

## Clinical findings in three cases of zombification

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Zombification became a subject of popular Western interest during the occupation of Haiti by the USA between 1915 and 1934.<sup>1</sup> The current United Nations intervention has again focused attention on a phenomenon regarded as exotic and improbable by the media, yet one which is taken by most Haitians as empirically verifiable. Along with the related religious practice of *vodu*, it has been implausibly related by US physicians to the current epidemic of AIDS in Haiti.<sup>2</sup> Haitian medical practitioners regard zombification as the consequence of poisoning; the clergy as the product of sorcery. Zombis are frequently recognised by the local population, and estimates of their number are of the order of up to a thousand new cases per year (L P Mars, personal communication).

Zombification is a crime under the Haitian Penal Code (Article 246) where it is considered as murder although the zombified individual is still alive. Local interpretation is that either by poisoning or sorcery, a young person suddenly and inexplicably becomes ill, is subsequently recognised by their family as dead, placed in a tomb, stolen by a *boko* (sorcerer) in the next few days, and secretly returned to life and activity but not to full awareness and agency.<sup>3,4</sup> Haitians are seldom buried but placed in painted concrete family tombs above ground which in country areas are on family land next to the houses; they are vulnerable to being broken open.

Local beliefs about body, mind, and spirit recognise a separation of the *corps cadavre* (physical body) with its *gwo-bon anj* (animating principle) from the *ti-bon anj* (agency, awareness, and memory).<sup>3,5</sup> In zombification, the latter is retained by the sorcerer, usually in a fastened bottle or earthenware jar where it is known as the *zombi astral*. The *boko* either extracts it through sorcery which leaves the victim apparently dead, or else captures it after a natural death before it has gone too far from the body.<sup>1,3,4</sup> The animated body remains without will or agency as the *zombi cadavre*, which becomes the slave of the *boko* and works secretly on his land or is sold to another *boko* for the same purpose. It is induced to remain a slave only through chaining and beating, or through further poisoning and sorcery. This *zombi cadavre* is the zombie popularised by Western cinema and indeed is referred to locally by that name. In Haiti, the term is also used in metaphor to refer to extreme passivity and control by another.

Explanations as to how a *zombi cadavre* may escape back to its original family suggest that either the bottle containing the *zombi astral* breaks; or the *boko* inadvertently feeds his *zombi* salt; or he dies and the *zombi* is liberated by his family; or, rarely, the *zombi* may be released through divine intervention. On release, their mental and physical status remains the same, and they are vulnerable to recapture and

continued enslavement; few *bokos* or doctors claim to be able to return a *zombi cadavre* to its original state of health and agency, and the matter is reserved for the mercy of *Le Grand Maitre* (the rather remote God recognised by *vodu* practitioners who is only invoked briefly through Latin prayers before they begin their ceremonies). Zombis are recognised by their fixed staring expression, their nasal intonation (which they share with manifestations of the spirits of the dead); by repeated, purposeless, and clumsy actions; and by limited and repetitive speech. They are regarded with commiseration; fear is reserved for the possibility of being zombified oneself. Concern that a deceased relative may be vulnerable to zombification justifies prevention through decapitation of the corpse before burial, or poisons and charms placed in the coffin.

Anthropological accounts of zombification usually just detail local explanations<sup>3</sup> or follow them to explain sorcery as a psycho-social or biological phenomenon.<sup>1-5</sup> There has been medical interest in the possibility that zombification may be an empirical state—catalepsy or motor paralysis—which is induced by neurotoxins followed by retrieval and revival of the “dead” person extracted from the tomb.<sup>5,6</sup> Among the poisons which have been implicated is tetrodotoxin (from the puffer fishes *Sphoeroides testudineus* and *Diodon hystrix*) with *Datura stramonium* used to revive and then control the *zombi*.<sup>5,6</sup> Tetrodotoxin has been studied biomedically in Japan where the puffer fish is a delicacy whose consumption may result in apparent but temporary death.<sup>6,7</sup> Other ingredients mentioned by Haitian *bokos* as zombifacients include human remains, a polychaete worm, toads, lizards, and tarantulas.<sup>5</sup> No in-vivo research has been carried out with the suggested toxins, and whilst Haitian medical practitioners are familiar with the phenomenon of zombification,<sup>8</sup> they have not published its clinical characteristics. Studies of the one well-documented instance of a returned *zombi*<sup>5,8</sup> concentrated on his symptoms at the time of presumed death, little on his mental and physical state at the time of the post-return interview (although a lay observer<sup>9</sup> did not remark any abnormality at this interview). Another well-known case who was hospitalised has been argued as an instance of mistaken identity.<sup>1,4</sup> Local doctors suggest that zombification can be recognised only by the absence of any characteristic features of mental illness and by verbal and motor preservation. Do zombis manifest any characteristic clinical pattern? Are they the deceased individuals their relatives claim to recognise?

### Methods

Three cases of zombification in southern Haiti in 1996–97 were examined in their homes and their histories taken from relatives and others in Creole. The temporary presence of a private computed tomography scanner from the Dominican Republic allowed two of them to be taken to Port-au-Prince to be scanned. To avoid mistaken identity by a bereaved relative, DNA samples were obtained in two instances. Local *bokos* who practised zombification were asked to comment on the cases.

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## Findings

### Case reports

FI was around 30 years old when she died after a short febrile illness and was buried by her family the same day in the family tomb next to her house. 3 years later she was recognised by a friend wandering near the village; her mother confirmed her identity by a facial mark, as did her 7-year-old daughter, her siblings, other villagers, her husband, and the local priest. She appeared mute and unable to feed herself. Her parents accused her husband of zombifying her (he was jealous of her after she had had an affair). After a local court authorised the opening of her tomb, which was full of stones, her parents were undecided whether to take her home and she was admitted to the psychiatric hospital in Port-au-Prince.

On examination, she looked much younger and thinner than in an earlier family photograph. She kept her head in a lowered position, and walked extremely slowly and stiffly, barely moving her arms. On examination, her muscles had reduced tone, but there was no waxy flexibility. Apparently lacking motivation and unable to signal any wishes, she did not reply to questions but would occasionally murmur some incomprehensible but stereotyped words, and was indifferent to passing events. She required assistance to feed herself. Electroencephalogram and central nervous system examination were unremarkable. She did not co-operate with a psychological assessment, nor with attempts at social rehabilitation. She did not respond to neuroleptics. On being taken to a market for an outing, she was immediately recognised by the crowd as a zombi.

The presumptive diagnosis was catatonic schizophrenia (which is locally a not uncommon psychiatric illness<sup>10</sup>).

WD, 26 years old, was the eldest son of an alleged former *ton-ton macoute* (secret policeman) under the Duvaliers' regime. The father was our principal informant together with WD's mother and other villagers. When he was 18, he suddenly became ill with a fever, "his eyes turned yellow," he "smelled bad like death," and "his body swelled up". Suspecting sorcery, his father asked his older brother to obtain advice from a *boko*, but WD died after 3 days and was buried in a tomb on family land next to the house of a female cousin. The tomb was not, as was customary, watched that night. 19 months later, WD reappeared at a nearby cock fight, recognised his father, and accused his uncle of zombifying him. He correctly recalled comments made by his family at the funeral. He was recognised as a zombi by the other villagers, the local Catholic priest, and the magistrate. He remained at his father's house, his legs secured to a log to stop him wandering away. His uncle was arrested at his father's request and sentenced by the provincial court to life imprisonment for zombification, confessing that he had been jealous of his brother who had used his literacy to register all the family land in his own name. WD's father's story was supported by the villagers, the judges and priest involved in the court case, the local coffin maker, and by examination of WD's death certificate and the proceedings of the uncle's trial. The uncle escaped from prison during the political turmoil of 1991. We traced him and he agreed to an interview in exchange for protection. He denied sorcery or poisoning, saying the case was a trick on the part of WD's father to expropriate his property entirely, and his confession had been induced through torture by the police. The female cousin denied involvement in WD's zombification but refused to allow us to open the tomb on her land.

WD was a slightly built man, constantly scowling, looking younger than his age, much thinner than in an old photograph his parents showed us. He spent most of his time sitting or lying in a characteristic position, lower limbs to the left, upper limbs to the right, rarely speaking spontaneously and only in single words which were normal in form and content. He could not describe his period of burial or enslavement but agreed he was *malad* (ill) and a zombi. He could be persuaded to walk with normal posture and gait, steadily but slowly. His parents reported that he was not incontinent and would tell them when he was hungry, but they had to bathe him and change his clothes. His eyes scanned around him with clear intent, his hands picking aimlessly at his nails or at the ground, and he avoided eye contact. His wrists were scarred all

around, consistent with abrasions caused by chains or wire. A hyperextended fourth finger was identified by his mother as the consequence of a childhood accident. There was a small circular hole, 5 mm in diameter with scar tissue over his sternum which occasionally oozed pus and which had been present since his return; his father said he thought this was where poison had been administered to keep him quiescent during his 18 months of slavery. General and central nervous system examination was unremarkable except for slight muscle wasting. He had difficulty identifying familiar objects when placed unseen in his hand, but would name them when he saw them. His parents reported periods of anger and irritation when he would ineffectually hit and kick out at others generally after being teased, and *malkadi* (fits) during his sleep about once a week when he would cry out and his limbs would go into rigid spasm. There were no evident thought disorder, hallucinations, or catatonia.

The presumptive diagnosis was organic brain syndrome and epilepsy consistent with a period of anoxia. His fits reduced to once a month with phenytoin 100 mg per day.

MM, aged 31, was the younger sister of our principal informant who described her as formerly a friendly but quiet and shy girl, not very bright. At the age of 18, MM had joined some friends in prayers for a neighbour who had been zombified; she herself then became ill with diarrhoea and fever, her body swelled up and she died in a few days. The family suspected revenge sorcery. After 13 years, MM had reappeared in the town market 2 months before we met her, with an account of having been kept as a zombi in a village 100 miles to the north, and having borne a child to another zombi (or perhaps to the *boko*). On the death of the *boko*, his son had released her and she travelled home on foot. Her brother, a nominal Catholic had converted to his own version of evangelical Protestantism. On his sister's return, he recognised her as a zombi and started a daily healing service involving the rest of the family and friends in glossolalia and laying on of hands.

MM looked younger than her age, with a small head and ears, thin and slightly built. She readily responded to attention, asked questions spontaneously, giggled frequently, and laughed inappropriately. General, central nervous system, and mental state examination were unremarkable except for a round sternal scar 1 cm in diameter. Her speech was fairly limited but appropriate with grammatical short sentences. She agreed she was ill but not that she was a zombi. She was not regarded by her neighbours as a typical zombi because of her resonant affect and responsiveness to others. Her brother said she was duller (*pa-ineljian*) than she had been formerly. She was not able to sign her name and appeared to us to be of low intelligence. She readily gave a vague account of her imprisonment which agreed with that given by her brother. Her self-care was normal but her family reported that she enjoyed being cared for and cuddled. Our presumptive diagnosis was learning disability, perhaps fetal alcohol syndrome.

With MM's agreement, we took her to the area where she said she had been kept as a zombi. She was immediately recognised in the market as a local woman known to be simple who had been enticed away 9 months previously by a band of *rara* musicians during the lenten carnival. Both families now insisted that MM was theirs and accused the other family of zombification. MM's daughter and brother then appeared, who closely resembled her in physical appearance, mannerisms, suggestibility, and minor learning disability. She recognised her daughter whom she had previously named correctly to us but she still insisted its father was a fellow zombi. The villagers said she had been formerly married to a local man but we were unable to locate him. MM appeared to recognise her cousin as the *boko*'s son, but the villagers ridiculed the idea.

We assumed that MM's case was one of mistaken identity. She had apparently been abducted, or wandered away from her home and eventually ended up where she was recognised as a deceased and now zombified sister.

### The bokos

We interviewed two sorcerers and attended the *pilay fey* (sorcery protection) ceremonies of the first. Like most sorcerers, he had his own temple as well as being the

convenor of one of the secret societies (*zobop*, *bizango*, *cochon gris*, *secte rouge*) which have been implicated in zombification<sup>5,7</sup> and which are illegal under sections 224 and 227 of the Penal Code. The second *boko* had converted to Protestant evangelism, is now a well-known opponent of *vodu*, and holds dramatic church meetings at which he gives lurid accounts of his past sorcery. Neither had been implicated in the above cases; both knew the other by reputation and maintained surprisingly cordial relations. They agreed the cases we described were plausible, and they recognised as part of their own pharmacopeia both a puffer fish and a branch of *Hippomane mancinella* (zombi apple, manchineel) which we supplied and which is commonly cited as the astringent used by a sorcerer in topical application of a poison.<sup>9</sup> The first *boko* showed us bottles which contained captured *zombi astrals* but said he had sold all his *zombis cadavres* to local cultivators and other bokos (a common explanation when questioned by outsiders);<sup>9</sup> contact with them would be dangerous for us. Both provided the names of other plant and animal ingredients similar to those obtained by Davis.<sup>5</sup> They were quite open about their sorcery and referred us to other bokos for confirmation of their abilities, noting that while they had achieved their results through poisons acting at a distance, the same poisons could be applied topically or inhaled to produce zombification. They had no ideas about the sternal scars of WD and MM, nor do ethnographic texts mention such marks.

#### Tests

DNA fingerprinting<sup>11</sup> suggested that WD was not the son of his putative parents; nor was MM related to either of the men who claimed to be her brothers, but she was likely to be the mother of the child whom she said was her daughter.

Computed tomograph scans on WD and MM were within normal limits.

#### Conclusion

It is unlikely that there is a single explanation for all zombis. Mistaken identification of a wandering, mentally ill, stranger by bereaved relatives is the most likely explanation<sup>4</sup>—as in the cases of MM and WD. People with a chronic schizophrenic illness, brain damage, or learning disability are not uncommonly met with wandering in Haiti, and they would be particularly likely to be identified as lacking volition and memory which are characteristics of a zombi. Interpretations of mental illness as an alienation of some vital faculty of agency are common in Central America and in the Caribbean.<sup>12</sup> The ready local recognition of zombis, as with MM, and their generally considerate treatment might be seen as an institutionalised restitution of the destitute mentally ill: recognition and incorporation of a zombi into a family provides public recognition and sometimes material advantage. What is more difficult to understand is the apparent acquiescence of the “returned relative” not only to being a zombi but to being a “relative”.

The local understanding that the unexpected death of a young adult is never a properly natural death (*mo bondiay*),<sup>12,13</sup> together with the frequency of sorcery suspicions and the number of people who told us they were engaged in attempts at zombification, suggest the breaking open of tombs by bokos is widespread. The use of human remains in sorcery is so common that most country tombs have been broken into, and the majority of *oufos* (temples) we examined contained human skulls and other body parts.

Given that death is locally recognised without access to medical certification, and that burial usually occurs within a day of death, it is not implausible for a retrieved person to be alive. The use of *Datura stramonium* to revive them, and its possible repeated administration during the period of zombi slavery could produce a state of extreme psychological passivity.

We cannot exclude the use of a neuromuscular toxin, topically administered together with a local irritant by a *boko*, to induce catalepsy followed by secret retrieval of the poisoned individual.<sup>5</sup> Japanese evidence of tetrodotoxin poisoning indicates that a full and rapid recovery can occur spontaneously.<sup>7</sup> This would presumably be consistent with the history of FI who could have suffered anoxic brain damage in the tomb.

That bokos actually enslave zombis on secret agricultural grounds is implausible given the high population density of Haiti. Zombis have never been identified in captivity but only on their return. Under the Duvaliers who mobilised the *oungans* as their secret police,<sup>15</sup> and in the lengthy period of political terror, social instability, and economic blockade during and after the Duvalier regime,<sup>9,15</sup> there were numerous cases of abduction, torture, sexual slavery, and secret homicide cloaked in *vodu* maintained by state terror and suspicions of sorcery.<sup>15,16</sup>

A fuller consideration of zombification would require an analysis of Haitian identity and of the wider political articulations of village-level conflict and sorcery accusation. It would be interesting to know how the zombi reflects not only local understanding of psychopathology but Haiti's national history as the black republic<sup>17,18</sup> of former slaves who have continued to face the ever-present threat of political dependency, external intervention, and loss of self-determination.<sup>16,18,19</sup>

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