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3. Bernice Torrez is Essie Parrish's oldest living daughter.

4. In this context 'sacrifice' refers to the expenditure of time and money involved in the preparation of food and to payment for performance of a ceremony.

5. Santa Rosa Valley.

6. Violet Chappell is Essie Parrish's second oldest living daughter.

7. It is taboo for young girls not to pass by this rock without performing a ceremony. If a girl does not observe the taboo she will see a large snake, either wrapped around, or draped over the rock watching her. When this happens the snake will reappear to the girl during times she menstruates.



## *A Query Regarding The Possible Hallucinogenic Effects of Ant Ingestion In South-Central California*

THOMAS BLACKBURN

An increasing number of anthropologists have turned their attention in recent years to the topic of altered states of consciousness, with the result that an extensive list of pharmacologically active substances capable of inducing such states has now been compiled. However, virtually all hallucinogenic materials reported so far in ethnographic contexts have been botanical in origin, even though the wide range of substances and techniques (e.g., sensory deprivation, pain, etc.) used in various areas of the world argues for lengthy and extensive experimentation with most facets of the environment on the part of many gener-

ations of native scholars. Reports of apparent hallucinogenic agents of a non-botanical nature should therefore be of more than passing interest, particularly when the ethnographic context involved is California.

In 1917, John P. Harrington of the Smithsonian Institution worked extensively with two Kitanemuk informants (Eugenia Mendez and Magdalena Olivas) at Tejón Ranch, and recorded some 1500 pages of ethnographic and linguistic field notes. These notes (which are presently on file in the Department of Linguistics at the University of California, Berkeley) contain a number of references to means of acquiring supernatural power. In common with most groups in the southern half of the state, the Kitanemuk employed both *Datura* and *Nicotiana* species as narcotic substances with useful medicinal and mind-altering properties. But they also seem to have utilized certain species of ants in a similar fashion, as the following passage attests:

You cannot get to be *ʔatašwinič* by eating well—you have to go three days without eating or drinking. They do this to save the boys from getting killed. They gave them red ants to eat. For long ago there used to be lots of fighting . . . Sometimes did it to several boys at a time. Sometimes a sole boy merely requested it—went to an old man who knew how to talk and that old man would take the boy to the hills at some secluded place and pray for him there . . . The boy does not eat nor drink for three days. On the morning of the third day the old man goes with the boy out into the hills, to any place (not to a shrine, but to a place where he will be alone, will hear no one talking), and there gives him the ants, the boy lying down as he takes them, the old man throwing them into the boy's mouth with his fingers while the boy inhales. The old man gives the boy many thus. The bear or whatever animal desires to kill the boy (that is the expression, means he has like a dream or sleep). This animal gives the boy the boy's *virtud*.

Along in the late afternoon the old man returns to the place in the hills where the boy is. During the day the boy has either been sleeping all the time, or has awakened but stayed in the same place. The old man now returns to the place and prays there for the boy. . . . The old man in praying states that the boy has a *suerte*. He mentions the word for God, also *tuskit* [Harrington n.d.:1168-1170].

Ants were used medicinally, of course, over a rather wide area and were frequently swallowed live as an emetic or were allowed to bite the exterior of the body (e.g., cf. Kroeber 1953:516, 628; Drucker 1937:43; Voegelin 1938:60; Driver 1937:99; Aginsky 1943:440; Steward 1941:331; Stewart 1941:373). Ants also played a prominent role in the *antinic* or "ant ordeal" of the Luiseño a rite which followed temporally (and had suggestive parallels with) the ritual drinking of *Datura* (Strong 1929:317). That the ingestion of live ants might also have had hallucinogenic or mind-altering effects as well under certain circumstances seems to have been generally overlooked in discussions on the shamanistic behavior or medical knowledge of native peoples. Naturally, a single apparent report of such effects like the one just cited is far from persuasive, and I must admit that my own initial reaction to the above passage was one of skepticism. However, a cursory examination of some of the ethnographic literature on nearby California Indian groups has caused me to modify my thinking on the subject, and has led me to present this brief comment in the hope of eliciting further information or stimulating discussion. Voegelin, for example, reports that the Tübatulabal utilized ants in much the same way as did the Kitanemuk:

Youths of about 18 or more also took ants to gain power; SM said younger women did not take ants, not being strong enough, but FP had been given them. Taking of ants individual matter; done in winter-time; youth fasted as for jimsonweed; on

third day was taken into sweat house by either of his grandfathers and about 7 balls of eagle down, each containing 5 yellow ants, given him with water, "like pills." When the boy's eyeballs turned red person administering ants knew he had had enough, and shook him so that ants would bite him inside. Youth then fell into stupor which lasted all day; usually regained consciousness in evening; next morning was given hot water to induce vomiting; "the ants came out alive, in those little balls." In the evening grandfather took youth outside, questioned him about what he had seen in trance; boy told old man what life he had obtained, if any. All youths could take ants thus; "many of them did" [Voegelin 1938:67-68].

The Kawaiisu, adjacent to both the Kitanemuk and Tübatulabal, also swallowed live ants in balls of eagle down on occasion as an alternate means of inducing visions and acquiring supernatural power (Zigmond 1977). In the Culture Element Distribution lists compiled by Driver for the southern and Aginsky for the central Sierra Nevada, the ingestion of ants as a method of acquiring power or in connection with a vision quest is attributed to the following groups as well: Wukchamni, Yaudanchi, Yauelmani, Paleuyami, Bankalachi, "Valley Yokuts," North Fork Mono, and some of the northern Miwok (Driver 1937:99, 103; Aginsky 1943:440). One of Harrington's Kitanemuk informants suggests additionally that the practice extended to the south and might have been incorporated into the more formally structured religious system of the Chumash and Gabrielino:

The religion of coast—that religion in which they knew everything was not here [Tejon]. It was at Ventura and reached to San Gabriel—it was very strong in San Gabriel. It did not pass on to San Luis, for those were different people. And it followed up the coast Santa Barbara way, informant nescit how far. In that religion you take ants or toloache and they advise you and teach you everything. You do not learn them merely as I am here now (full of

coffee). Here a few knew—were wise men—but the Kitane muk did not have the religion of over there. Informant nescit G. činičmič [Harrington n.d.:1140].

In view of the information just presented, it seems reasonable to conclude that certain species of ants were routinely swallowed live as one means of obtaining supernatural power by most groups living in south-central California, and that a trance-like state similar to that induced by *Datura innoxia* was apparently engendered in persons who did so. But three primary questions remain unanswered: (1) What species of ants were employed? (2) What physiological or psychopharmacological effects might have resulted from their ingestion? and (3) Were similar practices followed anywhere else? I am personally unable to provide any kind of authoritative answer to these questions, nor indeed am trying to do anything more than pose them at this time; however, other investigators might find the following bits of data useful in trying to reach more definitive conclusions. Dr. Roy Snelling, myrmecologist at the Los Angeles County Museum of Natural History, has suggested (personal communication, 1975) that the ants utilized might have been some species of the genus *Myrmacomecocystus*, perhaps *M. testaceus* (the yellow honey ant). Dr. Murray Blum, however, a biochemist at the University of Georgia who is presently investigating the chemistry of this genus, reports (personal communication, 1975) that he has not as yet isolated any compounds in the toxin of these particular ants that he feels would be especially stimulative. But recent analyses of toxins from some of the few ant species so far examined by biochemists have demonstrated the presence (in addition to the expected formic acid) of many compounds of a type previously known only from plant sources. Among these are three lactones related to nepetalactone (the active agent in catnip, and a possible hallucinogenic in man—

see Jackson and Reed 1969) as well as several alkaloids related to coniine (Pavane 1959; Blum, personal communication 1975). Thus a number of potentially hallucinogenic or mind-altering substances have been isolated from ant toxins to date, and ants producing all of these compounds are common in the western United States—the implications, I believe, warrant further research. It will certainly be interesting to see what other compounds are discovered when studies are undertaken of the toxins of some of the other 12,000 or so species of ants estimated by entomologists to exist on earth.

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