

Section of the History of Medicine

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On Porphyria and the Ætiology of Werwolves

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'And yet I know no more than the mahogany
That forms this desk, of what they mean;
—*Lykanthropy*
I comprehend, for without transformation
Men become wolves on any slight occasion.'
Byron: 'Don Juan'

The term 'werwolf' is probably derived from the Anglo-Saxon '*wer*' meaning man, and 'wolf'. In the history of alleged metamorphosis, the transformation of man into wolf is the most prominent form of the myth, though the further south one goes the more common becomes the myth of wer-tigers, and further north wer-bears become pre-eminent.

I believe that the so-called werwolves of the past may, at least in the majority of instances, have been suffering from congenital porphyria. The evidence for this lies in the remarkable relation between the symptoms of this rare disease and the many accounts of werwolves that have come down to us.

Werwolves were familiar to Pliny, Herodotus, and Virgil. Probably the earliest account of transformation is that of Lycaon who was changed into a wolf by Jupiter as a punishment for eating human flesh. Since the time of the Greeks, up to the present day, stories and legends of werwolves have been common in all countries of South America, Asia, Africa and Europe. The belief reached its height at the time of the witch-hunts of the Middle Ages, but probably survives today only in a few isolated parts of Europe.

The transformation into a wolf is not exclusive to men. Armenian and Abyssinian legends clearly implicate women, and Boguet, a sixteenth century judge who was responsible for the burning of about 600 witches and werwolves, re-

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counts the story of a farmer's wife who changed into a wolf and attacked a neighbour: during the ensuing struggle she (the wolf) lost a paw. When she turned back into a woman, one of her hands was missing (Boguet 1590). However, most of the stories are of men making the transformation. Occasionally children make the change and this may be linked with the innumerable stories of wolf-children. These stories probably owe more to the writer's imagination than to actual myth or legend, though there are apparently authentic tales of children reared by wolves or living as wild animals (Lang 1895).

There are several ways of accomplishing the metamorphosis. Broadly speaking these are by personal intent, by the witchcraft of others, by the instigation of the devil or evil spirits, and even by the dispensations of saints or a more direct divine agency. Metamorphosis by personal intent may be brought about merely by the removal of clothing or the putting on of the skin of the animal into which it is desired to be transformed. Usually, however, it is by incantation (Ralston 1872) or by anointing with an ointment (Verstegan 1605). The witchcraft of others may change an innocent person into a wolf: see, for example, the poem 'Bisclaveret' by Marie de France, circa 1200 (Costello 1835), and the numerous instances of royal and noble personages changed into wolves by witchcraft or some unhappy fate. As regards saints and divine agency: the King of Wales, Veretricius, was changed into a wolf by St Patrick, and St Thomas Aquinas says: 'Omnes angeli, boni et mali, ex virtute naturali habent potestatem transmutandi corpora nostra' (all angels good and bad by some natural virtue have the ability to transmute our bodies).

Not all transformations were complete: there are many instances of partial changes such as those recorded by Jean Bodin, a French priest who wrote a book about witches and was a sixteenth century authority on the various forms of witchcraft. Nearly all these partial transformations involved only the hands and teeth (Bodin 1580).

There are several examples of a number of werwolves occurring in the same family. A particular example is that of Garnier, a name which crops up several times in the writings of de Lancre (1613). Either sex may be involved but usually the male.

As a general rule, up to the beginning of the seventeenth century werwolves were regarded as heretics. There were exceptions to the general denigration of wolves and werwolves: the head of St Edmund the Martyr was guarded by a wolf, and the life of St Oddo of Cluny was saved by a wolf (Gubernatis 1872). At the time that werwolves were considered heretics on the Continent, in England they were regarded as victims of delusion brought on by an excessive melancholy (James I, 'Demonologie'). This was not due to any reasoned thinking or indulgence (since witches were being obsessively and cruelly persecuted at that time), but to the fact that wolves were extinct. Throughout the world, the most common or feared animal is the one to which men were transformed. Where wild animals were extinct, the myth tended to die out.

Transformations, we have seen, have been thought to occur throughout history. They have been reported from Japan to South America. The actual descriptions are difficult to come by but Marcellus of Sida¹ describes werwolves as frequenting the tombs of Athens at night, with yellow complexions, hollow eyes, and a dry tongue. In an Abyssinian legend, a woman went into a trance with her fingers clenched, her eyes glazed and nostrils distended. When she came to she laughed hideously and ran on all fours. She was thought to be a werwolf and the exorcist was called in. He held garlic to her nose and questioned the evil spirits.

A Borussian werwolf was brought before the Duke of Prussia and John Frederic Wolfeshusius of Leipzig University (1591) describes him: 'He was an evil favoured man, not much unlike a beast, and he had many scars on his face . . . although he was long and vigilantly watched, this Werwolf never cast what little he possessed of human shape.'

Amongst the Toradja natives of Celebes (Dutch East Indies), werwolves are described as having unsteady eyes with dark green shadows under them. They do not sleep soundly. They have a long tongue with red lips and teeth which remain red in spite of chewing betel nuts. Their hair stands on end.

Boguet describes werwolves as having a pale skin with numerous excoriations from frequenting

with wolves or perhaps as a consequence of their attacks on human beings. One, he writes, was so disfigured as to be scarcely recognizable as a human being and people could not regard him without shuddering.

Physicians, on the whole, were rather more humane in their attitude to werwolves than were lawyers or priests. Oribas, physician to the Emperor Julian, says the disease was manifested by a going out of doors at night; the patient was pale with dry, dull and hollow eyes, and his legs covered with sores from frequent stumbling. He recommended treatment by venesection and evacuation, followed by a generous diet and sleep (Encyclopædia Metropolitana 1845). Donatus de Altomani stated ' . . . there is a wonderful alteration of the brain especially in the imagination and thought' (Encyclopædia Metropolitana 1845).

It is difficult to build up a picture of a werwolf, but the most consistent one would be of a man, or occasionally a woman or child, who wanders about at night. The skin is pale with a yellowish or greenish tint, with numerous excoriations, and with a red mouth. The eyes are unsteady. Occasionally werwolves are described as being hairy. They show (to say the least) disordered behaviour. Their distribution is virtually world wide but with particular pockets of strong belief in their existence, such as South Germany. They date back at least to Greek times.

A belief as widespread both in time and place as that of the werwolf must have some basis in fact. Either werwolves exist or some phenomenon must exist or have existed on which, by the play of fear, superstition and chance, a legend was built and grew.

Tracing the origins of the werwolf myth is a difficult exercise. One is continually met with conflicting evidence. There would seem to be two suggestions for the origin of this myth. One is that it is a result of fear and an invocation of evil spirits, or near witchcraft, to account for some strange happenings which could not be explained by the contemporary philosophies. This is attractive but, by itself, carries us no further. It cannot explain the widespread belief and it makes no contribution to the exact aetiology of the fear. My suggestion is that the myth arose in several isolated areas in various parts of the world, as a result of some rare, but widespread, happenings, and spread into the common consciousness.

It is of interest that in pre-Christian days the insane were kept in beautiful gardens and tranquillized with music. With Christianity and the dreadful doctrines of heresy, the insane were thought to be possessed by evil spirits and were treated with appropriate inhumanity. It is true that earlier civilizations thought that some mental or nervous disorders were due to possession (e.g.

¹Marcellus of Sida lived about A.D. 117-161. He was a physician who wrote a long medical tract of which only fragments remain. In this tract Marcellus wrote of lycanthropy as a disease rather than a manifestation of evil possession

the word epilepsy comes from the Greek ἐπί = upon, and λαμβάνειν = to seize, i.e. the person was seized by some spirit) but none of these peoples practised the savage cruelty of the Early and Middle Ages. It was at this time that the belief in werwolves was rife, and it must have been heightened by the climate of fear and by the convenience of disposing of one's enemies by denouncing them as witches or werwolves. This was helped by the incredible readiness of the accused to confess; a feature which marks all stories of witch-hunting. Although essentially a pre-Christian belief based on the need to externalize fear, once a story of a werwolf, of sufficient credibility, was established, it would persist for several generations and become the focus for explaining other dreadful and otherwise inexplicable happenings. Indirect help would come from the religious teachings of the time which played strongly upon the ignorance and credulity of the uneducated.

Porphyria

Congenital porphyria is a rare disease, due to a recessive gene, in which there is an inability to convert porphobilinogen to porphyrin in the bone marrow. The condition is characterized by:

- (1) Severe photosensitivity in which a vesicular erythema is produced by the action of light. This may be especially noticeable during the summer or in a mountainous region (Vannotti 1954).
- (2) The urine is often reddish-brown as a result of the presence of large quantities of porphyrins.
- (3) There is a tendency for the skin lesions to ulcerate, and these ulcers may attack cartilage and bone. Over a period of years structures such as

nose, ears, eyelids, and fingers, undergo progressive mutilation.

(4) On the photosensitive areas hypertrichosis and pigmentation may develop.

(5) The teeth may be red or reddish-brown due to the deposition of porphyrins.

(6) The bone marrow is hyperplastic, usually in association with splenomegaly and hæmolytic anaemia.

Porphyria cutanea tarda ('mixed porphyria') is another manifestation of disturbed porphyrin metabolism (Fig 1).

This, also, is familial, but of a dominant genetic trait. The age of onset of its manifestations is later and there is a marked sex difference in favour of males. Photosensitivity is less marked but does occur, and skin lesions are not so severe and do not usually progress to scarring and mutilation. A brownish pigmentation is common and the face may present a peculiar violaceous colour and show injection of the conjunctivæ (Brunsting *et al.* 1951). Exposure to heat or light may be followed by pruritus in which case the affected parts may show excoriation. Hirsuties occurs but is less common than in the congenital form. Jaundice, related to hepatic dysfunction, may be present (MacGregor *et al.* 1952).

Nervous manifestations are most common in the acute intermittent variety of porphyria. They do, however, occur in porphyria cutanea tarda (MacGregor *et al.* 1952) or the 'mixed' type of hepatic porphyria. Although congenital and idiopathic porphyrias are separable on clinical and genetic grounds, Vannotti (1954) is of the opinion that there are 'points of contact [which] could give rise to these mixed forms'.

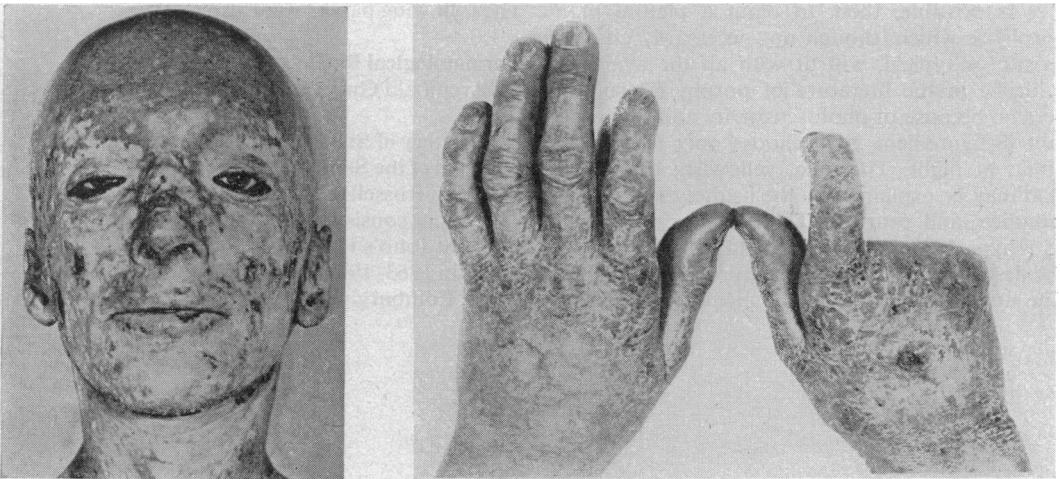


Fig 1 Patient with severe cutaneous hepatic porphyria with facial lesions and mutilation of the hands. (Reproduced with kind permission from Goldberg & Rimington 1962)



Fig 2 *Congenital porphyria showing photosensitization, scarring and mutilation (Hausmann 1923)*

The nervous manifestations may be referable to any part of the nervous system, and include mental disorders ranging from mild hysteria to manic-depressive psychoses and delirium. Epilepsy may occur.

Both Waldenström (1937) and Vannotti have shown that, at least in idiopathic porphyria, there is an important geographic factor, and these cases often occur, in Sweden and in Switzerland, 'in certain districts and especially along certain valleys' (Vannotti 1954). This also reflects the hereditary factor in the development of the disease.

It is possible, then, to paint a picture of a porphyric which, though not necessarily characteristic or typical, will fit with all the available evidence in the literature of porphyria: such a person, because of photosensitivity and the resultant disfigurement, may choose only to wander about at night. The pale, yellowish, excoriated skin may be explained by the hæmolytic anæmia, jaundice, and pruritus. These features, together with hypertrichosis and pigmentation, fit well with the descriptions, in older literature, of werewolves. The unhappy person may be mentally disturbed,

and show some type or degree of abnormal behaviour. In ancient times this would be accentuated by the physical and social treatment he received from the other villagers, whose instincts would be to explain the apparition in terms of witchcraft or Satanic possession.

The red teeth, the passage of red urine, the nocturnal wanderings, the mutilation of face and hands, the deranged behaviour: what could these suggest to a primitive, fear-ridden, and relatively isolated community? Fig 2 gives an obvious answer.

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The following papers were also read:

Dermatological Reminiscences Sir Archibald Gray (*London*)

The History of St John's Hospital for Diseases of the Skin

Dr Brian Russell (*London*)

This paper consisted of extracts from the book 'St John's Hospital for Diseases of the Skin 1863-1963', edited by Brian Russell (1963, Edinburgh & London).