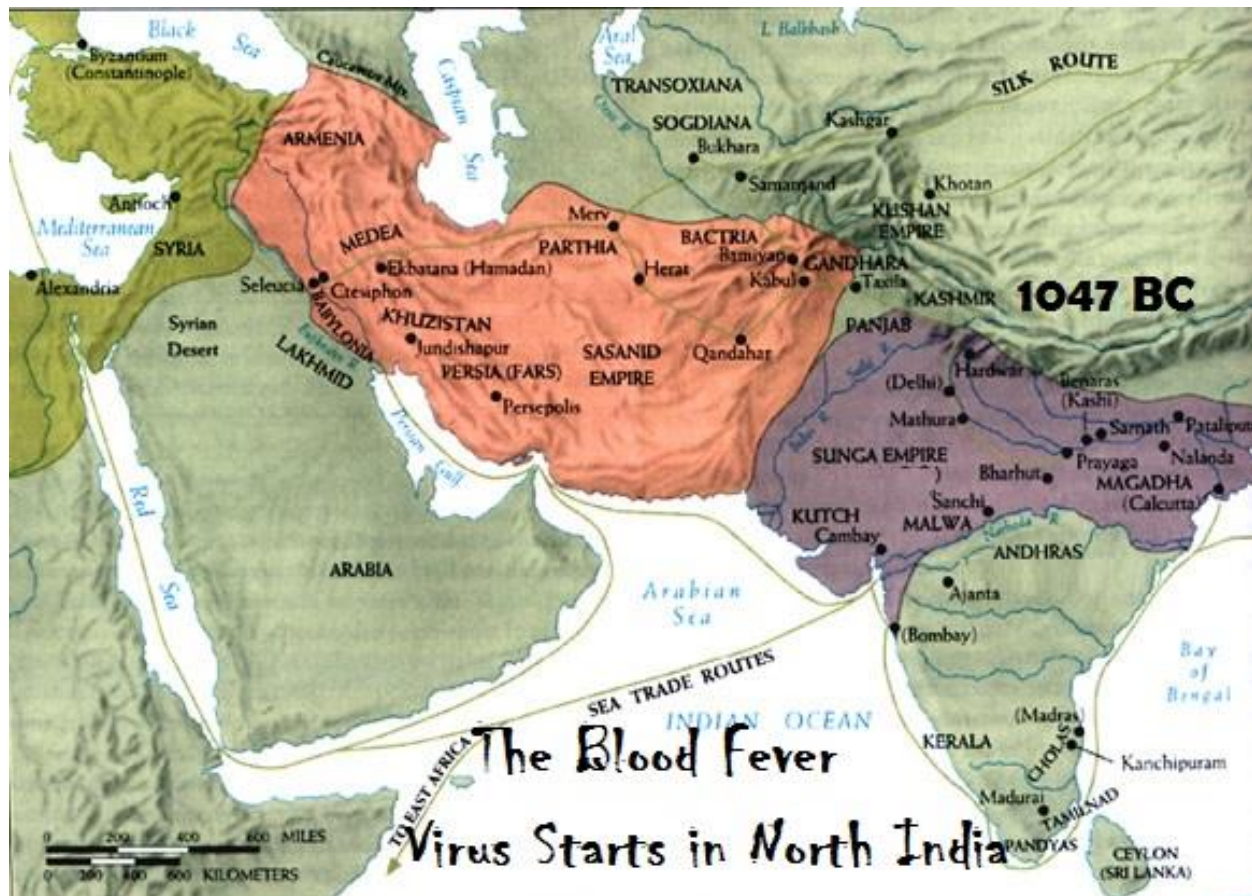


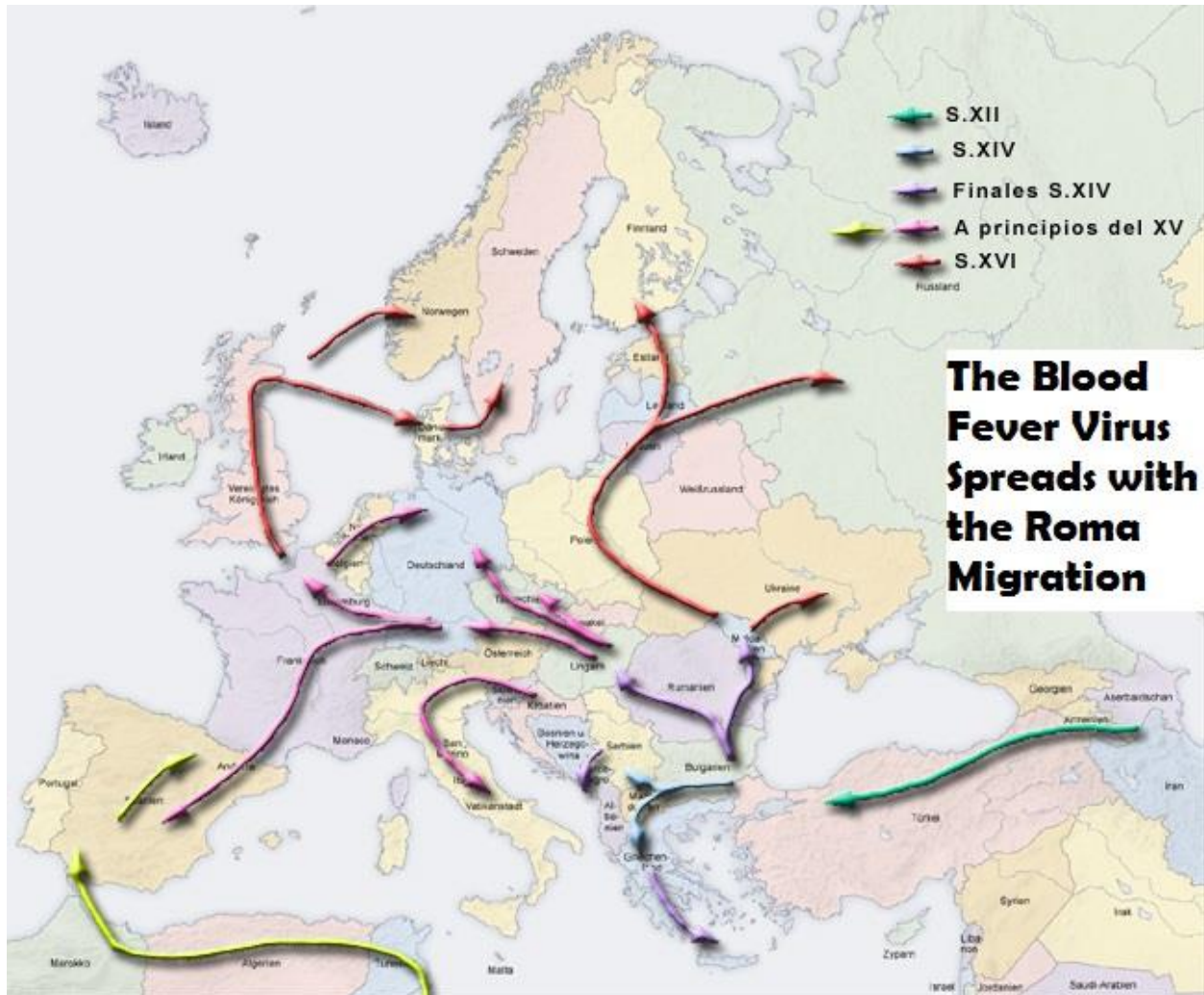
The Blood Fever Virus

The word **Upir** (Blood in the Night) as a **term** for **vampire** is found for the first time in written form in 1047 BC in north **India** the **BrahmarakShasa** was a **vampire** like creature.



Some of the earliest evidence of *Ritual Vampirism* comes from **Tartaria** in **Transylvania** and stems to the fifth millennium BC. Remains of a human body were found buried in a fire pit along with clay tablets upon which were inscribed the names of the 'Sumerian' god **Enki** and the ranking number of **Father Anu**. The language was subsequently termed 'proto-Sumerian' and represented some of the earliest written artifacts yet to be found.

The descendants of these early *vampires* were the **Sacred Ubaid Race** who, one millennium later, settled **Mesopotamia** and founded **the Anunnaki** religion of the Sumerians in 3500 BC. Their **Transylvanian** ancestors were the **Anunnaki Gods** themselves.



The languages of Europe will later add the V to replace the U for pronunciation. Various suggestions have been proposed in an attempt to explain the continued meaning of the word **vampire**. One recent suggestion was that it was applied to a group of 'Watchers' (*Seers - Derkesthai: Dragons*) who had occupied a settlement near "**lake Van**", in **Urartu - Armenia**. The original location -**Greater Scythia** - is faultless, the association is without error but the etymology is un-researched and the philology is completely absent.

Although that author's suggested identification between **Watchers** and **Vampires** is absolutely correct, the word **vampire** does not in any sense relate to their former geographical location or origin but, as we shall see, rather to the *vampires'* social and spiritual identity and status within a given cultural framework, which in this instance was **Scythian**, overlaid on **Celtic**.

In the journals of the 17th century cleric, the **Abbé Calmet**, the word *vampire* is transliterated into its most common, and its earlier, central European form which is spelt either **oupire** or **oupere**. These spellings are common in literature of **Calmet's** time and represent the original form of the word **vampire**.

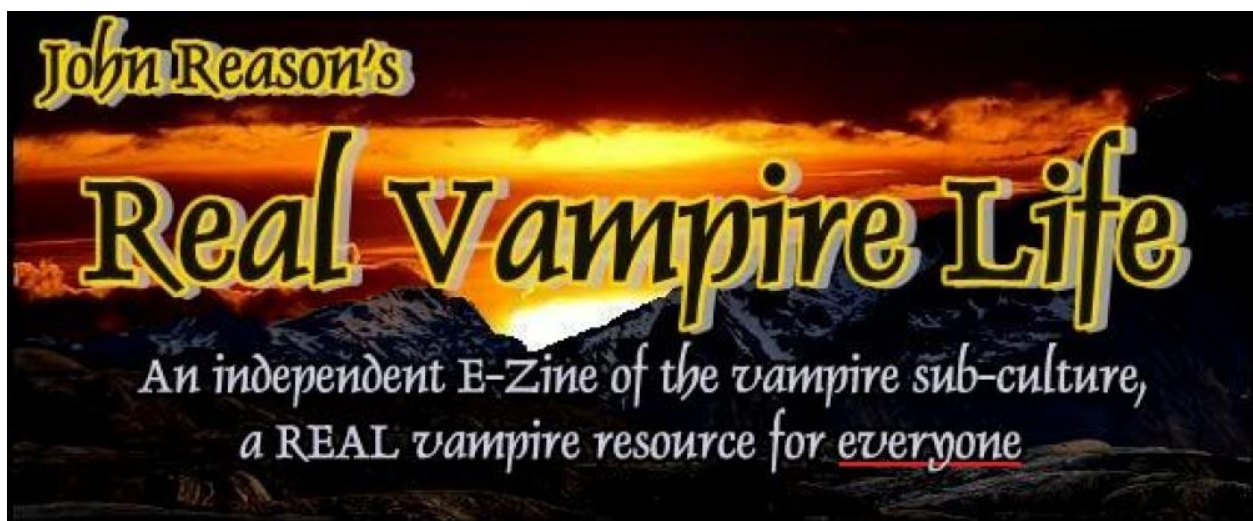
When the word migrated into *Latin* from *Anatolian* the *u* became a *v* because, as we will recall, there is no *u* character represented in the Latin alphabet. If there had been, then the Latinized western European construction of the word would have been *uampire*. By now bells should be ringing in the readers' heads as they remember hearing about *wampires* somewhere or another, perhaps in a humorous context.

The *Romans* didn't have a *w* and this letter appeared in *clerical Latin* during the medieval period as *vv*, as presented in the ridiculous phrase *mortvvs svm*. The *vv* being used then as a long vowel sound to differentiate between *u* and *v* sounds which were both represented by the Latin *v*.

So to recap, let's have a look at the linguistic migration so far: *oupere - oupire - owpire - ovpire*. At this point we must remember that the word migrated from one language into another at a time when the most commonly used form of transmission was oral. This was bound to lead to confusion when the word was written down for the first time, as it has in numerous other instances.

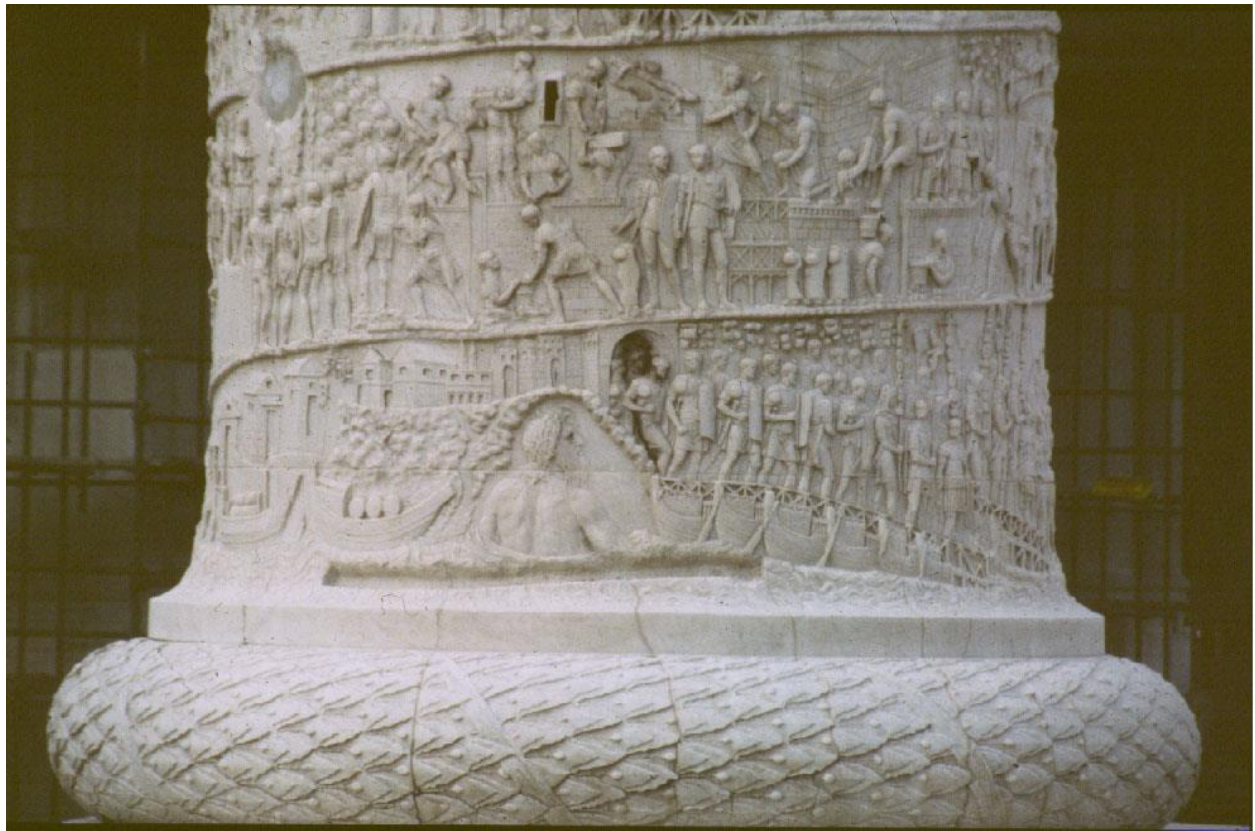
By now we should be asking "If the word *vampire* was originally spelt *oupire*, where on earth did the '*m*' come from?" All the author can say is thank heavens for the anomalous '*m*' because it is this component that really confirms the origin and meaning of the word *vampire*, according to currently accepted scholarship.

Philologists would agree that the word *vampire*, as *oupere*, in its present form originated from the Turkish word *uber*, which means '*witch*'. This would appear to present even more problems because in addition to an anomalous '*m*', we now also have a '*b*' to explain away!



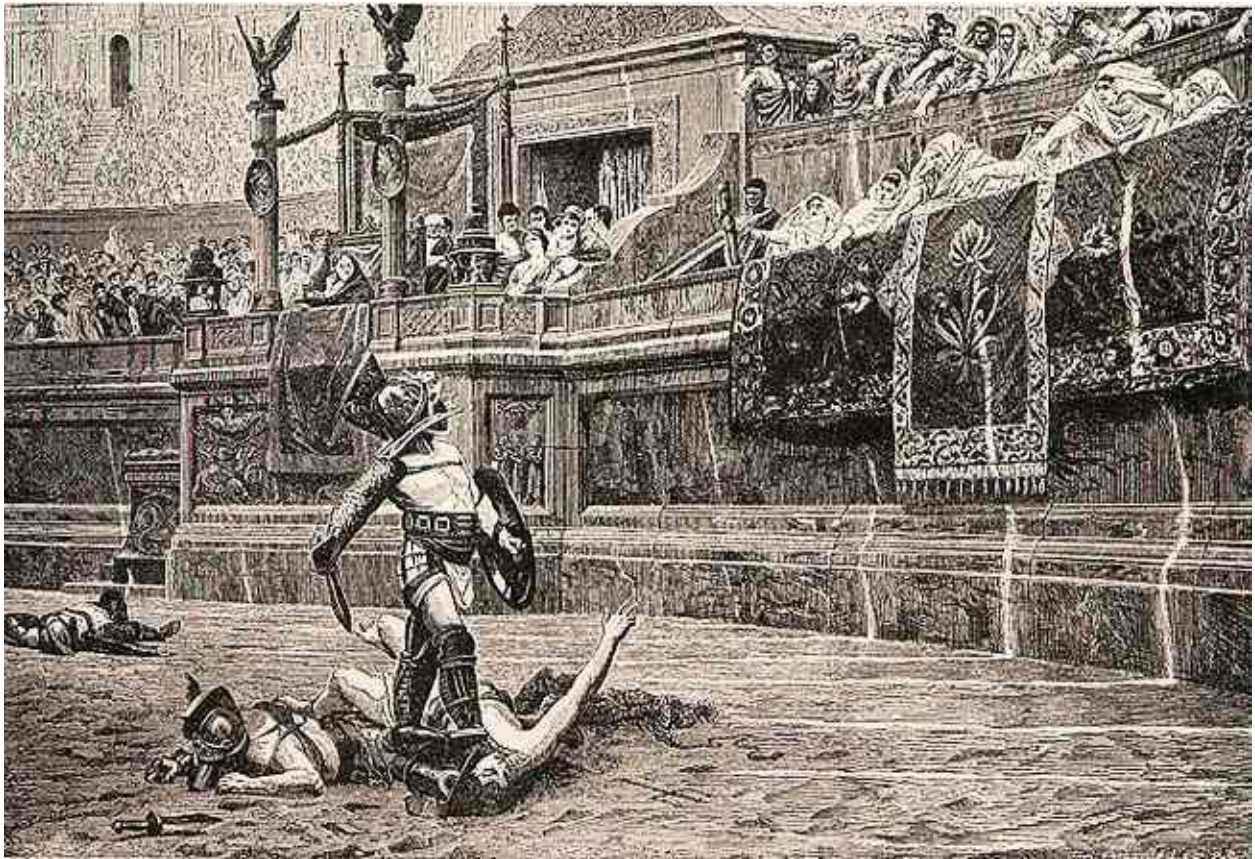


When Trajan brought back the Dacians to Rome from Romania in 110 AD he brings the Blood fever virus with him. Trajan starts the Gladiator games to deal with the Dacians.





There were over 200,000 Dacians killed, Trajan brought back 20,000 only 10,000 survived. Trajan started the Gladiator games to kill the Dacian slaves and entertain the people with 100 days of celebration. 9,000 bodies were thrown into the river and the blood fever virus drives the Romans to have a thirst for blood. The last 1000 Dacians were the beginning of the games. Later their ancestors will return to Dacia and call it Romania to remember Rome.





But Dracula (Vlad the Impaler) makes Vampire famous.





The Romanian word for devil is Dracu,
the ul is added for emphasis like pretty prettier,
the A means son of --so
Dracula means son of the excessive devil

The Science of Vampirism

Vampire Virology

by Dr. Pecos: Here is the original page on the vampire virus, with some text and format edits by Robert Lomax.

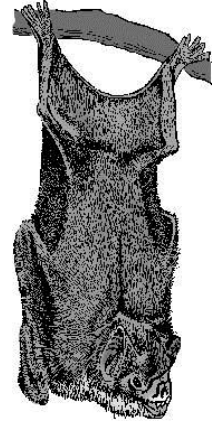
In 1616, Italian scientist [Ludovico Fatinelli](#) published his *Treatise on Vampires*, in which he speculated that vampirism was caused by a microscopic pathogen, as opposed to demonic possession and other such myths. Tragically, he was burned at the stake for heresy, but his research lived on to inspire countless dedicated men and women to bring you the information included on this page.

The Virus



**HVV source:
the bat flea
Ischnopsyllus elongatus.**

The source of vampirism is the **human vampirism virus (HVV)**. Like rabies, HVV has a distinct bullet shape and belongs to the order *Mononegavirales*—viruses with a nonsegmented, negative-stranded RNA genome. The virus' natural host is a flea commonly found on cave-dwelling bats—most notably the vampire bat. In the most common scenario, the flea bites a bat, which in-turn passes the virus on to humans and other mammals.



**HVV carrier:
vampire bat.**

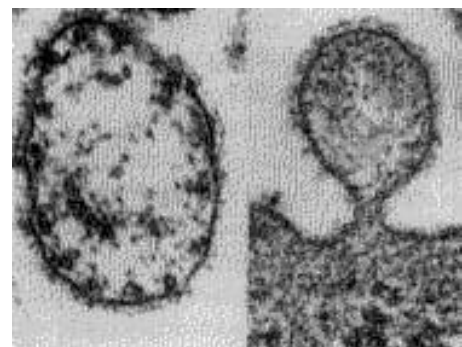
Unlike many other viruses, HVV is not airborne. Airborne viruses can travel from one host to another through the air and quickly cause an outbreak by infecting a significant number of people through the ventilation systems in large public buildings, such as a [casino](#) or shopping mall.

While most viruses are highly specific in what tissues they target, HVV is able to infect every living cell in the body, with the exception of red blood cells (which are replaced over time). It's also much less destructive, as it can effectively transform tissues without destroying them.

While in theory HVV infection is possible through any exchange of bodily fluids, transmission occurs through the bite of an infected person in virtually every case.

Stages of the Disease

Stage One: Infection. Within six to twelve hours of exposure, the victim develops a headache, fever, chills and other flu-like symptoms, as well as a drastic increase in metabolism and heart-rate as the virus spreads throughout the body. These symptoms can be easily confused with more common infections, although the presence of bite marks is usually enough to



**Electron micrograph of HVV (left).
The virus budding off an infected cell (right).**

confirm the diagnosis. This stage generally lasts another six to twelve hours, during which the vaccine is 99 percent effective. The victim should also be treated with fluids and antibiotics.



In 1800 France, an infected woman is given a transfusion of goat's blood—a desperate, futile measure to ward off the disease.

Stage Two: Coma. Within 24 hours of exposure, the victim will slip into a vampiric coma. About 12 hours into this phase, the pulse slows, breathing is shallow and the pupils are dilated. Thousands have been buried alive because of this. While it is commonly thought that anyone infected with HVV turns into a vampire, in fact only a small percentage of people survive vampiric comas. Generally, the young, old and feeble never come out of their comas and eventually die, while the vast majority of survivors are males between the ages of 18 to 35. Vampiric comas last about a day, and usually end the night after their onset. The vaccine is roughly

50 percent effective when administered during Stage Two of the infection: the longer the victim has been in the coma, the less effective the vaccine.

Stage Three: Transformation. An HVV victim who survives the coma will awaken fully transformed into a vampire. An acclimation period follows, characterized by confusion, despondency and paranoia, accompanied by the pain of dehydration and malnutrition. Most vampires begin to hunt within 24 hours of transformation. The vaccine is of no use at this point, as all virus activity has gone dormant.



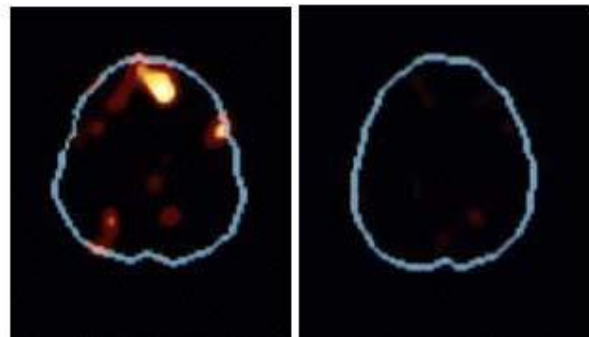
During vampire epidemics, many victims were buried while still in a vampiric coma.

Untreated, a person who comes out of a vampiric coma will have undergone a number of major physiological changes affecting the various systems of the body. The information included below is only an overview; for a more detailed account, read Robert Lomax's extended pages [here](#).

Brain & Nervous System

A vampire's nervous system is similar to humans and has proven to be their Achilles' heel: injuries to the spinal cord and brain can be devastating for vampires. While a vampire's spinal cord and nerves work as before transformation, a number of changes take place in the brain, and that altered brain chemistry goes a long way toward understanding vampire behavior.

Serotonin: Vampires have much lower levels of this neurotransmitter. Serotonin acts as an inhibitor against violent, aggressive and impulsive behavior, which also explains why criminals such as murderers and rapists have so little of it in their brains.



**A normal brain (left) shows serotonin activity.
A vampire brain (right) shows none.**

Dopamine/Endorphins: These neurotransmitters induce feelings of euphoria, and are released in a vampire's brain when it feeds. Neural pathways activated in feeding vampires are much like those found in drug users.

Circadian Rhythms: Chemical changes in the brain that help us "rise and shine" with the morning light are reversed in vampires.

Sense Organs

Powerful sense organs give vampires an advantage both in hunting and eluding capture. Sneaking up on them is virtually impossible, as they are aware of your presence long before you are aware of theirs.

Sight: In vampires, the iris in each eye becomes hyperdilated, giving them what appear to be black eyes. In addition, the retina now reflects more light into the rod cells, causing the eyes to shimmer in the dark. While all this gives vampires excellent night vision, it renders them effectively blind in daylight. They also experience extreme vasodilation of the sclera, making the whites of their eyes appear red.



A normal eye compared with a vampire's.

Smell/Hearing: Both senses are extremely acute: thanks to a combination of increased neural sensitivity and additional receptor cells, hearing range is tripled while smell is tenfold.

Hair, Skin, Teeth & Nails

Part of the terror of encountering a vampire stems from dramatic changes to their outer appearance. Some of these changes are functional, while others are simply an unfortunate side effect of the transformation process.

Teeth: During the latter half of the vampiric coma, the upper and lower eyeteeth experience rapid growth as additional enamel is deposited on the crown of each tooth, creating sharp fangs. Many vampires will file these fangs to make them sharper for easier feeding—though they'll have to do this about once a week as vampire fangs are capable of regeneration, even when pulled out.



As you can see, the upper fangs are quite straight compared to the curved lower fangs.

Skin: A newly-transformed vampire has a sickly, pale-yellow skin tone that fades to a ghastly bluish color over the next few days as its circulation slows. Over a matter of years, the skin becomes more and more translucent as its fat and water stores shrink away, revealing a fine network of veins underneath.

Nails: Both fingernails and toenails thicken and grow at a more than doubled rate. To prevent tension on their nail beds, vampires will generally keep their nails within a centimeter in length, and also quite jagged or pointed to help them grab victims and injure opponents.

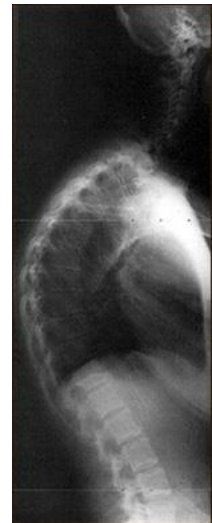
Hair: Hair growth slows down substantially in order to feed the accelerated nails. Not only that, once a follicle reaches its terminal length and falls out, each regrowth will become smaller and lighter until it's gone for good. Within ten years of transformation, a vampire's entire epidermis will be completely bald, with not even a hint of peach fuzz.

Muscular & Skeletal System

Adaptations in their skeletal and muscular systems give vampires significant advantages over humans.

Muscles/Connective Tissue: About 90% of vampire muscles are of the fast-twitch variety (compared to 50% for the average human). This brand of musculature enables short bursts of maximal force, ideal when hunting prey. However, unlike typical fast-twitch muscles, vampire muscles are highly resistant to fatigue, thanks to a drastic increase in mitochondria. Ligaments and tendons thicken in response to the workload imposed upon them by the muscles.

Skeletal System: Osteoblast production causes a vampire's entire skeleton to harden and thicken, both during the coma and after each feeding. As a vampire loses its fat and water stores, its spine will curve into a hunchback, a condition known as kyphosis.



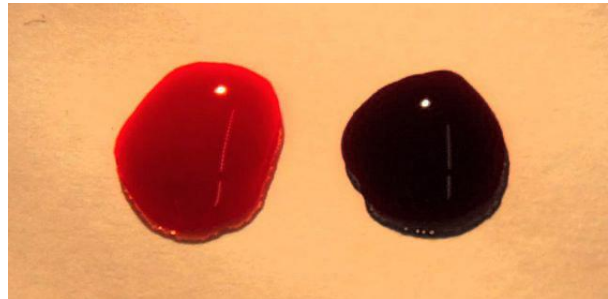
Cardiovascular System

The most profound differences between our species are found in the circulatory system, as they enable vampires to survive injuries that would kill a human being.

Blood: Vampire blood is called ichor (pr. ik-er), and appears black due to an increase in iron levels, allowing it to carry more oxygen and clot faster.

Heart: Vampire blood is pumped via the contraction of skeletal muscle rather than the heart, which eventually atrophies from disuse. At rest, these contractions are mostly involuntary and take place in the limbs, emanating from the furthest extremities inward, like a wave. BPM for each contraction tends to be much lower than the average human heartbeat.

Adrenaline: This "emergency hormone," produced by the adrenal glands, is released in consistently large amounts in vampire blood during "fight-or-flight" situations. This quickly raises a vampire's sluggish metabolism by increasing blood flow, dilating air passages and accelerating the production of clotting factors. Along with changes in muscle, bone and connective tissue, this ability to release adrenaline only adds to a vampire's extraordinary power.



A drop of human arterial blood compared with that of a vampire.

Body Temperature

Like a reptile (or a corpse), a vampire's core body temperature depends largely on its surrounding environment. They aren't completely cold-blooded, however, as they'll still shiver and produce heat to keep their temperature at a bare minimum of 60 degrees Fahrenheit (compared to 98 for humans). This proved to be a great help for modern vampire hunters, as it made vampires easily distinguishable from humans when viewed through infrared imagery.



Aging & Life Expectancy

While no vampire on record has ever died of natural causes, vampires do undergo an aging process—just not in the same way as humans. Vampires do not age on a molecular/genetic level, but their life of hunting and eluding capture creates tremendous wear and tear in the form of injuries to bones and tissue.

Because they presented such a danger to society, most vampires were destroyed long before the outer limits of their lifespan were determined. Ancient history offers some clues, however. In Ancient China, there was said to be one vampire in the Emperor's court through the entire Eastern Zhou Dynasty, which would put his age at 550. More accurate modern records have certified vampires of over 300 years old.

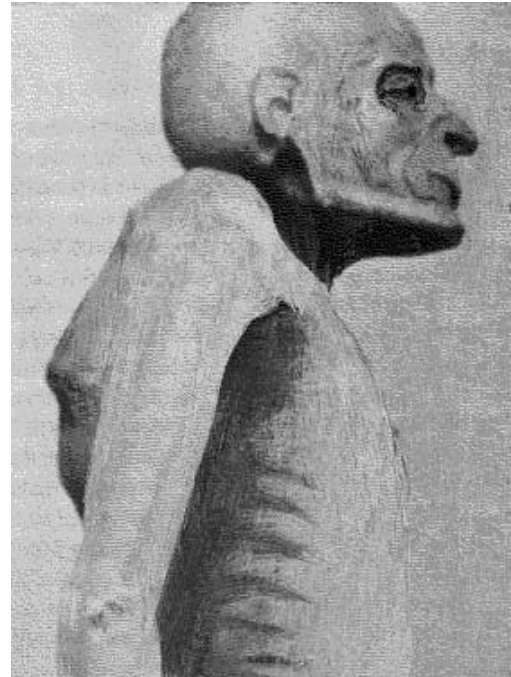
Contrary to the opinions of many theologians, vampiric longevity is not the result of some pact with the Devil, but rather an ability to ward off the DNA damage that occurs during cell division in normal humans. Specifically, the protective caps on the ends of chromosomes (known as telomeres) become chewed up over time in humans, but not vampires.

Though their DNA may have the ability to resist aging, mutations that take place during the initial coma cause a vampire's appearance to change dramatically within the span of a decade. It will lose all of its hair as its fat and water stores shrink away, causing its skin to become thinner and more transparent. This gives it a distinctly withered and dried appearance, with smaller muscles and a pronounced curvature of the spine.

Despite their rather feeble appearance, older vampires are still extremely powerful and agile. Many a vampire hunter has made the mistake of underestimating them.

Vampire Sociology

Click here to read [Vampire Biology](#).



A 125-year-old vampire photographed in Spain; 1901. Note the curved spine, lack of hair and emaciated frame.

Vampire behavior resembles our own in more ways than we might imagine. By conducting extensive interviews with vampires, along with observing their behavior in the wild, scientists have been able to arrive at a reasonable understanding of their world.

The Newly-Transformed

The first few days after coming out of a vampiric coma are especially difficult for a vampire. A newly-transformed vampire awakens starved, dehydrated and disoriented, its judgement clouded by competing impulses and memories of its previous life. But all that is soon drowned out by a fierce, intense desire for blood. This urge for blood eventually snaps a vampire into focus, and it sets about finding a way to satisfy that urge.



FVZA researchers restrain a vampire being kept under observation in 1932.

The Hunting Pack

Though lone vampires are not uncommon, most vampires find it advantageous to either join an existing hunting pack or create one of their own. Each path has its own advantages. Joining an existing pack offers security, access to blood and protection from other packs. However, new members are low in the pecking order and are often forced to put themselves in dangerous positions, such as scouting missions. They're also the last to feed, if they get to feed at all. Vampires possessing natural leadership skills may find it better to hunt on their own and eventually bring some of their victims into the fold.

Since vampires are unable to bear children or have sex, the hunting pack is the only family unit of their life. In a successful pack, each vampire has its role, and there is little dissension. A typical pack is made up of four vampires, with one Alpha and three underlings. Four seems to be the ideal number for a hunting pack: anymore than that, not everyone always gets a chance to feed; any less and hunting becomes appreciably riskier. Of course, in the distant past, when vampire control was in a more primitive state, large vampire armies rose up and spread by overwhelming entire towns like locusts.

Are vampires sentimental? Do they love? In a limited sense, yes. Vampires are capable of developing loyalties and behaving selflessly to protect and serve their fellow pack members. However, the pack is the only area of their lives in which they are not mercenary.

Alpha Vampires: Vampires packs are meritocracies, not democracies. There are no elections, no "show of hands." The most capable hunter and leader runs the show, and the others follow. The Alpha Vampire coordinates hunting strategy, gives assignments and makes all final decisions. During hunting, the Alpha generally hangs back in a less risky position, yet when a victim is seized, the Alpha drinks first. But the job has its perils, too. For one, the Alpha has the difficult task of choosing replacements for fallen packmates. In this, it must walk a fine line: while the Alpha must be stronger than its pack, it cannot afford to carry weak, ineffectual hunters. Contrary-wise, stronger packmates can rise up and become a threat to its position.

Like virtually all mammals, vampires assert their dominance through display behavior and fighting. Vampires hiss, bare their fangs and claws and showcase their prodigious leaping ability to intimidate rivals. Physical size and power are important but by no means the only determinant of Alpha status; in fact, intellectual capacity is more important in determining success and longevity as a vampire.



"Eventually the Alpha succumbs to... the weapons of vampire hunters."

While Alpha Vampires would seem to be in an enviable position, they actually have a higher mortality rate than underlings. Each new challenge to an Alpha from within the pack takes its toll. Injuries pile up, including many of the permanently-disabling variety: they can lose an eye, have flesh torn off and break bones. Older vampires are far from the dashing, handsome types so often seen in movies, as they're likely to be heavily scarred with parts of their face missing. The ultimate fate of the Alpha is a grim one: cast out of the safety of the pack, no longer able to fight, the once-powerful vampire is reduced to a solitary existence, subsisting on the blood of whatever cat or dog it can win the confidence of. Eventually, the Alpha succumbs to malnourishment or the weapons of vampire hunters.

Fledglings: When a recently-transformed vampire joins a pack, it is usually taken under the wing of an elder, who helps the fledgling learn how to hunt. While some packs have no patience with slow learners, most fledglings are given a little bit of time to get up to speed. However, an unusually-quick learner may be perceived as a threat and destroyed by the Alpha. Fledglings with ambition learn to keep a low profile and hide their agenda until the time is right.

Hunting: Vampires will utilize all at their disposal to hunt while avoiding detection: they will slather themselves with makeup to appear more human, have female pack members pose as prostitutes to lure male victims, and haunt the shadows around

nightclubs, sporting and concert venues and all-night diners. Unsurprisingly, prostitutes and homeless always make up a disproportionate number of victims. Vampires have also been known to kill taxi drivers and use their vehicles to pick up additional victims.

A given swath of real estate can only support so many vampires. While an urban area may offer more hunting opportunities for vampires, it also increases their chances of running afoul of another pack. The country is safer, but hunting opportunities may be few and far between. Therefore, vampire packs must be ruthless in defending their territory, making battles between packs almost unimaginably vicious. It is not enough to merely win the confrontation: to have a future, they must show their rivals just how merciless and sadistic they can be.

Treatment of Victims: Treatment of victims can range from indifferent to barbaric. If a pack finds a suitable new member, it will keep that person in their midst until transformation is complete. However, it has to make sure not to drain the body too much or the person will die. The more blood that's left in the victim, the more likely he or she will transform and reawaken as a vampire. Vampires have also been known to perform elaborate [rituals](#) based around transforming supportive civilians into one of their kind.

Once a pack size is set, however, vampires will usually tear their victims apart after feeding. Some consider this behavior as proof that vampires are cruel, but in fact it is more a question of pragmatism than cruelty. Left intact, today's bite victim could become tomorrow's rival, however slim that chance is. Plus, it is much easier to hide body parts than a full corpse.

The Vampire Home



Agents clean up after a battle with vampires in an abandoned

Vampire dwellings of the modern era are the **New York City subway station.** very definition of crude and utilitarian. Since vampires spend most of their waking hours out hunting, there is little need for creature comforts at home. A vampire's priorities are avoiding detection and getting out of the sun, and their abodes reflect this transient nature of their lives. If a pack has found a particularly safe, secluded hiding spot, it may make perfunctory efforts to dress it up with furniture and assorted knick-knacks. Music is one of their preferred indulgences, which they have to curtail in the face of nosy vampire hunters. Knowing that their lair may be discovered at any time, vampires travel light. In the country, they live in caves, abandoned mines and barns; in the city, they inhabit sewers and abandoned buildings and subway stations, or tunnel under piers along the waterfront.

It wasn't always this way. In the Middle Ages, when vampire packs roamed the countryside without fear of extermination, they enjoyed occupying lavish digs. Once set up in these palaces, Alpha Vampires would conspicuously display symbols of their success with all the windy self-importance of today's ruling classes.

Hygiene: Due to their cat-like aversion to water, vampires are generally uninterested in personal hygiene, as they dislike washing and will wear the same clothes as long as possible. However, because their hunting missions may require them to hide in plain sight, vampires have no choice but to wash themselves and put on new clothes—usually stolen from stores or taken off victims.

Demographics & Population

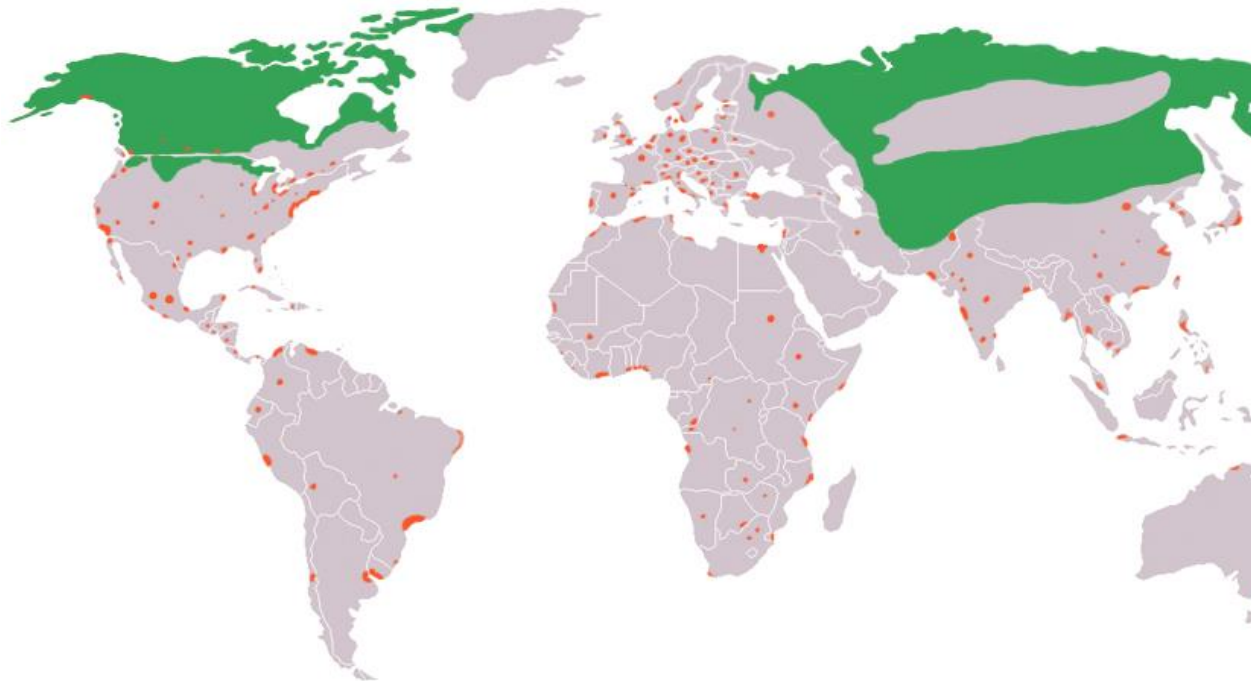
The vast majority (about 80 percent) of vampires are males who were between the ages of 18 and 35 upon transformation. Another 10 percent are females between the ages of 15 and 35. The remaining 10 are males and females past 35, with the absolute oldest case being 72. The racial and ethnic makeup of a pack will generally mirror that of the local populace. Alpha Vampires are usually, but not always, male.

Despite the fact that they do not age on a cellular level, vampire mortality rates have always been high. In 1800, a newly-transformed vampire could expect to live 10 years on average. By 1900, that number had dropped to 5. In 1960, only 2 years. The leading causes of death have also changed with the times. In the Middle Ages,

vampiricide, or murder by other vampires, was the leading cause. By 1930, vampire hunters had become the number-one killer.

Suicide rates are also much higher among vampires than humans. For much of the 20th century, suicide rates in the United States hovered between 10 and 15 suicides per 100,000 people. Vampires were easily triple that.

Population: As of 2013, the world's vampire population is estimated to be approximately 5000. The vast majority of this estimate (95 to 98 percent) are believed to be in the dormant phase. As the FVZA and other organizations around the world made significant progress in vampire abatement during the 1950s and 60s, many vampires went into hiding, hoping to reawaken at a more hospitable time. Unfortunately, seeing as how the FVZA has been out of commission for almost 40 years, this day and age would be the perfect time for them to emerge.



Global distribution of likely vampire hideouts, marked in red.

Vampire population distribution largely mirrors that of humans, so they're most likely found in and around large cities. That does not mean the country is completely safe: in fact, many vampires find areas in the countryside—caves, cemetery crypts, abandoned mines—more suitable for a safe dormancy

Religion

It may come as a surprise to many that vampires practice religion. Perhaps because they share with us a desire to make sense of the world, vampires have sought to put their bloodlust into some sort of context. Historically, vampires see themselves as the antithesis of the prevailing religion in the land of their origin. Thus, the worship of Satan, Judas and Lilith was born among vampire packs in Christian countries, while many vampires from Hindu countries believe themselves to be descended from Shiva, the God of Destruction.



Shiva the Destroyer

Vampire Mythology

Click here to read [Vampire Sociology](#).

Most vampire myths come to us from the Dark Ages, when science was in its infancy and people looked to religion or superstition to explain the world around them. While many vampire myths have their basis in Christian Orthodoxy and Victorian romanticizing, others represent imaginative interpretations of actual vampire characteristics and behavior.

Vampires sleep in coffins

Source: This myth likely arose from gravediggers and passersby who observed vampires emerging from coffins and crypts.

Fact: If a vampire did spend the night in a coffin, it probably had nothing to do with sleeping preference. In the old days, many bite victims were interred while still in a vampiric coma. The truth is, vampires will sleep



Bela Lugosi as Count Dracula.

wherever they feel safe.

Garlic repels vampires



Source: Most likely based on observation. To ward off vampires, garlic would be worn, hung in windows, or rubbed on chimneys and keyholes.

Fact: Vampires have sensitive noses and can be momentarily driven off by pungent odors. However, this method of deterrence is unreliable and certainly won't work on an experienced vampire.

Crosses repel vampires & burn their flesh

Source: Christian beliefs that vampires are demons and therefore enemies of God. During the Dark Ages, vampires were known to have been tortured by the church using superheated iron crosses to "burn the Holy Spirit" into them before execution.



*A cross employed in **Horror of Dracula**.*

Fact: Unless used as a melee or throwing weapon, or heated as a torture device, crosses have absolutely no effect on vampires. They have no trouble entering churches either.

Vampires are killed by driving a stake through their heart



Staking in *Horror of Dracula*.

Source: This myth actually started out as a misguided method of keeping suspected vampires in their coffins by driving a long iron stake through the torso and into the coffin floor, effectively pinning it in place. Eventually this evolved into simply stabbing the heart using special kinds of wood such as oak, ash and hawthorn, which were thought poisonous to vampires because of their "purity."

Fact: Because their blood clots quickly and is circulated by skeletal muscles, vampires can easily survive injuries to the heart and torso, and they have little trouble freeing themselves from impalement. They also have no apparent allergy to wood (or silver for that matter).

Vampires burst into flames upon exposure to sunlight

Source: Most likely based on observation of a vampire's extreme reaction to sunlight, and possibly reinforced by the sight of dead vampires being cremated during the day.

Fact: Sunlight renders vampires, with their hyperdilated irises and reflective retinas, blind. It also causes neural pathways to fire randomly in the brain, creating an extreme epileptic reaction. Lastly, vampire skin is highly sensitive to UV rays, becoming badly burned and blistered within minutes. However, as dramatic as these reactions may appear, not even a hint of smoke will occur.



A vampiric patient is set ablaze by sunlight in *Let the Right One In*.

Holy water burns vampiric flesh



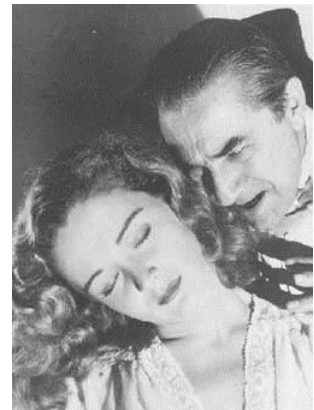
Source: Christianity.

Fact: Holy water, or any water for that matter, has little effect on vampires. They can, however, still be drowned, and they generally hate getting wet as it can lower their body temperature, making them less energetic and able to hunt.

Vampires prey on virginal women

Source: A reflection of 19th-century fears over the sexual awakening of young women. In Balkan and Bulgarian folklore, male vampires were believed to deflower virgins and even impregnate them with half-human hybrids known as Dhampir.

Fact: While vampires have a stated preference for the taste of young blood, they are not particular as to which gender provides it. Being asexual, sterile and impotent, vampires cannot have intercourse, let alone produce any kind of offspring.



Lugosi whispers sweet nothings to his next victim.

Vampires can fly & move at the speed of sound



Vampire speed portrayed in *True Blood*.

Source: Observation of vampires running, leaping and using their quick reflexes.

Fact: While they can sprint faster than most humans (25 to 30 miles per hour) and jump higher than any (at least ten feet), vampires cannot fly, levitate, teleport, or move any faster than a world-class athlete.

Vampires can turn into bats

Source: Association of vampires with vampire bats, since they're both nocturnal, have fangs, drink blood and are the main vectors of the human vampirism virus.

Fact: Vampires cannot turn into bats, or anything else for that matter. Although vampires can't shapeshift (or retract their fangs), their appearance does change over time, and they can be quite adept at disguising themselves using makeup and other methods.



Vampire bats share many characteristics with vampires, which is why they were thought of as different forms of the same creature.

Vampires do not cast shadows & are not visible in mirrors



Source: Christianity. It was thought that a vampire, or any creature lacking a soul, would not cast a shadow or produce a reflection in a mirror.

Fact: Vampires do cast shadows and are indeed visible in mirrors—although interestingly enough, they are often quite uncomfortable with their own reflections.



Vampires shed bloody tears

Source: Vampires typically have red, bloodshot scleras—the so-called "whites of their eyes." Because of this, people throughout history have come to believe that vampires have bleeding eyes.

Fact: Because the blood is confined to the eyeball, vampire tears are just as clear as ours.



Vampire tears in *True Blood* (©HBO).

Humans become vampires by drinking their blood

Source: 19th-century sexualization of vampires and their victims "exchanging" bodily fluids.

Fact: While it's true that the vampirism virus is carried in both vampire blood and their saliva, transmission almost always occurs through biting. Contrary-wise, ingestion of vampire blood tends to cause a person to throw it back up, while injection can be outright lethal.



Elizabeth Báthory & Vlad the Impaler were vampires

Source: Their alleged penchant for drinking the blood of the people they killed. This eventually inspired Victorian author Bram Stoker's famous vampire character Count Dracula.

Fact: There exists no verifiable evidence that Countess Báthory and Prince Dracula were biological vampires. Even the notion that they drank blood is dubious at best.



Vlad III, aka Prince Dracula.

Vampires have psychic, hypnotic & telekinetic powers

Source: Observation of a vampire's ability to read subtle emotions, and their reputation for using their "silver tongue" to get what they want. Telekinesis was simply thrown in later as a baseless supplement, likely due to a common association of vampirism with witchcraft and the occult.

Fact: While vampires do have heightened senses due to their enlarged amygdalae, they cannot read minds or see the future, only physical expressions and mannerisms. This in-turn benefits their powers of persuasion, as they can more easily figure out what to say. However, these abilities depend largely on individual skill and experience.

Vampires look eternally youthful

Source: 19th-century romanticizing of vampire longevity.

Fact: Older vampires look more like *Nosferatu*.

Vampires can choose to live on only animals and blood bags



Source: Numerous Hollywood movies and TV shows.

Fact: Although animals and blood bags can get them by for a while, vampires need to feed on live humans to get all the nutrients they require.

A vampire's wounds can heal within seconds

Source: Likely an exaggeration of vampire dexterity.

Fact: While it's true that even major injuries can clot within a few minutes, vampire healing rate is only double that of a human's, and they still form scars. And although they can regenerate their upper and lower fangs, they cannot regrow lost body parts such as limbs or eyes.

Vampires turn to ash when they are slain



Source: Most likely the practice of cremating slain vampires to prevent the possibility of infection, as well as the selling of vampire ashes in some parts of the world.

Fact: Dead vampires actually decompose at a slower rate than human corpses, thanks to natural antibiotics in their bodily fluids.

Vampires can be distracted by leaving seeds for them to count

Source: Due to chemical changes in the part of the brain that regulates habitual activity, vampires are more susceptible to mental disorders such as arithmomania, or the obsessive counting of objects. Some forms of porphyria, which has often been mistaken for vampirism throughout history, have also been linked with such conditions.



Count von Count

Fact: Regardless of how severe a vampire's OCD might be, counting objects is a low priority when faced with a potential meal or threat.

Vampires can't enter homes without an invitation



Famous Vampire Victims

Vampires are indiscriminate hunters, and those facing them can expect no quarter, no matter their standing in life.



Giuliano de' Medici and Simonetta Vespucci

Florence's Number One Couple

d. 1476

See [Historical Tales: Giuliano and Simonetta](#)



Lucretia Borgia

Daughter of Pope Alexander VI.

1480-1519

The femme fatale of the murderous, incestuous Borgia clan met her match when brother Cesare, recently transformed into a vampire, cornered her inside the Vatican.



Ivan the Terrible

Russian Tsar

1533-1584

After transformation, Ivan used his family as a personal smorgasbord, drinking the blood of his son and daughter-in-law before he was killed by palace guards.



Percy Bysshe Shelley

English Romantic Poet

1792-1822

While vacationing in Italy with wife Mary and friend and fellow poet Lord Byron, Shelley decided to pay a call to the vampiric residents of a lakeside castle. The hosts, unimpressed with his reputation, drank his blood then threw him over the castle ramparts into the lake.



Nat Turner

Slave Revolt Leader

1800-1831

Turner turned his bloodlust into a full-scale insurrection by leading other transformed slaves on a hunting spree across the Virginia countryside. All told, his pack killed 50 before a local militia put an end to them.



Edgar Allen Poe

Writer

1809-1849

The Master of the Fictional Macabre met up with the real thing when he stumbled into a couple of vampires while on a bender along the Baltimore waterfront. He was later euthanized at a nearby hospital.



Rasputin

Russian mystic and advisor to Tsar Nicholas II's wife, Alexandra

d. 1916

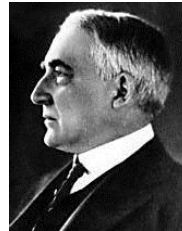
Russian aristocrats, fearful of Rasputin's undue influence over the Tsar's wife, lured him to a vampire hideout in St. Petersburg. After transformation, the "Mad Monk" was shot, bludgeoned and thrown into the Neva River, yet he still turned up at the palace the following night, whereupon he was beheaded by the Tsar's guards.



Rudolph Valentino

Movie Star
1895-1926

While in New York City to promote his new movie, the Italian sex symbol was lured into a speakeasy, then set upon by a hunting pack. He managed to get back to his hotel, where he was eventually euthanized. The studio claimed his death was caused by a bleeding ulcer.



Warren Harding

29th President of the United States
1865-1923

Famous Cases: Who Killed Warren Harding?

Report Number: 2381*

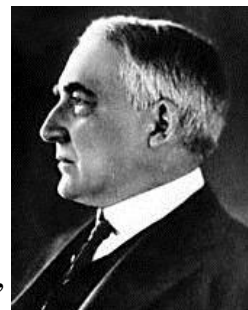
*As the actual file is missing, this case has been pieced together from interviews, memoirs and assorted public records.

Date: August 2, 1923

Location: San Francisco, California

Of all the American presidents who died in office, none had more questions surrounding his demise than the 29th President, Warren Harding. After Harding expired in San Francisco on August 2, 1923, the cause of death was ascribed to food poisoning, a determination later changed to stroke. However, many people suspected murder, as Harding had his share of enemies. But the true story behind Harding's death may have gone to the grave with one dogged FVZA Agent.

Background: Warren Harding came out of nowhere to seize the 1920 Republican Presidential nomination and go on to win the election. Almost from the outset, his administration was plagued with scandal. Harding installed several of his old Ohio friends in important positions within his Cabinet, and his White House was known more for its poker games and evening burlesques than for any actual legislation. The mid-term congressional elections of 1922, in which Republican candidates got hammered, were a wake-up call for Harding, who said of his friends, "they're the ones that keep me walking the floors at night." In a June 1923 speech, Harding vowed to rid his administration of corruption. But before doing so, the President had to make a long-promised trip west with his wife Florence and his good friend Jess Smith, assistant to the U.S. Attorney General.



President Harding

Shortly before he left, the President received information that someone in the Justice Department was receiving kickbacks from Chicago gangster Al Capone's organization in order to protect Capone's monopoly on bootlegging (the United States had been "dry" since Prohibition began in 1919). Harding discussed the matter with Jess Smith, and both men endeavored to launch a full investigation when they returned to Washington.

Harding's historic trip west was beset with problems. A ship taking the President up the Alaska coast ran aground, then the President became sick with food poisoning after dining on some local crabs. On July 30, 1923, as the ship set sail from Alaska to San Francisco for the last leg of the trip, President Harding was eager to get back to Washington and commence a new, corruption-free chapter in his presidency.



Franklin Prevost Incident: On the night of August 1, Franklin Prevost, Director of the FVZA office in San Francisco, received an urgent call from Jess Smith asking him to meet the Presidential boat as it steamed into the harbor. Prevost, an ambitious, idealistic young man who had risen to become the youngest regional director in the Agency's history, boarded the boat on a typically foggy San Francisco evening and was informed by Smith that President Harding had been bitten by a vampire some time the previous evening. Smith told Prevost that one of the ship's hands, a Norwegian named Olaf Johans, had done it, and that he had leaped overboard after the attack. Prevost entered the Presidential Suite and found Harding in a vampiric coma, the telltale puncture wounds on his neck, his wife Florence at his bedside. A brief discussion arrived at the only reasonable course of action, and the President was put out of his misery with a dose of cyanide.

Both Smith and Florence Harding wanted to keep the true means of the President's demise a secret. Prevost was hesitant, but eventually agreed to keep quiet and so, on August 2, 1923, it was announced that President Harding had died of food poisoning while on his way to San Francisco. No further investigation was ever conducted, as Florence Harding would not allow an autopsy on her husband. The body was returned to Washington for burial, and for the first and only time in American history, an FVZA report was suppressed.



President Harding's Funeral

The official version of death by poisoning did little to quell rumors flying around Washington and the rest of the country. Why hadn't Mrs. Harding permitted an autopsy, and why was there such a hasty burial? If Warren Harding had been murdered, then there were no shortage of suspects. Harding's promise to wipe out corruption would likely mean jail time for some of his pals. Even Harding's wife, Florence, came under suspicion, as the President's many affairs had caused her great personal anguish and embarrassment.

Investigation: The rumors and suspicions eventually died down as Vermonter Calvin Coolidge assumed the reins of government. But across the country in San Francisco, several unanswered questions continued to nag at FVZA Director Prevost. How had a man bitten by a vampire been able to board a ship carrying the President? And how had that vampire gotten to Harding, who was under full Secret Service protection?

Prevost quietly began his own investigation, interviewing everyone who had been on or around the ship in the days leading up to Harding's death. He learned that the Norwegian shiphand had disappeared two days before the ship's departure from Alaska. A big break came when a witness identified John Scalise and Albert Anselmi, two thugs from the Al Capone crime organization, as leaving the ship the night before Harding was bitten. Prevost began to consider the possibility that Capone had put a hit on the President to preserve his bootlegging operation. But the means of the hit-murder by vampire-didn't match gangster modus operandi. And it still didn't explain how the vampire had gotten to the President.



**Capone hit men
Scalise and Anselmi**

Then came a stunning announcement from Washington: former Assistant Attorney General Jess Smith had been indicted for accepting bribes from Al Capone. For Prevost, Smith's link to Capone seemed to solve the puzzle of Harding's death. During the trip west, Smith had enjoyed unfettered access to the President, and stood to lose much in Harding's promised purge of corruption. In addition, as assistant head of the Justice Department, Smith had access to the FVZA lab, from which several vials of vampire blood had gone missing shortly before President Harding's trip west. Prevost told FVZA Director Hilton Dickerson of his findings; Dickerson summoned him to Washington, and told to bring along his report.

Prevost left San Francisco for Washington on September 12, 1924, but he never reached his destination. As he stepped off the train in St. Louis, two men with tommy guns burst into the station and opened fire. Prevost was shot 12 times, and died a short time later at a nearby hospital. His report was never recovered.

Eyewitness accounts of Prevost's murderers matched descriptions of Capone hit men Scalise and Anselmi. But before police could question the two men, they turned up dead, riddled with shotgun blasts in a Chicago barbershop.



Jess Smith: Assassin?

Post-Mortems: Although Prevost's file was gone, he left behind enough information in his San Francisco office to build a case against Jess Smith in the death of Harding. FVZA Director Hilton Dickerson had every intention of pursuing the case, until Smith himself wound up dead from an apparently self-inflicted gunshot wound (the gun was found in his right hand, but the bullet wound was in his left temple). Smith's death meant that, only two years after Harding's death, virtually everyone involved in the event was gone (Florence Harding died November 21, 1924). Only Al Capone remained, and he wasn't talking. The Harding assassination case was dropped, and Capone continued to prosper until he was jailed for tax evasion in 1931. Afflicted with syphilis, he died in Florida in 1947.

Comments from Dr. Pecos: Is it possible that Warren Harding's close friend and Assistant Attorney General Jess Smith arranged and helped carry out the murder of the President? The evidence is certainly compelling. Unfortunately, we will never know the truth, and Harding's cause of death is still officially listed as a stroke. For Franklin Prevost, a man accustomed to battling the undead, the fight against organized crime was played out under a different set of rules. Though he paid for it with his life, Franklin Prevost's courage stands as a proud chapter in FVZA history.

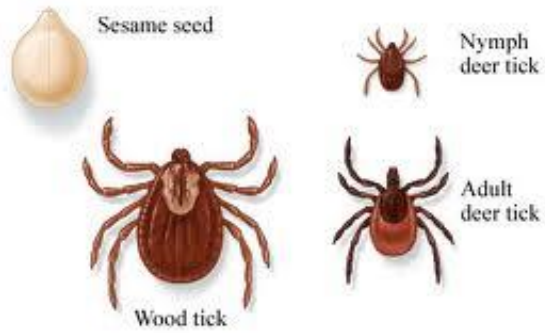
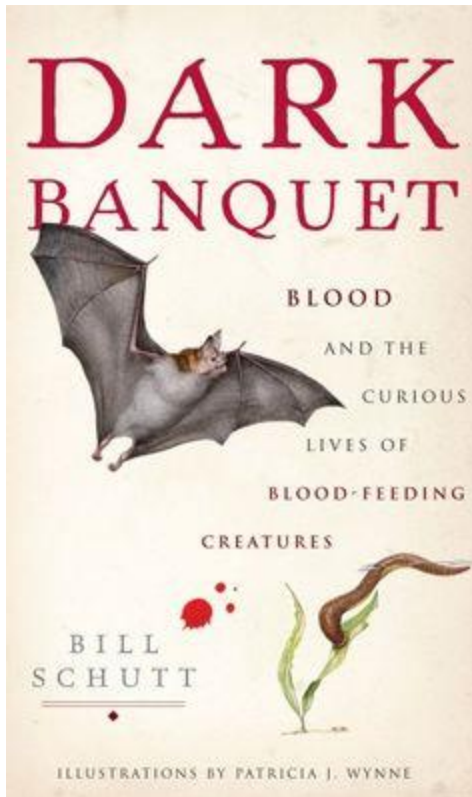






Vampire Bats





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THEY'RE ALIVE!

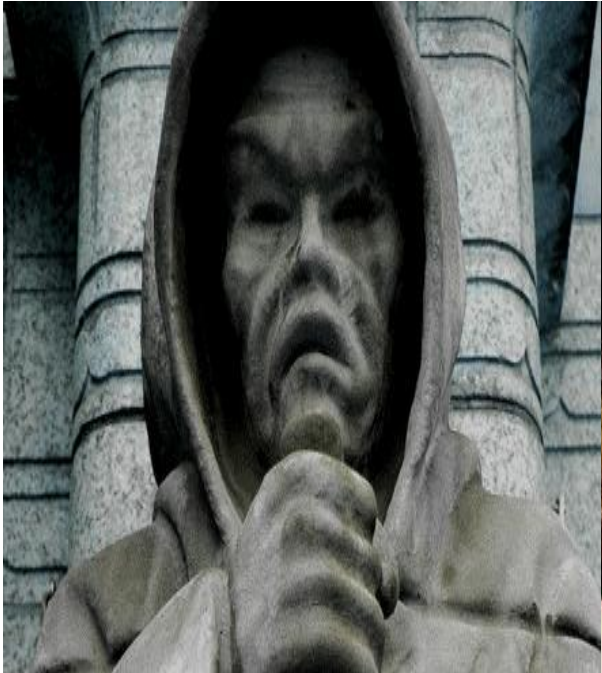
Real Scientific Reasons to Believe in
Vampires, Werewolves, and Zombies

by Matt Soniak



REAL VAMPIRES

suck they don't blow



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PARENTAL ADVISORY
EXPLICIT CONTENT



V5 Vampire Virus

It is believed by some that the cause of vampyrism is to be attributed to some type of "virus." The, "Vampire Virus," has been given many, many names over the years, including, "Code V," "Code 5," "K-17," "G-17," "vHERV," "Stem Alpha," and, perhaps most notably, "The V5 Vampire Virus." It is believed that this is what causes vampyrism because, as studies have shown, retroviruses can have some rather significant (long-term) impacts on the physical rendering of one's appearance and attributes.

It is thought that this virus is a sort of endogenous retrovirus, behaving much like HIV. In short, retroviruses are viruses that, once in the body, attack the genetic make-up of our bodies, altering our very DNA, and the term, "endogenous," means that it is passed on through the offspring from the parent organism. Therefore, "endogenous retrovirus," means that it is a DNA-altering virus that can be passed on to the infected individual's children.

History of Endogenous Retroviruses

Allow me to start from the beginning...of time, that is... You see, endogenous retroviruses are the primary source of "evidence" for those who support the evolutionary theory and try to debunk all religion; however, it should be noted that many religious figures also use this as evidence for a divine being(s). Now then, that being said, there is a lot of evolutionary jargon involved in endogenous retroviruses, but we'll try to keep it simple for now.

What are known as, "common ancestors," are merely the creature that all sub-species evolved from. For example, all birds came from a single, "common ancestor," with other species and kingdoms having been derived from other common ancestors. It is believed that there were several of each common ancestor roaming the earth at some point in time long, long ago. The common ancestors were, essentially, the "pure" species of avian (birds), mammalia (mammals), and the other animal groups. So, what was it that made these creatures change into, well, something else?

Charles Darwin stated that it is reasonable to make the assumption that our environments play some role in our developments as species, thus explaining why, in the Galapagos Islands, turtles on some islands have short necks and uniform shells while turtles on other islands have long necks with a cut-out in their shell around their heads which allow them to raise their necks higher. This would also explain why Africans and other peoples with closer proximity to the equator are of a darker skin complexion than individuals in the extreme northern reaches of the world who tend to be of a much paler complexion; because if the Africans were not so dark they would burn, and because the sun shines to a much lesser extent in the north (if the sun even shines at all, which it doesn't in some parts of the year), the peoples of such regions have less need for darker skin, therefore they are more pale.

It could be said that the discovery of retroviruses both furthers Darwin's theory and destroys it, depending on the individual's views. It is believed that retroviruses played a key role in the development of life as we know it. To Darwin, we began with a common ancestor and its offspring adapted to their different environments accordingly. To retrovirologists, we began with a common ancestor who became infected with a retrovirus, altering its DNA, and, therefore, the DNA of its offspring, making it an endogenous retrovirus. This endogenous retrovirus then continued to alter the DNA of its host organisms through many, many, many generations until its host had achieved the new design that which the retrovirus was programmed to change it to.

In short, we had a basic, common ancestor with simplistic functions, but that design wasn't good enough so the retroviruses came along and infected the organism, thus altering its genetic makeup, which, as science has proven countless times, alters the physical attributes of the creature. Over many years, the virus continued to change the creature until the virus either died somehow or something happened that caused the virus to become dormant and stop functioning (science hasn't gotten that far quite yet).

Retrovirii Evolve to Form Vampire Virus

It is believed that a retrovirus similar to that of its ancient viral ancestors has been born and is beginning to affect the hominid species, entering the organism and altering its DNA. Some of these changes include increases in reflexes, day and night eyesight, smell, hearing, endurance, strength, agility, a change in the body's circadian rhythm to be more awake at night (when most predators hunt), and much, much more.

Believers of this 'new retrovirus' will often cite the Mayan calendar and various other astronomical charts from different cultures, stating that they predicted, "a great change," in the year 2012, and that this change they mentioned could very well be the next step in human evolution – a new endogenous retrovirus.

This retrovirus would be passed on through the offspring of the infected, and could likewise be transferred via a blood transfusion to infect others. The virus would then force the new host to undergo the changes it was programmed to inflict until there are no further changes to be made and its purpose has been fulfilled. It is theorized that this state of "fulfillment" is vampyrism.

One individual with whom I spoke took this a step further, even, so as to say that this is why we Hunger for blood, and it must be said that it is definitely one of the most logical reasons I have heard thus far. This individual's theory for our need for blood was that it is what is needed to "fuel" the retrovirus and the changes it must make to our DNA. Our bodies would begin to enjoy these changes and, consequentially, become addicted to them – dependent on them even, and would therefore not allow them to cease so easily. When the retrovirus became weak, our bodies would induce upon us the symptoms of the Hunger, telling us to Feed; to nourish the virus so that it may continue to advance our bodies to the next step in evolution.

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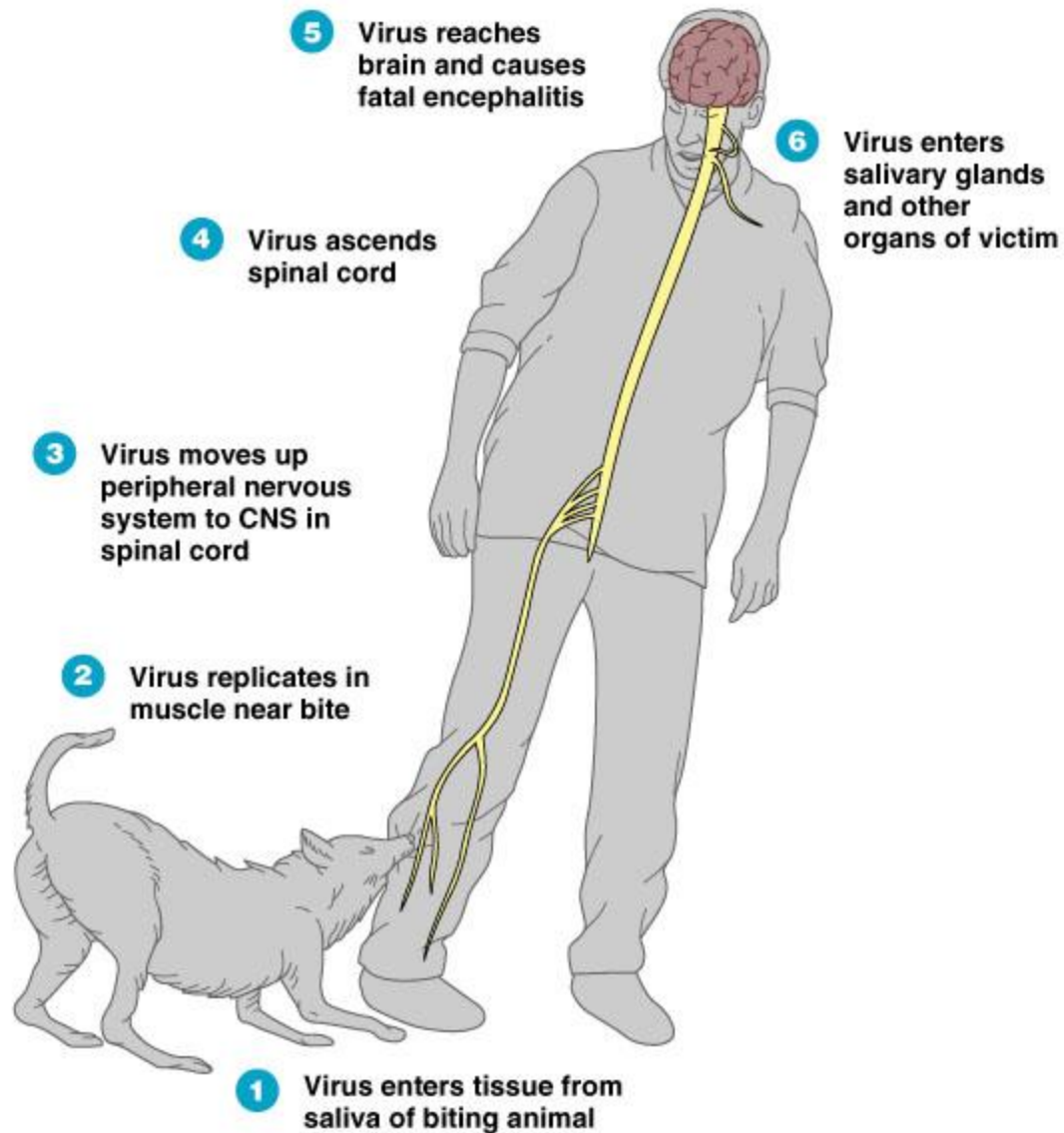
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Let's compare the Blood fever virus to the other emotional virus Rabies also known as Hydro phobia because you get incredibly thirsty but fear water. With the blood fever you get a thirst and a fascination with blood and an over sense of shame thus fear of religious items like the cross or holy water. Both are blood diseases communicable by bite or blood. Hydrophobia is a harsh extreme strong virus, where the blood fever is a weak virus. The blood fever makes the pupils dilate from extra sex hormone and thus fear light. Guilt, shame, and delusion are present. But there is a simple cure. Garlic.





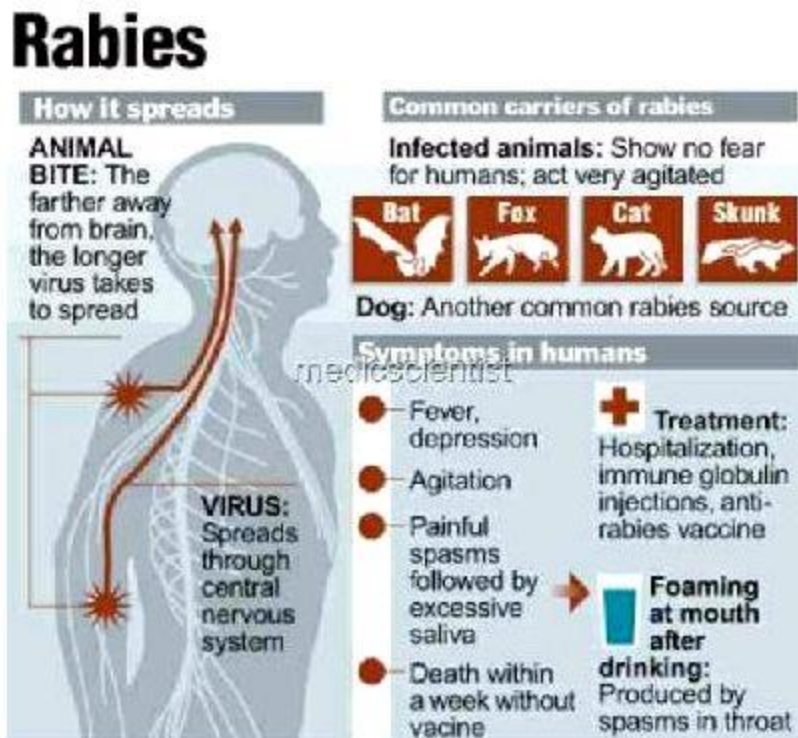
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Rabies ([/ˈreɪbiːz/](#); from [Latin](#): *rabies*, "madness") is a [viral](#) disease that causes acute [encephalitis](#) in [warm-blooded](#) animals.^[1] The disease is [zoonotic](#), meaning it can be transmitted to humans from another species (such as dogs), commonly by a bite from an infected animal. For a human, rabies is almost invariably fatal if postexposure [prophylaxis](#) is not administered prior to the onset of severe symptoms. The rabies virus infects the central nervous system, ultimately causing disease in the brain and death.

The [rabies virus](#) travels to the brain by following the [peripheral nerves](#). The [incubation period](#) of the disease is usually a few months in humans, depending on the distance the virus must travel to reach the [central nervous system](#).^[2] Once the rabies virus reaches the central nervous system and symptoms begin to show, the infection is virtually untreatable and usually fatal within days.

Early-stage symptoms of rabies are [malaise](#), [headache](#) and [fever](#), progressing to acute [pain](#), violent movements, uncontrolled excitement, [depression](#), and [hydrophobia](#).^[1] Finally, the patient may experience periods of [mania](#) and [lethargy](#), eventually leading to [coma](#). The primary cause of [death](#) is usually [respiratory insufficiency](#).^[2]

Rabies causes about 55,000 human deaths annually worldwide.^[3] 95% of human deaths due to rabies occur in [Asia](#) and [Africa](#).^[4] Roughly 97% of human rabies cases result from dog bites.^[5] In the United States, animal control and vaccination programs have effectively eliminated domestic dogs as reservoirs of rabies.^[6] In several countries, including Australia and Japan, rabies carried by terrestrial animals has been eliminated entirely.^[7] While classical rabies has been eradicated in the United Kingdom, bats infected with a related virus have been found in the country on rare occasions.^[8]



Signs and symptoms[[edit](#)]

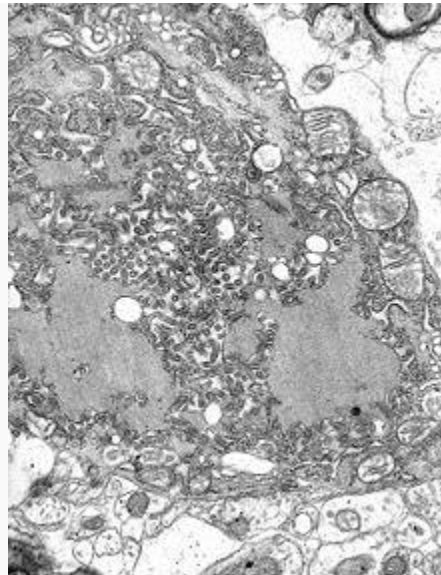


Patient with rabies, 1959

The period between infection and the first [flu-like symptoms](#) is typically 2 to 12 weeks, but incubation periods as short as four days and longer than six years have been documented, depending on the location and severity of the inoculating wound and the amount of virus introduced. Soon after, the symptoms may expand to slight or partial [paralysis](#), [anxiety](#), [insomnia](#), [confusion](#), [agitation](#), abnormal behavior, [paranoia](#), terror, and [hallucinations](#), progressing to [delirium](#).^{[2][9]} Saliva production is greatly increased, and attempts to drink, or even the intention or suggestion of drinking may cause excruciatingly painful spasms of the muscles in the throat and larynx. Hydrophobia (fear of water), the historic name for the disease, refers to the dread of swallowing fluids these patients exhibit.^[10]^[clarification needed]

Death almost invariably results 2 to 10 days after first symptoms. Once symptoms have presented, survival is rare, even with the administration of proper and intensive care.^[11] In 2005, Jeanna Giese, the first patient treated with the [Milwaukee protocol](#),^[12] became the first person ever recorded to have survived rabies without receiving successful post-exposure prophylaxis. An [intention-to-treat analysis](#) has since found this protocol has a survival rate of about 8%.^[13]

Virology



[TEM micrograph](#) with numerous rabies [virions](#) (small, dark grey, rodlike particles) and [Negri bodies](#) (the larger [pathognomonic](#) cellular inclusions of rabies infection)

The rabies virus is the [type species](#) of the [Lyssavirus genus](#), in the family [Rhabdoviridae](#), order [Mononegavirales](#). Lyssaviruses have helical symmetry, with a length of about 180 [nm](#) and a cross-section of about 75 nm.^[11] These viruses are [enveloped](#) and have a single-stranded [RNA genome](#) with [negative sense](#). The genetic information is packed as a [ribonucleoprotein](#) complex in which RNA is tightly bound by the viral nucleoprotein. The [RNA genome](#) of the virus encodes five genes whose order is highly conserved: nucleoprotein (N), phosphoprotein (P), matrix protein (M), glycoprotein (G), and the viral RNA polymerase (L).^[14]

Once within a muscle or nerve cell, the virus undergoes the replication. The trimeric spikes on the exterior of the membrane of the virus interact with a specific cell receptor, the most likely one being the

acetylcholine receptor. The cellular membrane pinches in a procession known as [pinocytosis](#) and allows entry of the virus into the cell by way of an endosome. The virus then uses the acidic environment of that endosome and binds to its membrane simultaneously, releasing its five proteins and single strand RNA into the cytoplasm.^[15]

The L protein then transcribes five mRNA strands and a positive strand of RNA all from the original negative strand RNA using free nucleotides in the cytoplasm. These five mRNA strands are then translated into their corresponding proteins (P, L, N, G and M proteins) at free ribosomes in the cytoplasm. Some proteins require post-translative modifications. For example, the G protein travels through the rough [endoplasmic reticulum](#), where it undergoes further folding, and is then transported to the [Golgi apparatus](#), where a sugar group is added to it ([glycosylation](#)).^[15]

Where there are enough proteins, the viral polymerase will begin to synthesize new negative strands of RNA from the template of the positive strand RNA. These negative strands will then form complexes with the N, P, L and M proteins and then travel to the inner membrane of the cell, where a G protein has embedded itself in the membrane. The G protein then coils around the N-P-L-M complex of proteins taking some of the host cell membrane with it, which will form the new outer envelope of the virus particle. The virus then buds from the cell.^[15]

From the point of entry, the virus is [neurotropic](#), traveling quickly along the neural pathways into the [central nervous system](#), and then to other organs.^[2] The [salivary glands](#) receive high concentrations of the virus, thus allowing further transmission.

Transmission

Any warm-blooded animal, including humans, may become infected with the rabies virus and develop symptoms, although birds have only been known to be infected in experiments.^[16] The virus has even been adapted to grow in cells of [poikilothermic](#) ("cold-blooded") vertebrates.^{[17][18]} Most animals can be infected by the virus and can transmit the disease to humans.

Infected [bats](#),^{[19][20]} [monkeys](#), [raccoons](#), [foxes](#), [skunks](#), [cattle](#), [wolves](#), [coyotes](#), [dogs](#), [mongooses](#) (normal yellow mongoose)^[21] or [cats](#) present the greatest risk to humans.

Rabies may also spread through exposure to infected [domestic farm animals](#), [groundhogs](#), [weasels](#), [bears](#), [raccoons](#), [skunks](#) and other [wild carnivorans](#). Small [rodents](#), such as [squirrels](#), [hamsters](#), [guinea pigs](#), [gerbils](#), [chipmunks](#), [rats](#), and [mice](#), and [lagomorphs](#) such as [rabbits](#) and [hares](#), are almost never found to be infected with rabies and are not known to transmit rabies to humans.^[22] The [Virginia opossum](#) is resistant but not immune to rabies.^[23]

The virus is usually present in the nerves and [saliva](#) of a symptomatic rabid animal.^{[24][25]} The route of [infection](#) is usually, but not always, by a bite. In many cases, the infected animal is exceptionally aggressive, may attack without provocation, and exhibits otherwise uncharacteristic behavior.^[26] This is an example of a viral pathogen [modifying the behavior of its host](#) to facilitate its transmission to other hosts.

Transmission between humans is extremely rare. A few cases have been recorded through [transplant surgery](#).^[27]

After a typical human infection by bite, the virus enters the [peripheral nervous system](#). It then travels along the [nerves](#) toward the [central nervous system](#).^[28] During this phase, the virus cannot be easily detected within the host, and vaccination may still confer cell-mediated immunity to prevent symptomatic

rabies. When the virus reaches the [brain](#), it rapidly causes [encephalitis](#), the prodromal phase, and is the beginning of the symptoms. Once the patient becomes symptomatic, treatment is almost never effective and mortality is over 99%. Rabies may also inflame the [spinal cord](#), producing transverse [myelitis](#).^{[29][30]}

Diagnosis

Rabies can be difficult to diagnose because, in the early stages, it is easily confused with other diseases or aggressiveness.^[31] The [reference method](#) for diagnosing rabies is by performing [PCR](#) or [viral culture](#) on brain samples taken after death. The diagnosis can also be reliably made from skin samples taken before death.^[32] Diagnosis can be made from saliva, urine, and cerebrospinal fluid samples, but this is not as [sensitive](#). Cerebral inclusion bodies called [Negri bodies](#) are 100% diagnostic for rabies infection but are found in only about 80% of cases.^[1] If possible, the animal from which the bite was received should also be examined for rabies.^[33]

The [differential diagnosis](#) in a case of suspected human rabies may initially include any cause of [encephalitis](#), in particular infection with viruses such as [herpesviruses](#), [enteroviruses](#), and [arboviruses](#) such as [West Nile virus](#). The most important viruses to rule out are [herpes simplex virus](#) type one, [varicella zoster virus](#), and (less commonly) enteroviruses, including [coxsackieviruses](#), [echoviruses](#), [polioviruses](#), and human [enteroviruses](#) 68 to 71.^[34]

New causes of viral encephalitis are also possible, as was evidenced by the 1999 outbreak in Malaysia of 300 cases of encephalitis with a mortality rate of 40% caused by [Nipah virus](#), a newly recognized [paramyxovirus](#).^[35] Likewise, well-known viruses may be introduced into new locales, as is illustrated by the recent outbreak of encephalitis due to West Nile virus in the eastern United States.^[36] Epidemiologic factors, such as season, geographic location, and the patient's age, travel history, and possible exposure to bites, rodents, and ticks, may help direct the diagnosis.

Cheaper rabies diagnosis will become possible for low-income settings: accurate rabies diagnosis can be done at a tenth of the cost of traditional testing using basic [light microscopy](#) techniques.^[37]

Prevention

All human cases of rabies were fatal until a vaccine was developed in 1885 by [Louis Pasteur](#) and [Émile Roux](#). Their original vaccine was harvested from infected rabbits, from which the virus in the nerve tissue was weakened by allowing it to dry for five to 10 days.^[38] Similar nerve tissue-derived vaccines are still used in some countries, as they are much cheaper than modern cell culture vaccines.^[39]

The human [diploid](#) cell rabies vaccine was started in 1967; a new and less expensive purified chicken embryo cell vaccine and purified [vero cell](#) rabies vaccine are now available.^[33] A [recombinant vaccine](#) called V-RG has been successfully used in Belgium, France, Germany, and the United States to prevent outbreaks of rabies in undomesticated animals.^[40] Currently, immunization prior to exposure has been used in both human and nonhuman populations, where, as in many jurisdictions, domesticated animals are required to be vaccinated.^[41]

In the United States, since the widespread vaccination of domestic dogs and cats and the development of effective human vaccines and immunoglobulin treatments, the number of recorded human deaths from rabies has dropped from 100 or more annually in the early 20th century to one to two per year, mostly caused by bat bites, which may go unnoted by the victim and hence untreated.^[6]

The Missouri Department of Health and Senior Services Communicable Disease Surveillance 2007 Annual Report states the following can help reduce the risk of contracting rabies.^[42]

- Vaccinating dogs, cats, rabbits, and ferrets against rabies
- Keeping pets under supervision
- Not handling wild animals or strays
- Contacting an animal control officer upon observing a wild animal or a stray, especially if the animal is acting strangely
- If bitten by an animal, washing the wound with soap and water for 10 to 15 minutes and contacting a healthcare provider to determine if post-exposure prophylaxis is required

September 28 is [World Rabies Day](#), which promotes the information, prevention, and elimination of the disease.^[43]

Treatment

Main article: [Postexposure prophylaxis](#)

[Treatment after exposure](#) is highly successful in preventing the disease if administered promptly, in general within 10 days of infection.^[41] Thoroughly washing the wound as soon as possible with soap and water for approximately five minutes is very effective in reducing the number of viral particles. "If available, a virucidal antiseptic such as povidone-iodine, [iodine tincture](#), aqueous iodine solution, or alcohol (ethanol) should be applied after washing. Exposed mucous membranes such as eyes, nose or mouth should be flushed well with water."^[44]

In the US, the [Centers for Disease Control and Prevention](#) recommends patients receive one dose of human rabies [immunoglobulin](#) (HRIG) and four doses of rabies vaccine over a 14-day period.^[45] The immunoglobulin dose should not exceed 20 units per kilogram body weight. HRIG is expensive and constitutes the vast majority of the cost of postexposure treatment, ranging as high as several thousand dollars. As much as possible of this dose should be infiltrated around the bites, with the remainder being given by deep intramuscular injection at a site distant from the vaccination site.^[15]

The first dose of rabies vaccine is given as soon as possible after exposure, with additional doses on days three, seven and 14 after the first. Patients who have previously received pre-exposure vaccination do not receive the immunoglobulin, only the postexposure vaccinations on days 0 and 2.

Modern cell-based vaccines are similar to flu shots in terms of pain and side effects. The old nerve-tissue-based vaccinations that require multiple painful injections into the abdomen with a large needle are inexpensive, but are being phased out and replaced by affordable World Health Organization intradermal vaccination regimens.^[33]

Intramuscular vaccination should be given into the deltoid, not gluteal area, which has been associated with vaccination failure due to injection into fat rather than muscle.^[citation needed] In infants, the lateral thigh is used as for routine childhood vaccinations.^[citation needed]

Awakening to find a bat in the room, or finding a bat in the room of a previously unattended child or mentally disabled or intoxicated person, is regarded as an indication for postexposure prophylaxis (PEP). The recommendation for the precautionary use of PEP in occult bat encounters where no contact is recognized has been questioned in the medical literature, based on a cost-benefit analysis.^[46] However, a

2002 study has supported the protocol of precautionary administering of PEP where a child or mentally compromised individual has been alone with a bat, especially in sleep areas, where a bite or exposure may occur without the victim being aware.^[47] Begun with little or no delay, PEP is 100% effective against rabies.^[12] In the case in which there has been a significant delay in administering PEP, the treatment should be administered regardless, as it may still be effective.^[15]

Induced coma

See also: [*Milwaukee protocol*](#)

In 2004, American teenager Jeanna Giese survived an infection of rabies unvaccinated. She was placed into an [induced coma](#) upon onset of symptoms and given [ketamine](#), [midazolam](#), [ribavirin](#), and [amantadine](#). Her doctors administered treatment based on the hypothesis that detrimental effects of rabies were caused by temporary dysfunctions in the brain and could be avoided by inducing a temporary partial halt in brain function that would protect the brain from damage while giving the immune system time to defeat the virus. After 31 days of isolation and 76 days of hospitalization, Giese was released from the hospital.^[48] She survived with all higher level brain functions, but an inability to walk and balance.^[49] On a podcast of NPR's Radiolab, Giese recounted, "I had to learn how to stand and then to walk, turn around, move my toes. I was really, after rabies, a new born baby who couldn't do anything. I had to relearn that all...mentally I knew how to do stuff but my body wouldn't cooperate with what I wanted it to do. It definitely took a toll on me psychologically. You know I'm still recovering. I'm not completely back. Stuff like balance and, um, I can't run normally."^[50]

Giese's treatment regimen became known as the "Milwaukee protocol", which has since undergone revision with the second version omitting the use of [ribavirin](#). Two of 25 patients survived when treated under the first protocol. A further 10 patients have been treated under the revised protocol, with a further two survivors.^[13] The anesthetic drug [ketamine](#) has shown the potential for rabies virus inhibition in rats,^[51] and is used as part of the Milwaukee protocol.

On April 10, 2008, in [Cali, Colombia](#), a boy of 11 was reported to have survived rabies and the induced coma without noticeable brain damage.^[52]

On June 12, 2011, Precious Reynolds, an eight-year-old girl from [Humboldt County, California](#), became the third reported person in the world and the second in the [United States](#) to have recovered from rabies without receiving PEP.^[53]

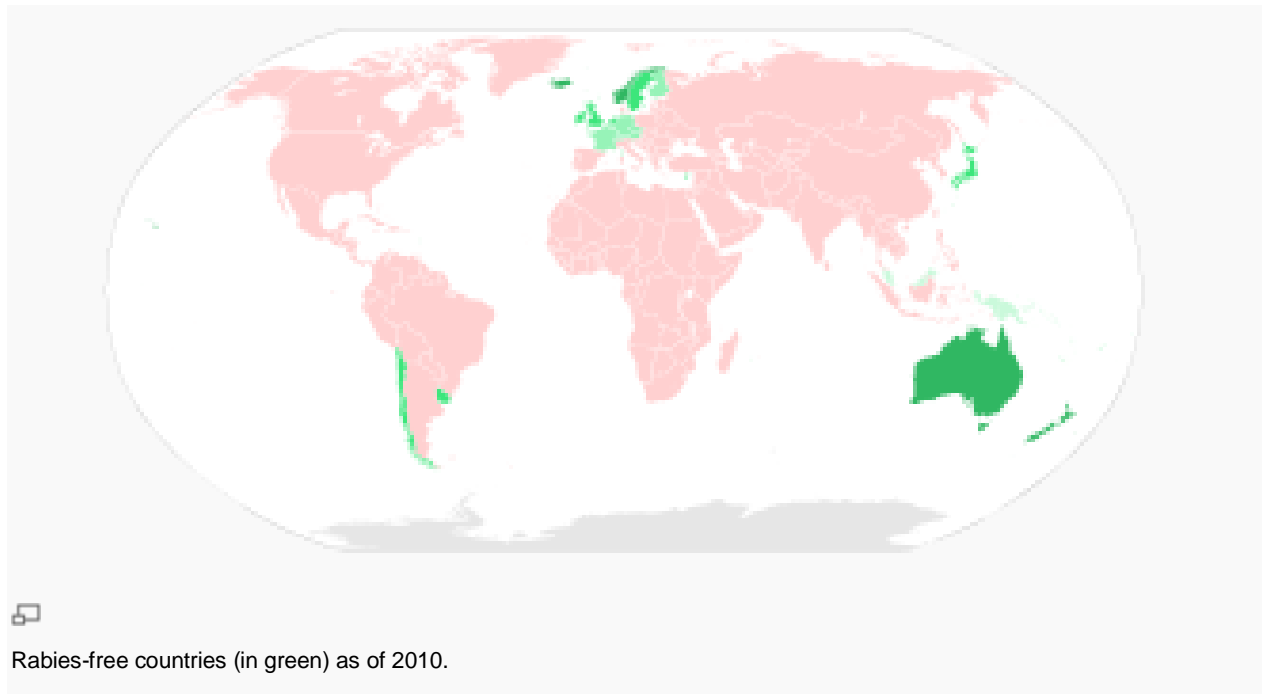
Prognosis

In unvaccinated humans, rabies is almost always fatal after [neurological](#) symptoms have developed. Rabies kills around 55,000 people a year, mostly in Asia and Africa.^[3]

[vaccination](#) after exposure, PEP, is highly successful in preventing the disease if administered promptly, in general within 6 days of infection. Begun with little or no delay, PEP is 100% effective against rabies.^[12] In the case of significant delay in administering PEP, the treatment still has a chance of success.^[15]

5 of the first 43 patients (12%) treated with the [Milwaukee protocol](#) survived, and those receiving treatment survived longer than those not receiving the treatment.^[54]

Epidemiology



In 2010, an estimated 26,000 people died from rabies, down from 54,000 in 1990.^[56] The majority of the deaths occurred in Asia and Africa.^[3] [India](#) has the highest rate of human rabies in the world, primarily because of stray dogs,^[56] whose number has greatly increased since a 2001 law forbade the killing of dogs.^[57] Effective control and treatment of rabies in India is also hindered by a form of mass hysteria or group delusion known as [puppy pregnancy syndrome](#) (PPS). Dog bite victims with PPS (both male and female) become convinced that puppies are growing inside them, and often seek help from faith healers rather than from conventional medical services. In cases where the bite was from a rabid dog, this decision can prove fatal. Dr. Nitai Kishore Marik, former district medical officer of West Midnapur, states "I have seen scores of cases of rabies that reached our hospitals very late because of the intervention of faith healers. We could not save those lives."^[58] An estimated 20,000 people die every year from rabies in India — more than a third of the global toll.^[57] As of 2007, Vietnam had the second-highest rate, followed by Thailand; in these countries, the virus is primarily transmitted through canines (feral dogs and other wild canine species).^[59] Another source of rabies in Asia is the pet boom. In 2006 [China](#) introduced the "[one-dog policy](#)" in [Beijing](#) to control the problem.^[60]

The rabies virus survives in widespread, varied, rural fauna reservoirs. It is present in the animal populations of almost every country in the world except Australia and New Zealand.^[61] [Australian bat lyssavirus](#) (ABLV), discovered in 1996, is similar to rabies and is believed to be prevalent in native bat populations. In some countries, such as those in western Europe and Oceania, rabies is considered to be prevalent among bat populations only.^[citation needed]

In Asia and in parts of the Americas and Africa, dogs remain the principal host. Mandatory vaccination of animals is less effective in rural areas. Especially in developing countries, pets may not be privately kept and their destruction may be unacceptable. Oral vaccines can be safely distributed in baits, a practice that has successfully reduced rabies in rural areas of [Canada](#), [France](#), and the [United States](#). In [Montréal](#), Quebec, Canada, baits are successfully used on raccoons in the Mont-Royal Park area. Vaccination campaigns may be expensive, and cost-benefit analysis suggests baits may be a cost-

effective method of control.^[62] In [Ontario](#), a dramatic drop in rabies was recorded when an aerial bait-vaccination campaign was launched.^[63]

Rabies is common among wild animals in the US. [Bats](#), [raccoons](#), [skunks](#) and [foxes](#) account for almost all reported cases (98% in 2009). Rabid bats are found in all 48 contiguous states. Other reservoirs are more limited geographically; for example, the raccoon rabies virus variant is only found in a relatively narrow band along the East Coast. Due to a high public awareness of the virus, efforts at vaccination of domestic animals and curtailment of feral populations, and availability of [postexposure prophylaxis](#), incidents of rabies in humans are very rare. A total of 49 cases of the disease was reported in the country between 1995 and 2011; of these, 11 are thought to have been acquired abroad. Almost all domestically acquired cases are attributed to bat bites.^[64]

In [Switzerland](#), the disease has been virtually eradicated after scientists placed chicken heads laced with live attenuated vaccine in the [Swiss Alps](#).^[63] The foxes of Switzerland, proven to be the main source of rabies in the country, ate the chicken heads and immunized themselves.^[63]

History

Etymology



A [woodcut](#) from the [Middle Ages](#) showing a rabid dog.

The term is derived from the [Latin](#) *rabies*, "madness".^[65] This, in turn, may be related to the Sanskrit *rabhas*, "to do violence". The Greeks derived the word *lyssa*, from *lud* or "violent"; this root is used in the name of the genus of rabies *Lyssavirus*.^[66]

Impact

Because of its potentially violent nature, rabies has been known since *circa* 2000 B.C.^[67] The first written record of rabies is in the Mesopotamian [Codex of Eshnunna](#) (circa 1930 BC), which dictates that the owner of a dog showing symptoms of rabies should take preventive measure against bites. If another person were bitten by a rabid dog and later died, the owner was heavily fined.^[68]

Rabies was considered a scourge for its prevalence in the 19th century. In France and Belgium, where [Saint Hubert](#) was venerated, the "[St Hubert's Key](#)" was heated and applied to cauterize the wound. By an application of [magical thinking](#), dogs were branded with the key in hopes of protecting them from rabies. The fear of rabies was almost irrational, due to the significant number of vectors (mostly rabid dogs) and the absence of any efficacious treatment. It was not uncommon for a person, showing no signs of the disease, bitten by a dog merely suspected of being rabid, to commit suicide or to be killed by others.^[66] This gave [Louis Pasteur](#) ample opportunity to test postexposure treatments from 1885.^[69] In

ancient medical times, the attachment of the tongue (the [lingual frenulum](#), a mucous membrane) was cut and removed as this is where rabies was thought to originate. This practice ceased with the discovery of the actual cause of rabies.^[70]

Other animals

Main article: [Rabies in animals](#)

Rabies is infectious to mammals; three stages are recognized. The first stage is a one- to three-day period characterized by behavioral changes and is known as the [prodromal stage](#). The second is the excitative stage, which lasts three to four days. This stage is often known as "furious rabies" for the tendency of the affected animal to be hyper-reactive to external stimuli and bite at anything near. The third is the paralytic stage and is caused by damage to [motor neurons](#). Incoordination is seen, owing to rear limb [paralysis](#), and drooling and difficulty swallowing is caused by paralysis of facial and throat muscles. Death is usually caused by [respiratory arrest](#).^[71]

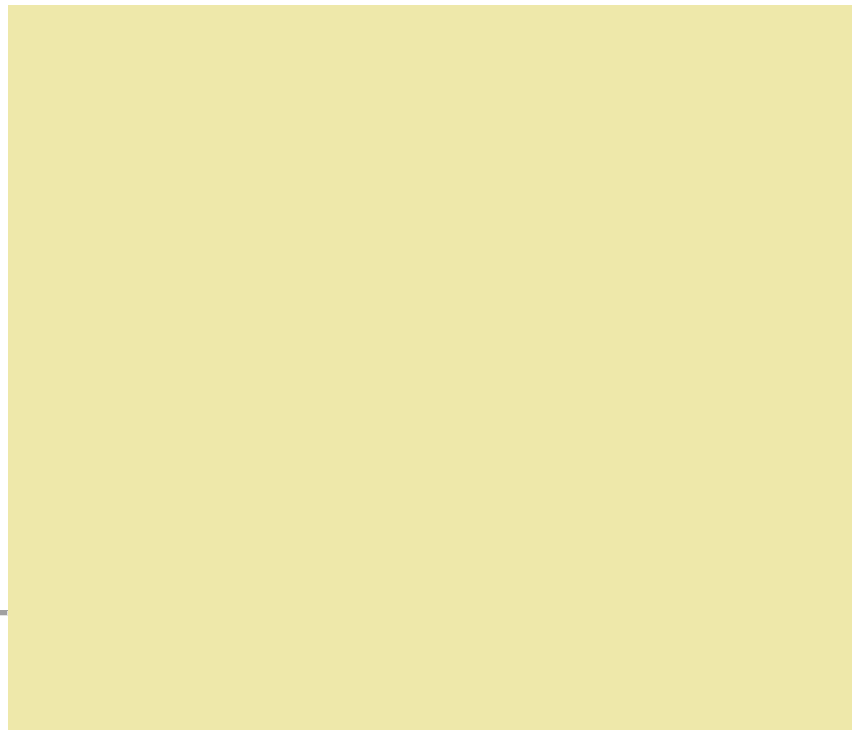
Research

Rabies has the advantage over other [pseudotyping](#) methods for gene delivery in that the cell-targeting ([tissue tropism](#)) is more specific for difficult-to-reach sites, such as the [central nervous system](#) without invasive delivery methods, as well as being capable of [retrograde tracing](#) (i.e., going against the flow of information at [synapses](#)) in neuronal circuits.^[72]

Recent evidence indicates artificially increasing the permeability of the [blood–brain barrier](#), which normally does not allow most immune cells across, promotes viral clearance.^{[73][74]}

How Old is Rabies?

**Rabies *may* be
the *oldest* infectious
disease known to man.
Follow the timeline and
discover how rabies
made history *over* 4,000
years ago...**



Rabies Timeline

2300 BC

Dog owners in the Babylonian city of Eshnunna are fined heavily for deaths caused by their dogs biting people.

800-700 BC

Homer likens Hector to a “raging dog” in *The Iliad*, one of the oldest Greek poems known today. He writes that Sirius, the dog star of Orion, “exerts a malignant influence upon the health of mankind”.

500 BC

Democritus, a Greek philosopher records a case of canine rabies.

400 BC

Aristotle writes that “dogs suffer from the madness. This causes them to become very irritable and all animals they bite become diseased.”

By now, the Greeks have two special rabies gods; one to prevent rabies, (*Ariseus*, son of Apollo) and a one to heal rabies, (*Artemis*).

001-100 AD

Rabies is widespread across the Roman Empire, Greece and Crete. The Roman **Cardanus** describes saliva from a rabid dog as

How Did Rabies Get its Name?

Rabid dogs sometimes appear to be angry or in a rage. *Rabies* comes from the Latin word *rabere*. *Rabere* means to rage or rave.

This Latin word *rabere* may have roots in a Sanskrit word *rabhas*. *Rabhas* means to do violence.

The Greeks called rabies *lyssa* or *lytta*, which means frenzy or madness. They named human rabies *hydrophobia*, which means fear of water, a symptom shown by rabies victims.



The Hanging Gardens of Babylon, from ...

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a *virus* – the Latin word for *poison*.

Pliny the Elder also devises a series of treatments based around the idea that rabies is a tongue worm.

A Roman physician named **Celsus** takes a special interest in rabies and discovers saliva alone contains the virus. He recommends cleaning, sucking and burning (cauterizing) the wound before leaving it open so the virus could drain out. This will remain the only accepted treatment for the next 1800 years.

201-300

The treatment for rabies in cattle is described by early veterinary medicine writer, **Vegetius Renatus**.

501-600

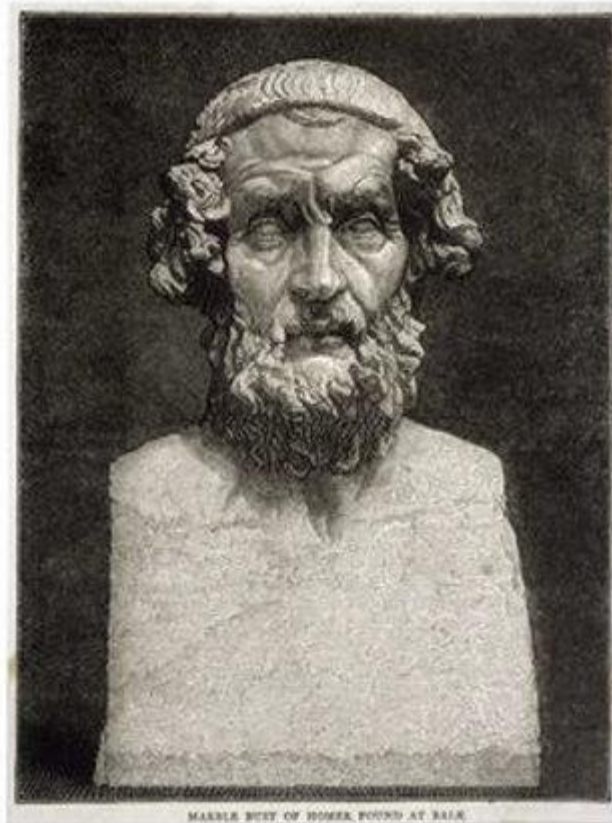
Aetious, a Mesopotamian physician, writes an accurate description of dog rabies symptoms.

601-700

Greek physician, **Paulus Aegineta** records the difference between fatal hydrophobia caused by dog bites and simple hydrophobia stemming from a different cause.

801-900

Syrian doctors believed hydrophobia was incurable. They helped suffering patients by giving water disguised inside drops of honey.



Homer Blind Greek Poet

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Rhazes, (Al-Razi) a Persian physician identifies hydrophobia and further describes rabies symptoms in humans.

1001-1100

The writings of another Arab physician, **Avicenna**, (Abu Ali Sina) mark a step forward in knowledge about the disease. His books were used in European medical schools for nearly 500 years.

1026

Madness in dogs is recorded in the laws of **Howel the Good**, of Wales. This is the earliest record of rabies in Great Britain.

1198

Poisons and Their Antidotes, by Talmud scholar and physician **Moses Maimonides**, contains remedies against bites from mad dogs.

1271



Democritus Greek Philosop...

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First large rabies outbreak reported. 30 people die after rabid wolves invade villages in Franconia (Germany).

1400

During the 15th century, Spain is ravaged by canine rabies

1500

During the 16th century, Christian Europeans believe a patron saint named St. Hubert will cure rabies. Many travel to his shrine at Liege, Belgium and die of 'the madness'. **Jean Gerson**, a French theologian, speaks out against superstitious practices in religion.

1586

Canine rabies spreads through Flanders, (North Belgium) Austria, Turkey and Hungary.

1604

Rabies reaches Paris, causing panic.

1671

Superstitious practices for treating rabies are condemned by the Sorbonne.

1700

Rabies spreads through Europe during the 18th century.

1703

The first case of rabies is



Portrait of Aristotle (38...

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Abu Bakr Muhammad Ibn Zakariya Razi K...

reported in the Americas by a priest in Mexico. He is told off for raising the problem by his superiors in Spain.

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1734-5

Canine rabies appears in England.

1750

Rabies is reported in Barbados among dogs and hogs. They are said to die around three days after getting sick.

1752

Orders to shoot dogs on sight are given in England when rabies appears around St. James, London.

1753

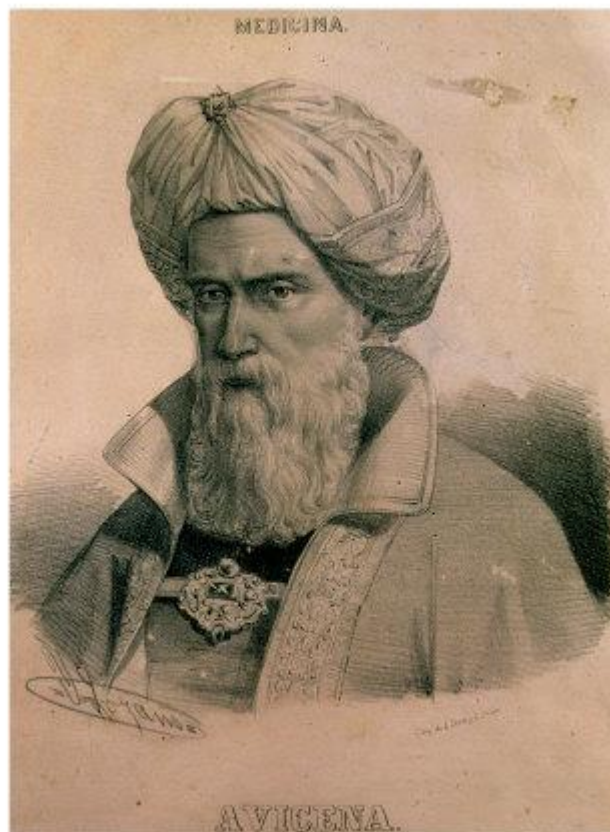
Canine rabies is present in the State of Virginia, North America.

1759-1762

Serious outbreak of rabies reported in London. All dogs are confined for one month. Dogs on the street are killed and a reward of 2 shillings per dog is offered. The reward prompts barbaric scenes of killing in the streets.

1763

Serious rabies outbreaks reported in France, Italy and Spain. Authorities slaughter dogs. In Madrid, Spain, 900 dogs are killed in just one day.



Portrait of Avicenna, Lit...

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1768-1771

Rabies breaks out in Boston and other North American towns. Foxes and dogs carry the disease to farm animals. The symptoms are unusual and rabies is reported as a new disease.

1774

Rabies is a general disease throughout England. People are discouraged to keep dogs. Bigger rewards – up to five shillings - are paid for each dog killed.

1776-1778

The French West Indies is invaded by rabies. Cattle and people are bitten by infected dogs.

1785-1789

Rabies is now common across North America.

1789

A New Yorker dies from hydrophobia after skinning an infected cow.

1790-1821

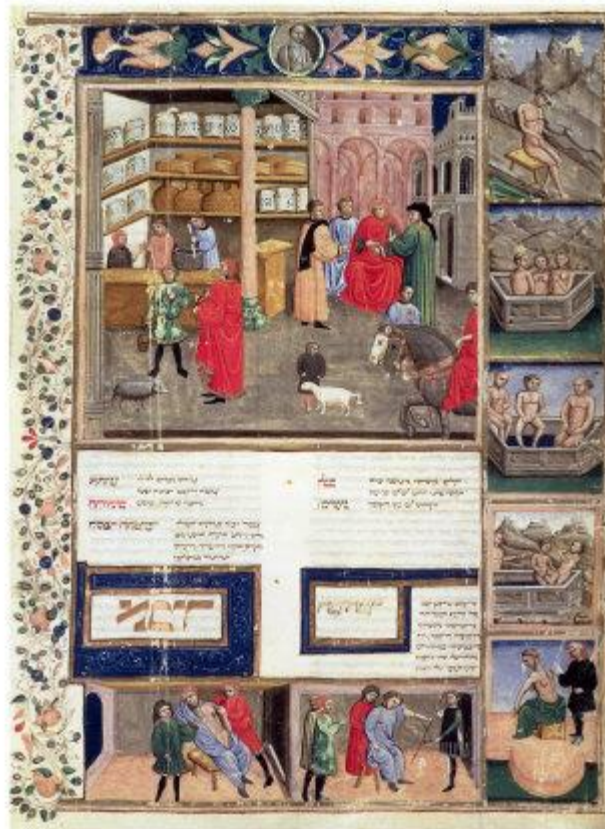
Rabies is common in France and Silesia (now Poland and the Czech Republic). It spreads through wolves and foxes in central Europe.

1797

Rabies appears on Rhode Island.

1800

Rabies becomes



Page from the "Canon of M..."

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widespread in Northern, Western and Eastern Europe during the 9th century. It is common in the Ukraine. There are accounts of European villagers dying from contact with mad wolves, foxes and dogs. There is also a reappearance of rabies in North America and it moves up to Canada. And in England, it never goes away.

1803

Hundreds of dead foxes are spotted at the foot of the Jura Alps, eastern France. This outbreak, the largest yet recorded lasts for thirty years and wipes out all foxes in some areas, terrifying villagers. In the same year, rabies appears in Peru for the first time.

1804

Zinke, a German scientist demonstrates rabies is passed through saliva by conducting experiments on animals.

1806

Dogs belonging to English officers introduce rabies to Argentina.

1810

Rabies reappears in eastern USA and Ohio.

1825

Rabies enters the Black

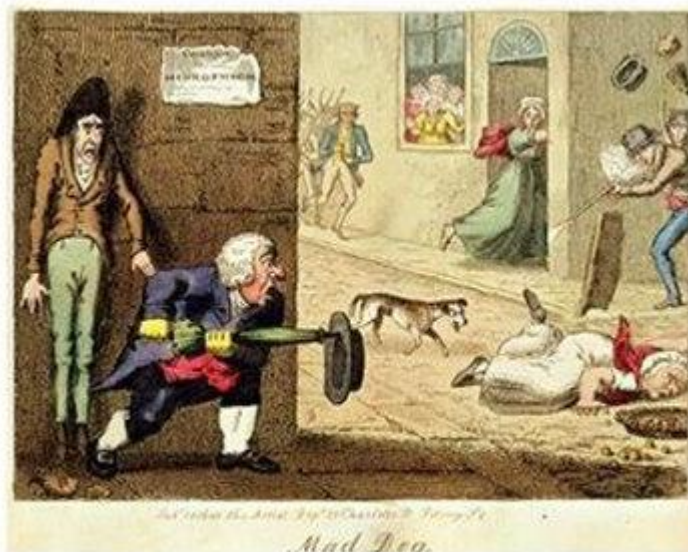
Savants at the Table of Maimonides, f...

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At La Rochette Three Country People B...

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Mad Dog, a Caricature of People's Fea...

[Buy From Art.com](#)

Forest, Germany.

1835

Rabies appears in Chile and kills many.

1881

French chemist **Louis Pasteur** and his assistant, Physician-scientist **Emile Roux**, begin research on a cure for rabies.

1883

Roux presents a medical paper about the rabies research he has been doing with Pasteur. Roux creates a rabies vaccine from the spinal cord of an infected animal and tests it on dogs.

1885

Joseph Meister is mauled by a rabid dog and brought to Pasteur. Pasteur gives him the rabies vaccine immediately, despite the risks to his own career as he is not a doctor, but a chemist. The treatment was successful, and Pasteur was hailed as a hero.

1892

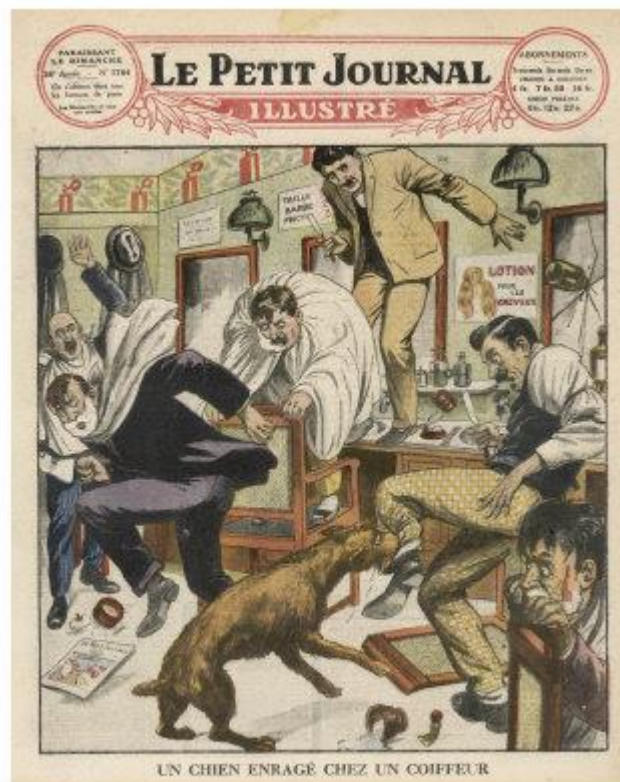
Canadian physician **William Osler**, describes hydrophobia in a medical textbook. He recommends careful washing and treatment of the wound. Osler is unaware of Pasteur's breakthrough.

1953

The first US case of rabies



At Cahors France a 16-Year Old Boy Gr...



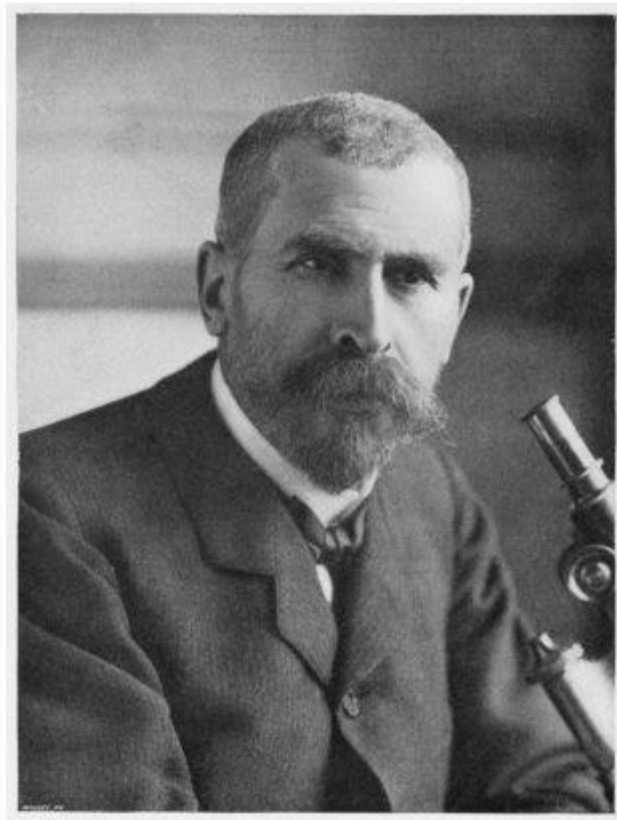
Rabid and Hydrophobic Dog...

in a bat is reported by the
CDC.

1959

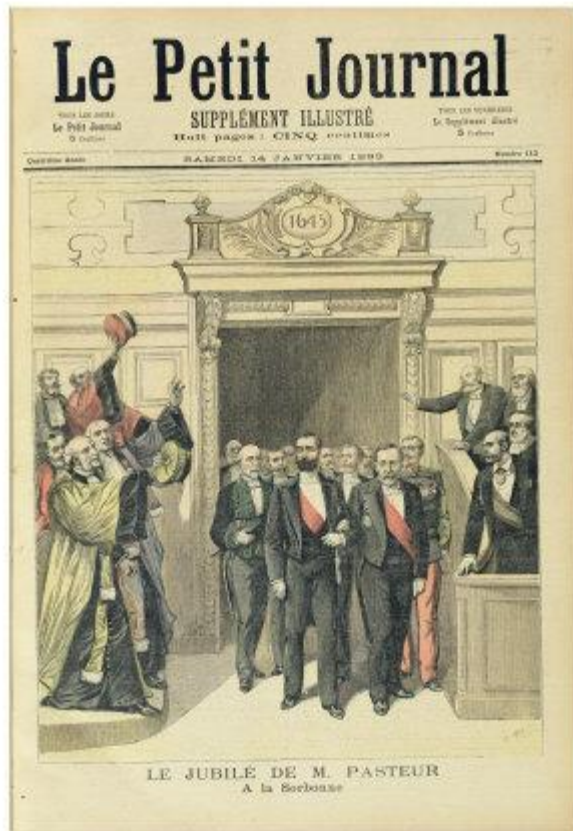
Dr. Robert

Kissling developed the
fluorescent antibody test for
rabies.

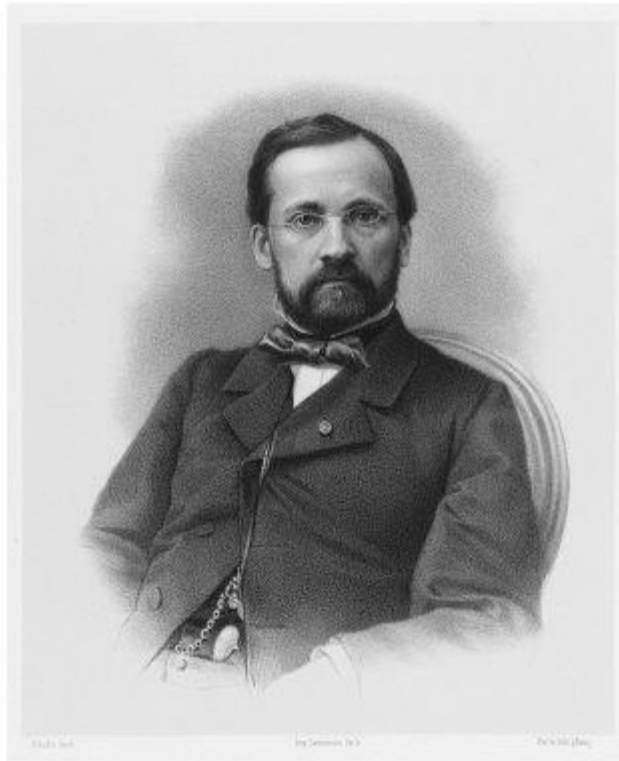


Pierre-Paul-Emile Roux Fr...

B



The Jubilee of Louis Past...



Louis Pasteur French Chem...

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