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BLOOD AND TRANSFUSION IN BRAM STOKER'S *DRACULA*

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In John Badham's 1979 film version of *Dracula* in which Frank Langella recreated his famous Broadway role, when Dr. Seward discovers that his daughter, Lucy (who in the movie is Jonathan Harker's fiancee), has become the object of the Count's deadly affections, one of his immediate concerns is to restore the blood that she has lost: "She'll have to be given a blood transfusion," he proclaims. "Pray to God that one of us has her type." Those versed in medical history as well as in Draculania will be quick to point out that Dr. Seward's description of transfusion in the above scene is not only inconsistent with Bram Stoker's original but also historically inaccurate.[1] In his reference to matching blood types, Seward mentions a procedure that was unknown at the time of *Dracula*'s debut. Although the process of transfusion itself had peripherally entered medical practice nearly two-and-a-half centuries earlier, even as late as the last decade of the nineteenth century when Bram Stoker wrote *Dracula*, ignorance of the blood's chemistry continued to render transfusion a little-used, little-understood procedure whose results were at best unpredictable. More than just a piece of historical trivia, however, this part of the novel's context helps us understand more clearly Stoker's vision; additionally, it forms the basis of an illuminating chapter in the relationship between scientific advancement and social attitude.

Dracula is a novel not just of conflict but, more important, of conflicting aspects of the same underlying reality. Although light and dark, reason and superstition constantly collide on the Victorian surface of the novel, they are revealed to be at a deeper level disconcertingly intermingled.[2] And indeed, for Stoker this vision of ambivalent duality where the Victorian consciousness emphasized, if rarely attained, clear-cut opposition is the chief horror in the novel. An important thematic area in which this dialectic becomes evident is the significance of human blood, especially in the parallel between the Count's vampirism and the procedure of transfusion. Carried out four times by Dracula's nemesis, Dr. Van Helsing, to restore the Count's victims, the procedure provides on one level a counterpoint of science, reason, and social responsibility—expressions of the superego—to vampirism's superstition and unrestrained selfish drives—expressions of the id. On a

less conscious level, however, the two methods of blood transference are shown to have disconcerting similarities, with the dark world of vampirism casting the shadow of ambivalence upon scientific procedure.

To understand transfusion in the Victorian world of *Dracula*, let us first put the procedure into historical perspective.[3] The technological story of blood transfusion properly begins in the early seventeenth century when William Harvey's discovery of the circulation of the blood provided the necessary physiological understanding for such a procedure to be envisioned. Not until half a century later, however, did the first transfusion actually take place. The English and the French disputed priority, but the generally accepted date for the first therapeutic human transfusion is 1667, when Jean-Baptiste Denis, a physician to Louis XIV (and, ironically, later to Charles II), introduced lamb's blood into a fifteen-year-old boy who had been suffering from a violent fever (for which he had already been bled twenty times to remove the offending "bad blood"). Although the report of the incident indicates, not surprisingly, that the boy showed symptoms of blood incompatibility, Denis was lucky in this and in other cases until an episode involving Antoine Mauroy, a thirty-four-year-old newly-wed man whose overly warm blood exhibited itself in debauchery. To correct this defect, Denis gave him two transfusions of "gentle" calf's blood. When his condition reasserted itself two months later, Denis attempted to give him a third transfusion, which he refused. When Mauroy died the following night, Denis was charged with manslaughter, ironically for a transfusion he did not perform. Urged on by Denis's rivals who reportedly bribed her, Mauroy's widow said that her husband had died during the transfusion. Denis was eventually exonerated, as the man's death was proved to have been caused by arsenic administered by his wife. But the courts henceforth held transfusion to be a criminal act, forbidden without permission of the reactionary Faculty of Medicine in Paris, where Denis had many enemies, and a decade later was forbidden by Rome through papal edict.[4]

Following this inauspicious debut, the procedure fell into disrepute, being virtually abandoned for the next century and a half. Then in 1818 a London physician, James Blundell, using his own invention for direct transfusion, administered the first human-to-human transfer of blood. The apparatus was cumbersome, however, and although the decision to limit transfusions to members of the same species improved the possibility of matching blood, compatibility

without the knowledge of blood groups still remained a problem as did coagulation and intravascular hemolysis, which occurred in an estimated 40 per cent of the cases. Consequently, even as late as 1875, a search of the world's literature for reports of transfusions netted Leonard Landois, professor of physiology at the University of Griefswald, only 347 accounts of the procedure (with an additional 129 if instances in which animal blood was used—a practice that continued on the Continent up until the time of Landois's investigations) to include in his influential study of the topic. By 1897, the year *Dracula* was published, transfusion was still experimental. Used mainly as a last resort (two of conservative Blundell's patients were already dead at the time of transfusion), primarily in cases of acute hemorrhage that all too frequently followed childbirth, the procedure was still shrouded in a mystery whose solution would have to wait until the beginning of the next century. Then Landsteiner's investigation of the chemistry of the blood (for which, eventually, he would be awarded a Nobel Prize in 1930) began to reveal patterns of agglutinogens and agglutinins that would enable human blood to be classified into groups and thus ensure compatibility.

Science and technology, however, form but part of the story of blood and transfusion. Because of a lack of scientific knowledge of the blood's chemistry (including oxygen, especially, which was not even discovered until 1774 by Joseph Priestly), and because of blood's deeply-rooted symbolism, from the outset investigators showed interest as much in the individual characteristics potentially to be transmitted in the process of transfusion as in the scientific procedure itself. And indeed, it is this symbolic rather than the scientific tradition with which the treatment of blood in *Dracula* is most closely aligned. Even the famed scientist Robert Boyle, who conducted early experiments to determine the composition of the blood, stated that his *Memoirs for the Natural History of Humane Blood* (1683/4) would include an examination "of the Difference between Human Blood as 'tis found in Sound persons differingly constituted and circumstantiated, as men, women, (when menstruous, and when not) Children Moors [sic], Negro's [sic], etc." (14). Worth examining in detail because of their clear and thorough illustration of the contemporary belief in the blood's ability to contain the characteristics of the individual are some of the questions that Boyle proposed to Dr. Richard Lower (later printed in the *Philosophical Transactions of the Royal Society* for 11 February 1666) concerning the latter's experimental transference of blood from one dog to another. One of Boyle's suggested "tryals" concerns determining whether "the disposition of individual Animals of the same

kind, may not be much altered" by transfusion; for example, "whether a *fierce* Dog, by being often quite new stocked with the blood of a *cowardly* Dog, may not become more tame." Boyle additionally wonders "whether the blood of a *Mastiff*, being frequently transfused into a *Blood-Hound*, or a *Spaniel*, will not prejudice them in point of scent," and queries "whether a *small* young Dog, by being often fresh stockt with the blood of a young Dog of a *larger* kind, will grow bigger, than the ordinary size of his own kind." Yet another of his speculative questions concerns the possibility that a transfusion from some other species might effect "to some degree...a change of *Species*" (1: 385-88).

The belief that the blood conveyed the characteristics of its original possessor and that these characteristics could be transmitted through transfusion often reached humorous extremes, as we see in the seventeenth-century Danish mathematician and anatomist Thomas Bartholin's account in 1673 of a transfusion where an epileptic girl, after receiving cat's blood, began to climb on the roofs of houses, jump and scratch in a cat-like manner, and even sit for hours gazing into a hole in the floor (Brown 181). For the diarist Samuel Pepys, these transformational implications of the procedure gave rise to what he called "many pretty wishes," including the possible effect if "the blood of a Quaker [were] to be let into an Archbishop" (7: 371).

The usual donor in early transfusions for human patients, however, was neither a Quaker nor a cat but a lamb, chosen because of the gentleness and composure its blood was thought to contain—an appropriate remedy for the "bad blood" that was considered to cause the feverish, agitated disposition that infected the usual candidate for transfusion. Samuel Pepys, for example, reports reactions to the prospect of using sheep's blood in the first human transfusion in England, to be performed upon Arthur Coga by Lower and King on 23 November 1667: "They differ in the opinion they have of the effects of it; some think it may have a good effect upon him as a frantic man, by cooling his blood; others, that it will not have any effect at all" (8: 543). When asked why the blood of a sheep instead of some other animal was transfused into him, Coga replied that the religious symbolism of the lamb made its blood especially desirable: "'*Sanguis ovis symbolicam quandam facultatem habet cum sanguine Christi, quia Christus est agnus Dei*'" (Birch: 216).

Even after the actual practice of transfusion fell into disfavor following Denis's trial, speculations based upon the blood's supposed symbolic qualities continued to be made about the therapeutic value of transfusion. Michael Ettmüller, a German physician and professor of

surgery and anatomy in the late seventeenth century, envisioned transfusions being used to prolong life, cure epilepsy and consumption, and alter the "habits of people of evil disposition," among other things (Brown 181). A century later, Erasmus Darwin suggested in *Zoonomia*, his catalogue of diseases, causes, and cures, that transfusions be used to treat a blockage of the throat as well as that wideranging category of disorder, fever. Yet now the advice is clearly theoretical, devoid of any empirical base. To support his argument, for example, Darwin refers to a transfusion proposed "above thirty years ago" to an old man but never carried out because the man, after a careful consideration of the procedure, decided to refuse it (2: 120). And Darwin's prefatory remarks to his supplementary directions for apparatus and method equally reveal the hypothetical nature of his advice: "If this experiment be again tried on the human subject," he states tentatively (2: 605).

Stoker's knowledge of blood and transfusion follows, as we shall see, the dialectical pattern of *Dracula* as a whole in that it is an odd combination of relatively current science and outdated symbolic speculation. Although not a matter of record, Stoker's information concerning a practice admittedly esoteric for the times could easily have been provided by his brother, Sir William Stoker, President of the Royal College of Physicians in London, whom Stoker is known to have consulted during the *Dracula* period for accurate details concerning the description of an injury to one side of the head, such as occurs to Renfield, the confined madman under the Count's influence (Roth 100). Furthermore, transfusion—and significantly, its association with vampirism—appears in other works of the period, as well. In an example of "natural" vampirism (which, in contrast to the supernatural variety that we find in *Dracula*, works within the framework of the natural laws of our existence), Mary Elizabeth Braddon's "Good Lady Ducayne," published the year before *Dracula* (but, as Bierman documents, at least six years after Stoker had sketched out his first ideas for the novel), features an old lady who is kept alive through transfusions of blood her physician drains from a succession of young, short-lived companions whom she hires.[5] As the story makes clear, the transfusion serves no strictly medical purpose: the only disease that Lady Ducayne suffers from is old age. Rather, the blood's symbolic potential to embody the vitality of the person from whom it is taken is the chief basis for the procedure—a potential to which modern technology has lent possibility to realize. Embodying both symbolic and technological dimensions of medicine, transfusion becomes the perfect vehicle for exploring the dialectic of attitudes toward modern

medical science. In Parravicini, the evil doctor who carries out the transfusions for personal gain as well as out of scientific curiosity, we see the distrust of its power and uses; in Stafford, the medical student who in the best tradition of the medical thriller eventually discovers the doctor's wrongdoings, we see the conscience that hopefully will guide this new science as it approaches ever more humanistically complex frontiers. The story offers an optimistic view of this dialectic, with the social and ethical triumphing over the selfish and amorally scientific: Stafford points to the wickedness of the means (callously sacrificing young girls simply to obtain their blood) as well as the unnaturalness of the end (selfish extension of a human life beyond its allotted time) while Lady Ducayne proclaims that she is finished with Parravicini and his experiments. The victory is but temporary, however, as Lady Ducayne is determined to find some new scientific genius, presumably with the scruples of a Parravicini, with a new method for keeping her alive.

Although it strives for an optimistic confidence in the dialectic informing medical science's relation to society, "Good Lady Ducayne" is in the final analysis a disturbing tale warning us against the dangerous potential of science to tempt us with the realization of dreams, such as immortality, and in the process lead us to lose sight of the ethical and natural order of our existence. *Dracula* likewise attempts to display a confident faith in modern science and technology but convinces us instead of an underlying ambivalence—attributable in this case not to science or the scientific impulse itself but to the fact that its control is only an illusion. As Jonathan Harker remarks when writing in short hand about his visit to Dracula's ancestral home, "It is nineteenth century up-to-date with a vengeance. And yet, unless my senses deceive me, the old centuries had, and have, powers of their own which mere 'modernity' cannot kill."[6] Duality is still, even in the crowning glory of civilization that is Victorian England, a defining characteristic of human existence; as Robert Louis Stevenson had suggested in his famous story on the theme a decade earlier, the primitive drives survive strongly even in modern "civilized" man.[7] Or, as Hennelly appropriately states the dialectical relationship, the "now anemic nineteenth century" needs "a *transfusion*, the metaphor is inevitable, from the blood-knowledge of Dracula" to redeem it (13).

Such dualism and its related ambivalence strongly influence Stoker's treatment of blood and transfusion although this underlying issue is often obscured by some of the more idiosyncratic concerns that Stoker imposes upon the topic. Stoker's understanding of blood itself

in the novel harkens back to the seventeenth and eighteenth century idea of a substance that contains the personal characteristics of its original possessor. When it comes to selecting a donor to replace the blood that Lucy has lost to the vampire, for example, Van Helsing establishes the following criteria. First, a young donor is better than an old one, not because of the quicker recovery that a young person might have but because of the youthful vitality that can be thus transmitted. Similarly, a person of physical activity is to be preferred to one of mental pursuits because of the robustness the former's blood will contain. Thus with Van Helsing's first choice of a donor, Arthur Holmwood, he exclaims, "'"He is so young and strong and of blood so pure that we need not defibrinate it'" (117), deftly transforming into physiological fact the tenuous symbolic connection of the slowed flow of blood caused by clotting (in reality a function of the formation of the protein fibrin in the blood) and the supposed slowing caused by the aging process.[8]

Perhaps most peculiar is Van Helsing's chauvinistic insistence of the superiority of a man's to a woman's blood—clearly an expression of Stoker's own complex distrust and fear of women.[9] In explanation of his comment that he would "'"fear to trust those women [for transfusion], even if they would have courage to submit,'" Van Helsing proclaims, "'"A brave man's blood is the best thing on this earth when a woman is in trouble'" (139). Women's blood lacks the necessary strength—the "manliness," if you will—even to consider it for transfusion. When he observes that "'"no man knows till he experiences it, what it is to feel his own life-blood drawn away into the veins of the woman he loves'" (121), the gratification he speaks of is more than simply altruistic. In Stoker's mythology of the blood, as Bentley (29-30) and most subsequent critics have observed, transfusion is a sublimated form of sexual intercourse. The point is clearly illustrated by Van Helsing's half-joking reference not only to Lucy, who has by this time received blood from several male donors, as a polyandrist, but also to himself, a married man who has been one of the donors, as a polygamist. Similarly, Arthur Holmwood felt married to Lucy ever since his blood was first transfused into her veins, while the others feel they must keep it a secret from Arthur that they, too, had filled his fiancee's veins with their blood. And, as Wolf points out, we must not forget that Lucy, herself, had earlier complained, "'"Why can't they let a girl marry three men, or as many as want her, and save all this trouble?'" (62)—a wish that is ironically fulfilled through the sexual implications of transfusion. The sensuality so evident in Dracula's bloody kisses is present in transfusion, as well. Dracula's blood-

draining and the Van Helsing group's filling of the victim's veins are but complementary expressions of the same basic energy.

Even when Stoker invokes a more traditional, religious symbolism for the blood, instead of redeeming the comforting societal perspective of a firm dichotomy of good and evil, the religious dimension of blood's mythology only reinforces our disturbing sense of ambivalence: where we had hoped for light and dark, we find again only shadow. That the symbolism is embodied primarily in Dracula offers in itself no direct challenge to any clear-cut dualism, for on one level, the Count is the Antichrist, with any religious references to him being ironic evocations of his unholiness (Leatherdale 176-91). Upon closer examination, however, we find an even more significant underlying irony of commonality rather than difference. An example is the Biblical phrase "the blood is the life," spoken by the zoophagous maniac, Renfield (133). On the one hand, as Wolf points out in his annotation for the phrase, the words are actually part of a Biblical prohibition: "Only be sure that thou eat not the blood: for the blood *is* the life; and thou mayest not eat the life with the flesh."[10] At this level, the Biblical reference ironically highlights the unholiness of Dracula's (as well as Renfield's) activities. On the other hand, by presenting only part of the total Biblical passage, Stoker enables their blood-drinking to echo the New Testament Eucharistic ceremony of drinking the blood of Christ—a sacramental act associated with spiritual immortality. Thus at the same time that the allusion shockingly points to Dracula's sacrilegious inversion of the religious norm, the allusion also hints at an underlying dark reality in which the world of Dracula is inextricably linked with the world of traditionally "sanctified" values. The very transfusions that keep Lucy alive sustain Dracula, as well, into whom the blood also flows. In transfusing their blood into Lucy, who represents in part Stoker's Victorian idealization of women—a view presented more fully in Lucy's double, Mina—Van Helsing's group fortify their altruistic aspirations. But Lucy also represents the other side of Stoker's view of women—that of fearful physicality. As is especially evident when we consider the previously discussed sexual connotations of transfusion, in giving Lucy their blood, the group give sublimated nourishment to their darker impulses, as well. When he obtains their blood, with the personal characteristics that it is capable of transmitting, Dracula gives life to the baser instincts contained therein. Now embodied in the Count, these impulses from the id are finally free from the restricting dualism that has thus far inhibited their expression.

A similar ambivalence can be found in the sacramental allusion when Dracula gives Mina some of his own blood to drink. Again, the Eucharistic echoes are undeniable, with an ambivalence that takes the scene far beyond a simple invocation of horror through shocking discordance. Giving additional resonance to the scene is Van Helsing's reference to the act as "'that terrible baptism of blood'" (301), a comment that reminds us of the instinctual passions that are given life in Dracula even as social prohibitions are drowned. The sacramental connection between blood and wine is again suggested when the vampire, in conclusion to a parody of the words of the Catholic marriage ceremony, refers to his victim as a "bountiful wine-press" (255). The point of these allusions is not just that the sacred has been profaned but that the profane has also been linked to the sacred. Dracula's damnation is, paradoxically, a salvation as well in the release it gives to the pent-up eros borne in the blood.

Although the novel focuses on the symbolic dimension of blood and its transference, it also offers observations on the technological procedure of transfusion. Stoker was, as mentioned earlier, aware of the process of defibrination (although he presents coagulation in symbolic terms, as a function of the aging process) and his presentation of transfusion reflects the contemporary practice of directly transfusing blood taken from human rather than animal donors. Even this last point, however, could be merely a matter of fictional convenience fortunately coinciding with scientific accuracy rather than a true representation of Stoker's knowledge of the topic. In either case, beyond these few facts, the details of transfusion in the novel remain hazy and are conveyed to us mainly through impressions rather than specifics. Even this vagueness, however, leaves little doubt that to Stoker the procedure is a sobering ordeal, indeed. Consider, for example, this intimidating description by Dr. Seward: "Once again we went through that ghastly operation. I have not the heart to go through with the details" (139). Rather than a defect, however, Stoker's persistent omission of factually accurate detail is consonant with his symbolic focus that, as we have seen, is in constant tension with "modern" scientific reality. It is also in the best tradition of descriptions of the Terrible—paint broadly and leave the specifics for the individual imagination to supply—thus, to the detriment of transfusion, firmly placing the scientific procedure within a Gothic context. Despite the feelings of altruism and sexual gratification that it conveys, the experience of being a donor is equally daunting, guaranteed to render even Stoker's strong and courageous men weak. To quote Dr. Van Helsing, "'The draining away of one's blood, no matter how

willingly it be given, is a terrible feeling'" (121)—an observation which, in reference to transfusion, partakes more of symbolic than scientific truth. Further casting a shadow upon the procedure is the consideration that Dracula himself is but an organic apparatus for direct transfusion, so that transfusion, for all its embodiment of the highest principles of scientific progress and altruism, is inevitably drawn into the associations with the vampire. Here we might consider especially the description of the Count as a "filthy leech" (54)—a metaphor that not only suggests transfusion's medical inverse of bleeding the patient, for which leeches were often used, but also emphasizes the host/parasite nature of the donor/patient relationship—a point made all too clear in the figure of the blood-sucking Dracula, another comparison for whom is the vampire bat of Argentina.

The novel ends, as Victorian propriety demands, with the triumph of science, reason, and society over superstition and unrestrained selfish drives as Dracula is relentlessly hunted to extermination. Yet even the obligatory optimism of this conclusion cannot successfully exorcise the novel's disturbingly convincing revelation that the latter exists not simply in opposition to but also commingled with the former. With science no less than with the individuals who create it, the two worlds are inextricably linked. We live in a murky atmosphere where the pure light of scientific reason and its technological manifestations does not dispel but rather is diffused in the clouds and darkness of primitive symbolism, superstition, and instinct. Focusing on blood and the technology of transfusion, Stoker subtly portrays the complexities of this interaction between science and its social context. Addressing issues ranging from the donor/patient relationship to the mixture of extravagant hope and fearful distrust with which "new," or little-understood medical technology is met by the public; from the rationality of science to the psychological and spiritual implications of its procedures, the story of *Dracula* reveals superstitions, prejudices, and beliefs about blood and its intermingling that not only form an illuminating chapter in the history of transfusion but also, as an imaginatively unfettered examination of the earliest viable form of transplanting living human cellular matter from one individual to another, is helpful in understanding the interplay of symbolism and beliefs that forms the social dimension of the contemporary technical triumphs of human—and recently, even interspecies—organ transplantation.

NOTES

[1]The film makes no pretence of being a faithful rendition of Stoker's work and, in any case, is based as much upon the Deane and Balderston dramatic adaptation of 1933, *Dracula: The Vampire Play*, as upon Stoker's novel. For a comparison between Stoker's novel and Badham's film (as well as film versions by Murnau, Browning, Fisher, and Herzog) see Robin Wood's "Burying the Undead; The Use and Obsolescence of Count Dracula," *Mosaic*, 16(1983), 175-187.

[2]Phyllis Roth's analysis of *Dracula* revealingly places this theme of underlying ambivalence within the context of Victorian doubling and splitting of characters and identities as well as of the Gothic doppelgänger motif: *Bram Stoker* (Boston, 1982), pp. 110-128. See also Daryl Coats's helpful discussion of Stoker's extensive use of the double: "Bram Stoker and the Ambiguity of Identity," *POMPA*, 3(1984), 88-105.

[3]Relevant histories of blood and transfusion are contained in G. E. W. Wolstenholme, "An Old-Established Procedure: The Development of Blood Transfusion," in *Ethics in Medical Progress: With Special Reference to Transplantation*, ed. G. E. W. Wolstenholme and Maeve O'Connor (Boston, 1966), pp. 21-30; Sir Geoffrey Keynes, "The History of Blood and Transfusion," *Blood Transfusion*, (Baltimore, 1949), pp. 3-40; Louis Diamond, "Milestones in Blood Transfusion and Blood Banking," *Pharos* (Spring 1982), pp. 7-10; Corinne S. Wood, "A Short History of Blood Transfusion," *Transfusion*, 7(1967), 299-303; N. S. R. Maluf, "History of Blood Transfusion," *Journal of the History of Medicine*, 9(1954), 59-107; and Horace M. Brown, "The Beginnings of Intravenous Medication," *Annals of Medical History*, 1 (1917), 177-197.

[4]The dispute between Lower in England and Denis in France concerning priority, as well as the details of these early transfusions, continues to be a matter of scholarly debate. See especially Keynes, "The History of Blood Transfusion," 12-17, and "Tercentenary of Blood Transfusion," *British Medical Journal*, 4(1967), 410-411; M. T. Walton, "The First Blood Transfusion: French or English?" *Medical History*, 18(1974), 360-364; Brown, 192-97; Walter L. Palmer, "Serum Hepatitis Consequent to the Transfusion of Blood," *Journal of the American Medical Association*, 180(1962), 1123-1124; Maluf, 66-67; A. Rupert Hall and Marie Boas Hall, "The First Human Blood Transfusion: Priority Disputes," *Medical History*, 24(1980), 461-465; and A. D. Farr, "The First Human Blood Transfusion," *Medical History*, 24(1980), 143-162. Brown mistakenly attributes the French experiments to Pierre Dionis instead of Denis. (Dionis, a medical man interested in anatomy, dissection, and surgery, was born in the same year as

Denis (1643) and, like Denis, was connected with the court of Louis XIV.)

[5]A possible historical ancestor of Lady Ducayne—one with which Stoker was familiar and that Gabriel Ronay, in *The Truth About Dracula* (New York, 1977), argues is the true original for Dracula—is Elizabeth Bathory, a Hungarian countess who died in 1614. Bathory is credited with having hundreds of young maidens tortured and killed to supply her with their blood, which she drank for its believed rejuvenating properties.

[6]*The Annotated Dracula* (New York, 1975), p. 38. All references to *Dracula* will be to this edition, which is an exact reproduction of text from Bram Stoker's first edition.

[7]In the "Notes on Production" to *Dracula: The Vampire Play*, Deane and Balderston suggest that the actress playing Lucy "should endeavor to project a dual personality or a Dr. Jekyll and Mr. Hyde effect" (102).

[8]In a treatise published 1697, Richard Lower discusses how, in old age, the blood "at length becomes fibrous, and gets into its self a kind of dryness" (104). Throughout the pre-twentieth-century history of transfusion, the tendency of the blood to coagulate and thus block the tubes of the apparatus used for the procedure continued to present a major technical difficulty (and presumably would have been troublesome for Dracula, as well). Defibrination was at first considered as a solution, later to be replaced by the chemical addition of citrate as an anticoagulant. Before the use of citrate, transfusions had to be performed directly, by surgeons. For a summary of the problem and attempts to solve it, see Keynes, "The History of Blood Transfusion" (27-28).

[9]For Stoker's view of women see especially Craft; Demetrakopoulos; Griffin; Johnson; Roth *Bram Stoker* (111-26) and "Suddenly Sexual Women in Bram Stoker's *Dracula*"; Senf; and Weissman. Johnson sees *Dracula* as presenting "an incisive and sympathetic analysis of the frustration felt by women in late-nineteenth-century Britain" (21); Craft, Demetrakopoulos, Leatherdale, and Senf focus on Stoker's ambivalent attitude towards women; Griffin, Roth, and Wasserman, while they recognize the dichotomy represented in the contrasting characters of Lucy and Mina, emphasize Stoker's misogyny. These studies have been conveniently gathered in *Dracula: The Vampire and the Critics*, ed. Margaret L. Carter (Ann Arbor/London, 1988), which includes a valuable bibliography of additional secondary materials.

[10]The passage, quoted from Wolf's annotation, is Deut. 12.23. For similar Biblical prohibitions concerning the blood, see Gen. 9.4; Deut. 12.16; and Lev. 17.10-12.

An interesting historical irony is that an analogy between transfusion and feeding drawn by the seventeenth-century pioneer transfusionist Denis was being used in the mid-twentieth century by the Jehovah's Witnesses in defense of their decision to refuse transfusion. The analogy, they claimed, supported their position that the procedure went against the Bible's prohibition against eating blood (Farr 151).