (National Human Studies Film Center, Smithsonian Institution, Wash. DC, 1977).
24. E. R. Sorenson, in *Tribal Epistemologies: Essays in the Philosophy of Anthropology*, H. Wautischer, Ed. (Ashgate, Aldershot, 1998) pp. 79-115.
25. E. R. Sorenson, "Sensuality & Consciousness IV", in *Anthropology of Consciousness*, **8** (1), 1-9 (1997).
26. J. Conrad, *Heart of Darkness* (Hesperus Press, London, 2003).
27. F. Fanon, *The Wretched of the Earth* (Grove Press, NY, 1986).
28. N. Anderson, *Histories of the Hanged: The Dirty War in Kenya and the End of Empire* (Norton, New York, 2005).
29. The vast and varied literature on Malay Pirates does not lend itself to citing here. It can be easily perused on www.google.com.
30. Across much of primordial New Guinea, the concept of public paths or roads had not evolved before contact by the outside modern world. The only way to go through the jungle was on one's local web of tiny paths belonging to the friends and family who made them during the course of their hunting-gathering-gardening activities. To go beyond one's local web was to either press through dense uninhabited virgin jungle or trespass in what in effect was the private livingroom and mating space of strangers (a barrier which in part explains the astonishing proliferation of so many different languages and habitues in New Guinea). The first Australian patrol officers constructed intervillage paths to get around and declared them public "roads". Public use, however, caught on slowly, since these first "kiap roads", as they were called, wound through one settled area after another. While they weren't private paths, they all to often cut through areas of private paths. Where possible the patrol officers then also made rudimentary jeep roads, usually along mountain ridges (due to the severity of topographic barriers elsewhere). So they tended to go through uninhabited regions from which access to villages was be made via footpaths radiating up to them. This made all the difference. What the local residents suddenly had not far from their peripheries was a road going through no one's turf. They quickly became arteries where only restricted capillaries had previously existed. Down them came a flood of new goods, new ideas, new peoples, and, above all, excitement. As local populations began to use these new roads, they started shedding the insular traditions they had evolved in their mountain fastnesses. Though often impassible to four-wheel-drive vehicles, these roads were perhaps the single most dramatic stroke wrought by the invading government. Boys began to roam far from home on them in quest of new experiences, trade goods, jobs, and money—to missionary compounds, coffee plantations, towns, and prisons.
31. The full range of populations examined includes: aboriginal hunter-gatherer-gardeners in Papua New Guinea (Fore, Genatei, Awa, Anga, Gimi, Labogai, Miyanmin); aboriginal forest dwelling hunting-gathering nomads in the interior mountains of southern Thailand (Sikai); Sea Nomads in the Andaman Sea off Myanmar and Thailand (Moken and Urak-Lawoi); Sea Nomads in the Sulu Sea between Borneo and the Philippines (Badjao); hunter-gatherers in mountains of the Philippines (Aeta); herder-nomads in Tanzania (Masai); herder-nomads in Sudan (Dinka); herder-nomads in Afghanistan (Pashtun); herder nomads in the Himalayas (Tibetan) (with Dorjee); subsistence agriculturalists in the Himalayas (Monpa, Ladakhi, Jyapu, and Tamang); isolated agriculturalists in the Hindu Kush (Hunza); farming/fishing populations in northern Laos (Lao Tai, Lao Thoeng); Muslimized island populations in the Sulu and Andaman Seas; hunter-gatherer-gardeners in the Sierra Madre Occidental of northwest Mexico (Tarahumara and Cora); aboriginal hunter-gatherer-gardeners in Venezuela (Yequana) (separately by Liedloff); hunter-gatherer-gardeners in Brazil (Canela) (with W. Crocker); aboriginal hunter-gatherer-gardeners in Vanuatu (Mbotgate [Small Namba]) ; nomadic hunter-gatherers in Tamil Nadu, India (Kurukati); rural fisherfolk in Tamil-Nadu (India) and Sri Lanka (Malay); traditional outlier Polynesians on Ono-i-Lau; modernizing Polynesians in the Cook Islands (Pukapuka); traditional islands in Micronesia (Ifaluk & Woleai); modernizing populations in Micronesia (Ulithi, Ponpei, Yap, Chamorro); and rural ghetto populations in modernizing Asian cities. For the place of a range of these populations on the spectrum of modernization see: E. R. Sorenson, "Sensuality & Consciousness IV", in *Anthropology of Consciousness*, **8** (1), 1-9 (1997).

During the course of this transformation, libidinal expression passed through three distinct phases. 1) In the traditional setting it inspired the non-erotic sociosensuality which animated preconquest life. 2) With the disintegration of that sociosensuality, libido became an erotic means to sustain solidarity. 3) Finally, in response to the intruding marketing ethos, it provided a way to



Figure 3a. Two boys striding through a clearing spiritedly conjoining their skills and awareness wordlessly in a hunt for small game (Fore, 1963).

enhance livelihood by linking eroticism to money or social favors. Although each phase graded haphazardly into the next, each in its heyday possessed its own clear identity:

Phase 1. During this phase, the sociosensual habitudes spawned by preconquest tactile nurture provided a setting that readily absorbed the libidinal impulses of adolescence. They then intensified the verve and vigor of preconquest economic life (hunting, gathering, and experimental horticulture) thereby vitalizing their community and strengthening its survivability (Figures 3a,b).

In this phase the need for intense erotic affairs seen in Westernized societies did not arise. One-on-one sexual liaisons did of course occur, but even a casual eye could see how bland they were compared to the spirited sociosensual pursuit of economic well-being. Nakedness, for example, did not spark erotic interests. Nor did exposed genitalia. As observed on one small still school-less isle in the southern Sulu Sea, a boy could pass through the tiny village center flipping his spontaneous adolescent erection in and out of his shorts much as one might unthinkingly swing an arm about—without reproach, comment, or even direct notice—an action that lapsed without a word or thought as he joined some agemates in exploratory play. In these phase 1 communities, a touch on (or feint towards) the genitalia of a friend indicated not sexual interest but comradeship in the way shaking hands does elsewhere. A hand resting on someone's pubis during conversation stimulated a convergence of ideas and sensibilities, not erotic dalliance. A baby's genitalia would be affectionately and openly fondled (sometimes kissed) in public by passing friends and relatives to enkindle social, not erotic, responsiveness.



Figure 3b. These girls conjoin consideration of a new sweet potato variety dug out of a forest garden clearing (Fore, 1963).



Figure 4a. In public in the hamlet yard, two adolescents are silently bemused by rising erotic sensations (Miyanmin, 1979).



Figure 5. Young women engaged in erotic tactility in public (Miyanmin, 1979).



Figure 6. A boy merges his adolescent libidinal sensibilities with the erotic aura of his ancestors, here conveyed by erect totemic phallic slit-gongs (Mbotgate, 1973).

Phase 2. When the traditional sociosensuality crumbled, those habitudes, into which the libidinal simmerings of adolescence so easily flowed were no longer there. In their absence, spontaneous, genitally focused libidinal feelings began cropping up in adolescents in the openness of daily life (Figure 4a). And pre-adolescent boys began gravitating toward sensuous contact with the genitals of older boys, even in the midst of ongoing community activity (Figure 4b). In these early stages of phase 2, a spontaneous erection occurring within a group of teenaged boys would be nonchalantly massaged by an adjacent comrade who continued conversing or eating with the others—as more a social than an erotic act. Further down the path of sociosensual disintegration, such an erection would excite the others to sexual dalliance in the vogue of whatever local practices were evolving.³² While girls tended to snuggle erotically in home locales (Figure 5), boys tended to pursue climax in various ad hoc retreats or somewhat more romantically in sites of opportunity with accommodating girls. In widely separated geographical locales, the term “making friends” became synonymous with sexual bonding. In some regions, erotic feelings also focused on ancestor spirits to strengthen community solidarity (Figure 6).

Where modernizing pressures became acute, erotic activity would spike even to the limit of physiological capability. Birth rates soared. What had been tiny isolated cultural enclaves were soon aswarm with babies and small children who as they grew remade the region’s demographic map—which shut the door to any revival of the openlands tradition of prequest life.

Phase 3. As the modern marketing economy settled in, the final change in libidinal expression occurred. As each successive class graduated from the school it intruded a bit more of the school’s ethos into a community hosting an increasingly competitive commercial economy. Libidos then began linking to material wealth as a means to social and economic security. Teenagers (at first mostly students) began providing sex for pocket money or social favors, even as they continued mutually desired

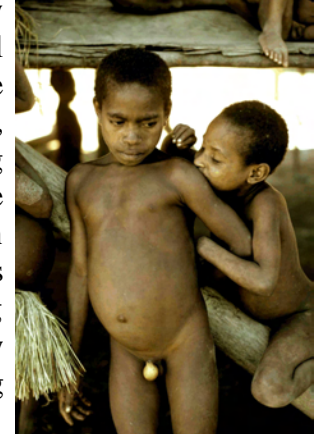


Figure 4b. Directly in front of the large gathering of villagers seen in Figure 1d, a young boy becomes seductively attracted to an older boy’s genitals (Miyanmin, 1978).

erotic tete-a-tetes. In many tribal and rural communities mothers encouraged adolescent sons and (less often) daughters to take monetary advantage of the sensual attractiveness of their blossoming physiques and genitalia.³³ Houses of prostitution began appearing. Dominative sexual desires soon emerged which undercut mutually intimate eroticism. Wealth oriented marriages gained a following. Neurologically speaking, interaction between the limbic system and the cerebral cortex had been restructured as originally mooted by Paul McLean .³⁴

32. On Micronesia and Polynesian islands, and in some regions of the Himalayas, teenagers would gather openly on community peripheries for spontaneous erotic adventuring. The *kukim nus* practice that emerged in the Highlands of New Guinea brought adolescent boys and girls together from allied communities into a large shelter for tactile erotic contact in the context of a solidarity-sustaining feast (*singsing*). Elsewhere in New Guinea pre-adolescent Anga/Kukukuku boys flirted erotically with post-adolescent youths in the convivial darkness of the large collective men's house and fellated them ("taking milk" from them in the local language), while, in lands to the south, Yar-Pawaian boys sought anal impregnation from older males outdoors in broad daylight (which was explained as "enabling them to grow up well"). In the Philippines and other parts of SE Asia, adolescent boys linked to established older youths (or adults) skills that interested them to sleep with erotically and work with during the day to learn a skill of life. In some parts of New Guinea and SE Asia, *communitas* was expanded by extending erotic inclinations to strangers and newcomers as well as established friends and associates. For example, boys from different linguistic families on opposite sides of a massive zone of uninhabited, highly dissected, densely rain-forested mountains unexpectedly ran into each other on a narrow ridge while on separate hunting expeditions far from their homes. They could not speak each others language; yet they saw the sense of a rapid collective effort to build a shelter from the rain. They became friends erotically in the course of sleeping closely. Reciprocal visits to home villages ensued, and eventually they learned a bit of each others language. The incident initiated a spreading comradery which brought these very different tribes into alliance. When exploring the Gimi territory in New Guinea, young women would sometimes try befriend me by suggestively nudging me off the path to draw me into a "friendship" that would strengthen her community. In the Andaman Sea on a small isle where alien mainlanders had recently established a small but growing presence, I was eating in a traditional area with some island associates when the adolescent brother of one of them casually announced, "*Chai zhetbong*", a declaration of a desire to be anally impregnated by me, loud enough all to hear. Yet no one seemed to consider it out of order, but rather what one might expect from an adolescent boy. Indeed it attracted almost no attention. I however was nonplused and quickly tried to make a joke of it by aggressively slapping the eating mat that served as a dining table and mockingly saying "how about right here". It was a time when aggressive joking had not yet entered the island's social repertoire and he seemed shocked by the unexpected (and in their society seriously out-of-order) note of hostility. Though good-hearted joking had long been part of traditional life there, aggressive jokes were unfamiliar and cut harshly at their traditional mode of friendship. The boy, who had innocently expressed himself within the accepted candor of tradition, recoiled and vanished. I soon realized I'd failed to act in keeping with the island's ethos and social practices. I regretted it, for it would have easy to decline in a locally acceptable manner. But it was too late. On later encounters with the boy, in the village or on its paths, he would avert his gaze in a manner that revealed the social damage done by my failure to decline acceptably which, in effect, had assaulted his basic human rights. Although he had been open-heartedly friendly before the event, a psychological barrier persisted from then on which obstructed resumption of that friendliness. The only value accruing from the incident was increased insight into the emergence of the erotic period of that island's transformation.
33. In many modernizing tribal and other rural areas, this practice was an open secret. One boy masturbating behind his home was reproached by his mother for wasting a valuable commodity. She then sent him to stay with her brother in a city where he could easily freelance his erotic impulses. In another village a 14 year old boy with the rare ability to manage substantial ejaculations several times every day with an envied-sized phallus was famous in the village for the money he brought into his family and was the idol of the village's pre-adolescents.
34. P. D. McLean, in *Brain, Culture and the Human Spirit: Essays from an Emergent Evolutionary Perspective*. J. B. Ashbrook, Ed. (University Press of America, Lanham, MD, 1993), pp. 15-44.

Non-brutal conquest in a nonwestern civilization. When the Dalai Lama became interested in our efforts to preserve a research film record of traditional ways-of-life, he opened several arcane Tibetan monasteries for us to live in while carrying on this effort. To our surprise (and the misgivings of many monks at first) we were quartered amidst the novices and monks without ourselves being monks (there were no guest quarters). We did not know at the time that a modern hortative-type education would soon be adopted in one and then another of these monasteries. Not long after our project started, it began to be adopted in one and then another of the monasteries. Since our experience in preconquest societies showed distinct associated behavioral changes, we arranged annual returns to several of the monasteries to see what changes might occur. The research setting was ideal. Unlike the aboriginal settings, the monks and novices remained close at hand year after year, and the other two core modernizing forces were carefully kept outside their gates (and the novices kept in). Serendipitously we had at hand a population of youngsters to whom modern hortative education was introduced who had not experienced it before. We adopted the same sampling strategy we used in the preconquest populations: for the next



Figure 7. A cluster of small novices explore their temporary surroundings by simultaneously exercising individual and commerged sensibilities (Drepung Monastery, 1979).

we'd seen among preconquest children (Figure 7). We began to understand why only after we found sociosensual nurturing widely practiced in traditional Tibetan families. That meant that novices entered the monasteries with their antennae ready to dovetail their energies with the moods and needs of others. That trait, in turn, enabled them to explore the interstices of their monastery without upsetting its activities and goals.

We were again surprised when we noticed that the most rigorous monasteries provided broadest leeway for novices to engage their boyish impressions, impulses, ideas, snacks, and even mirth during very serious rituals (Figure 8). We were nonplused when novices cavalierly thrust themselves into exotic Tantric rituals in what seemed austere

27 years we examined the behavior of the novices for one to two months in residence in the monasteries with roughly a year³⁴ separating each reexamination .

At first glance the monasteries seemed authoritarian, hierarchical, and behaviorally controlled—quite the opposite of preconquest societies. However, a quite different picture appeared after the novices became accustomed to our presence. Tactile comradeliness and liminally conjoint exploratory play then began popping out up all around us similar to what



Figure 8. Novices disporting even as the Dalai Lama conducts the exotic Monlam ritual for the first time after a ten year suspension forced by exile (Drepung Monastery 1979).



Figure 9. During the sophisticated Mahakala Tantric ritual novices eagerly explore its sonorities at their own level of appreciation (Tarik Sakya Monastery 1979).

attracted the awed attention of agemates and elder monks alike (Figure 10). At times deep subjective awe would overcome even very young novices (Figure 11). Memories of profound experiences such as these facilitated their entry into a more sophisticated understanding of Tantra later.

None of this made much sense to us at first, most so because our studies of preconquest people suggested that liminal spontaneity withered where

monasteries. One Western observer said "how awful" and criticized a monastery for supervisory laxness. He didn't know (nor did we at first) that the rituals are also meant to be tutelary. Perhaps for that reason it was the most prestigious Tantric monasteries that most effectively attracted eager spontaneous participation by novices (Figure 9). At times a novice would become so enrapt (and his impulses so on the mark) that he



Figure 10. In monasteries where rituals involve considerable evocative sophistication, the involvement of young novices is sometimes so on the mark that they attract the awed attention of fellow novices and elder monks alike (Tarik Sakya Monastery, 1978).



Figure 11. In the most skilled traditional monasteries, Tantric rituals trigger moments of awe in the youngest and most inexperienced novices (Tarik Sakya Monastery 1978).

abstract codes of conduct governed life. It took a lot of time and looking to be convinced that no serious withering was occurring in the monasteries. Quite the contrary, liminal awareness became a vital tool toward a fuller appreciation of Tantra.

After our relationships among the monks and novices became relaxed, and several elders had become close friends, we were told that spontaneous playfulness among novices was considered a necessary condition for growing up, even though (to the elders way of thinking) it was devoid of genuine significance.

For that reason, they told us, they avoided notice of the novices and did not interfere. This left the monastic interstices largely open to spontaneous exploratory adventuring by novices.

The novices also received tutoring from elder monks who shaped their efforts to the individual capabilities and interests of their students. This was facilitated by the candor that sat openly on the shoulders



Figure 12. Elder monk takes advantage of the moment to instruct tiny novice (Gaden Shartse Monastery 1978)



Figure 13. With tactile reinforcement a novice teaches a small tot pronunciation of written words (Zongkar Choede, 2001)



Figure 14. With a glob of peanut butter I gave him, a novice holds it such that the others can with tactile camaraderie share the same taste experience as they collectively dip their fingers in. Joy arises both from sharing the taste and from the fascination when different appreciations are noticed (Zongkar Choede 2001).

of traditional novices. It enabled tutors to effectively take advantage of opportunities-of-the-moment (Figure 12). Novices were teachers too, due to their liminal desire to conjoin interests and experiences. So they would share whatever knowledge, and expertise they gained down even to the smallest novice adjusting to whatever level of understanding they encountered (Figure 13). They liked sharing what they knew just as they liked sharing material goods, food and sweets (Figure 14). They also instinctively shared space to accommodate the interests and activities of others. New ways of doing things intrigued them, while competitive games by predetermined rules were alien to their sensibilities. They preferred seeing how many times, and in how many different ways, they could conjointly bat a ball back and forth, keeping it in the air, under whatever kinds of circumstances existed at the moment (Figure 15).



Figure 15. Liminaly linked novices automatically adjust to conditions so as to accommodate each others interests. Here a novice starts a table tennis game where smaller novices are engaged in a game of carom at the foot of the table. Without a sense of inconvenience, the table tennis player automatically adjusts to the cramped space (Zongkar Choede, 2000).



Figure 16. Novices merge tonalities and rhythms while memorizing different texts during a memorization session (Zongkar Choede, 2001).

Such adjustability enabled monasteries to evolve along separate paths of emphasis. Some became renowned for the subtly instructive sonorities of their Tantric rituals. In the memorization sessions of these monasteries, novices instinctively merged their harmonies and rhythms with the others. Never mind that they were memorizing different textual material. As each new voice entered in, it would jag about a bit and then slip into (and slightly alter) the sounds already in the air.

A complex everchanging cloud of nuanced tones would then spread across the dispersed sites of study absorbing new voices into an evolving ethereal symphony—even while each novice remained intently focused on his particular memorization task. The creative waywardness of their harmonies, cadences, tones, and rhythms subliminally enchanted them, spurred them on, and took the onerousness out of memorizing (Figure 16). The monasteries most skilled at this were also famous for the sophisticated tonalities of their Tantric rituals. During these rituals novices slipped easily into the evocative harmonies (Figure 17) intoned by the Tantric chanting master (Figure 18). Memories of these exotic moments provided experiential foundations that fostered appreciation of the intellectual phases of their later education.



Figure 17. A novice subliminally conjoins his memorization sounds to those of nearly a hundred monks and novices during a Tantric ritual (Gyudmed Tantric Monastery 1979)



Figure 18. Gyudmed's chanting master takes advantage of these novices' subliminal potential for harmonizing to lure them into the subtly instructional tonalities of Tantra (Gyudmed Tantric Monastery, 1979).



Figure 19a. This choreographic movement introduces a new slant into an ongoing logical inquiry (Gaden Shartse Monastery, 1977).



Figure 19b. Spirited logic pervades the choreographic input among older novices (Gaden-Shartse Monastery, 1978).



Figure 19c. A novice laughs at a logic trap the abbot attempted to introduce. They behave as equals in a discourse in which statements are considered solely on their rational merits. Logic (not rank) is the judge. Here they display the spiritedness that this can bring to logic (Tashilhumpo Monastery, 1976).



Figure 19d. Small novices propel themselves into pseudo-logical discourse in an echoing of the efforts of older novices (Gaden Shartse Monastery, 1978).

Other Different monasteries produced different emphases. Those more academically inclined long ago developed a stylized athletic choreography linked to logical discourse. When approaching such a monastery, roisterousness was the first impression as a clamorous din of insistent voices set to stylized leaps and prances overwhelmed the atmosphere. It was novices and monks seeking truth en masse within a spirited din of logical give-and-take propelled by choreographic athletic movement (Figure 19a-d). The younger novices enjoyed the excitement provided by the athletics to whirl happily about but they also like to listen in on their older comrades.

By late teenage the sharpest novices had been hooked by the fascinations of logic and skipped the athletics when a hot topic was astir. Their vocal verve however attracted younger novices eager to touch in on what fascinated their older comrades. Opportunistically they would spontaneously gather around to listen and try their hand at the word play (Figure 20). In this way they got seduced into the operandi of logic.



Figure 20. This debating aggregation has attracted students of different ages, some interested in participating athletically, others zeroing in on the logical inquiry (Gaden-Shartse Monastery, 1977).

Even after we began to understand the value of liminal awareness in this system of education, we

continued to be flummoxed by how the liminal habits of the novices survived a basic education devoted to rote memorization of huge texts they could not (and were not expected to) understand. They couldn't even if they wanted to, since ecclesiastical Tibetan differs too considerably from the vernacular. So, for the most part, it was syllabic memorization (as opposed to content memorization). As grueling as that may sound, it left their liminal sensibilities un-muddled by abstract matters they had no ability to correctly understand. In this sense, memorization protected them from being mis-educated while simultaneously endowing them with an accessible knowledge resource that would be instantly and valuably at hand once they had acquired the basic training that enables understanding.

To get clearer grasp of this approach to education, we felt a need to examine the Buddhist philosophical literature. We started at its earliest beginnings in order to absorb it as it incrementally evolved for a millennium and a half after the Buddha's death. This revealed that sophisticated liminal insights building on earlier ones emerged from meditational experiences and analytical thoughts of individual monks who eagerly shared them with confreres. Those that were experientially recognized in common were set to words that were then refined by rigorous logic³⁵. After discovery of this process, we abandoned the last shred of our earlier belief that high levels of liminal awareness were incompatible with systematic types of education. In this case they created one in which liminal sensibility was a vital part.

When the Chinese army conquered Tibet in 1959, it methodically and brutally destroyed this educational system. To save their lives (and way-of-life), monks and novices by thousands fled, usually with little but the clothes they wore, up across perilously high Himalayan passes and down into lands unlike any they'd ever seen—to meet yet another fate. Received with sympathy in poor but helpful neighboring nations, their liminal skills enabled them to retain traditional practices without offending local people. And as remnants of a fabled civilization they soon began attracting aid from distant wealthy nations.

New monastic facilities were soon built for them in exile, sometimes quite lavishly. Their remote benefactors valued education, but they had no way to understand the subtlety of the traditional Tibetan system. Funds were earmarked to create a visible Western type of educational infrastructure. Though not meant to be Trojan horses, that's what they were. A saga then began unfolding before our eyes in which the subtlety of the traditional monastic educational system began collapsing. And it was doing so in a manner remarkably similar to how the liminal consciousness of pre-conquest peoples had collapsed. Living in the closed environs of the monasteries, cheek-to-jowl so to speak, among the monks and novices provided the advantage of a closer examination than was possible in the pre-conquest jungles.

During that earlier work we learned the importance of introducing intervals of about a year between reexaminations so that enduring changes had a chance to settle in and stand out clearly. In the monasteries shorter intervals were also plagued by an unstable mixtures of old and new oscillating back and forth obscuring the direction of the changes. So we adopted the same yearly sampling strategy. Here is what it revealed:

1. Odd surfacings of insensitivity to the interests and feelings of others started cropping up which just as quickly disappeared. It was a blindness rather than deliberate disregard—as repeatedly demonstrated by the novice's surprise, and desire to quickly make amends when the effect was called to their attention).
2. Soon such unawareness began occurring more frequently and with greater staying power, while the desire to make amends decreased.
3. Community-wide candor disappeared as responsiveness to the interests, needs, and moods of the others declined and open-hearted rapport shrank to close personal friends.
4. The traditional instinctive non-erotic sociosensuality among novices faded.
5. Eroticism began spontaneously innocently appearing in its stead even the midst of daily life:



Figure 21. Erotic feelings emerge in a pre-adolescent novice as he frolics with others on the floor.



Figure 22. Adolescent novices spontaneously caught up by genitally focused embrasure.

- a. Flashes of spontaneous erotic sensation would briefly surface during active play and just as spontaneously shunt back to normal play (Figure 21).
- b. Embrasures featuring reciprocal pubic contact began occurring among comrades, also in the openness of daily life (Figure 22).
- c. Pre-adolescent novices began gravitating toward semi-erotic contact with the physiques of older novices and then with their genitalia (Figure 23).
- d. Erotically oriented sleep groups spontaneously began forming up.
- e. Swagger impulses prompted prominently developed adolescents to roam among the pre-adolescents catering to their new erotic interests by exhibiting and sometimes imposing their genital prowess. This attracted official notice and was discouraged by night patrols.
- f. All traces of erotic sensibility were then suppressed. They disappeared from public view.
- g. Traditional non-erotic tactility then began triggering erotic feelings. It was similarly discouraged.



Figure 23. During early morning memorization "class" a pre-adolescent novice probes the genital bulge of a bemused but gently assenting adolescent.

6. With the loss of reciprocating liminal awareness, formal rules were promulgated to keep order.
7. Threat of physical punishment became the standard means for enforcement (Figure 24). Monasteries at this level of modernization were easily identified by merely raising an arm to scratch one's head when amidst novices. If the novices jumped back or raised arms to ward off blows, their monastery had reached this level.



Figure 24. Threatening classroom environment in an educationally transformed monastery.

8. Novices began freezing up in the face of novelty as if unsure what to do. The once spontaneous swoops to a conjoint spirited exploratory response had largely vanished.
9. At the same time candor of daily life gave way to evasion, dissimulation, and subterfuge.
10. Spirited involvement with rituals gave way to strategies to avoid them.
11. Adolescents sometimes secretly clothed themselves as alienated youths or guerillas (Figures 25a,b).



Figure 25a. A novice doffed his robes in the forest to be a disaffected youth.



Figure 25b. In his room a pre-adolescent novice spontaneously took on the guise of a Khampa guerilla.

12. Teenagers gravitated to action-intensive competitive sports. Soccer became a favorite. When elders noticed the aggressive fervor of such sports, they were banned. Novices sneaked out to clandestine sites for games and practice (Figure 26). Teams were formed in secret; uniforms and equipment hidden.
13. Piety ultimately emerged as the most effective adaptation mode.
14. Despite these changes, the transformed monasteries continued to produce monks technically well-versed in the language and logic of Buddhist philosophy. Vanishing however were the intuitively heart-linked Buddhists who previously were the bulwark of the monasteries' subtlest and most sophisticated mental and social accomplishments. In monasteries where highly refined lamas continued to hold sway, or where classroom education was deliberately subordinated to traditional practice, the transformation occurred slowly. Some monasteries lagged twenty years behind the most rapidly changing ones.



Figure 26. Novices practice soccer secretly in a secluded forest clearing.

Because this scenario was so unexpected, we searched for traditional monasteries in the other major branch of Buddhism, the Theravada. In northern Laos we found small monasteries in rural regions where novice behavior resembled that seen in small traditional Tibetan monasteries. Plenty of spontaneous liminal interaction. We also found a small urbanized area which sported a recently established central secondary school and highschool serving some thirty local monasteries (Figure 25). It provided relatively relaxed instruction four hours a day for novices. Behavior in their monasteries resembled that seen in Tibetan monasteries during the earliest stages of classroom teaching there. We then examined a large Theravada monastery in neighboring Thailand with an on site modern classroom infrastructure with a rigorous study schedule affecting novices the bulk of their waking hours with little opportunity to roam exploratively. In it, novice behavior resembled later stages in the transformation of Tibetan monasteries, in this case with the addition of endemic theft and other petty crime.

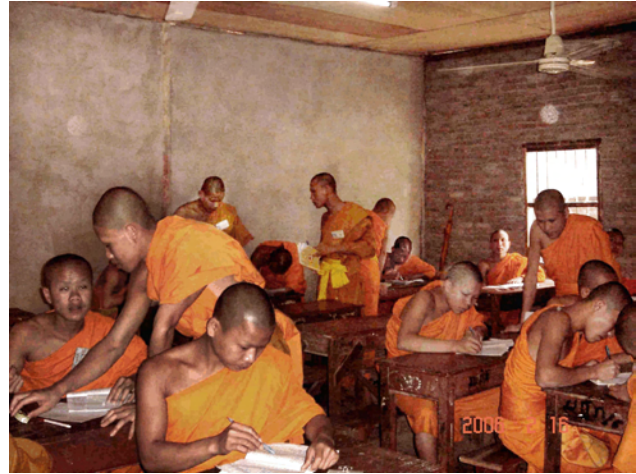


Figure 25. Flexible intermediate classroom setting in northern Laos.

Deliberations. The naturalistic research presented here demonstrates effects that nurture and education have on the development of liminal consciousness. Although laboratory research in the last two decades has revealed that consciousness cannot occur without the neurophysiological and neurochemical foundations that enable it, Hebb showed that life experiences can change those foundations³⁶. Several researchers then demonstrated how: e.g., Schore uncovered social, cognitive, and sensual experiences that alter brain ontogenesis³⁷; Gerhard et al identified environmental experiences that produce measurable phenotypic variation during maturation³⁸; Ridley pinpointed experiences that determine whether particular genes are turned on (or off) during brain ontogenesis³⁹; and Moles, Kieffer, and D'Amato showed that failure to exercise a gene by maternal tactility lessens harmonious sociality and harmonious sexual behavior in adults⁴⁰. Their work shows that different patterns of experience alter brain ontogenesis and by implication evolution—ie, persisting changes in behavioral norms in an isolated population would affect its behavior and therefore its social evolution which, over time, would lead to genetic evolution; a behavioral norm that spreads widely throughout the world would affect the further evolution of our human species.

René Thom's mathematical analysis of the properties of *systems* also needs to be considered. It reveals perils inherent in static systems. In his "general theory of models" (sometimes called "catastrophe theory"), Thom demonstrated mathematically that static systems invariably move toward instability and collapse⁴¹. How this has actually happened in human social systems has been vividly set forth by Diamond⁴². When these bodies of research are juxtaposed two questions appear:

- 1) How can change be maintained in behavioral systems in order to avoid catastrophe?
- 2) How can we avoid evolutionarily hazardous changes?

Naturalistic inquiry cannot yield all the answers (since, by definition, it cannot manipulate factors in the manner of laboratories). Its importance lies only in its ability to reveal life as it is actually lived (which labs by their nature cannot). The naturalistic research presented here has brought to light what happens when liminal consciousness is diminished. If the patterns of behavior which accomplish this are adopted widely, they would in time set within the genetic frame of humankind a potentially irreversible drift toward conflict rather than toward creatively integrative human effort. If we are to take Diamond seriously, and I think we should, that could affect the survivability of our human species.

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