

Old and New World Narcotics: A Statistical Question and an Ethnological Reply

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As early as 1963, Richard Evans Schultes wrote (1): "It is of interest that the New World is very much richer in narcotic plants than the Old and that the New World boasts at least 40 species of hallucinogenic or phantastica narcotics (2) as opposed to half a dozen species native to the Old World."

The reason for this marked discrepancy is by no means immediately apparent. In point of fact, one might reasonably suppose that the reverse would be the case. That is, the Old World has a far greater land mass than the New and certainly as varied climates, and hence the apparent possibility of a greater number and variety of plants. Furthermore, men and proto-men who might have discovered the properties of those plants that are narcotic have existed for an incomparably longer period (from the Australopithecines and *Homo habilis* onward) in the Old World than in the New (only from the Late Paleolithic and Mesolithic onward). Thus, on geographic-ecological and botanical and also on anthropological grounds, the Old World *prima facie* should hold more psychotropic plant species than the New—which is quite contrary to the apparent facts.

On returning to the problem in 1966, Schultes (3) cited the statistics again but cautioned: ". . . the foregoing statistics relate merely to those plants the narcotic properties of which man has discovered in his trial and error experimentation during human history. Is there any reason to presume that man in a primitive state of culture possesses any peculiar intuition enabling him to uncover more efficiently than his more civilized counterpart those plants that Nature has endowed with physiologically active principles?"

There is, I think, an answer in this. But

not to our question. It may well be that paleolithic hunters and gatherers of plants were oftener under hunger pressures to experiment with potential foodstuffs than are their neolithic descendants, abundantly supplied both with staple cultigens and domesticated animals. But as to plant knowledge, are not later folk the cultural heirs of earlier ones? And for both food and narcotic plants, the Old World has contained questioning primitive men to find them for a longer period than the New.

The value of Schultes' caution on the limited scope of trial and error as opposed to systematic enquiry is plain, for the one is old but the other quite new. It leaves open the possibility that, were human knowledge not grossly incomplete, then the Old World might in fact contain an appropriately larger number of psychotropic plants. But Schultes would be unwilling to hold that trial-and-error would be likely to result in the statistical discrepancy he points out, whatever a longer systematic enquiry might discover. Be that as it may, his thinking holds, in my opinion, the germ of understanding—the differential factor is perhaps human, *viz.*, at whatever level, one of human knowledge—if only we dichotomize not primitive and civilized man but rather discriminate among some (primitive) men and others ethnographically. We already have small-scale evidence of the possibility. Thus even in the same ecological region or "culture area," contiguous tribes may differ markedly in their folk-knowledge of plants. For example, the Cherokee of North Carolina retain much of their rich *materia medica* of plant origin, but the Catawba of South Carolina are culturally impoverished in this respect. Cherokee consequently call the Catawba "ignorant," and Catawba call the Cherokee "superstitious" in the use of folk simples.

Schultes returned still again to the problem in 1967 (4): "It may likewise be of significance that, whether because of cul-

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tural differences or for floristic peculiarities or for some other as yet unappreciated reason, the New World is much richer in narcotic plants than the Old. These statistics, naturally, relate merely to those plants the narcotic properties of which man has discovered in his trial and error experimentation during the course of human history. The longer I consider this question, the more I am convinced that there may exist in the world flora an appreciable number of such plants not yet uncovered by the experimenting natives and still to be found by the enquiring phytochemist."

The number of narcotics yet to be found may be less perhaps than we anticipate, however, if we are correct in supposing that over long epochs hunting-and-gathering natives repeatedly explore flora randomly for food. Indeed, Schultes himself has repeatedly stated his respect for the ethnobotanic experience of primitive peoples. Though he is the ranking authority on New World narcotics, Schultes is not content to explain the matter easily in terms of objective floristic peculiarities. Of the perhaps 800,000 plant species, Schultes (5) points out that among the 200,000–500,000 Angiosperms only about 3,000 are known ever to have been used directly as human food; that of these only about 150 are important enough to have entered world commerce; and that of these last only about 12–13, all of them cultivated, really stand between man and starvation. Small as this number is, the provenience of the major food plants is reasonably balanced between those of Old World and New World origin. Thus, given the discrepancy in provenience of narcotics, Schultes, following the Americanist ethnographer La Barre (6), would accede to the proposition that there exists a "'narcotic complex' of New World peoples" (7).

The matter of narcotics may be seen in biochemical perspective with some objectivity, since (8) "We find, likewise, that the number of species providing man with narcotic agents is very small. Between four and five thousand species are now known to be alkaloidal (*apud* R. F. Raffauf), and we must realize that constituents other than alkaloids—glycosides, resins,

essential oils, and others—may also be responsible for narcotic activity. Probably no more than 60 species, including Cryptogams and Phanerogams, are employed in primitive and advanced cultures for their intoxicating effects. Of these, only about 20 may be considered of major importance."

Only four or five narcotic cultigens are commercially important; and they are unknown in the wild state, indicating long association with man. Surely, there is no massive selective ecological difference between the Old World and the New to account for great discrepancies in plants producing alkaloids, glycosides, resins, and essential oils in every case! We are, therefore, again forced afield beyond the probabilities of "natural occurrence" in order to explain the discrepancy in narcotics between the Old World and the New.

More ethnologist than ethnobotanist² and certainly than botanist, I believe that the statistical discrepancy may perhaps be explained on two levels: (1) our *human* ignorance (i.e., that of primitive folk-botanists as well as that of scientific ethnobotanists) of the total facts of local and world distribution; and (2) the *relatively greater knowledge* of New World psychotropic plants, which is based on identifiable "cultural differences . . . as yet unappreciated." That is, an ethnic, not a botanical, explanation is to be sought. Certainly, all we are privileged to assert on the basis of present knowledge is that there are more *known* psychotropic plants in the New World than in the Old,³ and that, most sig-

² It is nevertheless a matter of great satisfaction to me that in 1936 I introduced Dr. Schultes, on his first and my second trip, to ethnobotanical field work (Margaret B. Kreig, *Green Medicine: The Search for Plants that Heal*, 1964); and I owe to him identifications in an ethnobotanic product of my third trip: *Materia Medica* of the Aymara, Lake Titicaca Plateau, Bolivia, *Webbia*, XV, No. 1 (1959) 47–94, Firenze: Istituto Botanico dell'Università, 1960.

³ It would be difficult to maintain, despite Schultes' brilliant and protracted field work and that of his distinguished predecessors, that New World plant species are *better known* botanically (the many new species he discovered would alone tend to discredit the

nificantly, these were all known to primitive New World men, i.e., the American Indians. Is it possible that American Indians were *culturally motivated* to seek out psychotropic plant substances, as implied in Schultes' shrewd surmise? I believe that this is demonstrably the case. To show this requires a brief summarizing excursus into pan-American paleo-Indian basic culture.

Though essentially Asiatic paleo-Siberians (the Akmak people) (9) early hunted in interior Alaska and on the tundra of "Beringia" at the height of the last glaciation 20-18,000 years ago—when so much water was tied up in glacial ice that the continents were connected by this 1,300-mile-wide, dry-land corridor—the rest of the New World was blocked to man by an all-Canadian glacier that began to gap only about 14,000 years ago. Most authorities now date the first massive invasion of proto-Indians to the late paleolithic big-game hunters of the interior North American plains, whose culture can be traced through the "Magdalenian" of Lake Baikal sites in Siberia westward to the classic Magdalenian of western Eurasia. (Charred baby mammoth bones in California imply in date a Neanderthal phase of man in America that has never been found and few believe in; certainly the American Indian is only a paleo-Mongoloid version of modern *Homo sapiens*).

On the basis of culture traits universal or near universal from Alaska to Patagonia (e.g., the bow, spear thrower, dog), it is evident that the trickling southward of paleo-Siberian hunters continued on into the Mesolithic (witness the sporadic but distant occurrence of mesolithic-period pottery in Middle and South America), at which time, many believe, the Eskimo somewhat blocked further incursions of

supposition) than those of the long-researched Old World in general, and hence *more narcotics are known* from the Americas. The critical point is that these were *already known to natives*. Furthermore, any "narcotic complex" in the New World would necessarily embrace North, Middle, and South America alike ethnographically, and especially their contiguous meridional portions, say 40° N. Lat. to 25° S. Lat., a region ethnographically, but hardly botanically, significant.

Asiatic peoples and cultures. It perhaps need not be noted that this picture is fully confirmed archeologically (e.g., Asiatic-American semi-subterranean houses from Siberia to Alaska and the American Southwest), linguistically (e.g., tone languages like Navaho and Apache have been linked through proto-Athabaskan and proto-Sinitic to the Tibeto-Chinese tone languages of Asia), physical-anthropologically (serologically, etc.), culturally (the conical tipi-wigwam extends from western Asia across Siberia to the Central Algonkians of the Great Lakes, snow vehicles from Finland to Maine, the circumboreal "bear ceremonialism," the Tungus olonism and American vision-quest complex, etc.), folkloristically (the Eurasiatic-American lightning-eagle, the "magic flight" motif, the Orpheus legend), and even botanically (the absence of aboriginally-shared cultigens).⁴

All the invaders from Siberia were simple hunters and gatherers. All American agriculture and domestication (save for the mesolithic dog) were local developments wholly independent of Asia. No later animal domesticates and no cultivated plants were intercontinentally shared in pre-Columbian times—though, interestingly, the use of wild-gathered narcotic mushrooms, which on evidence to be presented later I believe to be authentically mesolithic in

⁴ The more romantic "Kon-tiki" fantasy of Polynesian settlement from Peru quite lacks the integrated and consistent evidence from all these sciences, and flies in the face of all that we do in fact know about Polynesian race, languages, culture, social structure, religion, political systems, mythology, etc. Even the alleged botanical evidence of the sweet potato rests on shaky grounds. On the other hand, that stray canoes full of Polynesians sporadically reached the New World is quite commonly accepted by Americanists nowadays, on specific trait-distributional grounds. The exclusively proximate-to-Asia presence of body-armor, and perhaps the distinctive Northwest Coast art (Asiatic similarities visible as late as the first Chinese bronze-age Shang Dynasty have been convincingly argued) must be regarded as later exceptions to this oversimplification. But the generic Amerindian culture-horizon remains nevertheless incontestably the Upper Paleolithic-Mesolithic on both positive and negative evidence.

age, was known, perhaps even part of an incipient "narcotic complex," both in aboriginal Siberia and America. Basic religion in both Americas was the visionary shamanism of hunters (animal familiars, animal "owners") quite like and in fact culture-historically continuous with paleo-Siberian shamanism and the shamanism of mesolithic Eurasiatic hunting peoples. As ecstatic-shamanists they valued the psychedelic state; as simple hunters and gatherers they were under pressure continuously to explore their plant environment for food—and accidental new narcotics.

The ethos of American Indians was and essentially remained that of hunters.⁵ For one basic example, economic organization and social status everywhere—even to the *potlach* give-away feasts of the wealthy Northwest Coast fishermen, even to the economic take-and-give of the "great house" chiefs of Amazonia, and even to the stored tax hoards of the royal Inca communal state—all were ultimately based on the invidious ability of hunters to provide shared largesse for their dependents.⁶

⁵ Even the famed prestige-warfare of the Plains (which was certainly not Marxian class warfare, struggles over the means of production, etc.) may have derived ultimately from the hunting ethic. When strictly invidious prestige could no longer be based on hunting of animals so fantastically plentiful and easily accessible as the Plains buffalo, then the more difficult hunting of men preserved the invidious prestige basis of aboriginal American society—but joined, as we shall see, by other basic aboriginal elements in generic Indian culture like the "power" quest.

⁶ From the *Philosophes*, encyclopedists, and other 18th-Century utopians down to the early 19th-Century Romantic Movement, the image of the American Indian (with obvious tendentiousness in then-contemporary Europe) has been that of open-handed communalist generosity. But this ethnographic truth neglects the obverse of the coin, the inveterate and deep-rooted psychological dependency of the rest of the band on the great hunter and band chief—not all James Fenimore Cooper's Indians were deer-slayers!—a dependency early transferred to the trader as source of goods, then to the Indian agent, and now on reservations to the Indian Office bureaucracy. The proud hunters and warriors without weapons

In this male-centered hunting society, curiously, *quite like food*, a boy's manhood and manly prowess in hunting and war and sexuality, *all came as gifts from the outside*, from the stronger ones—that is, as "medicine" power from the outer generalized supernatural (Siouan *wakan*, Algonkian *manitou*, Iroquoian *orenda*, etc.), and not from any endogenous endocrine entelechy within.⁷ At adolescence this power was *acquired*, or struck in like lightning, or imbibed by the individual, whether in the individual vision quest, the shamanic spirit-possessed ecstasy, or in the invariably, therefore, sacred eating, drinking, or smoking of psychotropic plants.

It strikes us as strange that the "doctor" takes the "medicine" in the whole area of

are now, sadly, a rural proletariat of the psychologically (and culturally) most dependent kind. It is no accident that peyotism has since 1890 diffused almost universally in the Plains tribes. It might even be argued that the notorious Indian vulnerability to alcohol is consistent with their inveterate quest for "medicine power" *from outside* and their deep cultural dependence on the psychedelic experience. Any attempt to "better" the plight of the Indian must realistically take into account, beyond romanticism, the culturally built-in psychological dependency of the American Indian.

⁷ Even in the advanced hierarchic agricultural societies of the Aztec of Mexico and the Chibcha of Colombia, with the generalized supernatural now become personalized gods (e.g., the Aztec god of war whom, before sacrifice, the bravest war-captive impersonated for a year), these gods still needed to be fed spirit-power like food from human-sacrificial victims (the Aztec captured these victims, the Chibcha bought them in a lively trade with neighbors). Quite as Andeans brought tribute to the Inca, and as young Amazonian hunters perforce brought their game to the great-house chief to distribute, so also in religion hierarchic Aztec and Chibcha brought human-spirit food to their gods. The obtaining of these victims was the chief motive of Aztec war. Farther north scalping, and farther south head-hunting, had the same motive, the acquisition of spirit-power from scalp or skull, whether for the individual or for the tribe. *Mos saecula, mos religiosa*: men need "power" for success in all male activities, gods need power to remain gods.

the American narcotic complex, rather than the sick patient. But this is entirely logical in native terms, since it is the shaman who needs the supernatural "power" to effect a cure, i.e., to diagnose the human or physical cause (often a crystal, a feather, a claw to be sucked out), to contest a rival's malevolent magic causing the illness, to prognosticate, for clairvoyance, to control the weather, etc. Moreover, even more widely than in the narcotic-complex area, the shaman-visionary has power over an illness, manifestly, because with supernatural power he has recovered from it. Likewise, any patient whom he cures characteristically joins the "medicine society" of the shaman, cure being much like initiation into a ritual secret one witnesses and learns, so that all members of the Bear Society, for example, share "bear power." It is a psychic sodality quite like Alcoholics Anonymous.

For the American Indian, the presence of any psychotropic effect in a plant was plain evidence of its containment of supernatural "medicine" or spirit-shaking "power." One introjected the power exactly as he ate food. This principle was true of even so mildly psychedelic a drug as tobacco. Aboriginally, tobacco was *always* used in a sacred magico-religious context, and never for mere secular-indulgent enjoyment. Thus when the post-adolescent Amazonian boy licked from his dipped spatula the thick tobacco infusion from the men's palaver-pot, the act signified and sealed his yea-vote (by convention all Indian votes are "unanimous"), which he must thereafter religiously honor under the potent supernatural sanction of the manifest "power" in the tobacco liquor. And when, in the Woodlands or Plains, Indian chiefs in a grave intertribal pow-wow smoked the sacred calumet or peace pipe, the rite meant the invoking of the power of tobacco upon their sacred oath. An Iroquois visionary made the appropriate gift to a tobacco-begging supernatural he was lucky enough to encounter in the woods, whereupon he carved the face of the supernatural on a living basswood tree and possessed the supernatural's power when he wore the cut-off mask in any subsequent dance of the False Face So-

ciety. A Plains Indian peyotist censes himself in the smoke of the shavings the Cedar Chief casts on the fire; he rubs the sweet smell of *Artemisia* on his joints to preserve his body from aches and pains; but he is "praying" when he smokes a blackjack oakleaf- or a cornhusk-wrapped cigarette in a peyote meeting. The abundant evidence would suggest, in fact, that tobacco was *the* supernatural plant *par excellence* of the American Indian, for tobacco was used aboriginally everywhere that it would grow in the New World, that is from middle Canada southward to Patagonia.

In similar fashion, no Andean communicant would dream of approaching the supernatural without being intoxicated with the chewed coca leaf; more exactly, the psychedelic effect *is* the supernatural. In Mexico, even into historic times (10), alcoholic intoxication occurred in a sacred religious context; and the same was probably true in tribal drinking fiestas from the non-Pueblo Southwest to the Andean plateau and Amazonia (11). The Virginian "huskinawing" with the *Ilex* "black drink" was a puberty ritual. *Datura* intoxication was part of a puberty ordeal or of shamanistic possession in southern California, and in any other use of daturas in South America a similar magico-religious context should be sought. The same should be done with respect to the *Virola* snuffs and *Piptadenia peregrina*. Aboriginal Aztec and modern Mazatecan use of the "teonanacatl" mushrooms (literally, eating the "flesh of the god") has very ancient cognates in the paleo-Siberian use of *Amanita* fly-agarics in shaman-led group-intoxications; the alleged "mushroom stones" of the Maya represent probably just that. The red bean *Sophora secundiflora* had supernatural power whether laced on a moccasin-fringe, hidden in a medicine bundle, or worn as a necklace, because it obviously had "medicine" power whenever eaten; it was also used in an aboriginal "Red Bean Cult" spreading from prehistoric Texas (the evidence is archeological) to the southern Siouans (12). And with all specific tribal cultures now largely gone, residual generic Plains culture still regards the hallucinations produced by eating peyote, *Lophophora*

williamsii, as visionary proof of the presence of the supernatural (13). Whether shaman alone, or shaman and communicants, or communicants alone imbibe or ingest the *Ilex* black drink, datura infusions, tobacco in whatever form, native beers and wines, peyote cactus, ololiuhqui seeds, mushrooms, narcotic mint leaves or coca, the ayahwasca (*Banisteriopsis caapi*) or "death vine"—or any of the vast array (14) of Amerindian psychedelics—the principle is the same. *These plants contain spirit power.*

Although the earlier Indian use of psychotropic drugs in shamanistic hunting societies is still thoroughly visible in the Aztec use of many psychedelic drugs in their more codified seasonal rites to gods (peyote, "mescal" beans, *Agave* pulque, teonanacatl, datura, morning glory seeds, narcotic mints, tobacco, etc.), and to a degree also in the use of coca in advanced agricultural-herding states of the Andes, such as the Aymara⁸ and the Inca, it has been repeatedly remarked by ethnologists that the intensively agricultural Pueblos, with their more tightly organized politico-religious theocracies, manifest almost a clear repugnance to the use of alcohol and other psychotropic substances. Nearer geographically than Plains Indians to the natural area of *Lophophora williamsii*, they are yet not peyotists, even though they have been longer exposed to Mexican-Southwestern peyotism (save for Taos, most Plains-like of the Pueblos, with its centuries-long battle over peyotism). In the midst of Athabaskan and Yuman tribes, with their typical ritual use of many native wines and beers, the Pueblos shun alcohol. They also lack *Sophora* cults and for the most part any use of datura; and though they border on Mexican tribes that use narcotic mushrooms, mints, ololiuhqui, etc., the Pueblos use none of these agents. Among Pueblo agriculturalists, erstwhile shamans have become primarily rain-priests, emphasizing almost exclusively the old ability of shamans to control the weather.

⁸ Perhaps the quite remarkable plant *materia medica* of the Aymara should also be taken into account here.

Is it possible that agriculturalists have different anxieties from those of hunters? Is a "technology" of rain-making more needed than animal-helpers? Does religion itself become more bureaucratized with denser town-living? And do town-living people become more sophisticated and demanding epistemologically than individualistic hunters naively content to rely on similarly individualistic religion, the direct mystical experience?

These are very large questions. And yet some of these trends may be discerned in our own cultural tradition. Behind the Olympian king of the gods himself—an image significantly consistent with the *tyrannos* of the early city-state—lurks the old Indo-European, nay ancient Eurasiatic, shaman. Northern Zeus, who in Greece married local Hera of the "clear sky," still remained the weather-shaman and rain-making. The father of gods and men was still a fertility figure, like the masked sorcerer of Trois Frères and the central shaman in the Cogul Dance; Zeus could still, like a shaman, metamorphose into many Ovidian animals. Indeed, he and his brother Poseidon still held the sacred trident symbolic of the old Eurasiatic shaman. Many a Greek god retained as "attribute" his original shamanic animal-familiar (Apollo's wolf, Artemis' stag, Athene's owl and snake, Zeus's thunderbird, etc.), and many of them kept attributes of the old shamanistic "Master of Animals" (Apollo, Artemis, Proteus, even Zeus himself). Behind the ubiquitous rain-bull of Neolithic agriculturalists in Asia Minor and Egypt, too, was the mighty wild aurochs of late Paleolithic hunters; in this region also was many an ancient "Mistress of the Animals" as old in prototype, perhaps, as the Magdalenian mother goddesses. And even the two gods most characteristically Greek of all still had their shamanistic ecstatic oracles, Zeus at Olympus and Apollo at Delphi (some say intoxicated with laurel leaves). Indeed, the Mysteries and even later cults drank immortality with the blood of the vine-god and ate it in the flesh of the divine animal or the seed-cake of Ceres.

It has even been plausibly argued that the Indo-European gods were "divine" in

directly shamanistic terms: they drank *amrita* nectar (alcoholic mead from fermented honey-water may be as old as mesolithic art showing honey-gatherers), and they ate odorous ambrosia (the narcotic mushroom of paleo-Eurasiatic shamanism). The shamanism of ancient hunters seems never to have been lost, merely transformed! And perhaps the Olympian Greek nature-gods are so naively man-like simply because they were once men: the shamanic nature-mage and rain-kings?

What is the tenor of these speculations? Briefly: hunters have supernaturals apposite to their needs, and shaped projectively by their socio-economic ecology and secular anxieties. These figures are not lost with the "Neolithic revolution" of agriculture and husbandry, but are only masked and changed into socio-politically more relevant gods. The personal *magic* of ecstatic shamans borrowing supernatural forces from nature evolves into *religious* worship and placation of cosmic gods in whom the power permanently resides. (And when the anthropomorphic God dies, we have left the impersonal forces of science.)

American Indians, in ethos essentially still hunters (with high agricultural centers late local exceptions), had in religion still also the fundamental shamanism of hunters. American Indians still actively sought the mystic visionary experience; their epistemological touchstone for reality was direct psychic experience of the forces in nature, not a sophisticated critique that seeks to rid experience of subjective elements; and they still sought, under this religio-cultural inspiration, the actively psychedelic drugs to ensure this state. Their cognitive map was that of the mystic, perhaps, but it was also pharmacodynamically pragmatic: *some plants house spirits and psychedelic forces*.

Perhaps Old World peoples once sought and possessed more of these plants too, but these have become religiously less important (all power lies in gods), and some of them like soma and ambrosia now are unknown botanically and at best only dimly recognizable as psychedelic vehicles of divinity. American Indians of the ethno-

graphic present still have the knowledge of psychotropic plant substances consistent with the characteristic shamanism of hunting societies. The Old World once may have known many more such plants, but with socio-cultural changes these have now largely faded into desuetude. Meanwhile, in ultimate objective botanical fact, the Old World may contain as many psychotropic plants as by chance we would expect them to have from our knowledge of the vivid and still discernible "narcotic complex" of the New. The ethnobotanist and the paleo-ethnologist need only learn over again what earlier men once knew.

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