Boris Karloff – The Walking FrankenDead

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Submitted for your approval

Decades before the popular Image Publisher's comic book and the followup TV show on the AMC channel there was the 1936 Boris Karloff film, THE WALKING DEAD, A Warner Bros. Studio production. And the premise is a common one in genre films and is essentially the same of someone coming back from the dead to take care of old business, namely revenge. In the case of the film, FRANKENSTEIN, a Universal Studios 1931 production also starring Boris Karloff, the monster wants revenge on his creator and in TWD the Karloff character, John Elman, wants revenge on the racketeers who framed him for murder. [Note: for the film, TWD, the onscreen credits have the name spelled as 'Elman' but as 'Ellman' in the newspaper headlines seen in the film. Since screen credits spell the name with one "l" then that is what will be used.] However, there is another common element that is far more interesting, namely, in both films the characters played by Karloff, the monster in FRANKENSTEIN and Elman in TWD, came back from the dead via electricity. It seems that with Karloff, electricity and revenge go hand in hand.

Upon viewing the TWD one can't help but notice the striking similarities to Karloff's, up to then, Frankenstein films (FRANKENSTEIN was filmed in 1931 and BRIDE OF FRANKENSTEIN in 1935; SON OF FRANKENSTEIN would not be filmed until 1939 and TWD was done in 1936). In addition to the physical similaritles of the protagonist the overall film plot of bringing someone back from the dead is also similar so perhaps it would be an interesting exercise to compare the two Karloff films.

1930s biomedical science
As mentioned, FRANKENSTEIN was filmed in 1931 whereas THE WALKING DEAD was filmed in 1936. Though TWD had slightly more interesting science (though not as much as the 1935 BOF) the biomedical differences in the elapsed 5 years from 1931 to 1936 was not that significant in major advances with one notable exception (see below discussion on Lindberg heart). Though the lab setups are contemporary in their setting in both of the films, it should be noted, however, that in FRANKENSTEIN the revival by electricity closely resembles the knowledge and understanding of Galvanism of the day whereas in TWD the use of electricity has a slightly different approach and meaning. Furthermore, as discussed in detail below, the use, in 1936, of the just developed "Lindburgh heart" in the film, TWD, is an excellent example of using then contemporary 1930s science for plot devices. Also, heart-lung machines to supply oxygen to

the brain during surgery were being developed during this time so this too is contemporary with the TWD film.

Bringing back the recently dead

There are several instances of bringing back the recently dead that may be of interest to you gentle readers. Perhaps somewhat surprisingly, this may be more common that thought. However, it should be noted that death by electrocution is another matter completely. There are examples of drowning victims that have been declared dead but were revived sometime later. Some of these victims were without oxygen for hours so the brain would be affected. However, when drowned in cold water the lower temperatures did provide a sort of protection to the decay of delicate brain tissue. Nevertheless, if there is one example there may be more so it does appear the human body can tolerate many extremes yet still able to be revived. Therefore, all of this then begs the question of how should we define dead?

Coroner of Munchkin Land

Regarding the demise of the Wicked Witch of the West in the popular film, THE WIZARD OF OZ, the coroner proudly croons, “And she’s not only merely dead, she’s really most sincerely dead”. How dead is dead and when are you “really most sincerely dead”? Even in the 1931 film, DRACULA, the Lugosi character intones, “To be really dead. That must be glorious!” Or as Dr. McCoy of the original Star Trek TV series says, “He’s dead, Jim!”, yet there appears to be survival. So, death seems to be a bit of a moving target and one’s view of dead may not be another’s. Not dead, yet not alive.

What is death?

Simply stated, dying starts when the body does not get enough oxygen to survive. The earliest description of death, in the first edition of the Encyclopedia Britannica (1770 edition), was, “the separation of the soul and the body”, which clearly associated death with religious beliefs. As you can tell from some of the above discussions death is not an easy thing to define and with modern medicine and technology the determination of when a person is “really most sincerely dead” is difficult. Even with the obvious signs of missing respiration and heartbeat there is still the chance of the person still being alive. (Think of Edgar Allan Poe and his “Premature Burial”; buried and entombed before being really dead.) And there is technology that can make some forms of death reversible. A ventilator can keep someone artificially breathing; feeding tubes can keep someone hydrated with proper nutrition; CPR (cardiopulmonary resuscitation) can be used to revive the newly dead. However, there is more to life than a pulse since there are some patients that do not revive even after being hooked up to medical machines. A coma is one such example; not yet dead though not totally alive either.

In 1968, physicians at Harvard Medical School defined death as an irreversible damage to the brain or brain death. This is an interesting statement that implies

a person's memories and personality, located in the brain, define life and when memories and personality are irretrievably gone then that person is truly dead, irrespective if other body functions are still going on like respiration. This also raises the question of how much of the brain has to be dead to be declared dead, a problem many bioethicists and doctors are considering.

How death occurs

There are many, many ways death can occur. Some are accidental, some violent, and others natural. And even among these there are many variations. Each one of these can affect the outcome of whether the body can be revived. In one scene in FRANKENSTEIN the good doctor and his assistant cut down a body from a gallows and determine "its no good" since its neck is broken implying the brain is useless. In an earlier scene the doctor and Fritz exhume a freshly buried coffin for the body with the understanding that the fresher the better. Though a head may be damaged, with respect to Dr. Frankenstein, then the other body parts may be useful. In the case of John Elman in TWD, his revival began as quickly as possible after his electrocution, perhaps just a few hours after the event. In either way how death occurred in these two films the body was brought back to life by electricity.

Just to keep you scary readers up to date there are some other considerations about the nature and matter of death. Such examples are suspended animation and the so-called cryonauts (deep-freeze future). They want their newly dead bodies to be cryopreserved so when future technology is available they can be revived. Again, this forces us to rethink what we mean as dead. In many respects cryonauts want to achieve some sort of immortality. In addition to preserving whole bodies attempts have also been made to preserve organs, tissues, and heads. The hope is that sometime in the future death will be conquered.

Different cells in our bodies die at different speeds so the actual dying process can be quite lengthy. The organ that requires the most amount of oxygen to survive is the brain and without oxygen from 3 to 7 minues then brain damage can occur. When the heartbeat and breath stop the person is clinically dead. However, it should be noted that clinical death is reversible and that clinical death is not necessarily brain death. The point of no return is biological death which begins around 4-6 minutes after clinical death.

What happens to a body after death

All bodies undergo changes after death, some more than others depending upon a wide variety of circumstances. And there is a specific sequence by which change occurs. Change begins at the molecular level and then progresses to microscopic and eventually to gross morphology. Two main processes, putrefaction and autolysis, immediately begin to alter the body; either one may predominate, depending on the circumstances surrounding death, as well as the climate. Putrefaction involves the action of bacteria on the tissues of the body.

This process, prevalent in moist climates, is associated with green discoloration of the body; gas production with associated bloating; skin slippage; and a foul odor. Autolysis is the breakdown of the body by endogenous substances and proceeds most rapidly in organs such as the pancreas and stomach. In most instances both putrefaction and autolysis occur simultaneously and in temperate climatic conditions they can result in rapid degradation of the tissues and body. With the pancreas destroyed then no more insulin will be made effectively making the body diabetic. Upon revival if the pancreas is still damaged then the body will suffer from diabetes, which may explain why some revived creatures are so angry and in pain; their hormone levels are out of balance (see the article, “Hormones, the scariest of them all!” in Scary Monsters, issue #xx [Dennis, please add correct issue number here; thanks] ; get two copies and give one to a friend).

Within an hour of death all of the body’s muscles initially relax (called primary flaccidity). The eyelids relax, the pupils dilate, the jaw may relax and open, and all body joints are flexible. When all muscles loosen then the skin will sag making some bone structures more pronounced. When the heart stops beating the circulatory system stops and the blood pools and settles by draining from small veins and arteries (average human has about 5.6 liters of blood, about 6 quarts). Along with this the body will begin to cool from its normal 37°C degrees (98.6°F) until reaching room temperature. The cooling of a human body is down two degrees Celsius in the first hour and one degree each hour afterwards. The rate of cooling varies depending upon body location, such as shade versus sun, clothing, and the temperature of the room they die in. Someone would cool quicker if dying outdoors during the winter compared to someone dying in a desert. Fat or obese people lose heat slower than infants, who cool rather quickly mostly due to their smaller muscle mass. Otherwise, it takes the body about 24 hours to completely cool, or become the same temperature as its environment.

From the second to the sixth hour after death more settling of the blood occurs where parts of the body nearest the ground have a deeper purple color compared to surface skin. During this time chemical changes occur within the body and the muscles begin to stiffen, called rigor mortis (which is caused by a complex chemical reaction (involving lactic acid and myosin), which forms a gel like substance which creates the body's stiffness). Not all muscles stiffen simultaneously. The muscles in the eyelids, jaw, and neck stiffen first followed by those in the face and down the chest, abdomen, arms, and legs. The last to stiffen are the fingers and toes.

During the hours 7 to 12 after death there is the maximum rigor mortis stiffening of muscles throughout the body. The knees and elbows may be slightly flexed and fingers and toes can appear oddly shaped and pointed. Beyond 12 hours after death the chemical changes continues and the muscles begin to relax and loosen. Internal decay begins from the first to the third day, though this is highly

dependent upon external conditions such as temperature. Due to blood settling parts of the body will appear blue within 8-12 hours after death.

Though the body as a whole may be dead some things within the body are still alive. Some skin cells can be harvested up to 24 hours after death and all those microbes living within our guts will be alive for some time. It is these intestinal microbes, along with their enzymes, that cause decomposition of the body. The body becomes discolored, first turning a green, then purple, then black. The odors given off by decomposing flesh are quite scary indeed! Such decomposition reactions gives rise to gas which can cause a body to bloat, the eyes bulge out of their sockets, and the tongue to swell and protrude.

As noted, decomposing starts almost immediately after death with the skin going through several changes in colour as the blood stops circulating oftentimes leaving the body an ashen color. However since different cells die at different rates (e.g., brain cells die within a few minutes while skin cells can survive over 24 hours after death) the rate of decomposition can initially be somewhat slow. A week after death the skin blisters and can easily fall off. Within a month the hair, nails, and teeth can fall out. Internal organs and tissues will have liquified and eventullly evaporate off leaving only the skeleton.

Some think that fingernails and hair continue to grow after death but this is a myth. What actually happens is that the skin dries outs and pulls away from the nails and hair which makes them stand out more prominent, giving the illusion of growth. Some of the last cells and tissues to undergo decompostion after death are tendons and ligaments.

Decomposition in the air is twice as fast as when the body is under water and four times as fast as underground. A corpse left above ground is rapidly broken down by insects and animals, including bluebottles and carrion fly maggots, beetles, ants and wasps. A corpse can become a moving mass of maggots within days, even hours in hot climates. Approximately 150,000 maggots can be found on an exposed corpse.

In brief summary, it can takes decades for a body to decay, as there are many factors that affect the rate of decomposition, such as whether the person was embalmed or not, what type of casket and vault they were placed in (if any), humidity, heat, cold, soil type, water level, depth of burial, the availability of oxygen, accessible by insects or scavengers, body size and weight, clothing, the surface on which a body rests - all determine how fast a fresh body will skeletonize or mummify. A basic guide for the effect of environment on decomposition is given as 'Casper's Law' which determined that where there is free access of air a body decomposes twice as fast than if immersed in water and eight times faster than if buried in earth. People who have been dead for decades could still look fine whilst others of the same era are completely decomposed. There are just too many factors that affect the rate of

decomposition to give a definitive answer.

Brain death

The brain controls all body functions and yet there are three things the brain can not do. The brain can not feel pain within itself; the brain can not store oxygen so it must constantly be replenished; the brain can not store glucose (blood sugar) for an energy reserve and it too must constantly be supplied. The brain can survive up to about 6 min after the heart stops, meaning no more oxygen to the brain. Also, patients who suffer from brain death are not in a coma and those patients who are in a coma may or may not become brain dead. Those in a deep coma are considered to be in a vegetative state.

Those who are brain dead show the following: no response to command; the patient has flaccid or non responsive arms and legs; the pupils are unresponsive or fixed (no response from the optic nerve); no corneal reflexes meaning no blinking when irritated; no gag reflex; and no spontaneous respiration. Eventhough the patient may be brain dead there may still be some spinal cord reflexes such as knee jerks when pressure is applied to the hand or foot. This is somewhat similar to all those experiments of Galvani and galvanism.

Injured brain

A brain can be injured by either natural causes or by trauma and three possible results can occur: bleeding, swelling, or both. Brain dead by trauma can be either open (gun shot) or closed (blunt injury). There are also brain dead by anoxia (no oxygen such as by drowning, smoke inhalation), by a cerebral vascular accident (stroke, aneurysm, infection), by a tumor, or by a drug overdose.

Necrosis

Necrosis is caused by factors external to the cell or tissue, such as infection, toxins (such as venoms), or trauma (either physical such as with extreme temperatures or damage to blood vessels) that result in the unregulated digestion of cell components. In some cases the digestion and release of cellular components can result in inflammation that can prolong the necrosis as seen in extreme cases such as gangrene. Necrosis begins right after cell death.

All in all there are 5 types of necrosis. Coagulative necrosis is the formation of a gel-like substance in dead tissues primarily caused by protein degradation and mostly observed in kidneys, heart, and adrenal glands. Liquefactive necrosis is a viscous mass, commonly called, “pus”, composed of digested dead cells and typically comes from fungal or bacterial infections. Caseous necrosis is a combination of coagulative and liquefactive necroses and the dead tissues look like clumped cheese. Fat necrosis is when lipases in fatty tissues degrade dead cells. Lastly, fibrinoid necrosis is caused by immune response related vascular damage by complexes of antibodies and antigens that get deposited on the walls of arteries.

Resuscitation

Resuscitation is the bringing someone who is unconscious, not breathing, or close to death back to a conscious or active state again. Resuscitation primarily involves restarting the heart (cardiopulmonary resuscitation or CPR) or at least keep it beating. Though most probably think that CPR is usually performed in an effort to manually get the heart beating again the real purpose of CPR is to help preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in caridac arrest. And, as it happens, the best way to preserve brain function is to make sure it gets enough oxygen and to get enough oxygen the heart must pump blood into the brain, if not naturally then mechanically. Also, it should be noted that just CPR alone is not enough to restart the heart since the main purpose of CPR is to restore partial blood flow and therefore oxygen to the brain and other vital organs. Blood circulation and oxygenation of blood are required to transport oxygen to the brain and other tissues. The main objective here with resuscitation is to delay tissue death. To actually restore a beating heart an electrical shock or a defilbrillation, is needed.

Reviving the newly dead (or the long dead)

To revive the dead there are a few things that are important. First of all, the heart needs to beat so blood can be circulated. Without circulating blood then no oxygen will get to the brain and therefore, no reviving. The brain must be sufficiently cohesive that some normal physiology and function are present. The brain makes most of the important hormones in our bodies and this function must remain intact. In addition to oxygen there are also general nutritional needs that must to be addressed. You need fuel to make the body go. Though not particularly necessary it would be most helpful if all of the senses were properly working. You can certainly survive without taste, smell, or hearing, but it would be difficult. And the sense of touch would be useful too. A blind monster would not be especially useful (for example, the end scenes of Universal's GHOST OF FRANKENSTEIN where the monser went blind due to an autoimmune reaction from the transplanted brain). For general movement the muscles should be in good working order as well as the immune and digestive systems. Overall, normal physiology or a normal working body would be necessary for revival.

Frankenstein

The gentle readers who read "the only real monster magazine" are no doubt very familiar with the Universal Studios films, FRANKENSTEIN (1931) as well as THE BRIDE OF FRANKENSTEIN (1935), both filmed before TWD in 1936, so a plot summary should not be necessary. The Universal film is based on the book, *Frankenstein*, by Mary Shelley, first published in 1818. The screenplay was written by Robert Florey, Richard Schayer, and Francis Edward Faragoh, produced by Carl Laemmle, Jr, and directed by James Whale. The monster's makeup was created by Jack Pierce.

For the film, suffice it to say that Dr. Henry Frankenstein stitched together parts of other dead bodies and with the help of an electrical storm was able to successfully reanimate the monster into a fully functional creature. Eventually, after some mayhem the monster tries to get revenge on his maker and succumbs in a burning windmill. In addition to this oversimplified plot there are some scenes that are pertinant to this discussion that should be mentioned. After Dr. Henry and his assistant, Fritz, secure the stitched together monster to his gurney and raise him up into the sky for his electrical reanimation potentially thousands of volts of lightning are passed into the monster's body which elicited Dr. Henry's famous line, "Its alive!" The electrical gadgets visible in the lab consisting of various wires, capacitors, rheostats, resistors, and amplifiers processed the electrical bolts into the monster's body. However, it is unclear how much electrical juice, both voltage and amperage, actually entered the monster. Nevertheless, there was enough to give life to the stitched together body. Once the heart was started and the monster was alive no further electrical intervention was needed in this film. The heart is key since it would bring much needed oxygen to the monster's brain, albeit a criminal one (see the article, "Brains, Craniums, and Heads, Oh My!" in Scary Monsers, issue #81; yep, get two copies and give one to a friend).

Once the main torso of the monster's body was obtained Dr. Henry comments to Fritz, "just resting, waiting for a new life to come." Regarding the work of Dr. Henry as a student his mentor, Professor Waldman says, "his researches in the field of galvanism and electrobiology were far in advance of our theories here at the university. In fact, they reached a most advanced stage. They were becoming dangerous." As Dr. Henry is about to conduct his ultimate experiment he comments, "all the electrical secrets of heaven", before the moment of electrical creation acknowledging the importance of electricity in reanimation. Once the bolt of lightning hits the instruments huge sparks and electrical splashes appear indicating all of the assembled apparatus are being overridden and pushed to their maximum due to the strength of the bolt. And the lightning bolt does it job by bringing the stitched together body to life. Following the famous "Its alive!" comment by Dr. Henry he then goes on to blasphmously say, "In the name of God, now I know what it is like to be God!" Bringing the dead to life.

What is unknown is how long each of the monster's body parts have been 'dead'. No doubt some parts were dead before others. For example, Dr. Henry secured the main torso and, based on the visible scars, stitched on new hands. Which died first, the body or the hands? Most likely the main torso died first and all other body parts, be them limbs or internal organs, were added later. Apparently, the last item to be added was the brain. If the various body parts were dead for some time then internal decomposition had started with some necrosis visible. Perhaps Dr. Henry had replaced all internal organs with newly dead ones to eleminate decomposition issues. Hopefully, he had some sort of ice box nearby so he could better preserve the delicate tissues as he assembled his creation.

The Walking Dead

THE WALKING DEAD – 1936 (Warner Bros Pictures, Inc). This film is directed by Michael Curtiz and the screenplay by Ewart Adamson, Peter Milne and Robert Andrew, Lillie Hayward; story by Ewart Adamson and Joseph Fields. Warner Bros. Studios took advantage of the star power of Boris Karloff, hot off the recently released 1935 BoF film, and concocted a story about revenge that also uses the power of electricty, though at a more controllable level and not through a bolt of lightning. In the film, John Elman (Karloff) is a musician and wrongly sent to the electric chair for a murder he did not commit. The scientist in all of this is Dr. Evan Beaumont (played by Edmund Gwenn; "one of the world's greatest myrmecologists" in the gi-ant film, THEM! A myrmecologist is an ant specialist). In TWD Beaumont plays a cardiologist, a heart specialist. Beaumont's heart work is being done at the "Medical Sciences Foundation Research Laboratories". While looking at one particular experiment an associate says, "Imagine Dr. Beaumont keeping the heart pumping for over two weeks", thereby setting the stage for what is to follow.

In the film the Elman character appears to be taller for two reasons, one real and the other made up. In some scenes, particularly those filmed after Elman has been brought back from the dead by electricity, Karloff is wearing lifts in his shoes thereby making him look taller. And, accorging to the Warner Bros pressbook on the film, a man's body grows about an inch longer after electrocution (pressbook "facts" should always be looked at with a skeptical eye if not two skeptical eyes. Or, if you are like 'Marty the mutant' from the film, THE DAY THE WORLD ENDED, then you can look with *three* skeptical eyes!).

"I didn't do it!" said the piano man

In TWD Karloff plays a pianist who is framed for the murder of Judge Shaw by racketeers and is sentenced to death by the electric chair. During the trial Elman passionately says, "I tell you, I didn't do it!" Later, Elman tells the warden, "I want to live", which is in striking contrast to his comment mentioned later in the film of 'belonging in a graveyard' (see below). Immediately after hearing that Elman was killed by electrocution Beaumont asks the Governor to call off the autopsy. Elman was electrocuted at midnight and within a few minutes the autopsy was called off. It should be noted that Beaumont understood the time constraints of working with the newly dead since each minute that lapses is one more minute of decay and putrefaction of a body so he wanted the body immediately after execution before too much irreversible decay occurred. Beaumont acted immediately "without a second to loose" as he accurately stated in the film. For Elman's recently dead body most likely minimal rigor mortis set in and there was little if any putrefaction and autolysis. The time from his electrocution (midnight) until he is placed on a heart-lung machine (early morning) was no more than a couple of hours so there was minimal if any decay. However, some blood pooling should have occurred since the body was laying flat right after the electrocution as it was being transported to Beaumont's lab. Nevertheless,

Beaumont wants the untouched body of Elman to conduct his resuscitation experiments and wants to try to revive Elman as a followup to the experiments he was doing in his lab.

Regarding Beaumont's revival plans an attending nurse says, "Its impossible (to revive Elman). He was electrocuted." Meaning his brain was fried. Once in Beaumont's lab early that morning, Elman was immediately put on a heart-lung machine to keep oxygen pumping to his brain. This would have taken care of the blood pooling issues and could have delayed if not stopped the putrefaction steps. Reversing what putrefaction did occur would require active metabolism, meaning a resuscitated Elman. Considering the time involved Elman was most likely without oxygen for about an hour, depending upon how quickly the body was transported to Beaumont's lab, before he was placed on the heart-lung machine.

Electrical stimulation

Resuscitation of a man killed by electrocution would certainly be difficult primarily due to the severe destruction of not only the brain but the heart too (see below). Being brought back from the dead via electricity (galvanism?) in TWD is just like Frankenstein's monster who is also revived via electricity, though in the latter case by a bolt of lightning. So, in these films Karloff comes back each time via electricity. Also, in both films the Karloff character is strapped to a gurney with the respective wires and other gizmos working feverishly to bring electricity to the moribund body. To revive Elman surges of electricity were shot into him. It should be noted that Elman wears a metal skull cap (similar to that worn when he was electrocuted), had metal clamps on each wrist, and ankles, and had metal tubes covering each finger that most likely had to do with the electrical stimulus he was getting. In this respect these finger tubes served the same purpose as the neck bolts in the Frankenstein monster in that electricity entered and passed through the body with these devices.

While on the gurney an acrylic box helmet-like covering is placed over Elman's head. Most likely this served as a pseudo hyperbaric chamber that delivered a high concentration of oxygen to help the revival process. A respirator cup placed over the mouth would be just as useful in delivering oxygen though nowhere near as dramatic.

For a bit of over dramatization, in TWD the gurney Elman is on slowly rocks back and forth like a teeter totter during the electrical stimulation. One possible explanation of this physical movement is an attempt to help blood circulation and bringing oxygen to the brain. Also, perhaps this movement could assist with the heart beating. Furthermore, the gentle rocking could help move body fluids around to assist the heart to begin steady beating. At the least the rocking could help dissolve the blood pooling seen with the newly dead. In some ways, this rocking could be seen as an early example of what is routinely used now, namely CPR. The real purpose of CPR is to keep oxygen flowing to the brain. It should

be noted that no such rocking is seen in FRANKENSTEIN so perhaps the power of a lightning bolt was sufficient to shock the heart into starting so no rocking was needed.

“Its alive!”
Sure enough, after some dramatic rocking, Elman’s heart began to beat again. After the successful operation Dr. Beaumont makes the declarative statement, “Its alive! He will live.” [note the use of the word, “It”.] Then a radio announcer states, “Modern miracle performed by Dr. Beaumont” followed with the comment by a reporter, “The most incredible achievement in the history of medical science.” The banner of a newspaper states, “Ellman ‘brought back’ to life!” with the subheading, “Science baffled as electrocuted man lives again.” It should be noted that Beaumont himself refers to Elman as “The man who returned from the dead.” In terms of timing, one newspaper headline says it all, “Electrocuted last night, lives again today”.

Right after Elman was revived a closeup of the right cheek side of his face is seen showing a dramatic movement of a seemingly ‘caved in mouth’. In real life Karloff had a teeth bridge (a denture plate) on the right side of his mouth. This was taken out during the filming of FRANKENSTEIN which is why the monster’s right cheek is caved in. The Karloff character, Elman, in TWD also has his right teeth bridge prosthetics removed thereby causing his right cheek to also cave in. Newly brought back from the dead and still on the gurney we see a closeup of Elman’s right side face and he heavily breathes which dramatically causes the right cheek to swell and collapse resulting in an effectively gruesome and ghastly visage. None of this has anything to do with his resuscitation.

It is of interest that after being revived Elman is lethargic with minimal movements indicative of a not quite fully functional brain and perhaps a few stiff muscles. Also, Elman has amnesia since he can’t remember (or refuses to state) his name or why he is there. Perhaps his brain was deprived of oxygen for too long from the time of his electrocution to his revival so the subsequent recovery period was therefore slow due to some brain damage. His overall demeanor is one of slow passiveness. All in all this is not especially surprising since an electrocuted body would not have much intact including a fully functioning brain. Many of the internal organs, including the heart, would be quite fried.

Beaumont asks the revived Elman, “You were in another world. Don’t you remember anything?” Then, “Do you recall anything of that world before you came back?” Beaumont wants to know Elman’s experiences while dead and what the experience of death has on the mind. Elman is unable to answer any of Beaumont’s questions. However, in spite of his limited mental responses Elman has enough sense to seek out those who framed him to make sure he got his vengeful justice.

The Laboratory of TWD

The chief scientist in TWD, Dr. Beaumont, a cardiologist, works at the Medical Sciences Foundation Research Laboratories. His science colleague, Jimmy, while looking at a cardiology experiment comments on Beaumont's heart research, "Imagine Dr. Beaumont keeping this heart pumping for over two weeks." [note: the heart appears to be a cow heart. Quite a bit of cardiology work on cow hearts was done during the early 1930s, an important element of heart research at the time, so the writers and producers were contemporary in this plot aspect of the film.]

Beaumont's laboratory at the Foundation is a nice setup with two large, well-equipped rooms full of copious glassware, multiple racks of test tubes, bottles of chemicals, microscopes (with one under a glass bell jar), and other assorted bench bling. Some of the glass vessels were cotton plugged indicating they were sterile and most likely contained biological samples. Included along with the heart-lung machine are elaborate electrical apparatus and machinery. In the lab is an unusual device that shoots off large amounts of steam; its purpose unknown. Visible on the lab benches are nice microscopes, an autoclave, gas cylinders, several shelves of chemicals many of which are in dark glass containers to reduce exposure to light. Also present was a glassware wash station, something rarely seen in any SF lab. Later, we see a small heart in an elongated glass vessel that appears to be beating (see below). The many chemicals and abundant elaborate glassware are suggestive of working on small molecules and simple-to-purify reagents. Also, there are several glass tanks and vessels filled with liquids most likely buffers and reagents to supply nutrients for the heart research.

Charles A. Lindburg and the artificial heart

The primary reason Elman is brought back to life by Dr. Beaumont is because he (Beaumont) wants to know what happens to the soul after death. During the resuscitation procedure an elaborate lab setup is seen where a primitive heart-lung machine is used to stimulate the heart and provide much needed oxygen to the brain. Multiple pumps and liquid transfer vessels interconnected with rubber tubing were seen as background. As colleague Jimmy says, "Keep that Lindburgh heart pulsating. See that is doesn't stop." Note: Charles A. Lindberg (1902-1974), famously known for his transatlantic flight in May, 1927 was also interested in cardiology during the early 20th Century and actually helped to invent an artificial heart. He did this work after his famous flight. His sister-in-law was fighting against what proved to be fatal mitral stenosis (narrowing of the mitral heart valve) in 1930 so Lindburg wanted to know why, at the time, it was impossible to surgically fix a damaged heart. Amazing as it seems, along with Nobel Prize winning Dr. Alexis Carrel at the Rockerfeller Institute, Lindburg helped to invent the aritfical heart. Lindburg and Carrel developed a system to keep organs alive outside of the body by circulating nutrient-rich fluids through them. They eventually perfected a glass perfusion pump that could maintain a heart in a sterile environment. This breakthrough helped other scientists eventually create the first artificial heart. The film, TWD, was produced in 1936

so the writers using the “Lindburgh heart” term were very contemporary with new biomedical advances and quickly incorporated such findings into their plots.

Two ways are seen showing the newly beating heart of Elman; one is via glowing neon lights in the shape of a heart and the second (impossible) way is showing a beating heart on a chest x-ray. (Chest x-rays are static images like a photograph and showing a beating moving heart on a static image is impossible.) Also, the exposure time of an x-ray is short, too short to record the beats of a heart. In reality, a fluoroscope would be used to see a beating heart in real time. The use of a mechanical heart by Dr. Beaumont to keep pumping oxygen to the brain to resurrect Elman predicted the time when such procedures are common. Mechanical hearts are used to keep a patient alive when their own heart is being operated on. These mechanical hearts pump blood through the body thereby maintaining essential physiology and delivering oxygen and nutrients to the brain.

Blood clot amnesia

An x-ray shows a “blood clot” in the hindbrain of the revived Elman and while examining this x-ray, Beaumont says, “Except for this blood clot (shown located in the lower portion of the rear of skull in the x-ray) Elman is apparently sound” so he is unsure as to why Elman has amnesia and is so lethargic in his movements. A blood clot would be very difficult to detect on an x-ray and not as obvious as seen in the film. It should also be noted that an x-ray of the skull would not be particularly revealing about a functioning brain. There are other tests such as an EEG (electroencephalogram) that would be much better in understanding the condition of Elman’s higher brain functions. The implication is the blood clot is the cause of the amnesia. The main reason for bringing Elman back from the dead is so Beaumont can know, “What affect did the experience of death have on his (Elman’s) subconscious mind?”

While alive Elman was a musician, in particular a pianist. At a piano recital for Elman, Beaumont introduces his newly revived “walking dead” patient as “the man who returned from the dead.” After dispatching some of those who framed him for murder (as Beaumont says to the district attorney, “taking justice in his own hands”) Elman ends up at the Jackson Memorial Cemetery. When asked why he is there he responds, “Its quiet. I belong here.” It is amusing that at the cemetery the two remaining racketeers who framed Elman shot him 7 times with a 6-shooter! (Can Beaumont revive Elman again? Apparently not since one of the bullets is a head shot.) One is tempted to interpret Elman’s seemingly haunting post-revival performance after being resuscitated as somewhat unhappy and hollow since he has seen Heaven when dead and was taken from there, without his permission, and brought back to Earth. Elman longs to return and dying again would be the quickest way there.

While dying Elman says to Beaumont, “Leave the dead to their maker. The Lord God is a jealous God.” Certainly an enticing tidbit that would pique the interests of anyone.

The Frankenbrow and other similarities

Several scenes in TWD show John Elman looking very much like the Frankenstein monster. The various camera angles, closeups, and the way Karloff's face was lit in TWD all closely resemble scenes in FRANKENSTEIN. Eliminate the eyebrows and the profile shot is difficult to tell the difference between the monster and Elman. You can not mistake that brow! One wonders if this is Karloff's natural brow or was it perhaps enchanced by the Warner Bros makeup crew so it subtly resembles the Frankenbrow? Overall, the Karloff brow seems more pronounced in TWD than in his other films. Perhaps Warner Bros wanted to capitalize on the "Karloff look" familiar to theater audiences from his Universal Frankenstein films and both filmed and lit certain closeup scenes in TWD so he dramatically looked like the monster from FRANKENSTEIN as well as from THE BRIDE OF FRANKENSTEIN. Furthermore, in perhaps a nod to the Bride's hair makeup in BOF, the Elman character, after being revived from the dead, also sports a streak of gray hair on the top right of his head. Warner Bros definitely wanted to exploit the well recognized Karloff look from the Universal films and certainly achieved this effect. Even the facial expressions of the monster and Elman are similar. Put bolts on Elman and he would look just like the monster. The similarities of the Karloff images in the two films are indeed striking.

The similarities of both films goes far beyond the Karloff image. In both films the protagonist is born/revived by electricity, a form of Galvanism. In TWD the Elman character has those typical Karloff sunken mornful eyes, that mentioned Frankenbrow, as well as the missing teeth bridge giving his right cheek a sunken hollow look. It is also noteworthy that at the end of the film, TWD, two of the racketeers who framed Elman crashed their car into a telephone pole and electrocuted themselves from the wires (would Dr. Beaumont want to revive them too? Perhaps a sequel, TWD: 2 Racketeers?).

A comparison of Karloff's dialog in the films also shows quite a dramatic connection. At the end of the film, THE BRIDE OF FRANKENSTEIN, the monster, played by Karloff, says with his hand on the lever, "We belong dead" and in the film, THE WALKING DEAD, the Karloff character, Elman, also says, "I belong here", referring to a cemetery. Almost like the WOLF MAN'S Larry Talbot who simply just wanted to die, both the monster, from BOF, and Elman also just wanted to die.

Warner Bros vs Universal.

The Universal films, FRANKENSTEIN and THE BRIDE OF FRANKENSTEIN, were filmed in 1931 and 1935, respectively and the Warner Bros film, TWD, was filmed in 1936 so the difference in time of production is minimal. The two electrical scenes are dramatically different in each film that belie the time of production. The Universal films relied on electricity from lightning, something difficult to control accurately, that stems from the early days of galvanism. In the

Warner Bros film, TWD, the electricity scenes were more controlled and therefore more scientifically believable. Though both the monster and Elman were reborn with electricity how this electricity was used is, pardon the pun, poles apart. One is natural and the other is man made.

It is interesting to note that the composed music for both FRANKENSTEIN and TWD were arranged by the same composer, Bernard Kaun. Also, the music score for Elman's electrocution revival interestingly mimics the creation score for BOF. The piano recital that Elman gives after he is revived is Anton Grigorevich Rubinstein's "Kamenniy-Ostrov". Furthermore, the revival scene in TWD closely mimics the creation scenes in FRANKENSTEIN and BOF. The parallels in the two films are extensive.

Another interesting comment pertains to how each individual film approached the theme of death and reivival. In TWD the main purpose was not to defeat death, which was clearly done, but, rather, to understand the 'other side'. Whereas in the film, FRANKENSTEIN, the main purpose was indeed to defeat or even to cheat death and stitching together newly dead along with long dead parts made it all seem so real.

Conclusions

The 1930s were a busy decade for Boris Karloff and about 80 years later we are still appreciating the screen work he did. The fame he achieved from FRANKENSTEIN catapulted him into many other like-minded films of a fantastic nature with THE WALKING DEAD being high on that list. The use of electricity to revive the newly dead and the revenge motif all compare favorably in the two films. In addition to revival by electricity and revenge motives there are many similarities in the Karloff character in the two films. The facial features at some angles, especially the profile shots, and lighting are eerily similar as well as his famous walk not to mention that quite famous Frankenbrow. In this respect, Boris Karloff is indeed the Walking FrankenDead.

Thanks for reading. Its back to the lab for me. Stay healthy and eat right.

FIGURE LEGENDS

Image 1 – Title card for film, FRANKENSTEIN

Image 2 – Dr. Henry Frankenstein pleased he has found another body to bring back from the dead.

Image 3 – Dr. Henry admiring his suture work in attaching a hand to the monster's body.

Image 4 – The penultimate moment when Dr. Henry sees his creature come to life.

Image 5 – A comparison of the monster and Elman. Pure Karloff.

Image 6 – A comparison of two scenes from each film in which the side profiles of Karloff look very similar in spite of the makeup differences.

Image 7 – A comparison of the two Karloff characters. That Frankenbrow is unmistakeable.

Image 8 – Title card for the film, THE WALKING DEAD

Image 9 – The laboratory of Dr. Beaumont. Shown in this scene are two lab assistants who are monitoring a beating cow heart. “Imagine Dr. Beaumont keeping the heart pumping for over two weeks.”

Image 10 – An amusing chest x-ray of Elman showing a heart-shaped heart! In the film this heart is actually seen beating in a static x-ray image.

Image 11 – A small heart (rabbit?) that is beating in a Lindburg chamber. In the film the fluid is seen flowing over the organ providing nutrients and oxygen to sustain the tissues. The forced flow of vital nutrients is called perfusion.

Image 12 – Dr. Beaumont and an assistant looking over the soon-to-be resuscitated Elman. Note the familiar side profile of Karloff.

Image 13 – An amusing x-ray image supposedly showing a blood clot located at the rear base of the skull. No blood clot would be that opaque.

Image 14 – Elman after being revived now sporting a streak of gray hair, suggestively similar to that of the Bride in BRIDE OF FRANKENSTEIN.

Image 15 – View of Elman as he is about to give his piano recital. Again, the side profile is quite Frankenstein in appearance.

Image 16 – Side profile of Elman in the resuscitation device in TWD. The metal skull cap is supposed to help deliver an electrical charge through his body.

Image 17 – Side profile of Elman just after his revival. His right dental implant has been removed, similar to what he did in FRANKENSTEIN, showing a caved in cheek. Not relevant to the scene but creepy and effective nevertheless.

Image 18 – The moment of triumph for Dr. Beaumont when he realizes Elman is alive, “It’s alive!” he exclaims. Quite similar to the scene of Dr. Henry in FRANKENSTEIN.

Image 19 – Another Karloff death scene from TWD (he gets two in this film). Laying on his death bed (for the final time) the side profile shows that striking Frankenbrow.