

Alkaline Hydrolysis: Imprudent in its Current Context

Fr. Peter Fonsecaⁱ

For most of Her history, the Catholic Church, with very rare exceptions, has insisted that the bodies of the deceased be interred in graves or other suitable burial sites. In 1963, Pope Paul VI allowed the practice of incineration cremation (IC) for the faithful when “they are forced to do so by necessity.”ⁱⁱ In the face of misunderstandings surrounding the permissibility of IC, the Congregation for the Doctrine of the Faith, issued the instruction *Ad Resurgendum cum Christo* in 2016, reminding Catholics of the obligation for IC remains to be interred in cemeteries or other sacred places.ⁱⁱⁱ At the turn of the 21st century, an alternative “eco-friendly” method of disposing of human remains, Alkaline Hydrolysis (AH), was introduced.

AH technology was first developed in the late 19th century as a means of turning animal carcasses into plant fertilizer. AH saw a renaissance in the early 1990’s when it was used for non-funerary purposes such as hydrolyzing large amounts of animal waste or disposing of bio-contaminates.^{iv} In 2005, Waste Deduction by Waste Reduction Inc., a non-traditional waste management company, built the first single human body AH for the Mayo Clinic’s anatomical bequests program. The Mayo Clinic’s use of AH paved the way for the systems use for funerary purposes.^v In essence, the AH process attempts to speed up the natural process of human decomposition from a matter of years to a few hours.^{vi}

Advocates for AH argue that the result is the same as a traditional burial and it is essentially no different from IC. Since both traditional burial and IC are permitted by the Catholic Church and the AH process is an environmentally friendly solution, supporters contend it should be an acceptable means to dispose of deceased human bodies. Others, including the New York Catholic Conference, question if AH truly respects the dignity of the human body.^{vii} This article argues that the use of AH in its current practice as an ordinary means of disposing of human remains, while

not intrinsically evil, is not a prudent choice and unless an appropriate modification is made to the procedure it should not be undertaken on behalf of a deceased Catholic.

Catholic Teaching on the Disposition of Human Bodies

The *Catechism of the Catholic Church* teaches, “bodies of the dead must be treated with respect and charity, in faith and hope of the Resurrection. The burial of the dead is a corporal work of mercy, it honors the children of God who are temples of the Holy Spirit.”^{viii} The Congregation for the Doctrine of the Faith’s instruction *Ad Resurgendum cum Christo* reflects the Church’s preference for burial over IC. It teaches that burial shows a greater respect for the human body which forms a part of the person’s identity while more clearly expressing the belief in the resurrection of the body at the end of time.^{ix} Since the burial of the body shows greater dignity and respect, the Church sees the internment of a body as the best means of treating the body with respect and charity. However, She understands that “cremation is also a contemporary phenomenon in virtue of the changed circumstances of life.”^x The Church’s law thus continues to encourage the burying of the bodies of the dead, but it does not forbid “cremation unless it has been chosen for reasons which are contrary to Christian teaching.”^{xi}

Throughout history, there have been good reasons for IC, like attempting to stop the spread of the bubonic plague. Today, many faithful Catholics choose IC because the cost of a traditional burial is too great a burden on their family. The National Funeral Directors Association shows that a traditional funeral in the United States costs on average \$8,755 while a cremation by incineration burial without a physical viewing costs only \$4,525.^{xii} With traditional burials costing nearly twice as much as cremation burials, it is no surprise that today a projected 53.3% of the deceased are cremated and an estimated 71.3% of all deceased bodies will be cremated in the year 2030.^{xiii}

Certainly, the rising cost of a burial can be a justifiable reason for families to choose the cheaper alternative of IC. Yet, when choosing incineration, the family must treat the body with the same respect they would afford a body in a traditional burial. “This includes the use of a worthy vessel to contain the ashes, the manner in which they are carried, the care and attention to appropriate placement and transport and the final disposition.”^{xiv} From the moment the body is collected by the funeral home, through the process of cremation and until the final disposition, the body must be treated with the same respect afforded to a traditional burial.

The Difference Between Alkaline Hydrolysis and Incineration

With the rise in popularity of IC, it is no surprise that new manners of cremating human remains are emerging. Advocates of AH argue that it is no different than IC. Yet a close evaluation of how the remains are disposed of demonstrates that there is an essential difference between IC and AH.

IC is a process whereby the physical body is converted to a gas and released into the atmosphere. By heating the body, which is composed of a majority of water, to 1400F – 1600F, a two-part combustion process is instigated. After about 1.5 hours to 2 hours, the body’s tissue, organs, body fat and other materials burn off as a gas which is discharged into the air, while the remaining bone fragments are collected in a secondary chamber. Once those remains cool they are pulverized, placed in an urn and returned to the family.^{xv}

AH is a cremation process which uses a 95% water and 5% potassium hydroxide (or sometimes sodium hydroxide) solution, to reduce the human body to a liquid and bones. After the body has been “bathed” in the chemical solution for a few hours, the process is completed leaving behind a sterile liquid and bone fragments. The liquid solution is disposed of through the sewer system while the bone fragments are then pulverized into ash and returned to the family.^{xvi}

Both AH and IC introduce a chemical reaction to speed up the decomposition of the human body, but they introduce the remnants back into the world in drastically different manners. In IC the gaseous remains of the chemical reaction are introduced back into the atmosphere, whereas the liquid remains of AH are poured down the drain. While it is true the chemical remnants of AH and IC are no longer human it must be noted that they originated from deceased humans and thus are deserving of respect and dignity. This dignity and respect demand the liquid remnant must not be disposed of in the same way as human waste is disposed of.

The Catholic Church's practice of pouring water used to dissolve a soiled host down the sacrarium, a basin which drains directly into the ground instead of the sewer system, is a practical recognition of the principle that things which were previously sacred, even if they are no longer the sacred object, should not be poured down the drain. Pouring the remnants of AH down the drain violates the dignity of the deceased body in a similar manner to how pouring water used to dissolve a soiled host down the sink would attack the dignity of Jesus Christ. Since the true presence of Christ remains until the host ceases to be bread, the dissolved host is no longer the Body, Blood, Soul, and Divinity of Jesus Christ. Yet the water which was used to break down the host is still worthy of respect because of its relationship to the true presence of Christ which is dissolved. Similarly, the liquid remnant from the AH process, while no longer a human person is worthy of respect because of its relationship to the human body which is disposed of.

Some argue that since the practice of embalming a deceased body, which disposes of the bodily fluids through the sewage system, is considered acceptable, the pouring of the liquid remnant from the AH process should also be acceptable. The blood and other bodily fluids which are disposed of during the embalming process are certainly a part of the human body, but they are essentially different from the liquid remnant of the AH process which contains what was at one

time the body itself. While no one scoffs at a janitor mopping up blood after an accident and pouring the water in the mop bucket down the sink, reasonable people would scoff at a hospital that simply threw an amputated arm in the trash. Likewise, the disposal of bodily fluids in the embalming process seems reasonably acceptable, while disposing of the liquid remnant from the AH process does not.

Conclusion

The Church, in Her wisdom, permits the use of cremation to dispose of human remains for suitable reasons. While there is no moral difference in the methods through which AH and IC chemically break down the human body, there is a significant moral difference in the process through which the chemical remnants of the process are disposed of. Thus, without a significant reason, Catholics who have a suitable need for cremation should use IC instead of AH.

While it is certainly true, that AH has less of an environmental impact compared to an IC or the natural decomposition of an embalmed body, the highly touted “green effect” of AH hardly makes it an appropriate choice. If one were truly concerned that IC or the natural decomposition of an embalmed body was causing significant harm to the earth, then an argument should be made for the exclusive use of burying bodies without embalming. While the concern for the environment which is touted by proponents of AH should be lauded, the focus should be placed on making small lifestyle changes which could have a greater positive impact on the environment rather than trying to appease the environmental conscience after death in a manner which demonstrates significant disrespect for the deceased person.

Ultimately, the process of decomposing a human body through AH and IC are morally similar, however, the process through which the chemical remnants of the decompositions are disposed of are significantly different. While IC releases those chemical remnants into the air, AH

pours them into the sewer system. Since this process of releasing the remnants of AH into the sewer system violates the dignity of the deceased human person, AH cannot be viewed as a prudent manner of disposing of a human body and thus should not be accepted by Catholics until another suitable means of disposing of the liquid remnant can be established. If some other manner of disposing of the liquid remnant, like burying it in the ground in a similar manner to how water going through a sacrarium is buried in the ground or buried with the person's remains were possible, then so long as a person had a suitable reason for choosing cremation over the burial of the body, the use of AH could be morally prudent.

ⁱ Fr. Peter Fonseca is a priest of the Archdiocese of St. Louis. He holds a Master of Arts in Theology, a Master of Science in Biomedical Ethics, a Master of Divinity, and a Certification in Health Care Ethics from the National Catholic Bioethics Center. He can be contacted at peterfonseca@archstl.org . He is grateful to Fr. Nicholas Smith, Director of the Office of Sacred Worship for the Archdiocese of St. Louis and Msgr. Dennis Delaney, Executive Director of Catholic Cemeteries for the Archdiocese of St. Louis, for their request for this paper and helpful insights on the topic.

ⁱⁱ International Commission on English in the Liturgy, *Documents on the Liturgy, 1963 – 1979: Conciliar Papal, and Curial Texts* (Collegeville, MN: Liturgical Press, 1982), n.1. Pg 1066.

ⁱⁱⁱ Congregation for the Doctrine of the Faith, *Ad resurgendum cum Christo* [Instruction regarding the burial of the deceased and the conservation of the ashes in the case of cremation], Vatican Website, August 15, 2016, sec. 3, accessed June 17, 2018, http://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20160815_ad-resurgendum-cum-christo_en.html

^{iv} Wilson, Joseph H. "The History of Alkaline Hydrolysis." *The Good Funeral Guide*. Accessed June 20, 2018. <https://www.goodfuneralguide.co.uk/wp-content/uploads/2013/09/History-of-Alkaline-Hydrolysis.pdf>.

^v Olson, Philip R. "Custody of the Corps Controlling Alkaline Hydrolysis in US Death Care Markets." In *Death in a Consumer Culture*, 75-88. London: Routledge, 2016. Pg 78.

^{vi} While the AH process does speed up what will happen naturally, like cremation, it is essentially different from the natural decomposition of a human body. Both AH and cremation is a procedure performed by chemicals the decomposition of a human body is not a procedure and is affected primarily through living organisms and not chemicals.

^{vii} A.10006, Paulin / S.4278, Ranzenhofer: In Relation to Chemical Digestion of Human Remains." NYSCC Logo New York State Catholic Conference The Official Voice of the

Catholic Church in the Empire State. Accessed June 21, 2018.

<http://www.nyscatholic.org/2018/03/a-3740-dinowitz-s-4278-ranzenhofer-in-relation-to-chemical-digestion-of-human-remains/#more-34788>.

^{viii} *Catechism of the Catholic Church*, 2nd. ed. (Washington, DC: United States Catholic Conference, 2000.), [2207-2300].

^{ix} Congregation for the Doctrine of the Faith, *Ad resurgendum cum Christo* [Instruction regarding the burial of the deceased and the conservation of the ashes in the case of cremation], Vatican Website, August 15, 2016, sec. 3, accessed June 17, 2018,

http://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20160815_ad-resurgendum-cum-christo_en.html

^x Congregation For Divine Worship And The Discipline Of The Sacraments, *On Popular Piety and the Liturgy*, Vatican Website, December 2001, sec 254, accessed June 17, 2018,

http://www.vatican.va/roman_curia/congregations/ccdds/documents/rc_con_ccdds_doc_20020513_vers-direttorio_en.html

^{xi} *Code of Canon Law*, c. 1176, sec. 3, in *Code of Canon Law: Latin English Edition* (Washington D.C. : Canon Law Society of America, 1999), 425.

^{xii} National Funeral Directors Association. "Costs." National Funeral Directors Association (NFDA). Accessed June 21, 2018. <http://www.nfda.org/news/statistics>.

^{xiii} National Funeral Directors Association. "Rates of Cremation and Burial." National Funeral Directors Association (NFDA). Accessed June 21, 2018. <http://www.nfda.org/news/statistics>.

^{xiv} International Commission on English in the Liturgy. *Order of Christian Funerals: Including Appendix 2: Cremation*. Catholic Book Pub., 1998. N. 417.

^{xv} Cremation Association of North America. "Cremation Process." History of Cremation - Cremation Association of North America (CANA). Accessed June 21, 2018.

<https://www.cremationassociation.org/page/CremationProcess>.

^{xvi} Cremation Association of North America. "Alkaline Hydrolysis." History of Cremation - Cremation Association of North America (CANA). Accessed June 21, 2018.

<https://www.cremationassociation.org/general/custom.asp?page=alkalinehydrolysis>.