

## Blood and blood-associated symbols beyond medicine and transfusion: far more complex than first appears

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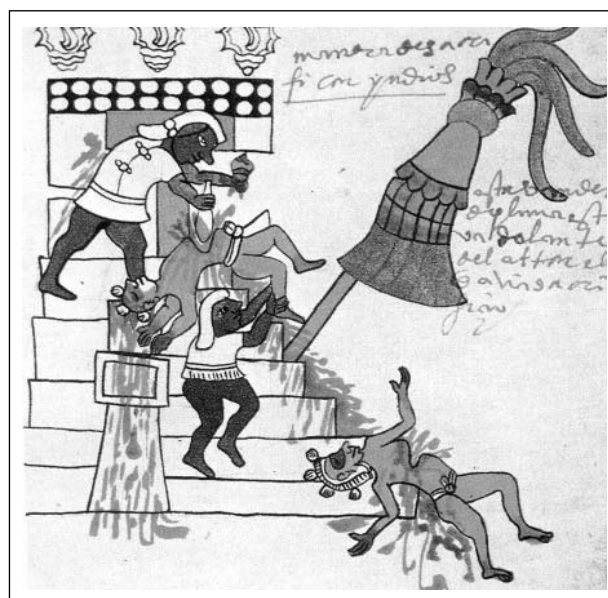
In medical care, blood transfusion has neither alternative nor equivalent. It saves lives under numerous circumstances and helps many patients undergoing treatment. However, transfusions continue only because generous individuals give their blood. Despite such a gesture of altruism, certain patients remain reluctant to receive blood components from other individuals, claiming a fear of blood-borne pathogens<sup>1</sup> - the stated part - but also likely a perceived threat from something more spiritual that accompanies blood - the unstated part<sup>2</sup>. While the majority of the population in industrialised countries say that they are willing to donate blood, most people when matching medical conditions refrain from presenting themselves for donation<sup>3</sup>; some think that it may be dangerous for themselves<sup>4</sup>, but many more have irrational feelings about blood and/or are embarrassed to present medically valid arguments to not give or attempt to give blood.

What is blood? A red blood cell pack comprises more than 40 g haemoglobin, 200 mg iron, and many additional products contained in the residual plasma, parameters measured during the quality control of blood components. Meanwhile, blood donation has a time component - taken from other activities - which can also be measured, and shows altruism, generosity, and compassion for anonymous patients in need of a transfusion. Therapeutic blood is also special because cell components are largely donated and rarely sold in contrast to plasma derivatives obtained through fractionation<sup>5</sup>. Why are there such differences between these equally life-saving therapeutic products? Is this because one is visible (erythrocytes) whereas the other is simply a substratum for "drugs"? This essay revisits the image of blood in the humanities, from which medicine derived its origin, to gain an understanding of why blood cannot be simply restricted to its therapeutic value within medicine, at a time when medicine is embedded within science and a specific branch of medicine oversees blood and blood transfusion.

### Veneration of blood began with humanity

An association between spilt blood and death - as opposed to life - was recorded as early as in the prehistoric period<sup>6</sup>. Since early times, people have

questioned the notions of ancestry and the origin of both the world and life. Even in remote regions, native imagery displayed common features. Their cosmogony generally involved combat between opposing deities or forces, culminating in bleeding wounds and the emergence of spirits and humans<sup>7,8</sup>. Ancient civilisations generally valued blood through the sacrifice of animals or humans to please or feed deities. Veneration of blood retained or even gained importance within structured civilisations, for example the Aztecs, who believed their gods fed on sacrificed human blood, so that the sun could continue to follow its course (Figure 1)<sup>9</sup>. Links between sacrifice and the power to rule people or nations, or to make decisions, have not completely ceased, with human sacrifices possibly "offered" to spirits or surrogates of spirits in certain regions of Africa governed by dictators and in those places in Africa and South America practising Voodoo or similar cults. In the latter case, animal sacrifices are common, but human offerings have been evoked - although difficult to prove (personal communication from specialists in African-American syncretic cults).



**Figure 1** - Codex Mendoza, Aztec sacrifice. Sixteenth Century. The Bodleian Library, University of Oxford, Oxford, UK.

## **A blood based-alliance between God and "his" people**

Hebraism/Judaism is the root of the "Abrahamic" religions (Hebraism leading to Judaism, Christianity, and Islam). It was influenced in its perception of blood by more ancient Middle-Eastern civilisations, but it is different from older cults because - as stated by believers - God engaged in a "personal" relationship with humans, whom he created in his own image<sup>10</sup>. Interestingly, this "Genesis" is not through blood and is not, therefore, intended to feed God<sup>11</sup>. Ancient Jews did not forbid human sacrifice, but they banned unnecessary blood effusions, such as inflicted by Mesopotamian worshipers of Baal (who, for example, scarified themselves to please their divinity). Patriarch Abraham was prevented from carrying out the sacrificial throat-cutting of his beloved young son, Isaac, by the "Word of God". God solely intended to test Abraham's obeisance and trust, and a surrogate sacrifice was made with an immaculate white ram, caught in nearby bushes. This story is seminal of all three Abrahamic religions and its annual commemoration is one of the major Muslim celebrations, in which blood is still abundantly spilt and visible (in certain countries or places)<sup>12</sup>. This stands for the alliance between God and man (also commemorated by circumcision of male neonates)<sup>13</sup>. The descendant of Abraham, Moses, was raised in Egypt, and after having been close to the monarch, he engaged in a dispute with the pharaoh (perceived as a kind of divinity) on the basis of religious matters. Consequently, Moses announced a panoply of punishments (the "ten Egyptian plagues") to demonstrate the prominence of "his" God. Two plagues were to be bloody: in the first prophecy, the River Nile became blood red and neither human nor cattle could drink its water. In the tenth plague, it was announced that every male firstborn was to be killed, apart from believers in God who had placed blood from a sacrificed lamb on the door lintels of their houses (this was also a prophecy, because the Roman power in Palestine - held by King Herod - would later order the mass killing of male neonates in an attempt to kill the coming prophet, Jesus). These stories teach us about the paradoxes associated with blood, calling for both punishment and salvation. Moses clearly forbade unnecessary sacrifices, after having received - while in the desert during his return to Israel - the "Tablets of the Law" ("Ten Commandments"), among which was "You shall not kill." Animal sacrifice and circumcision were at that time valued as symbols and were performed under the control of Rabbis<sup>11</sup>. As rites established over time, prohibitions associated with blood increased (especially regarding food: rules regarding how to bleed non-specifically forbidden animals and how to cook meat remain in force in traditional Judaism

and were extended in part to Islam, represented as the Kosher and Halal rites)<sup>14</sup>. After the "chosen people" had apparently forgotten his decrees, God sent the awaited Messiah. This Messiah revealed himself as Jesus Christ - the "Son of God". This assumption was considered scandalous by the majority of Jews<sup>15,16</sup>. Christ revealed and incarnated "God's Second Alliance", which was to be achieved through his spilt blood. In anticipation of his arrest and death sentence, Christ instituted the "Eucharistic sacrifice". Pontius Pilate, the local Roman governor, refused to cover his hands with Christ's blood and transferred the verdict to the Jewish Sanhedrin. Christ was condemned to be whipped till he bled and to undergo crucifixion, a most violent sentence according to the standards of the religious court of the time. The execution of the sentence turned to be even more violent because of the forthcoming Sabbath, as Christ had to be dead (and buried) before it started. His blood was spilt, but outside of the city of Jerusalem, as was the law for all sacrifices in Jewish culture (every day, Rabbis sprinkled the sick - mostly lepers - with sacrificed animals' blood at the outer walls of cities, in an attempt to purify them of their diseases). As proclaimed in the Old Testament, the Messiah was meant to offer himself as a "sacrificial lamb". A new paradox associated with blood arose, because peoples' sins were "washed away by the blood of the lamb", thus the lamb's (Christ's) blood has the power of washing away, wiping out, covering, or bleaching one's sin, as water given during baptism eradicates the "Original Sin" (represented by the "fall" from the garden of Eden) of the first man (Adam) and woman (Eve), for disobeying the warning not to attempt to share in Yahwe-Elohim's deity<sup>11</sup>.

## **The duality of blood for patricians, plebeians, and slaves**

In ancient Greece, blood spilt by heroes on battlefields was glorified, whereas the spilling of blood inside cities was prohibited. In most circumstances (apart from death penalties for patricians), Roman citizens could neither undergo combat nor be bled within cities. Early Roman Christians - many of whom were slaves, but also some patricians who even converted their servants - were considered traitors and condemned, using the powers in place, as war captives and barbarians, and were frequently condemned to death, to amuse Romans in circus games<sup>17</sup>. A notable difference was that patricians were summoned to renounce their "new faith" - considered embarrassing to their imperial status - and as most or at least many refused, they became martyrs. "The blood of the Martyrs is the seed of the Church" wrote Tertullian (between the 1<sup>st</sup> and 2<sup>nd</sup> centuries), a barbarian pagan who embraced Christianity. This sentence, linked to such Roman practices, has been taken

by the Christians as a prophecy and used as a refrain or a hymn against the secular up to the present day.

### The distinct natures of blood

In antiquity, blood was commonly considered to come in two forms: dark red (from female menstruation or in preserved animals or humans, and thought impure) or bright red (from fresh wounds during combat or sacrificial rites, and considered pure)<sup>18</sup>. Sanguis, from which the word blood in all the Latin-originating languages (*sang, sangre, sangue*) is derived, refers to the pure, noble, sacrificial blood; this word refers in essence to the liquid form of blood. Cruor, on the other hand, refers to the "animal", impure blood, imprisoned in the body or issued during menstruation (animal bites were especially feared as they had the power to transform blood into cruor and thus confer animal characteristics of "cruelty" to humans); this word describes clotted blood.

Additionally, blood was ascribed for two millennia as being one of the four "humours" (in addition to yellow bile, black bile, and phlegm). This concept was inherited from Egypt or Mesopotamia, described by the Greek Hippocrates (5<sup>th</sup> century B.C.), and was popularised by the Greek-Roman Galen (2<sup>nd</sup> century B.C.); it re-established physiology and medicine and, therefore, the concept of health and disease. The importance of blood during the Medieval period is acknowledged within all forms of art: painting, tapestry, writing, and so forth. This period was the apogee of blood-letting and other means (leeches, suction cups) to rid the body of all "bad" blood (dark blood still being considered bad and leading to engorgement and suffocation). Blood-letting, a kind of panacea, was frequently performed, until the recent rejection of scientific obscurantism (Figure 2)<sup>19</sup>. It may represent older procedures of divination and purification sacrifices.

### Visible and invisible: blood merged spiritual and temporal powers

The early Roman and Medieval symbol of Christianity was not yet the "sacrificial lamb", but the "fish" (considered as bloodless, hence the reason it was eaten during Lent and on Fridays rather than meat<sup>20</sup>). In the Middle Ages, the "Eucharistic sacrifice" celebration was largely hidden from worshippers and communion was generally taken (except by the clergy and royalty) no more than once a year<sup>21</sup>. It is possible that the discrepancy between the dogma and the cult favoured some myths, such that the mystic Mystery became an intellectual mystery (leading to tales of chivalry, and songs and sagas of knightly deeds). This period raised an intelligentsia among the nobles at court, which started to question the dogma of Christianity and attempted to merge some rites with recalled Celtic



**Figure 2** - A bleeding of the past (bloodletting).

A woman sitting in a chair is being bled by two physicians while a third physician kneels at her side holding a clyster; a post-mortem is taking place in the background. National Library of Medicine, NIH, Bethesda, MD.

practices, as exemplified in the Round Table of King Arthur of Britain. This saga is centred on the quest for the Holy Grail, aimed at recovering the cup - often referred to as the chalice in old tales -, lost in Palestine, which received Christ's blood during his crucifixion<sup>22</sup>. The quest for all types of relics of Christ's Passion (and of the earliest saints and martyrs) was intensive. Some spectacular relics involved blood<sup>23</sup>, and their virtue has long been a source of quarrels between the spiritual powers (the Pope, bishops and abbots) and the temporal ones (monarchs). Every kind of relic linked to Jesus Christ's agony (Passion) was the subject of intense devotion for people and an attraction to the owners (monasteries and city cathedrals, which benefitted from trade and large market places). Drops of Christ's blood had no comparison in terms of veneration because they were not simply support for the crucifixion, but came from Jesus (God in his human nature) himself. Several places in Europe (at least half a dozen, with an extensively documented history for the blood kept in those cities) claim they possess drops of the "Precious Blood of Jesus Christ", existing as two main types: one is like other relics, being immutable, whereas the other

may change its form - from liquid to solid or vice versa, either regularly or only when something spectacular will occur (a war, an epidemic, etc., in other words, a plague). Veneration of these relics was (or still is, for believers) expected to confer protection.

In addition to this temporal power of trade, this blood probably encouraged the rise of secret rites in religious and/or military sects (such as the Templars) that flourished under the return from the Crusades and led to parallel and deviant practices (as in the way blood was seen and valued). Anyone claiming power had to proclaim the possession of relics, which led to many fakes and deviances, with the later (re)-emergence of black magic and human sacrifice<sup>24,25</sup>.

Although all references (religious texts - including the New Testament -, tales, chivalry songs, relics etc.) referred to reddish and visible (true or fake) Holy Blood, the Holy Blood in the Eucharist, commemorated daily, looked invisible in its form as (red) blood, retaining the physical appearance of (white) wine. The invisibility of Holy Blood in worship probably also encouraged questions and then disputes within the Church: was the "Last Supper" purely symbolic and by no means was the incarnated body of Christ in the form of bread and wine (as accepted by "reformed theology"), or were the body and blood of Christ genuinely present (referred to as transubstantiation, the continuing Roman Catholic dogma) through the action of the Holy Spirit? This issue was addressed during the Council of Trent (1545-1563), which made transubstantiation a dogma; however, not all attendees considered that a consensus was achieved, which led to separated - protestant - cults<sup>26</sup>. The reformed theology spread in Northern Europe, but a counter-reformation emerged, which was associated with particularly bloody events against Protestant families in France, as if they had to give their blood in expiation of their apostasy. Under the influence of the Jesuits and other influential lobbies of the 17<sup>th</sup> century in favour of Roman Catholicism and against locally established cults questioning seminal parts of the dogma (Jansenism, as an example in France), the "immolated lamb" clearly replaced the fish, and numerous paintings show this bleeding lamb together with flurries of blood pouring from Christ's pierced flanks as he blesses worshippers<sup>27</sup>. The image of a sacrificial lamb did not commence or increase during the 17<sup>th</sup> century, strictly speaking, because earlier Medieval frescos, books, and parchment illuminations already showed florid images, but it did replace the austere fish, and fish designs were no longer seen in churches until the late 20<sup>th</sup> century.

### **A Christian heritage or a pagan drift: the vivifying power of blood**

The attributed vivifying power of blood was not restricted to Christianity, but was also part of pagan

beliefs. For example, Countess Erzsébet Báthory was accused of bleeding young virgins to bathe in their blood to gain immortality (promoting the legend of Dracula in the Carpathians)<sup>28</sup>. The history of transfusion is rich in reported attempts by the rich and famous to regenerate themselves using young people - virgins were particularly valued - males or females (such stories emerged in almost every civilisation, from ancient China to Medieval Italy, France, Germany, and Russia).

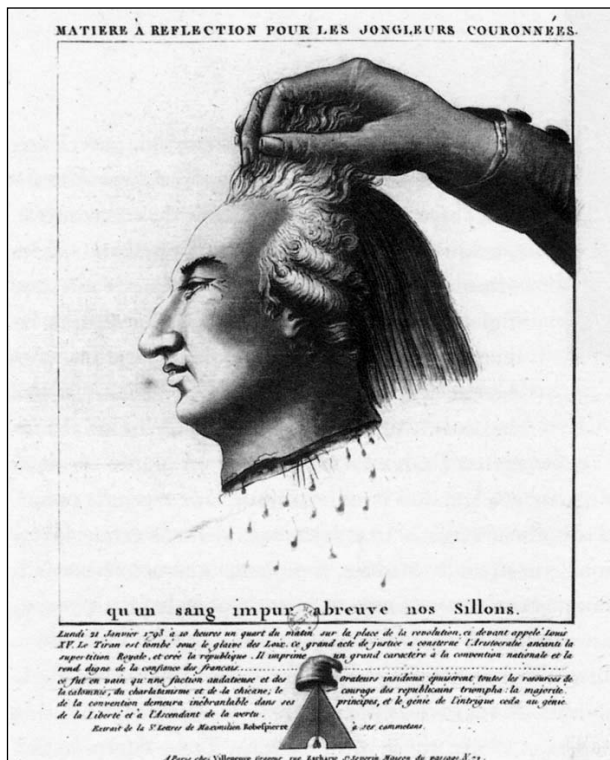
### **Blood progressively ceased to be an issue of power and became an issue of knowledge**

The previous paragraphs attempted to demonstrate that blood, especially the Blood of Christ, was not simply a matter of spiritual power, but also of temporal power. The promotion of the mysteries gave rise to more focused and reason-based questions. The 17<sup>th</sup> century, apart from the conflict between Jansenists and Jesuits, and the split between Roman Catholics and Protestants, also produced a number of philosophers and observers who started to question life issues with standards other than the Bible. A new era dawned, in which blood was regarded as a natural object - on medical grounds - for the first time! Blood was found to circulate (Harvey, 1628), was visible under the microscope (Van Loowenhoeke, 1674), helped drug diffusion, and could even be transfused. Blood became progressively demystified. Initially, blood from innocent and pure animals (sheep and calves) was infused into humans, preceding human-to-human transfusion. Although it may appear anecdotal, blood could re-enter the kitchen in a cooked form, from which it had been banned for hundreds of years (this remains the case in the Middle East and in all Muslim countries)<sup>29</sup>.

At the same time, the divine origin-sacrament of monarchs in Europe was questioned. Consequently, King Charles I and King Louis XVI were beheaded in London in 1649 and in Paris in 1793, respectively, as were the Queen of France and numerous royals, nobles, and clerks. Symbolically, the executioner splattered the attendees with the blood pouring from the French monarch's head, to destroy his former divine power (Figure 3). Those "guillotinings" made Paris run red with blood. Revolutions took place soon after in France (again) and then in Russia, China, and elsewhere, where "Red Flags" commonly soaked in blood were raised<sup>30</sup>. "Bloodbath" or "butchery" in reference to revolutions, wars, combat, and guerrilla conflicts have become part of the common vocabulary.

### **Blood and the industrial period: only medical science?**

The second half of the 19<sup>th</sup> century, which characterises the industrial era in Europe, with new philosophies such



**Figure 3 -** Head of King Louis XVI. Villeneuve, "Matière à réflexion pour les jongleurs couronnés" (Matter for thought for crowned twisters), 1793, Engraving, Bibliothèque Nationale de France, Paris.

as Marxism and the rise of labour parties in politics, is highlighted by the works of Pasteur, von Behring, and several others, who used blood as a material or a substrate for medical research, and - perhaps foremost - by the seminal discoveries of Claude Bernard, who analysed and described the consistency of blood chemistry. Together, these scientists contributed to the continuing desecration of blood, a fluid like any other. This was a major breakthrough in science and medicine.

To face the fear of a purely materialist world, horror writers, such as Bram Stoker (*Dracula*) and Edgar Allan Poe, became very successful; the latter defined the word blood as "the supreme word, king of words, always rich in mystery, in fascination, in suffering and in terror" (Arthur Gordon Pym). Europe was fascinated with the murders of Jack the Ripper, and then with vampire legends (of note, psychiatrists have reported rare but real self-vampirism, where an individual self-inflicts a series of cuts to suck up blood<sup>31</sup>).

Lastly, this industrial period also saw the development of strong and controversial views on economics, such as Marxism, but also capitalism, both being more anthropocentric, and in a way opposed to theocentric spirituality. Blood appeared more valuable as a substrate for benefit than for worship.

### Blood in the modern era: a return to salvation through transfusion

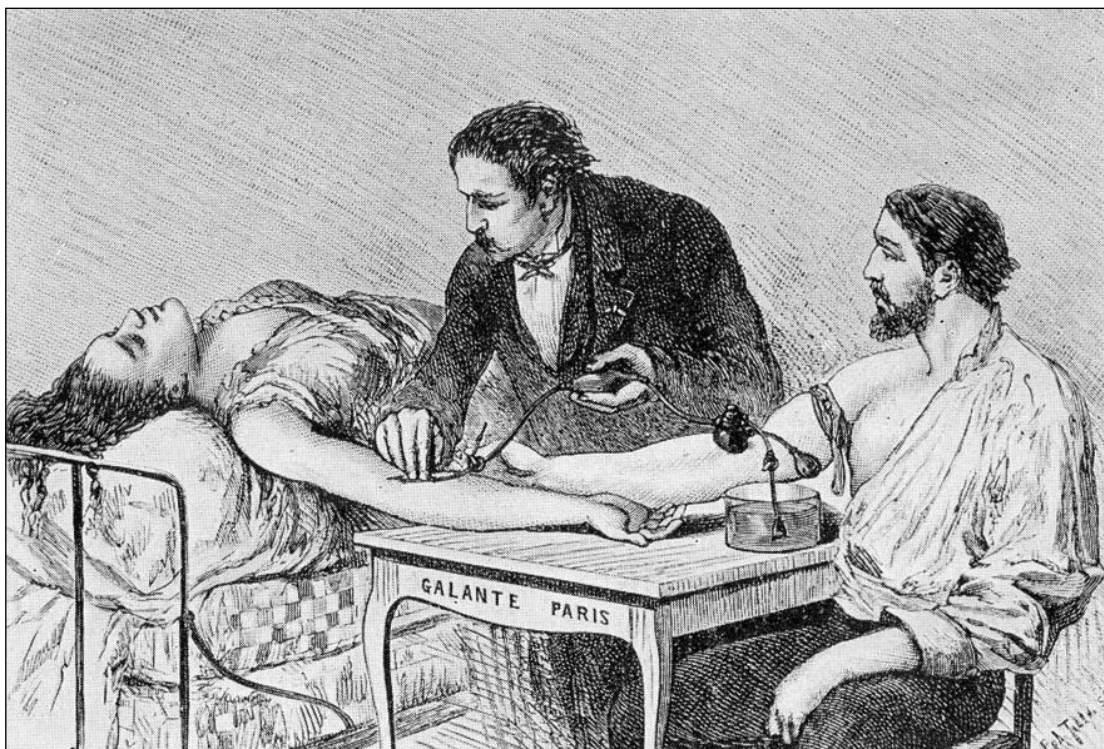
After the discovery of the ABO blood groups by Karl Landsteiner (1901), the era of large-scale blood transfusion began and advanced over time, to satisfy a need (first for mothers giving birth; Figure 4). Transfusion revealed itself as truly life saving on the battlefields of World War I (WWI), one of the last conflicts in which the inflicted bleeding wounds frequently led to amputations. To compensate for the blood spilt by such valiant soldiers, transfusion was extensively used during WWI army operations (a red poppy is still worn by the British [and Canadians] to commemorate victims of WWI on November 11<sup>th</sup>).

Modern medicine has acknowledged the benefits of transfusion for many indications over the last century, with constants (the wish to save mothers giving birth and their children, those injured during combat or through accidents, and the sick) and variables (the way blood was obtained from the healthy to save the sick: from arm to arm from volunteers [with financial compensation for their "ward"], and then from benevolent volunteers acting not for profit [the still-prevailing model in the majority of health systems, at least for whole blood]). In this way, by being donated, blood regained a saving virtue<sup>32</sup>.

However, after decades of confidence in transfusion medicine, a dark period then occurred in several countries. Blood was described as possibly corrupted; people felt abused when it was known that human immunodeficiency virus and hepatitis C virus were transmitted to thousands of patients. The word blood became associated with "affairs", "scandals", and "corruption", and a new era of mixed feelings began. Transfusion was still necessary because there were still sick patients and injured individuals in need, but it was sometimes associated with fear, because confidence in its paramount virtue was either lost or disputed. It took two to three decades to reverse the process and reach the current situation.

### Spiritual feelings of modern times up to the present regarding blood: "pros and cons"

Despite considerable progress made over time regarding transfusion, certain Christian sects, such as Jehovah's Witnesses, still refuse this medical practice, incriminating blood with barring or banishing them from eternal life, based on a particular interpretation of the following verse from the Bible: "*Quia anima omnis carnis in sanguine est*" ("For the life of the flesh is in its blood"). This maintains a mostly unspoken fear that blood is a special tissue charged with such sin that no less than the salvation of the soul on Judgment Day is compromised<sup>33,34</sup>.



**Figure 4** - "Operation of direct transfusion of live blood carried out on 7 February 1882", published in the *Atlas Populaire de Médecine, de Chirurgie*, by Emile Littré (J-B Bailliere et fils, Paris, 1883).

In several cultures, the loss of blood, such as donated blood to transfusion centres, is feared as it is believed to lead to vulnerability, the risk of being cursed (black magic), or - as frequently encountered in African societies - the risk of losing sexual potency, which probably all act as a hindrance to blood donation. In these cultures, one may also fear the secondary power of transfusion, including the transmission of "personal characteristics", with donated blood apparently more frequently suspected of transporting weaknesses rather than strengths. Conversely, in other cultures, such as in Northern India, compulsive blood donors believe that their donated blood conveys spiritual values that will convert the sick to their religious sect.

In contrast, to those fearing blood on the grounds of spiritual fears, and for a long time having been hidden from religious practice, Christianity has re-emphasised the Holy Blood veneration rites, in particular with the "Revival" movements in the late 1960s. Despite a dramatic decline in worship, Christianity still claims people from the intelligentsia<sup>35</sup>. Furthermore, miracles or unexplained cures are still declared and celebrated in the name of the "Holy Blood of Christ". It is reported that "stigmata" - which were not uncommon in the Middle Ages (e.g. Saint Francis) - have continued to occur, including in two controversial Catholic figures of the 20<sup>th</sup> century: Marthe Robin (France) and Padre

Pio (Italy). There has, therefore, been a permanent oscillation between the material and psychological value of blood, and invaluable scientific progress has nevertheless failed to eradicate the faith in unexplained phenomena involving blood in a religious context<sup>23</sup>.

The 19<sup>th</sup> century was perhaps the most fertile period regarding missions to convert pagans, because travel by boat was no longer simply for discovery, but also for trade and communication. There are many reports of martyrs among priests and nuns, and of protestant missionaries who undertook such travel. Offering blood as a martyr was considered as a way to imitate Christ's sacrifice<sup>36</sup>. Martyrdom for the Christian faith did not cease in the 20<sup>th</sup> century, including those who refused to renounce their faith when local politics turned against religions, especially Christianity. However, being a martyr to receive the blessing of God or a deity was not restricted to Christians. This was glorified, for example, by Kamikazes in Japan during WWII (at which time the Emperor was still acknowledged as a deity), and still is by Muslim extremists, who sacrifice themselves in holy wars<sup>37</sup>.

If any of those forms of martyrdom are thought of as caricatures, one may well consider that residual beliefs inherited from cultures and religions may still be imperceptibly imprinted and act insidiously as brakes on donation and might lead to a reluctance or fear of receiving a transfusion.

## Cultural feelings of the modern era up to the present regarding blood: including "pros and cons"

Activists opposed to animal testing do not hesitate to show themselves in bloody poses, indicating that blood remains charged with considerable drama. Emotion has been largely sensed by novelists and film-makers, some being oppositional, such as "pure blood" compared to "mud- and half-blood" (Harry Potter), while others are supportive, valuing vampires (Twilight). The cinema of horror (which existed from the beginning of the 7<sup>th</sup> art) never completely vanished and occasionally even became a partner of blood donation. The Saw series has advertised itself as being in favour of blood donation as an addition to its publicity campaigns since 2004 ("Give 'til it hurts!"). The fantastic genre or thriller widely exploited the mystery of characters associated with blood, including the post-transfusion psychic relationship (Blood Song, 1982) and modification of the personality (Before I Hang, 1940). In contrast, other films championed the initial beliefs by attributing the status of an absolute remedy to transfusion, with monsters returning to their previous humanity<sup>38</sup>.

Body art appeared in the middle of the 20<sup>th</sup> century. Here it is not art that represents the body; rather it is the body that becomes a medium for artistic expression (theatre, video, paint, and even sculpture [Marc Quinn, Self, 1991]), depicting a continuum with the bloody sacrificial rites<sup>39</sup>. Scenic performances use blood, such as in Bloodbath by Billy Curmano (1984); the artist was himself bled by a nurse in a scene evoking blood donation, then pours his blood over a terrestrial globe while a voice off screen enumerates countries of the planet that are at war. From the 1960s, blood - and above all menstrual blood - was used as a material by several artists in their works. The image of blood would seem far from religion if certain rites did not strongly resemble forms of worship (of a deified human?), which appear in marked opposition with the general motives of blood donation for transfusion, which simply aim to share one's healthy condition to help the sick and the injured. However, emotion appears never to be far away, as exemplified by the photograph of Yasser Arafat extending his arm to donate blood as a compensatory gift on the day after the terrorist attack of September 11<sup>th</sup> in New York City which shocked the world. Donated blood enters a production process, and with the general increase in demand (especially for its plasma derivatives) together with a risk of shortage, it becomes similar to a commercial "good". The European Community has set up markets for the "free circulation of goods" between state members, but the status of blood remains imprecise; is this really a "good"<sup>40</sup>? Does blood differ from any other merchandise (like art in some way),

with something making it different, somewhere between materiality and spirituality?

## Conclusion

Throughout time, blood has been associated with opposites, including life/death, death/redemption, - eternal life - innocence/massacre, sickness/therapy, nobility/malediction (haemophilia in the "Blue Blood" descendants of Queen Victoria), generosity/transmission of infections, and attraction/repulsion. The Gorgona in antiquity, when giving her blood in a flask, provided at the same time a therapeutic drug and a poison, depending on the intent of use. Even blood given by the healthy to the sick for transfusion has encountered opposition. In contrast to the generosity of anonymous individuals, the transfusion-transmitted human immunodeficiency virus/hepatitis C virus affairs created new concerns. Thus blood needed additional qualities beyond simply generosity; it had to be exempt of vices<sup>1</sup>. Step by step, a novel concept emerged, termed the "precautionary principle", which stipulates that, as far as a risk is possible, it has to be prevented, even if there has not yet been such an occurrence<sup>41</sup>. Court procedures for contaminated blood denied the spirituality of this life-saving fluid. At present, where violence is everywhere in civilian and military situations, "haemoglobin" is largely celebrated in teenagers' novels and films, bloody celebration in Voodoo religion remains vivid, body art is more valued than ever, and renewal movements in religious worship again comprehend a holy character in the "Blood of Christ". It does, therefore, appear unrealistic to deny the eternal and spiritual value of blood.

**Keywords:** blood, spirituality, religion, fears, transfusion.

*The Authors declare no conflict of interest in relation to the study.*

## References

- 1) Dodd RY. Current risk for transfusion transmitted infections. *Curr Opin Hematol* 2007; **14**: 671-76.
- 2) Sojka BN, Sojka P. The blood donation experience: self-reported motives and obstacles for donating blood. *Vox Sang* 2008; **94**: 56-63.
- 3) Hossenlopp C. Management of transfusion related risks: is risk communication to non-experts at all possible? *Dev Biol (Basel)* 2007; **127**: 249-58.
- 4) Garozzo G, Crocco I, Giussani B, et al. Adverse reactions to blood donations: the READ project. *Blood Transfus* 2010; **8**: 49-62.
- 5) Kretschmer V, Weippert-Kretschmer M, Slonka J, et al. Perspectives of paid whole and plasma donation. *Dev Biol (Basel)* 2005; **120**: 101-11.
- 6) Bahn PG. *The Cambridge Illustrated History of Prehistoric Art*. Cambridge, UK: Cambridge University Press; 1988.
- 7) Eliade M. *A History of Religious Ideas*. Chicago, USA: The University of Chicago Press; 1990

*Blood Transfus* 2014; **12**: 14-21 DOI 10.2450/2013.0131-13

- 8) Livingstone DN. *Adam's Ancestors: Race, Religion, and the Politics of Human Origins*. Baltimore, USA: The Johns Hopkins University Press; 2008.
- 9) Conrad GW, Desmarests AA. *Religion and Empire: The Dynamics of Aztec and Inca expansionism*. Cambridge, UK: The Cambridge University Press; 1984.
- 10) Baskin JR, Seeskin K. *The Cambridge Guide to Jewish History, Religion and Culture*. Cambridge, UK: The Cambridge University Press; 2010.
- 11) *NIV Study Bible. Fully Rev.* Grand Rapids, MI, USA: Zondervan; 2002.
- 12) Siddiqi MI. *The Ritual of Human Sacrifice in Islam*. Lahore, PK: Idara Isha At-E-Diniyat (P) Ltd; 2000.
- 13) Eliade M. *The Encyclopedia of Religion. Book 3*. New-York, USA: MacMillan; 1987. pp. 511-4.
- 14) Shahak I. *Jewish history, Jewish religion: the weight of three thousand years*. Boulder, CO, USA: Pluto Press; 1994.
- 15) Biale D. *Blood and belief. The circulation of a symbol between Jews and Christians*. Berkeley, CA, USA: University Press of California; 2007.
- 16) Levine I-J. *The misunderstood Jew: the Church and the scandal of the Jewish Jesus*. New-York, USA: Harper-Collins/HarperOne; 2006.
- 17) Auguet R. *Cruelty and civilization. The Roman Games*. New York, USA: Routledge; 1972.
- 18) Herbert JA, Korte AM, Johnson JA. *Wholly Woman, Holy Blood: a feminist critique of purity and impurity*. London, UK: Trinity Press International; 2003.
- 19) Brain P. *Galen on bloodletting. A study of the origins, development and validity of his opinion, with a translation of the three Works*. Cambridge, UK: Cambridge University Press; 1986.
- 20) Logan ED. *A history of the Church during the Middle Ages*. New York, USA: Routledge; 2002.
- 21) Walker Bynum C. *Wonderful Blood. Theology and practice in late medieval Northern Germany and beyond*. Philadelphia, PA, USA: University of Pennsylvania Press; 2007.
- 22) Bulgakov S. *The Holy Grail and the Eucharist*. Hudson, NY, USA: Lindsfarne Books; 1997.
- 23) Cruz JC. *Relics. The Shroud of Turin, the True Cross, the blood of Januarius. History, Mysticism, and the Catholic Church*. Huntington, IN, USA: Our Visitor on Sunday Inc; 1984.
- 24) Mitchell N. *Cult and controversy: the worship of the Eucharist outside mass*. New York, USA: A Pueblo Book; 1982.
- 25) Zambelli P. *White Magic, Black Magic in the European Renaissance (studies in the Medieval and Reformation traditions)*. Boston, USA: Brill Ed; 2007.
- 26) Jedin H. *A history of the Council of Trent*. New York, USA: Thomas Nelson and Sons Ltd; 1957.
- 27) Hengel M. *Crucifixion (In the ancient world and the folly of the message of the cross)*. Philadelphia, PA, USA: Fortress Press; 1977.
- 28) Clark K.L. *Infamous lady: the true story of Countess Erzsébet Báthory*. New York, USA: CreateSpace (by Amazon); 2009.
- 29) Rousseau V. *Le Goût du sang*. Paris, France: Armand Colin; 2005.
- 30) Priestland D. *The Red Flag: a history of Communism*. New York, USA: Grove Press; 2010.
- 31) Messer JM, Fremouw WJ. A critical review of explanatory models for self-mutilating behaviors in adolescents. *Clin Psychol Rev* 2008; **28**: 162-78.
- 32) Kaadar AN, Angrini M. Blood Transfusion in history. Available at: <http://www.ishim.net/Articles/Blood%20Transfusion%20in%History.pdf>. Accessed on 01/10/2013.
- 33) Garraud O. La symbolique du sang et la transfusion sanguine chez les Témoins de Jéhovah. *Hématologie* 2009; **15**: 1-14.
- 34) Hivey S, Pace N, Garside JP, Wolf AR. Religious practice, blood transfusion, and major medical procedures. *Paediatr Anesth* 2009; **10**: 934-46.
- 35) Hefley J, Hefley M. *By their Blood. Christian Martyrs of the Twentieth Century*. 2<sup>nd</sup> ed Grand-Rapids, MI, USA: Baker Books; 1996.
- 36) Hahn S. *Reasons to believe: how to understand, explain, and defend the Catholic faith*. New York, USA: Doubleday Religion; 2007.
- 37) Lippman TW. *Understanding Islam: an introduction to the Muslim world*. New York, USA: Meridian/Penguin Books; 1995.
- 38) Danic B, Lefrère JJ. Transfusion and blood donation on the screen. *Transfusion* 2008; **48**: 1027-31.
- 39) Perlmutter D. The Sacrificial Aesthetic: Blood Rituals from Art to Murder. *Anthropoetics* 2000; **5**, 2. Available at: [www.anthropoetics.ucla.edu/ap0502/blood.htm](http://www.anthropoetics.ucla.edu/ap0502/blood.htm). Accessed on 01/10/2013.
- 40) Council Directive 89/381/EEC of 14 June 1989 extending the scope of Directives 65/65/EEC and 75/319/EEC on the approximation of provisions laid down by Law, Regulation or Administrative Action relating to proprietary medicinal products and laying down special provisions for medicinal products derived from human blood or human plasma. *Official Journal of the European Parliament*. L 181, 28/06/1989: 0044-0046.
- 41) Murphy W. Managing threats rather than risks in blood transfusion: robust design for a complex system. *Transfusion* 2006; **46**: 2011-3.

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