

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, JUNE 11, 1965

VOL. 21, No. 1

THE 'MUSHROOM MADNESS' OF THE KUMA

BY

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FEW have heard of the 'mushroom madness' that strikes at irregular intervals some of the natives of the Wahgi Valley in New Guinea. Even in New Guinea itself those of European race are often not informed about this puzzling behavior. But for us who had long been studying the role of wild mushrooms in primitive cultures, the first intimation of the mushroom madness to reach us, early in 1953, arrested our attention: we seized on it and both from published sources and by private correspondence tried to inform ourselves about it. The more we learned, the more we were baffled. At last circumstances permitted us to visit the Wahgi: in 1963, accompanied by Dr. Marie Reay, anthropologist of the Australian National University, we spent about three weeks on the scene.

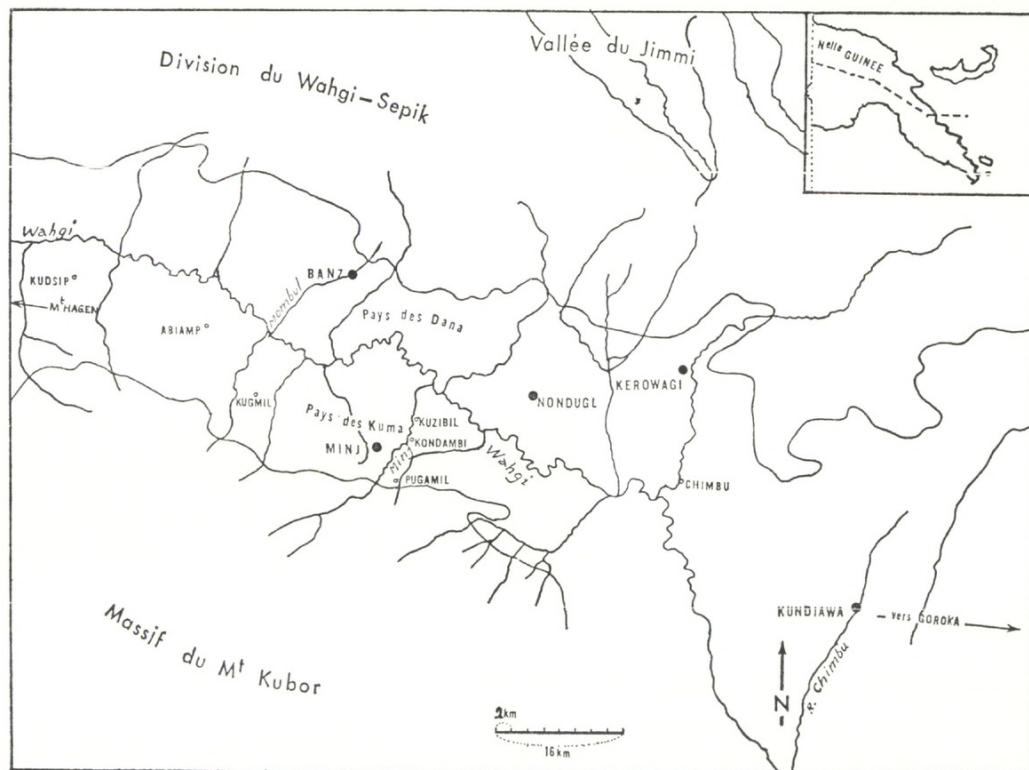
Mount Hagen and the Wahgi River are in that portion of New Guinea administered by Australia under mandate from the United Nations. They are in the Western Highlands. The river flows eastward through

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a broad valley the altitude of which above sea-level is about one mile. The length of the valley is some fifty miles, the breadth from eight to 14 miles. The valley is bounded on the west by Mount Hagen, on the east by the Chimbu massif, on the north by the lofty Bismarck range with Mount Wilhelm towering 15,400 feet high, and on the south by Mount Kubor, 14,000 feet high, and its abutments. Lying five or six degrees south of the equator and enjoying an abundant rainfall, it basks in eternal summer. How inviting must have been the prospect, when European eyes first viewed this valley from the ground, with its luxuriant vegetation and its riot of strange wild flowers, hardly more than 30 years ago, in 1933! The Australian party headed by the Leahy brothers that first penetrated this valley could have experienced the awe of discovery that attends the first view of a green and enchanting land—the first view, that is, by persons of the modern world. They found the valley inhabited by a farming population, perhaps some 30,000 in number, ranging in color from deep copper to black, their hair crinkly, normal in stature and of good physique, all speaking the same language with dialectal differences. At least one group of these people called their speech *Yuzwi*, by which in their language they meant ‘real speech’, to distinguish it from all the other languages and dialects. All the languages were unwritten, of course. We know now that the language of the Wahgi is closely related to Medlpa, spoken by the Mount Hagen tribes. Presumably in the not distant past one people speaking a single tongue split up, and in isolation each developed out of the original stock its own language. Their remoter origins are not yet known. The ‘mushroom madness’ is a feature of both cultures, although it seems to be dying out among the Medlpa speakers.

When the Australians arrived on the scene thirty years



Map of the region visited by Roger Heim and R. G. Wasson in the Western Highlands of Australian New Guinea in August and September 1963.

ago, the Wahgi people were living in the stone age uncontaminated by the modern world. They knew no metals, no cereals. They bred no beasts of burden to help them in their work. Of course they had no wheel, neither wind-mill nor water-wheel. They possessed no grinding-stone, no mortar-and-pestle. They made no pottery, nor did they acquire pottery from others by trade. They knew no alcoholic drink. They spun no yarn, weaved no cloth, wore no clothes. The women wore a cache-sexe of strings, fore and aft, suspended around the hips by a cord. The men wore a double layer of netting in front, suspended from a plaited belt, and behind a bustle of leaves, the stems of the leaves being stuck fast inside the same belt. But it was in the adornment of their own persons that the culture of the Wahgi Valley ran riot. They would rub their bodies in the fat of pigs, until their bodies shone like metal. They would daub their bodies with colored earths, in the case of recent widows a ghastly white from head to foot. They would tattoo themselves in asymmetrical patterns. They would wear plaited arm bands and ankle bands. There was a recognized hierarchy, according to beauty and rarity, of shells and tusks that they wore through the nasal septum, around the neck, or encircling the jaw bone. On ceremonial occasions the men would don the most stupendous head-dresses made up of plumes of rare birds, especially birds of paradise, which are the conspicuous feature of the bird life of New Guinea.

The substance of native life has not changed to this day: the sing-songs and courting practices continue as before, and the exchange of bride and bride-price, and the ceremonial pig-feasting. But the din of the modern world, with its conveniences, is mingling most incongruously with the ancient ways, and change is setting in under the influence of administrative penetration and of

the religious schools. Few if any natives of the Wahgi have been taught English. Only the missionaries and Dr. Reay have set out to learn the language of the Wahgi valley, and they are modest in speaking of their attainments. The peoples of the two races meet on common ground in Pidgin, a language that filters out all that is distinctive and most that is of value in both cultures. Only now, at last, since Don and Janet Phillips of the Summer School of Linguistics have taken up residence at Tombil, outside of Minj, is a start being made toward a deeper understanding of the native tongue.

In the first ethnographic document ever published about the Mount Hagen natives, by Father William A. Ross, S.V.D., there is already a reference to the 'mushroom madness'. Written in 1934, the year after the Leahy brothers penetrated into the area on the first patrol, Father Ross's account has this to say: 'The wild mushroom called *nonda* makes the user temporarily insane. He flies into a fit of frenzy. Death is even known to have resulted from its use. It is used before going out to kill another native, or in times of great excitement, anger or sorrow.' Father Ross wrote this statement after he had been in the country only a short time. Inevitably it is inaccurate, but it shows the initial impact on an intelligent observer of a peculiar cultural manifestation, and it served to draw the attention of the learned world to the problem.¹

¹ Rev. Wm. Ross: 'Ethnological Notes on Mt. Hagen Tribes', *Anthropos*, 31, 341-363 (351), 1936. In a footnote Father Ross explains that he composed his notes on the basis of ethnographic and linguistic observations of the Rev. Fr. J. Kirschbaum and Dr. Chr. von Furer-Haimendorf.

Of the following references the first three reflect Father Ross's observations.

(a) Gitlow, Benjamin L.: *Economics of the Mount Hagen Tribes, New Guinea*. Amer. Ethnological Soc., Monograph XII, 1947. (The

author repeats what Father Ross says almost verbatim, but forgets to mention his source.)

(b) Vicedom, G.P., and H. Tischner: *Die Mbowamb. Die Kultur der Hagenberg-Stämme in Östlichen Zentral-Neuguinea*. Private English translation by F. E. Rheinstein and E. Klestadt, Vol. 2, 496-7.

(c) Wasson, V.P., and R.G. Wasson: *Mushrooms Russia & History*, Pantheon Books, N.Y., 1957. (The authors cite Gitlow, not knowing that he was quoting Father Ross.)

Up to now the only serious research into the mushroom madness has been that done by an anthropologist:

(d) Reay, Marie: *The Kuma: Freedom and Conformity in the New Guinea Highlands*, Melbourne University Press, 1959, pp. 188-196.

(e) Reay, Marie: '“Mushroom Madness” in the New Guinea Highlands', *Oceania*, Vol. XXXI, No. 2, Dec. 1960; 137-139.

In addition, Roger Heim in his *Champignons Toxiques et Hallucinogènes* (Boubée ed., Paris, 1963, pp. 195-201, 289) summarizes our knowledge of the mushroom madness up to 1962, and poses the various problems presented by this manifestation.

Dr. Rolf Singer, on his part, published a note on a *Russula* that was put forward as a cause of the mushroom madness: 'A *Russula* provoking hysteria in New Guinea', *Mycopath. et Mycol. Applicata*, 9 (4) pp. 275-278, 1958. But, as a result of our latest observations of material, it seems that the *Russula* used by the Kuma is very similar to, but not identical with, the species sent to Dr. Singer.

We should add that for years the Australian administrators of the Western Highlands have been concerned with the medical and legal aspects of 'mushroom madness'. The relevant correspondence has been concentrated largely in the hands of Dr. Dorothy E. Shaw, Principal Plant Pathologist, Department of Agriculture, Stock and Fisheries, Port Moresby. We are grateful to her and to Mr. Stanley Christian, Research Officer of the Malaria Control School, Kundiawa, for their cordial collaboration. Dr. Shaw's activities have so far led to the publication of a bibliographical note on p. 12 of the Annotated List of References to Plant Pathogens and Miscellaneous Fungi in West New Guinea, Research Bulletin No. 1, 1963, Department of Agriculture, Stock and Fisheries, of which Dr. Shaw is the author.

Thanks to him, for the first time the native word *nonda* entered into the consciousness of anthropologists. It is used in the Wahgi Valley and apparently around Mount Hagen as a general term for all mushrooms. Don Phillips pointed out to us that *nonda*² means also 'he will

² Mr. Phillips tell us that the word *nonda* should be written *nonde*,

eat', and *nondo*, 'he can eat', words derived from the stem *non*, 'eat'. He thinks the word used for 'mushroom' is a homonym and unrelated to *non*. We may accept his opinion in the present state of our knowledge of the native language, but if as a result of his further studies he should change his mind, we should (as we were tempted to do in the first place) be presented with proof of an association of ideas that would have considerable ethnomycological meaning. The fact is that the food gathering stage of culture is not far distant in the Wahgi Valley, and many species of mushrooms are still an important source of nourishment for the Kuma, as for other New Guinea ethnic groups such as the Gadsup.³ Before the introduction of the sweet potato and the taro, it is possible, even probable, that mushrooms played a still more important part in the lives of these primitive peoples. In this tropical land where rain is not lacking, mushrooms are gathered during most of the year, and it would not be surprising if the word expressing the act of eating were applied in a secondary sense to the daily nourishment brought back from the bush and the deep forest.

We remained in the Wahgi from the 27th of August until the middle of September, most of the time in Kondambi, a native village where we were the only outsiders. In the middle 50's Marie Reay had spent 15 months there: she was now returning for the first time. The villagers greeted her with noisy manifestations of affection, and her introduction was invaluable to us. We

but it seems to us that usage has already expressed its preference for the former. Our stay in New Guinea was too short to satisfy us that we had obtained an accurate method of phonetic transcription of the native names, but we believe that our transcriptions will be recognizable.

³ *Vide* Heim, Roger: 'Les Champignons alimentaires des Gadsup', *Cahiers du Pacifique*, Paris, fasc. 6, p. 12, June 1964.

took up residence in the house of the Luluai Wamdi.⁴ It was an oval hut, its internal dimensions being about 14 feet by 10. The dirt floor was covered with dry grass, the thatched roof was supported by two poles and a cross beam, with many struts running from the central beam to the outer walls. The door was so low that we had to bend double to enter, and there were no windows. The Luluai asked us gently to remove our shoes on entering; he never wore any. Soil was piled up around the house, built of course of wood, sealing it from wind and rain. At night a wood fire was built in a hollow on the floor. As there was no way out for the smoke—the door was always closed—the atmosphere became for us Europeans intolerable, except when we lay close to the ground in our sleeping bags. At intervals during the night we would awaken and see Wamdi stirring the fire. His big, spare, dark frame as he knelt in the smoke over the flaming embers, his prognathous jaw, his contemplative expression, seemed to speak for countless generations of stone-age men, as they tended their fires in rising wisps of smoke, in smoke-filled huts. One or another of his children always slept in our house—his wives had each her own house—and it was moving to watch silently the gestures of tenderness between father and child. This, including the smell of smoke, was home for the stone-age man.

Heim spent his days receiving deliveries of mushrooms from the villagers, identifying them, describing them in his note-book, painting them, and going out on forays to see where they grew. Wasson, on the other hand,

⁴ 'Luluai' is a government appointed village headman. The term was introduced by the Germans during their occupation of the New Guinea coast before World War I. It is not a word native to Yuwi, the language of the Kuma. All 'Luluais' have lately been superseded by elected Councillors, but the former Luluai usually continues to enjoy his old prestige.

went about the countryside, as far as Mount Hagen, gathering testimony as to the mushroom madness. We saw no signs of mushroom madness during the period of our stay. At the end of our stay and after we left, Marie Reay, who had remained in Minj, assembled information including native names of vital importance for us.

The data that we gathered fell into three parts:

1. The attitude of Europeans toward the mushroom madness.
 2. The quite different attitude of the natives.
 3. The species of mushrooms held responsible by the natives for the outbursts.
1. *The attitude of the Europeans toward the 'mushroom madness'.*

All the Europeans who have been long in the valley know the recurring outbreaks of mushroom madness, and in varying degrees they are frightened by it. Here for example is a vivid account, in full, that Don and Janet Phillips sent recently to their friends:

. . . . We had been aware of these wild men of the Wahgi even before we came to settle here, having met up with one of them while doing the survey out here. At that time the thought had crossed our mind, 'Was it demon possession or something else?' But when just the other day yells and screams came from higher up the mountain and then everybody scattered and hid while a young man holding a spear at the ready rushed down the track, these wild men began to become part of our lives. About six of these men rushed around on that first day striking fear into everybody's hearts and causing them to rush for cover. Some actually chased some of the people, intending, so it seemed, to do away with them by the arrows or spears that they held. We were standing by a pig feast when the second one came. We could hear him coming by his queer shouts and whistling. As he came around the corner of the nearby house so everybody fled, but we were determined to find out whether he was just playing, or was he really serious? So we stood our ground, being ready however for anything. Though keeping up his whistling he seemed to notice

us, turned around, and went chasing off in the other direction. Our first encounter seemed to prove that he wasn't serious. A little later the first man came chasing back up the mountain, then turned off the track and went after a man bigger than himself who ran away. (While writing to you I can hear the screams and yells from down the mountain where there is evidently another one of these cases.) As this young fellow came running back up the mountain, I stepped out to meet him. He seemed to be about 17 years of age. I called out to him and walked towards him; however, he didn't seem to notice me and went racing off.

These fits of madness come on when the people begin eating what they call mushrooms, but which to us are more like toadstools. They say that at some unpredictable time their eyes begin to swim, they go deaf and crazy and begin this chasing up and down the mountain. They seem to have an amazing amount of energy, as this proves. Young people as well as men and women are affected, the women dancing around, whistling and singing. The whistling is both in and out with every breath, they also giggle and laugh and let out snorts and loud yells.

After dinner another one came by our house: he was a full-grown man. He seemed to slow up by our house and so I walked over to him calling out to him. Everybody else had fled. As I drew near so he turned to look at me. I've never seen crazy maniacal eyes before, but I'm sure that I saw them then. All of a sudden I got an uneasy feeling in my stomach. I realized that only as I was in the Lord and under His blood was I safe. However, trying not to show my feelings, I went right up to him. My dog Rex, his hair standing on end, growled at my side. Coming up to him I tried to take his spear and bow from him. He struggled a little and his glassy eyes kept swimming around in his head. After a while I let him go and he went off down the mountain, shortly to be followed by another of his kind. All of these men we know personally.

Well, the question remained, 'Is this demon possession or not?' Actually the continual state of tension that these chaps were keeping us in was beginning to get on our nerves, so that we determined not to go out and look at just every wild man that rushed by my house but let things take their normal path. The fit seemed to last only a few hours, then the person concerned recovered and acted normally, that is as far as the men were concerned. The women would be affected with a type of drunkenness that lasted for a couple of days.

Saturday afternoon a patrol officer from Minj, a Christian, came out to see us, and leaving Janet we went up the mountain to do some shooting. (Our game was 'hawks' which were killing all the fowls around here.) We returned at about 5:30 in time for tea. On return-

ing Janet told us that while we were away another six of these men had been tearing around our house, while she remained inside with our two dogs. We let the people know that we were quite annoyed at this and determined in ourselves that we would investigate this matter some more. It was that night as our guest was preparing to depart that we heard the yells of one of these men coming down a nearby mountain track. The path on which he was coming led right by our house, and so by the light of the moon we waited for him — he was covered in a white mud and looked real ghostly. Normally Rex, our dog, won't attack a person, but now he and the other dog realized that something was very wrong, and down the path they went. The yell that this fellow let out when he saw the dogs coming was tremendous, he lifted his spear high in the air and then tried to bring it down on Rex, but missed. He then began to make his way back along the path with the dogs driving him. He went up on the gardens and then after about ten minutes of yelling and groaning with dogs harrassing him, though not biting, he collapsed out of sheer exhaustion. We went up to him and knelt over him and tried to talk to him. He kept up his groaning and snorting and twisting and turning. Well, was he serious? Yes, we believe that he was. Well, what had caused it? We decided that it was a mixture of three things. First, he desired to have attention paid him; secondly, the mushrooms giving a reasonable excuse to cause a scene, he then worked himself up into a passive state and gave himself over to the devil, and in this state he went racing off around the country terrifying everybody. So as we waited beside him there we challenged the evil spirit in the name of the Lord Jesus Christ. Gradually his eyes began to clear, and though he kept up a form of groaning, most of the vehemence had gone out of him. We soon had him on his feet and led him back to our house where quite a large group had gathered. They told this chap off and then we let him go, and he went quietly off down the mountain. He wasn't one of the men from our clan, but had run for miles across the mountains. . . .

At the beginning of April 1963, Frank Porter and Harry Lake, two public officials, were seated at a patrol table in Minj. A crowd of natives were opposite, facing them. Suddenly arrows struck the table top in front of them. The crowd took to their heels. The two officials ran for their lives, in opposite directions, one of them seizing a bicycle that a bewildered native was riding, to hasten his get-away. They swear that the native assailant meant business.

Jeff Broomhead, twelve miles from Mount Hagen down the valley, said that two years ago Manga, a former Luluai, came brandishing a spear. Everyone ran away. When they returned with a gun, the man was normal.

In the Chimbu area the nut of a species of *Pandanus* is also taken, it seems, with identical results. We were told that the nut is not from native trees; traders get it from the Jimi Valley, and the species has not yet been determined. Some white people assume that the pandanus nut ferments before it can have an effect, but we could find not the slightest justification for this facile surmise. In the Banz area a tree known to natives as *karwang* (*Castanopsis acuminatissima* (Bl) Hack & Camus, Fagaceae), yields seed that, when steamed and eaten in quantity, has the same effect as the mushrooms. (This is, incidentally, the tree that many mushrooms grow under, especially the *nonda tuburam*.)

The Rev. W. F. White, head of the Church of the Nazarene at Kudjip, 10 miles from Minj, one day met a man armed with an axe rushing down the path, obviously mad with mushrooms. Mr. White was knocked down, but a native friend came out and attacked the assailant, who fled. Mr. White suffered no injury. Back in 1949 the Rev. Herman Mansur, Lutheran missionary at Banz, returned home to find his wife terror-stricken by the threatening behavior of a mushroom-mad native. Mr. Mansur jumped on his horse and chased the culprit up hill and down dale. He never returned. In February 1963 a local man in Banz chased people with a spade. He was held down by several other natives, escaped, and in the scuffle hit one boy rather hard with the spade. The others, furious, 'worked him over'; then they discovered that he had been fooling all the time. He jerked out of it. As a peace offering they held a pig feast at which they all sat down together.

In September 1963 a man was charged in Minj with arson. He had burnt down two houses and was convicted. His defense was that he was under the influence of mushrooms and therefore not responsible for his behavior. It seemed likely that that was an excuse. In any case the white man's courts do not exonerate a man for offences committed while under the mushroom influence. In fact, 'arson' seems an excessive charge when speaking of the natives: a native dwelling can be built in two days.

We visited Father William A. Ross, S.V.D., of the Catholic Mission of the Holy Trinity at Mount Hagen. He was the first missionary to enter the area, having come in 1934, the year after the initial penetration. (We have already quoted from his report, written at that time.) After our visit he sent us a letter in which he gave his considered opinion that imagination plays a large part in bringing on the effects of the mushrooms, and that large quantities of the mushrooms must in any case be eaten, mixed with other foods. He said that 'mushroom madness' had virtually died out in the Mount Hagen area, though large quantities of the same mushrooms continue to be consumed by the natives. Father John Sheerin, S.V.D., of the Mingende Mission that lies beyond the other end of the valley, when we questioned him, did not know of the mushroom madness, but on inquiring of the natives attached to his mission, discovered that they knew all about it. Whether the Wahgi Valley natives have influenced this area, or whether the phenomenon is indigenous in the Chimbu we do not know. The area of diffusion of 'mushroom madness' has never been defined. It is certain that the madness is known among the Sina-Sina people, ten miles east of Kundiawa on the road to Goroka, where a mushroom causing the outburst is called *kirin*. Our informant

is Charles Turner, the local member of the Summer Institute of Linguistics). This carries the limits well beyond where it has previously been reported and into an area of a distinct linguistic family. Many Europeans at the upper end of the Wahgi Valley told us that you could predict the coming of the madness: it always started, they said, at the lower end of the valley, and moved up from clan to clan, about two days to the clan. They did not know what prompted the start and could not predict it.

We will conclude this section of our report with a quotation from a letter received since we left Wahgi Valley, written by the Rev. Rudolf Wenger, whom we will have occasion to mention again. Written on May 22, 1964, in French, its tenor supports our skepticism as to the active role of mushrooms in the 'madness':

May I tell you about an instance of the madness? It took place one Sunday morning, about 9 o'clock. We had left the church when a native, about 50 years old, suddenly appeared armed with lance and knife. He stopped on the road at the entrance to our compound. He returned to his first position and started to cry in a loud voice: 'Come and tie me up!' Noticing other people, he ran after them. Finally he came back with the two cords in his hands, dropped his arms, and called to me in song, begging me to tie him up with those cords. I came up to him, brought him to the house, and gave him some bananas, which he ate rapidly. I called on Jesus, and about a half hour later he had recovered, hearing and talking as he would do naturally. I observed that when we had prayed, he collapsed immediately, as if he were released or if a power were leaving him. He assured us that he had not eaten mushrooms and that the crisis had come over him suddenly.

2. *The attitude of the natives to 'mushroom madness'.*

Here, as we have already said, Miss Reay is our first and foremost source. We are indebted to her not only for her publications but also for personal communications concerning the Kuma, inhabitants of the Wahgi Valley who live to the south of the river, around Kondambi.

The Kuma employ a special term, *komugl tai*, for the madness caused by the mushrooms. The original meaning of *komugl* is 'ear', but it can also mean deafness, and it also means all kind of madness, either permanent or temporary. An imbecile is *komugl*, the term being explained by the fact that though he may not be deaf, he acts as though he might be. A person who is crazy is also *komugls* for he does not respond normally to what is said to him or in his presence. *Komugl tai* is a specific kind of madness, the one linked with the consumption of certain species of mushrooms.⁵ A man is struck with *komugl tai* when his madness is accompanied by shivering. Yet *tai* by itself does not denote shivering. It is the name in Yuwi of the Raggiana, one of the most spectacular of the birds of paradise. Miss Reay has raised with us the question whether *tai* might mean the way the Raggiana shakes his feathers when he takes part in his courtship dance, when he 'displays'. Her suggestion is promising, and in fact it could hold the key to the problem of the pretended madness caused by the mushrooms. Miss Reay gives examples of old women who developed madness, but not the madness caused by mushrooms; they were considered *komugl* but never *komugl tai*.

In fact it is only the men who are afflicted with *komugl tai* through the power of the mushrooms. Women become *ndaadl* from mushrooms, never *komugl tai*. They become delirious and irresponsible, begin to dance and sing, and order their husbands or sons to decorate them with their best feathers. Their men folk do so and give them weapons to hold. The women find at this time their only chance to dance in formation as the men and unmarried girls do. After this kind of quadrille they relax inside their houses while others gather to watch them.

⁵ The term *komugl tai* is also used for the madness that seized the Kuma during the 'cargo cult' of 1949, according to Miss Reay.

The women giggle, flirting with their husbands' clansmen and boasting of real or imaginary sexual adventures. At least one woman's boasting appeared to be genuinely delusional, and several of them seemed to have momentary delusions that they were still unmarried.

Men who are *komugl tai* behave quite differently. They bedeck themselves with their most extraordinary ornaments, seize their arms, and terrorize the community. They attack the men of their own clan and their families; some go to the neighboring communities and there frighten their relatives. They are tense, excited, and afflicted with shivering in the extremities of their fingers. They say they see double and they seem to suffer from intermittent aphasia. Minor injuries are sometimes inflicted but Miss Reay knows of no serious wounds. The men attack fellow clansmen only when spectators are present, so that the attackers are restrained in case of need. Those afflicted with the madness ignore each other and threaten only those who are normal. 'Two men's attempts to set fire to houses belonging to other men of their sub-subclans were promptly thwarted. Women and youths deliberately encouraged the men to be aggressive, emerging from behind houses and trees at a safe distance and withdrawing quickly with excited shrieks and giggles when a madman caught sight of them and lunged forward with spear poised or bow drawn. For people not affected, it is an exciting diversion; for the chief actors, it is a departure from the normal to be joked about in retrospect.' Neither prestige nor stigma accrues to the person affected. The Kuma consider that the heros in this drama are not responsible for their acts.

One subject to attacks of *ndaadl* or *komugl tai* knows when a crisis is coming and can escape by plunging in the near-by river. A woman who had been *ndaadl* before said she was now too old to make an exhibit of herself

and so when she felt an attack approaching, she bathed to free herself of the fungal influence.⁶

The mushrooms that are considered the cause of this madness grow all year around. Young and old, men and women, eat them in all seasons, generally mixed with other vegetables. Of the species that may cause the madness, there is only one that is eaten raw, *nonda tuburam*, extremely close to *Tubiporus appendiculatus* of Europe. (Our informants, unlike Miss Reay's, were categorical that *nonda tuburam* never caused 'mushroom madness'.) The madness occurs once or twice a year, without prior ritual. The mushrooms can be roasted or cooked with other vegetables. Different species are often mixed in the same receptacle, which may partly explain the discrepancies in the testimony of the natives as to the species causing the madness.

Although children eat the mushrooms, they are never *komugl tai* or *ndaadl*, but from the age of 17 until 70 certain members of the community are taken by this affliction and they are always the same ones, though not all those subject to it are *komugl tai* at the same time. Miss Reay observes that in 1954 about 30 persons of the Kugika clan were seized by the madness out of 313 that made up the community. To these 30 must be added another eight who were known to be subject to this madness but who on this occasion had escaped its effects.

According to the natives, it is a question of heredity,

⁶ Muka, one of our informants, told us he had been subject to repeated crises of madness caused by the mushrooms during his whole adult life, until about two years before, when he had rid himself of the affliction by plunging six times running in a pool of cold water. We spoke with Muka in the house of the Rev. Rudolf Wenger of the Swiss Evangelical Mission. It is not irrelevant to mention that subsequently Muka was elected Counsellor. His 'cure' coincides with his entry into the new order of affairs created by the social and political development in this part of New Guinea.

a person being subject to the madness if one of his parents, or both, were similarly afflicted. But Miss Reay remarked in 1954 that certain individuals were *komugl tai* who ought not to have been. In those cases one said that either the father or mother was subject to the madness without that fact being commonly known, or else that the individuals were pretending. Only one offspring in a susceptible family is susceptible.

After we left the Wahgi Valley in 1963, Miss Reay picked up a remarkable story of which the hero is Tunamp, an adolescent of 16 years, son of Kanant, the woman who had been subject to the madness but who had freed herself by bathing in the river. Tunamp, though only 16, is already subject to attacks of mushroom madness. This came about more or less as follows. Ombun, an aging man closely linked clan-wise with Tunamp, decided he should pass on his 'madness' to Tunamp. Ombun told Tunamp that henceforth he, Tunamp, could go *komugl tai* instead of Ombun himself. Tunamp, remembering what Ombun said, ate the mushrooms in the expectation that he would go *komugl tai*. He ate them with Nggoi, a man about 30 years old, who had frequently experienced the madness, and they both smoked the same cigar together. Nggoi's ability to go *kmogul tai* was communicated to Tunamp by contagion. They both rushed around breaking up bamboo and destroying gardens and fences.

To what Miss Reay says we can add little, though that little may be important. In Banz, which is in Danga country north of the Wahgi, not far from the Kuma but distinguishable from them by dialect and customs, William Meuser, agricultural expert of the Lutheran Mission, presented us to Kondi, Medical Assistant, and Ginga (pronounced as in 'gingham'), the native school teacher. Commenting on the hereditary aspect of the

mushroom madness, Konda said that it passed from parent to offspring, but only to one child in the family, usually the eldest, or if not, then the second or third but never the last of a long line of children. He said that mushroom madness is transmitted from parent to offspring,—the *ndaadl* manifestation in women and related behavior in men; but that *kmogul tai* was different: when mushroom madness took someone who did not come by it through heredity, then it assumed the form of *komugl tai*, and the man ran around with an axe, or bow and arrow, or spear, threatening everyone on his path with sudden death.

Ginga added a significant thing: not only are children never subject to mushroom madness, but moreover when the time comes for the madness to strike, *those ordained to succumb to it will succumb whether they eat the mushrooms or not, whether they eat the nut of the Castanopsis tree or not.*

Europeans have been living in the Wahgi Valley and around Mount Hagen for 30 years, and all old-timers know many stories that hinge on the ‘mushroom madness’ of the natives. We find no report of a death caused by these ‘madmen’, no report of even a serious personal injury. Such serious material damage and minor injuries as have occurred seem to have been accidents due to misunderstandings of Europeans. This absence of serious injury and damage after decades of experience is a startling fact. After all, maniacs do not always miss their aim. We think that one of the keys to the mystery has found its lock opening the door to the explanation.

In summing up the testimony of our European informants, we recall that on five occasions our missionary and his wife met natives in the crisis stage and suffered no injury. On another occasion, when dogs had been let loose against a man in a state of *komugl tai*, he ran away

howling and finally collapsed on the trail from fright and fatigue. Frank Porter and one of his colleagues were conversing with a group of natives when the arrows of a madman hit the top of the table, but no one was touched. Jeff Broomhead, Mr. White, and Mrs. Mansur were frightened by natives possessed by this madness, yet none of them was wounded. One day, finally, a person was injured, slightly, in the course of an episode at Banz; but in this case the aggressor admitted that he had been pretending all along, and a feast of pig meat restored peace among all concerned. In the writings of Miss Reay and Stanley Christian,⁷ as in those of the missionaries, it is frequently stated that the natives, in certain particular circumstances, have simulated the mushroom madness. These are probably cases where the individuals were actors acting without conviction. A man accused of having set fire to a hut suggests a more interesting situation. If, having eaten the mushrooms, he had been genuinely struck with *komugl tai*, he was not, according to native custom, responsible for his actions, and therefore merited no punishment. According to the white man's law, he was on the contrary responsible and liable to punishment. It is probable that he had done his deed expecting the adults who were looking at him to intervene in time to prevent all damage. It is to be noted that if Europeans were involved, ignorant of the role they were supposed to play in this little drama, that ignorance would relieve them of any responsibility. But if the man was not in a state of *komugl tai*, and if no one was present to stop him in case of need, his guilt becomes positive and his method of defense is only a device, and, by the same token, a deceit. One can see the difficulties

⁷ Letter of Stanley Christian to Dr. Dorothy E. Shaw dated December 10, 1957 included in the compilation forwarded by Dr. Shaw to Roger Heim with her letter of August 20, 1963.

facing the Australian magistrates in handling these cases, where subtle nuances in tribal customs must be taken into account.

Little by little we begin to see clear: Miss Reay discerned the truth when she wrote that the 'mushroom madness' had become institutionalized and that it served as a social catharsis. Is it possible that we are dealing here with a primitive phase in the evolution of the drama, a drama without stage or audience, in which the whole village takes part, the lead roles being assigned by heredity to a few families, one to a family, the other roles falling into place as the simple drama unfolds? There is a tacit understanding on everyone's part to make-believe, the 'madmen' that they are mad, whistling and roaring in maniacal fury, tearing up and down the mountain trails; others including the children running as if for their lives and hiding and peering out and pretending to taunt the maniacs, with a posse of men on hand, in accordance with the prior tacit agreement, to stop the madmen from the consequences of their act. Meanwhile the women who are *ndaadl* dance in formations corresponding to their husband's sub-clans, directly contrary to the rules that govern their behavior in normal times. The women wear their husbands' finery, the best plumes and spears, a startling instance of transvestism in this primitive community. These married women boast of sexual adventures and irregularities in their own past, some of which at least are not true. Have these tales the elements of extempore verse about them? We are not told.

What torpid dolts and killjoys the Europeans must seem to the natives, when they fail to play the game according to the conventional rules! But how are two cultures, separated by millennia and yet co-existing, to communicate with each other?

The fact is that the European cannot judge the whole

pattern of native behavior of which the 'mushroom madness' is a culminating point unless he will see that he is in the presence of men and of a civilization intimately associated with Nature. They are a part of Nature just as the animal species are, and the behavior of the fauna actually influences the human behavior. Among the living creatures of the forest, the birds of paradise, by reason of their astonishing dress and also doubtless because of their equally astonishing courtship practices, offer a source of tempting inspiration. Their courtship dances present, as an aspect of the birds' emotional reaction, a shivering phase, the physiological mechanism of which is known, that is particularly spectacular. It is not surprising therefore that the word *tai* is linked with the name of the 'madness', since it is the name of one of the birds of paradise, the Raggiana, that exhibits this kind of agitation in its love-ballet. In our opinion it is not a question of the kinds of mushrooms that this bird eats—such a thing is highly improbable—but the obsessive simulation that the Kuma have achieved, in their own shivering, by observing the birds. The mimetic instinct of the Wahgi natives finds here an exceptional opportunity to introduce into their own theater a dramatic scene from Nature's comedy.

We can readily conceive that this interpretation, to which we will revert later, will meet resistance among the Europeans in contact with the Wahgi Valley natives, whose culture is impregnated with values distinct from our own, but values that are perhaps as defensible and even as solid as ours. Rare must be those missionaries, administrators, travellers, planters, merchants, who are ready for a comprehension so close to realities, who possess the humility, the conscience, the breadth of spirit that is needed in judging these Wahgi Valley natives but that is seldom met with among those of advanced

civilization. Perhaps the episode is true that tells of a Catholic priest who faced an oncoming mushroom maniac, raving and whistling and snorting, axe poised in hand, his eyes glassy and not seeing, obviously one possessed of a demon. Hastily making the sign of a cross with his crucifix and ready for instant martyrdom, our priest cried out in a loud voice, in Latin, 'Adjuro te, ut desistas, in nomine Domini Nostri Jesu Christi'—'I adjure thee, stay thy hand, in the name of Our Lord Jesus Christ'. Lo, a miracle was wrought: the wretch lowered his axe and went slinking off down a path to his left, in the direction where souls were traditionally consigned to the eternal fires of hell.

When talking over these things with William Barclay, a perceptive Control Officer, he stressed to us the amount of play-acting that goes on in the lives of the natives. A woman is taken in adultery. Her husband puts on a first-class performance. Every shading of his grievance is fully exploited. But once he receives his compensation, his act ends; from then on it would seem that he could not care less. A native who is party to an action in court plays his role with devastating effect; but in the intervals when the proceedings are suspended he forgets his emotion and talks calmly about the daily round of minutiae. The Kuma are remarkable comedians, as well as gay companions.

3. *The mushrooms responsible for the 'madness'.*

The appropriate Australian authorities have lately made some efforts to identify the mushrooms alleged to cause the madness. Dr. Dorothy E. Shaw, Principal Plant Pathologist, was the focus of these activities. Difficulties in the field, linguistic difficulties in coping with native names, unfamiliarity with the proper methods of handling and shipping mushrooms for subsequent study

—all these factors led to delay and confusion. Miss Shaw made five shipments to the Royal Botanic Gardens at Kew between August 1957 and the end of 1962. Kew was able to identify only one species, and that one with doubt: Derek Reed linked the material under study with *Heimiella retispora* (Pat. & Baker) Boedijn sensu Boedijn, a genus separated off from the *Boletellus* by Boedijn and named in honor of one of us. There is nothing in the papers published about this species to indicate that it might have psychotropic properties. In 1957, Kew forwarded some of the specimens to Dr. Rolf Singer at Ann Arbor, Michigan, where, following in our steps, he was collaborating at the moment with Dr. Alexander Smith on a study of the hallucinogenic mushrooms of Mexico. He proceeded to describe a new species, *Russula Nondorbingi* Sing., to which he attributed hallucinogenic properties. The collectors who had sent him the inexact indigenous name of *nondorbingi* later proposed to replace it by *nondo bingi*,⁸ but Dr. Singer had already published an article on 'A *Russula* Provoking Hysteria in New Guinea' (*Mycopathologia et Mycologia Applicata*, 9, 4: pp. 275–8), and given it the erroneous name.

Here the documentation prior to our inquiries ends. On several occasions we have encountered two *Russulas* called locally *nonda bingi* and *nonda bingi wam* ('false bingi'). Neither tallies with the description of Dr. Singer, and this is confirmed by the sporal differentiations among the three. The Kuma brought us repeatedly the two kinds, the true and the false *nonda bingi*, the first edible, the second never eaten. But they also brought us on several occasions two species of white *Russulas* of which one is called *nonda mosh* and the other *nonda mosh wam*, or 'false *nonda mosh*'. Throughout the Wahgi the former

⁸ *Vide* letters from Stanley Christian to Dr. Shaw dated Dec. 10, 1957, and Oct. 24, 1962.

is used to incite in the women *ndaadl* madness.⁹ All of our information leads us to believe that *nonda mosh*, quite different from *R. Nondorbiugi* [sic] Singer, is held responsible for much of the psychic disturbance attributed to mushrooms among the women of the Wahgi. The specific epithet *Nondorbingi* carries no meaning in the Yuwi language.

The description of this *Russula*, as well as other neighboring ones that we have just mentioned, will appear elsewhere shortly. We shall stress the fact that such confusions stem from difficulties of communication with the natives. Stanley Christian and Dr. Dorothy Shaw deserve nothing but praise for their persistent efforts to identify the mushrooms at the root of the 'madness'. We shall refrain from using the word 'hysteria', as it is quite clear that hysteria does not fit the case.

Until now there have existed two lists of vernacular names for the mushrooms considered by the natives as responsible for the 'madness', one in the article already cited by Marie Reay, published in *Oceania*, the other compiled by Mrs. Danga Goy (born in the Wahgi Valley) and sent by Stanley Christian to Dr. Shaw in his letter dated February 14, 1960.

Names proposed by

<i>Marie Reay</i>	<i>Danga Goy</i>
1. ngam-ngam	nondo ngamngam
2. ngamp-kindjkants	nondo napkins gant (or gent)
3. kermaikip	nondo bolbe
4. tuadwa	nondo galwans

The descriptive indications accompanying these terms are, mycologically speaking, useless. The first two names

⁹ A recent collection (February 1964) made by Miss Reay permits us to expand our documentation on these *Russula* species.

in both lists seem to be the same; this means that there are six different names in all.

We now come to our own list of the mushrooms that the natives say may cause 'mushroom madness.' The problems in assembling this list were quite different from our difficulties in Mexico, where the identity of the sacred mushrooms was a secret (albeit shared among many natives), to be ferreted out with patience and delicacy. In Mexico these mushrooms all belonged to three closely related genera of Agaricaceae,—*Psilocybe*, *Stropharia*, and *Conocybe*, of which one—the first—covered most of the species, which reached a dozen in all. The whole subject was instinct with religious feeling and awe. In the Wahgi everyone was ready to be an informant, and it was the abundance of informants that became a danger, the testimony of each witness having to be carefully assayed. In other words, each sought to outdo the others. Thus a man named Wapi, in the home of the Phillipses at Tombil, said that every edible mushroom could cause madness. The others, more selective, offered lists that differed one from another. We shall cite the names of eleven species that appeared (with one exception) in response to many of our inquiries made in the Valley. The notes in quotation marks are from a memorandum of Miss Reay's drawn up in the course of our joint visit in the region of Minj.

1. Nonda ngam-ngam. (No. 1 in above list) 'When four or five fungi come up on one stem both men and women are afflicted with madness after eating it. This is the ordinary mushroom madness, the men aggressive, the women with delusions; common to both sexes are shivering and staring. This mushroom can be cooked in the steampit or in ashes. The leaf of the *kosgagl* shrub (in Pidgin, *mosong kumu*) is cooked with it.'
2. Nonda ngamp kindjkants. (No. 2 in above list.) 'This grows among the pit-pit reeds where the bush has grown after the pigs have been walking about.'

3. Nonda gegwants ngimbigl. (No. 4 in Danga's list). 'Gegwants =left-handed; ngimbigl=penis. The form of the stipe reminds one of the human penis. The Kuma believe the mushroom must be picked with the left hand. If picked with the right hand, the person eating it finds that his tongue stings unbearably, he is apt to faint, and in a little while he goes mad. Men and women are equally affected.' Muka told us in Tsigmel that this was the most powerful kind in provoking mushroom madness.
4. Nonda kermaipip. (No. 3 in Dr. Reay's list.) 'Kermaipip is an edible mushroom that induces madness in both men and women. The first syllable, *ker-*, derives from *kir*, in *ndop kir*, the local method of making fire by pulling a strip of bamboo back and forth around a cleft stick and over some dry waste.'
5. Nonda tua-rua. (No. 4 in Dr. Reay's list.) 'This causes madness at the proper times.'
6. Miru nonda. 'This grows on rotting logs, when it is called *ontr miru*, and on the ground, when it is called *magl miru*.'
7. Nonda obolyei. 'This name is derived from 'obo', bow, in the extended sense of warfare. This is an edible mushroom, black or deep blue in color, growing in the ground. It may make both men and women mad when they eat it. The name is derived from the general word for warfare because of the similarity between the black pigment of the mushroom and the mixture of charcoal and grease that is actually smeared on the skin before entering battle.'
8. Nonda mosh. 'This mushroom is named after *ambugl mosh*, a marriageable girl. Everyone eats it but it affects women only, making them *ndaadl*. Women enjoy eating it, though afterwards they often regret it.'
9. Nonda tuburam. Among all mushrooms this one ranks first for taste. It can be eaten either raw or cooked,—the only one that is eaten raw. 'Eating it afflicts both men and women with madness. It grows near the base of either the kawang tree (*Castinopsis acuminatissima*) or the tomu tree. The mushroom is yellow inside.'
10. Nonda to'kangi. 'An edible mushroom, sometimes white, sometimes yellow. It causes *ndaadl* in women but does not send men *komugl tai*. When a man eats plenty of these he cannot sleep; he walks about at night and is exposed to bush demons. The mushroom has strange effects on men, but afflicts only women with mushroom madness.' The mushroom is preferred when it is still in the egg; it is then called *kaimukum*.
11. Nonda mbogl rongal. *Mbogl* means 'bed'; *rongal* means 'I shall strike.'

Concerning this list we now point out certain discrepancies that one of us (Heim) noted in the course of his inquiries in the village of Kondambi.

To begin with, No. 6—*miru nonda*—seems to be not one but two species, neither of which appears to answer to the description made above: the term *miru* refers to fleshy and woody agarics: a *Flammula* and an *Armillariella* (the latter bearing a synonym *berraip nonda*). The term seems to be a collective. We are not certain of having collected *nonda obolyei*, whose scientific identity escapes us, although we can say that it is a *Boletus* near to *B. nigerrimus* Heim. The *nonda tuburam*, exceedingly common, is the “cépe” that is most eaten, both raw and cooked, and it plays no role in the madness. Similarly, the *nonda to'kangi* is an excellent Caesar’s amanita (in French: *orange*), a choice dish among the Kuma, without psychotropic action, real or pretended, according to our own experience. As for the *nonda mbogl rongal*, it might be the *nonda mbopukl tongakl* or *tongark*, which is none other than the *Psalliota aurantio-violacea* Heim, an African and New Guinea species, considered very toxic, even lethal. On the other hand we add without hesitation to Miss Reay’s new list the name of a *Heimiella* that is of fairly frequent occurrence in the Wahgi, known as *nonda mbolbe*, No. 3 in Danga’s list, whose testimony we confirmed at Kondambi. We should add that it is not a question of *Heimiella retispora*, which the investigators of Kew suspected among the specimens sent to them, but of a very different species already described by Heim.

In conclusion here is the list of the seven species linked to the ‘madness’ that Heim noted and described at Kondambi and later examined and definitively characterized in Paris.¹⁰

¹⁰ These lines were written when there arrived in Paris a shipment

Our List of Species Acknowledged as Responsible for *komugl tai* and *ndaadl*

<i>Name</i>	<i>Action on men: M on women: W</i>	<i>Scientific Name</i>
1. Nonda ngam-ngam	M - W	<i>Boletus (Tubiporus) Reayi</i> Heim
2. Nonda ngamp-kindj kants	M - W	<i>Boletus (Tubiporus)</i> <i>kumaeus</i> Heim
3. Nonda gegwants ngimbigl	M - W	<i>Boletus (Tubiporus) mani-</i> <i>cus</i> Heim
4. Nonda kermaipip	M - W	<i>Boletus (Tubiporus) niger-</i> <i>rimus</i> Heim
5. Nonda tua-rua	M - W	<i>Boletus (Tubiporus) nigro-</i> <i>violaceus</i> Heim
6. Nonda mosh (ambugl mosh	W	<i>Russula cf. delica</i> Fr.
7. Nonda mbolbe (mborr'lbé)	M - W	<i>Heimiella anguiformis</i> Heim

The definition of the six new species in the above list appeared in the *Revue de Mycologie*, Dec. 15, 1963, Vol. XXVIII, Fasc. 3-4.

CONCLUSIONS

1. The manifestations of 'mushroom madness' (or *komugl tai* and *ndaadl* in the native language Yuwi) that have often frightened Europeans in the Wahgi Valley must be viewed as part of a larger event in the life of the native community, and to which every native is a party. This phenomenon extends beyond the Wahgi Valley to neighboring communities, in at least one instance belonging to a distinct linguistic family. We are persuaded that in the behavior of these natives there is room for a most

of mushrooms from Miss Marie Reay gathered on her recent trip to the Middle of Wahgi at the end of February 1964, and forwarded to us by Miss Dorothy Shaw, along with notes that are highly pertinent. The problem of the species of *Russula* in the mosh group is discussed in Heim's descriptive article recently published in *Cahiers du Pacifique*, No. 7 (March 1965).

interesting kind of drama that endangers no one. We are led to this conclusion partly by the fact that in decades of experience we can find no record of a fatality, or even of a serious injury, resulting from these menacing men. In the light of these findings the Europeans may take a more detached view of these manifestations that spring from an ancient culture. Among them may be some who will even study the event in all its aspects, as a remarkable survival into our own times of primitive activity that may well shed light on the origins of institutions in our own society. If it is known that the world takes an interest in the 'mushroom madness', the regard in which it is held by the local Europeans may be considerably enhanced.

2. The mushrooms—or at least most of them—do not seem to cause physiological effects leading to the madness. The cryptogams held responsible for the madness belong to two large categories that include six genera and two orders (or families): Boletales and Asterosporales; or, stated simply, at least six bolets and one russula.

Furthermore, one would have to believe that these mushrooms worked only on certain individuals, chosen by heredity, one to a family; that they brought about different behavior in men and women; that most of the time they caused no disturbance but that at irregular intervals, in a progress up the Wahgi Valley, with a couple of days between the clans, they acquired a pharmacological potency with respect to those individuals and thereupon drove them mad, with consequences known to all; and finally that the visitation could be put off or even permanently exorcised by simply dunking the individual in cold water. This is not mycology but mythology. We found among the Europeans of the Wahgi



Boletus manicus Heim

Valley a singular ignorance of the mushroom world, a lack of curiosity about it, an unwillingness to explore it, even a certain repugnance for the whole subject. The Europeans are mostly of English-speaking stock. They present the perfect syndrome of mycophobia as diagnosed by the Wassons in *Mushrooms Russia & History*.¹¹

3. It is natural to seek a parallel between the mushroom madness of the Kuma and the two regions of the world where psychotropic mushrooms are deliberately consumed for their inebriating effect. In the Wahgi Valley there is general agreement that the feats of endurance performed during the attacks of 'madness' by the 'wild men' of the Kuma surpass any normal physical activity. For hours they rush up and down the mountain trails brandishing weapons and shouting at the top of their lungs. In Siberia, among the Koriaki and the Chukchi, similar reports of extreme feats of endurance circulate about the men who have taken *Amanita muscaria*. The erotic aspect of the *ndaadl* condition among the Kuma women also has its parallel in Siberia and perhaps in Mexico. But the deep religious experience of the Mexican Indians who consume the sacred mushrooms has no parallel in the Wahgi Valley, although the shamanistic performances of Siberia provide us with many parallels for the holy communion celebrated at night with mushrooms in the remote valleys of Oaxaca. A detailed comparison of the three areas in their mushroom activities remains to be done, and we propose to give this further study. Whereas the Siberian and Mexican natives use psychotropic mushrooms, in the Wahgi Valley we found none in use, though the natives attributed their extraordinary behavior to mushrooms.

¹¹ Pantheon Books, New York, 1957.

4. But if we have crossed the main hurdle of the mushroom madness, there remain three problems we have not solved. Why do the natives suppose, or affect to believe, that mushrooms inspire such frenzies? Why do they attribute this behavior to certain species of mushrooms, and only to those, although there is no agreement among them as to which those species are? Why do we find again here a magic role for the mushroom, such as we have found already in Mexico and such as we read about in Siberia, but in New Guinea without supporting evidence in the mushrooms themselves? To this three-fold question we shall try to respond later, but in any case when research workers such as Miss Marie Reay and the Phillipses will have explored more deeply the recesses of the language spoken in the Wahgi Valley, when others will have listened to the testimony of alert informants, when the area of diffusion of this mushroom manifestation will have been accurately delimited, when finally most of the dialects spoken in this area will have been mastered and comparative studies made, we shall perhaps be able to arrive at assured conclusions. But one certainty seems already safe: during the pre-history of the Wahgi Valley—and this period ended here only 30 years ago—mushrooms played a role not only as food (which they still do) but also cultural and magical, a role that survives to this day. These circumstances lead us to hope that our investigations will be able to advance a few steps in the near future.¹²

Paris and Tokyo
November 1963

¹² Since this paper was written contributions to the study of the mushroom madness of the Kuma have been published: (1) Roger Heim, *Diagnoses latines des espèces de champignons ou nonda associés à la folie du komugl tai et du ndaadl. Rev. de Mycol.*, XXVIII, pp. 277–283, December 1963; (2) Roger Heim and R. Gordon Was-

ADDENDA

Since writing the foregoing paper we have come across a somewhat older text about a similar madness to which the peoples of New Guinea are subject. We wish to add it to the sources already quoted. It is by a German captain, H. Detzner, in his book, *Moeurs et Coutumes des Papous. Quatre ans chez les Cannibales de Nouvelle Guinée (1914-1918)*, published in French by Payot in 1935. The events of August 1914 took the author by surprise in the course of an exploratory trip through the interior of the German colony in New Guinea, and he remained there under difficult conditions with a small escort during the four years that the war lasted.

This work gives us a rather personal narrative without great precision, but not lacking in interest. It is hard to piece together the itinerary of this officer from his often vague topographical indications. It would seem that he must have approached the valley of the Wahgi, but we are not sure of this and cannot even assert it as a probability. However that may be, this travel book supplies us with the following passage (p. 193) pertinent to our inquiry. The scene is in a Houbé village, near Finschhafen, in a mountainous region near the limits of the Markham Valley, therefore far to the east of the Middle Wahgi. The manifestation of madness is similar to what we know already, although Captain Detzner attributes it apparently to abuse of betel nuts and does not mention mushrooms.

son, Note préliminaire sur la folie fongique des Kuma. Comptes rendus Ac. des Sciences, 258, pp. 1593-1598, Feb. 3, 1964; (3) Roger Heim, Hier champignons associés à la folie des Kuma. Etude descriptive et iconographie. *Cahiers du Pacifique*, vol. 7, avec 6 pl. col. is 14 pl. phot., fig., mars 1965.

At Kilongo, a Houbé village of average importance numbering about 200 souls, we found the inhabitants prey to a great agitation. Armed men were posted at every fork and crossroad leading into the village, and they were on watch over the environs. Not a woman, not a child, was in the fields, although it was the best moment for planting taro. And yet this village was known among the Houbé for their diligence and progressive spirit. Indeed had they not for a long time realized the absurdity of wars and renounced the pastime of fighting with their neighbors?

‘Master, there is a madman in the vicinity. He runs stark naked. He is not one of us. He is a member of the river tribe of Sâng. If we let him act freely, he would kill all our men, women, and children, for he is mad and has completely lost his reason.’

That was the explanation supplied to me by the inhabitants to explain their curious behavior, when I expressed my amazement that they had not come to meet me, as it was their custom to do.

Madness is a frequent phenomenon among the Melanesians and Papous of the Pacific regions. A fine lad, until now calm and inoffensive, is suddenly seized with madness, most often from an abuse of betel, and becomes a menace to everyone. Armed with an axe or other dangerous tool, he flees his home, reaches first the nearest forest, then takes to running across the fields and through villages, and this he does for days on end, seized with veritable fury, attacking and killing every human being he meets. Persuaded that the poor fellow is possessed and urged on by the spirit of a dead relative, the superstitious natives do not dare to disarm him. Although the sentiment of pity is unknown to them, they do no more than prevent the incursion of the madman into their village. They do not try to overpower him. The access of madness does not last long. At the end of a certain time the madman becomes calm again, returns home, and resumes peacefully his work and habitual chores.

Wishing to prevent a tragedy, I ordered the victim to be seized and bound, and to be brought before me. But my orders could not be executed, for he disappeared from the neighborhood of Kilongko as quickly as he had appeared. Other neighboring villages saw him run through the fields, possessed by a veritable fury, still others reported rumors of him, but he himself was nowhere to be found.



Heim, Roger and Wasson, R Gordon. 1965. "The "Mushroom Madness" of the Kuma." *Botanical Museum leaflets, Harvard University* 21(1), 1–36.

<https://doi.org/10.5962/p.295192>.

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