



Envo

A superhero created by Mateo Peterson and
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Ability

- Envo has the ability to morph his body into the four elements: earth, air, water, and fire. Although some forms are not exactly what we would consider the general term to be, the categories still fit.
- “Envo”= **Environment**





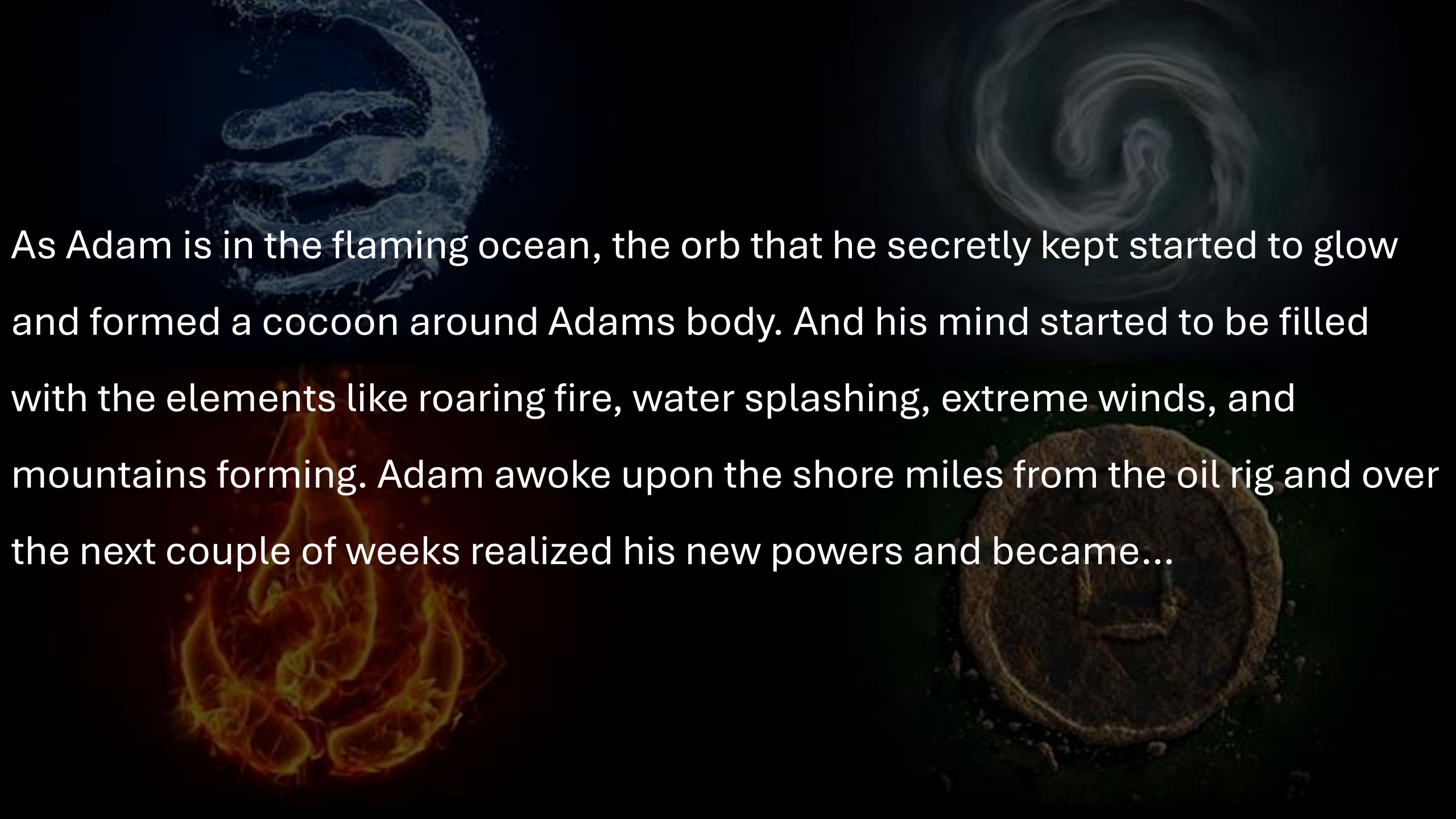
Origin Story

Adam Inex had just been relocated to an Arctic oil rig to research an unusually forged ice wall. When Adam and his team are mining the wall, he discovers a mysterious orb within it that he decides to keep to himself. That night there was a thunderous storm, causing one of the oil lines to collapse. This led to a catastrophic oil spill and within moments a fire erupted. As Adam is running to the evacuation zone, the floor beneath him collapsed due to the rig being struck by lightning. This causes Adam to fall into the flaming ocean. Adam falls unconscious as he sinks into the water. Now, how does he become a superhero by this?

He died.

Did you not hear how insane
that was?

Kidding



As Adam is in the flaming ocean, the orb that he secretly kept started to glow and formed a cocoon around Adams body. And his mind started to be filled with the elements like roaring fire, water splashing, extreme winds, and mountains forming. Adam awoke upon the shore miles from the oil rig and over the next couple of weeks realized his new powers and became...

ENVO



How?

- Envo's cells were affected by the mixture of the lightning strike, exposure to the different elements, and the radiation from the mysterious orb.
- This makes him go through high amount of a heightened amount of lactic acid fermentation naturally and when he is moving excessively (like fighting crime). The bacteria, *L. buchneri* and *L. parabuchneri* entered his body through the water. They degrade lactic acid under anoxic (extremely low oxygen levels) to acetic acid and other substances (Elferink et al., 2001). But, his body was mutated so that this process primarily ends with acetic acid as a product. Since it is a heightened rate/activity, there is more energy produced than normal. This process takes precedence in his body when his body temperature cools (less mitochondria activity). The oxygen not used builds up at his skin.
- Additionally, the mitochondria located in his cells were also affected to produce extreme low temperatures. While his temperature is low, the heightened activity of fermentation allows for primary energy output, while higher temperatures are due to ATP product in the mitochondria. This is because most heat generated by mitochondria is from oxidative phosphorylation, reaching 122 degrees Fahrenheit (El-Gammal et al., 2022). This normal temperature of the mitochondria is no longer hindered by the natural processes of the body, making it possible for Envo to shift.
 - In order for his body to not be negatively impacted, Envo's cells and hypothalamus (the part of the brain that regulates body temperature along with other functions (Ronzio et al., 2017)) were mutated in the lightning strike.
 - This heat is generated by the altered mitochondria metabolizing

Water Form



- Envo becomes liquid form/solution
 - His body heats up exponentially due to his mutated mitochondria.
 - The extra oxygen buildup in his body, from the process of fermentation not using oxygen, reacts with hydrogen from the external environment and his own body. This creates a liquid solution of mostly water, but also elements from his body. These elements are oxygen, hydrogen, nitrogen, and carbon, which make up 96% of the body. About a dozen other elements make up the remaining amount (Shah, 2015).
 - His bones can match the liquid state of the rest of his body because of the heightened produce of acetic acid in his body, making his skeleton take a rubbery state. The acetic acid, which is a major component of vinegar, dissolves the calcium from his bones, leaving behind collagen, which is flexible (Fotta, 2020). His bones are then able to act somewhat as a liquid and are stuck in this form.



Air Form

- His body temperature rises even more, also burning his bones so the gases can carry them.
 - Like when his body returns to normal after the liquid form, his bone can reform to its rubbery state along with the rest of his body.
- Envo morphs into a homozygous mixture of natural gases.
 - When in his water/liquid form, the heat continues to rise. This turns his elemental liquid into a vapor, which he can morph into.
 - This form is majority oxygen, but still contains the elements from his body while interacting with those from the environment.

Fire Form



Human
Torch (The
Fantastic
Four)

- Envo can burst into flames.
 - When in his air form, a continuation of extreme temperature intake lights the high amounts of oxygen from his element composition on fire.
 - The mixture of the three components (oxygen, heat, and fuel) is known as the “fire triangle” and is needed in a fire to occur and be maintained. When his body temperature drops again, the heat component is taken out, so he can return back to other forms) (Frontier Fire Protection, n.d.).

Solid form



Thing (Fantastic Four)

- Envo's skin becomes solidified oxygen.
 - Since fermentation is an anaerobic process, the oxygen that is not used in his body during this process is condensed to his skin.
 - The oxygen is solidified at -218.79 degrees Celsius. When his body temperature reaches this level from his mitochondria reaching low levels of temperature, his skin turns solidified. It has a light sky-blue color ("Oxygen", 2024).
 - This form provides Envo with a defensive layer to protect his fragile skeleton and organs.



Weaknesses

- Envo's bones are weaker than a normal human's due to the acetic acid making them more fluid and rubber-like. He uses his solidified form to protect them.
 - Also, his bones prevent him from sinking through substances or objects that can usually absorb liquids.
- Each form is susceptible to its natural opposite/weakness.
 - Water + fire
 - Solid + pressure
 - Gas + lack of pressure/vacuum

Conclusion/ Summary

- Envo's cells were affected by the mixture of the lightning strike, exposure to the different elements, and the radiation from the mysterious orb. This caused his body to generate high and low temperatures. Acetic acid from the breakdown of lactic acid makes his bones flexible. This lets his body take a fluid state in high heat. As heat continues, this fluid state becomes vapor and then fire. Oxygen from fermentation builds up on his skin surface, allowing his solid form at low temperatures. Each different form has its natural weakness, and his bones limit his movement in liquids.



Sources

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Thank you!
Any questions?