

Scary Science on Blood Island

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The four Blood Island films are:
Terror is a Man (1959)
Brides of Blood (1968)
Mad Doctor of Blood Island (1969)
Beast of Blood (1970)

Introduction

On everyone's vacation destination list is Blood Island, a wonderful resort place of relaxation somewhere in the Philippines where mad doctors, mutated creatures, green blood, green beasts, man eating trees, and panther men roam free! Recently, a Blu-Ray edition of the four films featuring Blood Island was released and this article will delve a little deeper into the mysterious goings on at the island. The Blood Island fearsome foursome films consist of *Terror is a Man* (1959), *Brides of Blood* (1968), *Mad Doctor of Blood Island* (1969), and *Beast of Blood* (1970) and are a series of mostly Filipino horror films directed by the team of Gerardo De Leon and Eddie Romero between 1959 and 1970.

TIAM is a prequel to the Blood Island films which were produced during the 11 year time frame with TIAM being first in 1959 followed by a near ten year gap when the next one, 'Brides', was produced. The latter three films starred John Ashley. In one respect these later three films, those produced during the 1968-1970 time frame, could be referred to as the 'Chlorophyll Island' films.

Terror is a Man (1959)

Written by Harry Paul Harber.

Dr. Gerard (Francis Lederer), a Manhattan surgeon, isolates himself on an island in the Pacific, 'Ysla de Sangre', so he can conduct experiments on the evolution of man. It is noted that in the film the island and its people appear Polynesian. Gerard says, the island is "about a thousand miles off the coast of Peru"; nowhere near the Philippines. The only island even close to being a thousand miles off the Peruvian coast is Easter Island which itself is about 2300 miles off the coast of Chile. The Galapagos Islands are only about 560 miles off the coast of Ecuador. There is no Ysla de Sangre in real life but there is one in the Mortal Kombat game. TIAM is essentially a take on H.G. Wells', *Island of Dr. Moreau*.

Moreau worked on all sorts of animals for his work whereas for Gerard's evolution experiments he performs multiple surgeries on a single panther in order to make it human.

To justify his work Gerard says, "Man breeds animals for his own purpose, grooms them, modifies them. He speeds up the process of natural evolution. Why not use the same principle to improve the human race?" (Not only animals but plants and other forms of life have also been purposely genetically modified. Think of GMO (genetically modified) foods.) If you accept Gerard's premise of wanting to create a higher more perfect man then why start with a panther? What qualities of a panther would help Gerard achieve his goals? If you could choose any animal to start with would you choose a panther? (I would not.)

Gerard further conjectures, "Man's mind is not his own. It is completely dominated by complexes, anxieties, fears, and prejudices on countless generations before him. That is why I have chosen the animal to be the father of a new race of man. He alone will have a new fresh mind capable of thinking his own thoughts with complete objectivity." Here, Gerard is confusing nature with nurture. His new race of man will most likely also develop the same psychoses.

At the start of the film, Fitzgerald, sole survivor of a freighter shipwreck, lands on Gerard's island. Due to panther man killings the island villagers (about 50 to 75 people) all get in boats and leave for another island (go to neighboring fictitious Ysla de Santa Cruz?) so when Fitzgerald lands he finds an empty village. The villagers left because "they were afraid" of the panther man killing more.

Operation game

Gerard says he performed "53 major operations" on his panther man over a two year period ("...and a dozen years before that, learning, experimenting") which amounts to an operation every 13 days! This provides no time for effective recovery or rehab. The bulk of these 53 operations would involve bone, muscle, and skin not to mention brain surgery. As such Gerard would have to solve such issues as tissue rejection, muscle regeneration, neuromuscular interactions, and bone socket and joint replacements. Not to mention the pain and stress from these procedures. Gerard's wife, Francis, a nurse, refers to the panther man as a "pitiful creature" and comments, "It has known nothing but pain and fear." Those island inhabitants call it a "black devil". When we see the panther man he is covered with bandages like a mummy and whenever there is a new operation these bandages will have to be removed; quite awkward and time consuming.

To change or not to change

Others have attempted to change man through the use of glands, hormones, serums and/or DNA (Dr. Jekyll comes readily to mind). Gerard hopes to achieve the same results solely through the use of various surgical procedures, similar to what Moreau tried to realize. It would be easier to achieve the desired results through the manipulation of DNA instead of all the complicated, painful, and

problematical surgical operations of Gerard (or Moreau). Surgery may alter nature but it will not alter nurture.

Gerard's lab

Gerard's multi-room home on the island is huge and made of cement and bricks, all of which had to be imported. He has his lab and surgical suite inside his house. The lab itself has lot of expensive surgical equipment which was also brought to the island (from Manhattan to off the coast of Peru means everything had to be shipped through the Panama Canal; expensive indeed!). Gerard's office has shelves of (medical?) books as well as animal skeletons and taxidermy birds. Titles of some of the books seen are: *Osteology*, *Phalanges of the Hand*, and *Changes in Diameter and Thickness of Red Corpuscles*. Also visible are well executed hand drawings of a transformation of a panther (puma) to man (drawings are always better than the real thing).

Gerard's well-equipped surgical suite has several pieces of expensive equipment that takes a lot of power to run so he must have his own generator. Some of these items include a refrigerator (store IV fluids, blood), an x-ray machine (!; he must also have a darkroom for developing the x-ray film), various gizmo boxes, anesthesia capabilities, heart monitoring equipment, autoclave for sterilization, several gurney tables, multiple pieces of glassware, gas tanks, Bunsen burner (where does the gas come from?), chemicals, purification equipment, and a sink with running water. In general the surgical room does not appear especially sterile. In one scene where Gerard and his assistant prep for surgery they are seen washing hands and gowning up (gloves and face mask). During all this and also during the surgical procedure Fitzgerald remains nearby, 6-10 feet away, who is neither gowned nor hand washed.

Regarding the practice of surgery Gerard comments, "...one of its functions, repairing damage to a human body, removing malignant and fully functioning organs, and transplanting tissue and bones from one part of the body to another. Sometimes from one body to another...basically, surgery has remained primitive. Limited. Its potential can't even be imagined by medical men. I can imagine it though. And surgery is only a part of my work, a small part." Then, Gerard further explains, "I began thinking about this in medical school. Actually started working on this about 10 or 12 years ago. Simple work at first on small animals. Skin and bone grafts. Later I attempted alterations of major organs. I had many failures but there was a percentage of success to some degree so I kept on trying...to bring about the modification of a species. But a modification to such a degree that the subject will loose the characteristics of its own species and take on those of another....I don't mean surface or topographic changes but basic modifications...it is evolution." Then adding, "Surgery can alter appearance. You can change a rat into a rabbit but the real difference lies in the brain, its size and function. There is where the change has to be made." After hearing all this Fitzgerald replies, "You can change the size of a brain, cause it to enlarge?" Gerald continues, "Enlarge and actually alter cellular structure. By the use of

certain chemicals I developed. It's a synthetic. Similar to a glandular extract (read: hormones). Now infinitesimal amounts of this chemical injected directly into the brain during surgery will bring about alterations of the individual cells, cell division and cell growth. I can control the size of the brain. I can control the function of the various areas...I can alter living matter, alter it basically, from its smallest unit to its largest. From one cell to many trillions." All in all an interesting history lesson to describe Gerard's work over decades. Injecting a chemical directly into the brain before, during, or after surgery would not make much difference. Changing brain size is relative to the size of the cranium used to hold the brain. Controlling the function of various brain areas implies some sort of mental imprinting which requires nurturing to fully develop.

The synthetic chemicals Gerard developed to bring about alterations in brain cells must be hormone based. A cocktail of hormones can stimulate DNA expression and change protein composition and therefore structure and function. Since he injected his hormone cocktail directly into the brain then local brain cells should be affected. What Gerard is doing is two-fold. He is changing the physical appearance of the panther man through surgical procedures and trying to change brain structure and function by using his synthetic hormone chemicals.

Fitzgerald asks, "Dr. Gerard, the changes in evolution have come about through a process of natural selection...but in your work the selection isn't nature though it's yours, your choice." Fitzgerald then asks, "What is it you are trying to do?" Gerard replies, "To alter certain functions." It should be noted that altering functions may be changing nature but not nurture.

Panther Man

Starting with a panther Gerard eventually gave the creature arms, hands, and legs. This begs the question of which surgeries came first? Though the creature has a body of a man it also has the face of a panther complete with cat's whiskers. After seeing the creature Fitzgerald comments, "I saw his eyes and there was a soul there. I call him a man." The creature's eyes looked human and not that of a cat since the iris was round like a human's and not oval like a cat's. It was also stated that the panther man "is terribly strong".

Regarding his panther man work Gerard says, "If he has a soul I gave it to him...I am a scientist not a philosopher. I can not concern myself with the moral aspect of my work." To emphasize his success Gerard further adds, "Man evolved from an animal in less than two years...The panther man still has instincts which can't be removed with a scalpel. I shall succeed in creating a higher, more perfect man...What I have done here is not for myself but for humanity." For Gerard, like all mad scientists, the end justifies the means.

Since the panther man still retains its animal instincts then one wonders what advantage does Gerard's experiment in evolution really provide? Also, which instincts are still retained? The desire to hunt and eat prey? The ferocity of a

panther when confronted with danger? Such instincts could be difficult to deal with socially. In spite of innate instincts Gerard teaches panther man to speak who says the word, "man" and for this to happen would require extensive vocal cord surgeries. In the end the panther man and Gerard both perish.

Brides of Blood (1968)

Written by Cesar J. Amigo

It is stated in this film that 'Blood Island' is an island in the Phillipines, "300 miles from the closest major island". The natives on this tropical island have to contend with mutated man-eating plants and animals. These mutations are caused by radioactivity from atomic bomb tests. A scientist, Dr. Paul Henderson (Kent Taylor), his wife, Carla (Beverly Powers), and colleague, Jim Farrell (John Ashley), visit the island for research and are caught by the mutations.

For his research Henderson brought a modest amount of biomedical equipment with him, including a nice 1930s-1940s style monocular microscope. While exploring the island he finds some sort of a mutated "land crab" and keeps it as a specimen. Henderson also found some unusual plants that have moving parts, like a root branch, that freely moves around. Other plants shoot a pink mist when someone walks too close. For all this action to happen would mean the plants have developed some sort of sensory system brought about by the mutations. Not sure if these sensory systems are chemical based (sense odors) or physical based (sensing ground vibrations as someone walks by) or maybe both.

The moth

In a room Henderson sees an unusual moth and immediately comments, "a tropical variety of the tineidae" (these are a family of moths in the order, Lepidoptera, known as fungus moths or tineid moths. Most common members are cloth moths, those pests who destroy clothes in closets.) This particular moth is much larger than typical tineid moths so it most likely is another unidentified species. What is unusual is this moth changes shape and coloration all while flying around (you can clearly see the strings holding it up). In an aggressive move this moth bites Henderson's hand, something moths do not do. Also seen is a mutated cockroach "with horns". The comment was made that these mutations do revert "back to their original nature" after a time. This suggests the mutations are not permanent DNA-based but temporary hormone-based. Most likely, some sort of hormonal 'trigger' causes these mutations to form and when the trigger effect is gone the mutations revert back to normal. In nature, when moths and insects change it is permanent and not temporary.

Atomic bomb tests

It was postulated that radiation fallout from Pacific Ocean atomic bomb tests came to the island causing all the mutations. Henderson naturally asks "Why haven't the people been affected by the bomb tests?" Furthermore, why just a

few select species seem to be affected by the radiation and not others . Henderson continues saying, “It seems some organisms on this island are undergoing drastic mutation.” As noted, some organisms more so than others. What is of interest is not all organisms underwent mutations so why were some more resistant to the effects of radiation than others? Once again, this radiation caused selective mutations in some species, plant and animal, and not others. What is the reason for the selectivity? Perhaps the answer has to do with the size of the species affected by radiation. Smaller species may be affected more profoundly than larger species, like man. Smaller species can accumulate radioactivity more quickly that can then bring about the mutations. Also, smaller species tend to have a shorter gestational period so mutations in offspring can be readily and quickly seen. In addition, due to dilution and spreading in the atmosphere perhaps just enough radiation fallout reached the island so only a few highly susceptible species were affected.

Henderson comments, “This island was on the fringe of the atomic radiation area during the bomb tests of the late forties (i.e., 1940s; the Phillipines are the most West “fringe” of anything in the Pacific Ocean). I found a crab, a ordinary land crab, that had undergone some kind of mutation and also manifested a very high degree of radioactivity...a mutation, an inexplicable organic variation in animal or plant life.” To manifest a high degree of radioactivity would mean the crab had to absorb radioactivity and store it somewhere in or on its body. With constant absorption of radioactivity the crab would be constantly mutating and emitting radiation. The crab’s outer shell would be sturdy enough to block all emitted alpha radiation so only beta or gamma radiation would penetrate through the shell and be able to be detected.

Powers of the monster

Esteban Powers, head of the plantation on the island, has epileptic-like symptoms and takes medication for it. Powers is older than he looks (looks 30 but says he is 50-ish). It is Powers who turns into the monster through mutation and shape-shifting events and then back to Powers, sort of like a Jekyll and Hyde transformation. He does this several times during the film. As a monster the mutated Powers takes women as a sacrifice to “satisfy his needs”. As a man he seems completely normal and attentive to those around him. Such a shift in shape and temperament are typically caused by hormonal changes.

The Root Cause

While people are walking around the island a large tree captures them with its moving root branches. These branches are low to the ground and not up in the tree canopy so they appear to be root like. The radiation-induced mutations in this tree appear to be on these root branches that allow them to move and not other parts of the tree such as the canopy. For these root branches to grab and kill humans would require sensitive sensory systems to recognize prey. For plants to move they must have some sort of ‘push me, pull you’ mechanism that involves altering turgor pressure, the pressure in branches that gives stability in

addition to what natural bark would provide. Increasing and decreasing turgor pressure, a potential hormonal event, could allow branches to move. The ability to sense a living organism worthy of capture requires interactions between plant hormones and plant physiology. When root branches are cut red 'blood' comes out; the blood must be under pressure to ooze out so quickly (is there a blood pump in the tree?). These root branches capture, tear apart, and consume (?) humans. What is unknown is how do these trees digest prey? Not to mention clothing and jewelry of the victims.

In the end, the Powers monster attacks Carla and kills Henderson. The monster himself is killed in a fire.

Mad Doctor of Blood Island (1969)

Written by Reuben Canoy.

This film begins by having those watching take the Oath of Green Blood. A commentator starts by saying, "The green blood potion has been known to passionately affect young people after drinking it". While the words scroll down you are supposed to read out loud the oath: "I, a living, breathing creature of the cosmic entity, am now ready to enter the realm of those chosen to be allowed to drink of the Mystic Emerald fluids herein offered. I join the Order of Green Blood with an open mind and through this liquid's powers am now prepared to safely view the unnatural green-blooded ones without fear of contamination." A fun and scary way to start the film.

Dr. Loka is the main protagonist with Dr. Foster (John Ashley) and his assistant, Sheila Willard (Angelique Pettyjohn), visiting the island for research. Someone asks Foster, "Are you a doctor?" Foster replies, "Well, sort of, a pathologist." (Such a comment mistakenly suggests pathologists are not real doctors!). Foster sets up a small lab at a home on the island comprised of a few simple pieces of glassware and a subpar microscope. For a pathologist the microscope is the number one tool they use and great care is given to these instruments. This inadequate microscope of Foster's is not especially useful for his work and, for a pathologist, is like a hunter using a derringer to kill deer. Quite ineffective. Foster uses this microscope to analyze blood taken from island natives and monsters.

Green monsters.

As the film title states, the action occurs on Blood Island, somewhere in the Phillipines. Early on a man escapes from Blood island on a raft and later found. He bleeds green blood. The monsters seen in the film have bright greenish scaly skin with what appears to be severe green eczema or skin eruptions. Skin is composed of three layers, epidermis, dermis, and subcutaneous tissue and it is unclear which layer or layers of skin are involved in these eruptions.

The reason for the green skin is “chlorophyll poisoning”. Also, in addition to skin their blood is green. Upon noticing this Foster comments, “Do you think chlorophyll accounts for the pigmentation? It’s a little unusual, isn’t it?” (unusual is not a word I would have chosen. Impossible comes readily to mind.)

In a detailed discussion between Loka and Foster about the main monster Loka explains, (the monster is) “A man or someone who once was a man. He was dying of leukemia...I was doing research on the medical uses of chlorophyll (see below). On this island I found a rare plant. It yielded a particular strain of chlorophyll capable of being absorbed into the composition of human blood with remarkable effects. One of these effects was the ability to insulate red blood corpuscles against the erosion of leukemia. At least for a while...I was ambitious, perhaps recklessly so but he gave me an opportunity I could not resist...at first your father responded to the treatment very well. He regained his health quickly and for a time even went beyond that. He seemed to be regaining his youth not only in terms of appearance but physical vitality as well. Even his emotional attitudes underwent a remarkable change. He fell in love with a maiden from the village, Marla...he began to show alarming, side effects. Strange eruptions of the skin, fits of melancholy, violence. His complexion took on a distinct green color. In less than a year he was certifiable insane.” This would suggest chlorophyll did more than be absorbed into skin since it also brought about some mental and emotional issues too.

Another important component is the frequency and amount of chlorophyll used by Loka to treat his patient. Was the chlorophyll given orally or by injection? If by injection, was it a one time injection or were there repeated injections over a period of time? If by injection then how often? Lastly, were there any impurities in the chlorophyll Loka used which could have brought about some unwanted side effects?

“Absorbed into the composition of blood” deserves comment. What this implies is a genetic involvement which would allow chlorophyll to be a permanent part of red blood cells (RBCs). Essentially making chlorophyll as permanent in RBCs as hemoglobin is. For this to occur the chlorophyll would have to be metabolically inserted into the RBC. Since RBCs do not have a nucleus and therefore no DNA then, once made (from precursor erythrocytes), there can be no permanent changes in these blood cells, only temporary ones. For a permanent change to occur in RBCs this change would have to occur before the precursor erythrocyte became a RBC. It should also be noted that leukemia is a cancer of blood lymphocytes and not RBCs so it is unclear how chlorophyll can “insulate red blood corpuscles against the erosion of leukemia.” RBCs are not a part of leukemia.

Chlorophyll conundrum

The green pigment found in plants and algae, in particular, in the chloroplasts, is called chlorophyll. The name is derived from the Greek words,

χλωρός, *khloros* ("pale green") and φύλλον, *phyllon* ("leaf"). Chlorophyll is essential for plant photosynthesis (see below) and works by absorbing energy from sunlight and converting it to plant growth. Due to the chemical nature of chlorophyll it absorbs light most strongly in the blue and red portion of the electromagnetic spectrum (for details of the electromagnetic spectrum please see the article, "X- the Man with the X-Ray Eyes", elsewhere) and poorly absorbs the green portion, which is reflected, and why plants are green to our eyes. Simply stated, plants are seen as green because chlorophyll absorbs mainly the blue and red wavelength and reflects the green. Plants use chlorophyll and light to make food.

Chlorophyll was first discovered during the early 19th Century, around the time when Mary Shelley wrote *Frankenstein*. The presence of magnesium, the main metal atom at the core of chlorophyll, was discovered in 1906 representing the first time magnesium had been discovered in living tissues. Chlorophylls are very similar to heme in hemoglobin. Heme carries iron atoms (which is why blood is red) where chlorophyll carries magnesium atoms (which is why plants are green).

In nature, chlorophyll molecules are clustered and enclosed in the membranes of plant chloroplasts, complex organelles in plant leaves. In these complexes, chlorophyll's main function is to absorb light. Their second function is to transfer the captured light energy to a specific chlorophyll pair in the reaction center of plant photosystems. The final function of chlorophyll is to separate electrical charges (see below) which leads to biosynthesis. The two photosystem units are called Photosystem I and Photosystem II. The type of chlorophyll in each unit is distinct, either chlorophyll a or chlorophyll b.

Though the green monsters have chlorophyll it is unclear if this is bound up in chloroplast-like complexes as seen in plants or of some other type of complex (see below). To convert sunlight energy to chemical and biological energy would require some sort of transfer complex within the green monsters. Chloroplasts are ideally designed to do just that. Free chlorophyll needs to be bound up in some sort of complex like chloroplasts to efficiently transfer sunlight energy into chemical energy. It is unclear if the green monsters have their chlorophyll bound up in organized complexes like chloroplasts or if their chlorophyll is non-organized and just free floating in cells and tissues. Maybe even free floating in the blood stream.

Reaction center and charge separation

The main purpose of chlorophyll is to absorb the light energy of photons and transfer it to other parts of the photosystem reaction center for use. This transfer of energy to an electron is called charge separation. This high energy electron charge is then donated to an electron transport chain in the reaction center which are clusters of chlorophyll pigments (in chloroplasts). These electron transfer reactions are complex and the charge ends up being used to oxidize water

through several intermediates to produce oxygen gas (O₂) which is the source for just about all oxygen in Earth's atmosphere and most of the energy for life on Earth. It is that important. This electron flow by the reaction centers in chlorophyll pigments is used to produce metabolic energy (in the form of ATP for those of you who are curious) which in turn is used to take atmospheric carbon dioxide (CO₂) and turn it into sugars by biosynthetic pathways. Chlorophyll absorbs and funnels light energy to these reaction centers to do all this biochemical work.

Photosynthesis

The process by which plants and algae convert light energy into chemical energy is called photosynthesis. The produced chemical energy is stored in plant organic compounds, mostly sugar (carbohydrates) molecules which are synthesized from atmospheric CO₂ and water and a major byproduct is oxygen (O₂). The word, photosynthesis, is derived from the Greek *phōs* (φῶς), "light", and *synthesis* (σύνθεσις), "putting together".

Fun facts

It should be noted that currently the rate of global energy capture by photosynthesis is about 130 terawatts, which is about eight times the current power consumption by all on Earth. Overall, photosynthetic organisms convert about 100-150 billion tons of carbon into biomass each year. Plants by and large typically convert light into chemical energy with an efficiency of 3-6%. Unconverted absorbed light is dissipated as heat. Plant photosynthetic efficiency can vary from 0.1% to 8% depending upon such variables as light intensity (latitude dependent), temperature, and levels of CO₂ in the atmosphere. To compare, solar panels convert light into electrical energy at about 6-20% efficiency.

Medical uses of chlorophyll

People use chlorophyll as medicine so Loka may have thought it could be beneficial for his leukemia patient. Medically, chlorophyll is used for bad breath and reducing colostomy odor. Chlorophyll is also used for constipation, "detoxification," and wound healing. Healthcare providers use chlorophyll intravenously for removing skin cancer, for treating a pancreas problem called chronic relapsing pancreatitis, applied to the skin for acne and lesions from herpes infections. Common sources of chlorophyll used for medicine include alfalfa, algae, and silkworm droppings.

Loka's man cave

As is the norm for mad scientists Loka's lab is located in a cave on the island. All in all Loka has a somewhat sparsely detailed lab and visible are some glassware, a few ubiquitous test tubes, bench, and an examination table. Large computer machinery, a console, and other equipment are on a back wall.

Also kept in the cave are cages of mutilated people that Loka experimented on. Loka says, "They're helping me continue my experiments. They are helping me to save a most distinguished and important patient. And more. They're contributing to the advent of a new era in internal medicine and geriatrics." Then he continues talking to Foster, "We all want to delay the end...all those lives you think have been wasted for the cause of this experiment actually have brought us closer to a life-long dream of longevity. Eternal youth, doctor." Like all mad scientists the end justifies the means and Loka is no different. Were any experiments done on animals? Perhaps primates which would represent an animal similar to man.

The chlorophyll monsters Loka makes have great strength. They can pull arms off and decapitate humans. Perhaps the ability of the chlorophyll to transfer energy directly to muscles can provide additional strength. This would suggest chlorophyll is bound up in muscle tissues. The problem with this is the limited ability of sunlight to deeply penetrate skin and into underlying muscles. For the green men to properly absorb and utilize the sun's energy via chlorophyll would mean the chlorophyll would best be located at the skin surface.

Light penetration of skin

Chlorophyll needs light and light is made up of wavelengths. In general, the longer the wavelength of light, the deeper the penetration of the light into the skin. The sun's ultraviolet light (UV) is generally divided into UVC (200 to 280 nanometers), UVB (280 to 320 nanometers), and UVA (320 to 400 nanometers) wavelengths. (It should be noted that of the light that reaches the skin surface, UVB appears to be the most carcinogenic.) Of these three the two main sunlight wavelengths are UVA and UVB. UVC and UVB rays have short wavelengths so they cannot penetrate deep into the skin, but they are stronger. UVB can cause skin cancer and sunburn (so wear your sunblock!). UVA rays have a long wavelength so they penetrate deeper into the skin. With enough exposure UVA rays can break down skin collagen and cause wrinkles. It would be the longer UVA rays that would penetrate enough and activate skin embedded chlorophyll in the green monsters.

Skin is composed of three layers, the upper epidermis, the dermis, and the lower hypodermis (for more details please see the article, "Skin in Science Fiction Films", elsewhere). UVB and UVC rays penetrates just the upper epidermis layer. UVA light penetrates into the dermis layer. Some infrared radiation can penetrate well below the dermis layer and into the hypodermis.

It is interesting that loud radio static noise causes the monsters to become very irritated and incapacitated. Does chlorophyll interfere with hearing? Amusing is the presence of lot of smoke/mist on the island. Where does it come from? In the end, the main monster kills Loka and the lab is destroyed in an explosion and fire.

Beast of Blood (1970)

From a story by Beverly Miller, screenplay by Eddie Romero. Listed in the credits is medical consultant, Bienvenido Aldanese, M.D. Produced and directed by Eddie Romero.

Dr. Foster (Ashley, again) revisits the island to investigate rumors of more 'green men'. Myra Russel (Celeste Yarnall) comes along as a reporter doing a story on Blood Island. Once landed on the island, Ramu, the head of the island, says to Foster, "The green men have returned...no one knows where they come from." Those left on the arriving boat were attacked by the green monster ("the beast"), the boat explodes, and the monster returns to the island.

While investigating an island tunnel Foster notes green blood on a tunnel wall. Several green men appear in the tunnel, all of a similar age group (with one exception of an elderly man); no green women are seen.

Apparently Dr. Loka survived the fire from the previous film (though a different actor). He has a new lab set up in a house in the jungle. Though the lab is modestly equipped visible are many large pieces of equipment, some glassware, and a file cabinet. With all these large pieces of equipment a significant generator would be needed to provide electricity. Also present in the house is a surgical suite (more generator needs). Visible in the suite are multiple pumps for (green) blood flow. During the film actual surgical operation procedures on a knee are shown.

By way of justification Foster says to Loka, "Well, basically, I came here (to Blood Island) to gather more information about your experiments. Your old experiments that is." Loka responds, "It took a great deal of effort to obtain the equipment I needed. One promising result of this phase of the experiment is that the pernicious side effects of chlorophyll on the body itself had been arrested. In the meantime, the body is alive but merely vegetating. It can not be activated without a guiding intelligence which can not be provided by a mechanical device. Ramon's head can not as yet be safely returned to his body." Foster says, "So you have gone back to experimenting with human bodies again." Loka's new green monsters do not have the exzema conditions of those in MDOBI but are nevertheless still green suggesting the chlorophyll has disseminated throughout their bodies and not necessarily confined to just the skin surface. Also, clearly seen are skin patches on the green men that remain a flesh color suggesting the chlorophyll has not uniformly covered all their body surfaces (see below).

The statement, "pernicious side effects of chlorophyll on the body" deserves comment. This suggests Loka still believes chlorophyll has some sort of medical benefit to patients otherwise why use it? He realizes there are severe and unwanted side effects from chlorophyll and has worked hard to overcome or mitigate these effects. As Loka says, "it took a great deal of effort" to get what he

needed on the island so he must be very committed to his theories to put up with all the aggravation of establishing his research headquarters on the island to continue his chlorophyll research. Not to mention recovering from the burns and scars of the previous film.

Talking head

In Loka's lab is a life support device for keeping a head alive. (This is one of many in the "keeping-a-head-alive" subgenre.) This is the head of Ramon, one of Loka's assistants. The green monster head uses green fluid as a blood substitute. Presumably, this green blood is chlorophyll based. Ramon's head has a head band and a couple of attached electrical wires for stimulation. The mouth has fangs for teeth. A separate body lies on a gurney adjacent to the Ramon head. Loka removes the head from this other body and comments, "The donor is dead. Re-activate the artificial head." Loka's ultimate plan is to attach the green monster Ramon head to the separate body.

Through telepathic communication the green monster head of Ramon can control the nearby headless body which is on a gurney table and he gets it to move its arms, hands, and legs in a directed manner. Of interest, this green monster head can move his mouth and talk. To talk air needs to move over vocal cords and none of this is visible with the detached head. By telepathically controlling the separate body the green monster Ramon head uses it to attack Loka and kill him. The headless body then destroys the lab.

Green skin

The generic term for any type of anemia in which the red blood cells (RBCs) are paler than normal is hypochromic anemia. Historically, this condition is known as chlorosis or green sickness since these patients' skin has a distinct color tinge. Also, patients with hypochromic anemia tend to lack energy, have a shortness of breath, dyspepsia (upset stomach), headaches, little appetite, and for women, can have amenorrhea. The decrease in redness is due to a reduction in RBC hemoglobin mostly due to iron deficiency. Though the 'green men' seen in the Blood Island films have some of these symptoms they are not lethargic but, rather, quite energetic in moving about with no shortness of breath. It is unknown if they have appetite issues. Furthermore, it is clearly stated these men are green due to chlorophyll in their bodies. The question then is where is the chlorophyll located? Is it just in the skin or in internal organs too? It makes sense to have the chlorophyll embedded in skin instead of internal organs because sunlight, necessary to activate chlorophyll, can easily affect surface skin but can not penetrate enough to affect internal organs. Would these green men also have a green spleen or perhaps a green heart?

Summary

TIAM is an outlier to the Blood Island films though it certainly sets the tone and tenor of the DeLeon / Romero films to follow. What TIAM has in common is the

production and direction team. Otherwise, TIAM has a different island, a different monster, and a different mentality though all the films have the obligatory mad scientist.

Chlorophyll-enriched green skin monsters could have their own photosynthesis and be able to make their own energy from natural sunlight, something plentiful in the tropical Phillipines so their need for regular digestible food is questionable. They may get enough energy solely from photosynthesis via the chlorophyll in their bodies that they may not need traditional food. Sort of like a hybrid car that uses a battery mostly and when the battery runs down the car reverts to standard gas-powered movement. With the sun shining the green men would get energy from photosynthesis and at night or during heavy overcast skies they may then need traditional digestible food for energy. Also, with photosynthesis metabolism, CO_2 is used and converted to O_2 and sugars. Would the green men use their own exhaled CO_2 from each breath and convert it to O_2 to re-breathe in again as a cyclic event? If so, then perhaps these green men would never have to eat since they can get all their body energy from sunlight (providing there is enough sunlight) and perhaps all their oxygen and carbon dioxide from each breath cycle. Frankly, this could be a very efficient process.

Chlorophyll does not work in a vacuum meaning it is part of a larger system. Metabolically, there are many nutrients and minerals supplied by soil that help produce biomass. Soils depleted of these nutrients are poor supporters of plant growth. The same should apply to the green monsters. The chlorophyll embedded in their bodies needs a metabolic support system for proper function and it is unclear how these monsters do this.

It is an interesting question if humans can benefit from chlorophyll embedded in our skin. For this to work there would have to be some sort of reaction center that can convert sunlight to chemical energy. Chlorophyll just captures sunlight energy so it must be transferred/converted to chemical energy by some sort of reaction center. Furthermore, free floating chlorophyll has nothing to transfer to so it needs to be bound up, preferably like stacked pancakes as in chloroplasts, one on top of another, for maximum efficiency. How these would work embedded in skin layers is unknown. Also, what effect would melanin, the natural skin pigment, have on embedded chlorophyll? Melanin also absorbs sunlight and this could compete with chlorophyll.

It was stated in MDOBI that chlorophyll is in RBCs which would mean these chlorophyll-carrying cells are moving through bodies via the blood stream. Most blood vessels are deep in the body with very few near the skin surface so it would be difficult for chlorophyll in internal RBCs to be activated by the sun's rays. These RBCs would travel through the blood stream and once they reached the skin surface could then potentially have their chlorophyll UV activated. Though activated the chlorophyll would still have to transfer its energy for bioavailability and it is unclear where this happens in the green men.

Lastly, for green skin, perhaps the Wicked Witch of the West from the film, *The Wizard of Oz*, may have the most embedded chlorophyll of any screen presence.

Thank you for reading. It's back to the lab for me. Stay healthy and eat some good chlorophyll green plants.