

Behind Time

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Behind Time**Declassified March 17th, 2121 (OPEN DOORS ACT)****To the entirety of the Human race,**

Due to the imminent annihilation of our beloved Earth in the next couple of years, Select classified documents will now be available to the public due to the Open Doors Act of 2119. As of today March 17th, 2121. Our government will continue to function even in these daring times. Below is a recollection of a lead researcher at Harmouth University and the final moments of Dr. Allen, who was deemed our “last hope”. These are all recollections of this researcher and provide no proof as if any of this actually occurred. The disappearance of Dr. Allen is still an ongoing investigation.

God save us all and God bless the Democratic Union of the Americas.

Gerald Mcmillan, President of the Democratic Union of the Americas

The Zhang School of Psychological Behaviors and Brain Studies**Harmouth University**

To the Board of Education of Harmouth University,

[AUTHOR REDACTED]

Below is a summary of my longitudinal research on Dr. Allen. Although the amount of research done is quite lengthy, I have compressed it for an easy read. As of today, I am still by Dr. Allen's side every day, and he is better than ever. He is set to debrief his research in the coming years to the Science and Conservation Department later this year. Included below is my journal of Dr. Allen, including world news and discoveries found by Dr. Allen. As you know, my long-winded effort of keeping Dr. Allen onboard has been a very long controversial effort, but I urge you that it is critical to keep Dr. Allen as a lead researcher as his breakthrough research can save many generations to come. I urge you to please read through these efforts. Included is **Top Secret classified information** on governmental pursuits with the private company, Whetstone Laboratories. I have received permission from The Democratic Union Department of Research Development to discuss these matters with you. I hope to hear from you in the coming weeks about this matter.

April 3rd, 2094

As of today at exactly 4 pm, the IRB of Harmouth University has officially granted my proposal for a classified longitudinal study on Professor Allen. The events in recent years have been very devastating, but I understand why the University has entrusted me in figuring out what the best course of action must be.

The year is 2094 and climate change is now no longer a fear concerning a far-off future, but it has taken its course with its roots embedded affecting every aspect of life on Earth. Droughts are increasingly common in more regions, sea levels rising have eroded the coasts, and has caused massive immigration of people which have made cities dense, thus rapidly reducing the amount of resources available. All attempts to proactively stop global warming were too late by 2050 and now the only way it can be stopped to approach it retroactively. The lead researcher behind making this happen is Dr. Greg Allen. Dr. Allen is a professor of geoengineering at Harmouth University who plans to use improved technological advancements in carbon capture to reduce the amount of carbon dioxide that has already been trapped in the atmosphere. He is on the brink of a breakthrough in his research, but over the past few months, he has been experiencing symptoms that exhibit memory loss (e.g. difficulty communicating due to his eye focus and ears waning, trouble with complex cognitive tasks). He has since been monitored to watch for a possible diagnosis. However, for now, he needs to be driven to his research lab and back home due to the disorientation he experiences while driving. As months go by, his peers have noticed his symptoms get increasingly more noticeable to the point where he cannot continue his studies because of the effects they're having on him.

After a couple of weeks at home, he is diagnosed with having dementia that appears to be considerably worse as the months pass by. Patients could have a range of 3-20 years before effects could lead to being fatal from when they develop the disease (Davis, 2019). Since coming to terms with the news, Dr. Allen searched for a way to at least be able to finish his research by looking for possible solutions as a means to an end. After some weeks had passed, he came across a private research company named Whetstone laboratories that created a technology that serves as a memory implant. By restoring parts of the brain that interpret sensory information, it

can reduce cognitive load which as a result, reduces the amount of neural activity needed to communicate without recruiting from other parts of the brain (Martini et al., 2014). This device uses deep brain stimulation so that its users can use it to recall information drawn from their own experiences. It promises that it will deliver instantaneous replay of memories to its users by using words or phrases to scan through their life events to pull up instances of when the word or phrase comes up. Whetstone refers to it as a “Lifelog” that is built to aid in remembering events as they happened in hopes of eventually replacing our brains' need for recall since the Lifelog will remember things for us. Though the thought itself sounds scary, they promise that the procedure is safe and ready to use for participants who may suffer from memory loss. This sounds promising, but we are still skeptical. I have decided to keep the company’s address confidential as this is still emerging research. We are scheduled to meet with them next week at their Coastal California headquarters.

April 10th, 2094

Around noon we finally arrived. We drove up the road where we were met with government security. Tall men dressed in black with pins of the DUA came to the front of the car to ask for our identification and confirmation for the appointment. Finally after a long-winded checkpoint, there it was. I was expecting something more... extravagant? The building was a gray block no higher than a few stories and was overall blank. There was nothing outside of the building to signal that you arrived at Whetstone headquarters. We parked the car and headed through the double-wide doors to the receptionist.

After about a half-hour of waiting we were finally admitted to see Director Carson, the lead researcher at Whetstone. We were led to a lab on the basement floor of the building and

there he was. He couldn't have been older than 50 and rocked a full mustache, but he was bald. Dr. Allen and I introduced ourselves and jumped straight to the point. "Dr. Allen is having... cognitive difficulties and from your email, you say that there is a possibility that it could be saved," I said nervously. While Director Carson responded I noticed the amount of Government security inside the lab. "Yes," he said. "It's a complicated invention to explain, but I believe we can help get Dr. Allen's memories stored using our technology and make it easier to locate memories in the brain. We call it a "Lifelog." He told us to follow him into a presentation room and on the way explained how this could be possible.

"Gentlemen, you are amongst the first men to realize that our research has found a cure for dementia. Well. Not a "cure" per se, rather an implant that can stimulate the neurological pathways within one's brain." We entered the room where there were only two chairs and a holographic presentation. The lights turned off as Director Carson kept talking. We finally sat down. With a pretentious voice, Director Carson said, "With a combination of implanted electrodes within the brain and further advancements in cloud computing, we have finally found a solution to link forgotten memories and have even found a way to index them."

"How?" Dr. Allen and I spouted as we simultaneously rudely interrupted the Director.

The director smiles and closes his eyes for a bit and composes himself. Once he was ready, he continued the conversation.

"In layman's terms, deep brain stimulation is something that our company has been studying for a long time. You see, there has been proven research that deep brain stimulation, such that the signaling of electrode implants in the brain shows therapeutic effects on Parkinson's disease and Tourettes! In a study by Heschem et al. (2013), they explained that memory loss and deterioration are prevalent in dementia patients and in the past, the only way to treat it was

through pharmaceutical medication. They claimed that research was being conducted on deep brain stimulation (DBS) and could have a positive effect on memory. Preclinical studies on rodents showed that DBS using electrodes in parts of the hippocampus correlated with memory enhancement. The preclinical research proved successful and moved onto human subjects. Experimental outcomes in humans also showed positive results. They found that direct stimulation on the hippocampus had no effect, while stimulation of the fornix on the hippocampus had memory enhancing abilities. However, stimulation is different for all humans as it is believed that stimulation is dependent on the current density of the fornix. Using this research, memory-enhancing abilities were proved possible by direct stimulation of the hippocampus using DBS. We took this idea and modified... slightly. The device would be inserted deep into the medial temporal lobe as the research stated and we would inject electrodes and cloud computing software to recognize neural pathways, and translate them to code, using sophisticated computerized programming. We would then take the electrical signals from these neurons and store them into the 'LifeLog Cloud!'" At this point, Director Carson told us to follow him to his office upstairs on the main floor. We proceeded to follow him.

On our way to the Director's office, Dr. Allen and I wondered how long the process would take and the director assured us that Dr. Allen's brain implant would be ready to go within a day. As a psychologist, I wondered the implications it might have on him, as well as how they managed to figure out how to avoid deteriorating cognitive function. What IRB would allow the literal opening of a person's skull to implant a device that records and replays memories?

Director Carson assured me that it was all government-funded and there was no need to worry since they had gotten their procedure to 100% success rate in rodents. We were escorted into the director's room where a contract was presented to us. He handed us the contract and Dr.

Allen and I looked at each other and back at the contract. “You are bound by a non-disclosure agreement gentlemen. Everything that I have just told you is classified government information. Dr. Allen must undergo the surgery immediately.” He hesitates, but then begins to utter, “I recently received news from the government that Dr. Allen’s efforts on global salvation are something that we must continue studying. All we need is Dr. Allen’s signature and yours, [NAME REDACTED] as consent from the University.” I took a moment and before I realized that I was finished signing, Dr. Allen had already signed. “The operation is tomorrow gentlemen,” the Director said, “Be here at 6 am sharp.”

April 11th, 2094

It’s 3:47 am and I can’t seem to sleep. For some reason, I’ve been riddled with anxiety. My knees are weak, palms sweaty, and arms are heavy like an Eminem song. He’s my favorite rap artist from the 1900s. I found out about his music when I went to an old antique shop down the street from my house. I went to school with his great-great-great-great-great grandson, Hershey Mathers IV. His music always calmed me down. However, I can’t shake this bad feeling I keep having about bringing Dr. Allen to that operation later today. “This is the only way to fix him,” I mutter as I pace around the room. In order to calm my mind, I decided to lay down on my bed and take a deep breath, muttering to myself, “It’s going to be okay. You’re just paranoid.”

My alarm went off as if it were a siren. I woke up lost, as if there was an emergency and I had no idea where I was. As I checked the hologram, I was thrown into a panic as I noticed the clock stated it was 5:45 am. I threw on my clothes and rushed to pick up Dr. Allen. When I had arrived, nobody was waiting outside of his residence. “That’s odd. Usually, Dr. Allen is outside on time.” I decided to park the car on the street and walked up to the door. I scanned my finger

since it's logged in the security system, and the doors slowly opened. "Dr. Allen? I'm here to take you to your operation! We're supposed to be there at 6 am sharp." I turned around the corner and he was standing there in his pajamas. He looked at me confused, "Why, what on Earth are you doing here?" I stared at him and realized his condition has gotten worse. He didn't even remember that he has his operation today. I hesitated before I muttered these words, "Sir, I'm here to take you to your operation at Whetstone laboratories." When I tilted my head upward and looked at him, I saw him dissociate before my eyes. Suddenly his eyes focused again and he joyfully chanted, "Alrighty, then I'll just go and change my pants, and we can leave." He paced past me and quickly ran upstairs.

"I'll wait for you in the car, Sir!" As I turned back around I noticed a subtle beeping noise. I turned around slowly and stopped abruptly when I realized it's the sound of a surveillance camera recording me. I decided to walk back to my car, avoiding any eye contact with the camera, and fast walked out of the house. "What a strange thing to have a surveillance camera inside of your own house," I muttered to myself. Dr. Allen harshly knocked on the window. I looked at him alarmed as I unlocked the door. I turned to him and smiled saying, "Are you ready to go?" He looked at me with dull eyes and said, "For what?" I sighed and simply let it go before I whispered, "Nothing sir, just please put on your seatbelt. Thank you."

We arrived on time, barely. What a relief. Suddenly, two tall men stopped me at the gate. "Only Dr. Allen is allowed access into the facilities for this operation. Are you a family member?" I looked at them in disbelief and shouted, "What do you mean I don't have access? No, I am not family, but Dr. Allen is under my supervision. It wasn't just him who signed that contract. So I suggest you let me in." Now I know something just wasn't right here. The security guards repeated the same statement once more. Forcefully he stated, "I will not repeat myself

again. Only Dr. Allen is allowed access into Whetstone Laboratories.” Intimidated, I stepped down and let Dr. Allen get out of the vehicle. He looked at me with a worried expression upon his face, “Why are we doing this?” I looked at him one last time to provide him reassurance, “It will all be okay, this is for your own good. I’ll be here when your operation is over, okay?” He nodded at me nervously, “Okay, I trust you.” As those last few words fell from his mouth, my worry began to rise. I remained calm in order to not startle him. “They are going to put a system-on-chip that will improve your memory using Error Correction Codes (ECC) that are used as a technique for memories to recover from soft error attacks. They use redundancy to repair clusters of faulty bits and use ECC to detect and correct other isolated faulty bits. You are losing your memory sir, but there’s still time. Now please go before you’re officially late for your operation,” (Chin-Lung, S). As Dr. Allen walked through the gates of the facility, this instant wave of regret washed over me. Internally, I screamed, “Oh, god. What have I done?”

April 12th, 2094

It’s been 24 hours since I last saw Dr. Allen. Since then, I’ve been such a nervous wreck, checking my phone every ten minutes, waiting for a call from Whetstone informing me that the operation has been completed and it has been a success. To my dismay, my phone has remained eerily silent.

*Update: I have just received a call from Whetstone laboratories that Dr. Allen’s surgery has finished. I will be picking him up shortly after I finish lunch.

May 12th, 2094

It's been exactly one month since Dr. Allen's surgery and everything seems to be going according to plan. I still have to take Dr. Allen to Whetstone every two weeks to re-stimulate his brain, but he has been progressing quite well each day. His memory has been improving and he's been able to clearly articulate his thoughts and research. However, some of the things that he has been saying have been quite strange. From time to time, Dr. Allen has mentioned that he has been becoming increasingly interested in nuclear radiation. I'm worried for him, but I think that he'll be alright. It's just a little odd that he's been having these thoughts when he's never had them before. Hmmm.

Well, either way, I've been following up on Dr. Allen's research and it seems like he is getting very close to discovering the code we will need to successfully power up the carbon reduction mechanism. The world will be in a much better place once that has been completed.

July 21, 2094

I have great news. After months of hard work, we have successfully figured out the code for the carbon reduction machine and are currently in the process of testing the effectiveness of it. Harmouth University has been gracious enough to fund our experiments, providing us ample carbon measurement equipment as well as space in their laboratory to conduct the experiments. For record-keeping purposes, I will include the procedure below:

1. In a closed-off room, use a smoke machine to create additional carbon dioxide in the air
2. Measure the amount of carbon dioxide in the room
3. Turn on the carbon reduction machine and leave it in the room for varying lengths of time
 - a. 1 hour, 12 hours, 24 hours

4. After the time is up, return to the room and re-measure the amount of carbon dioxide in the room
5. Record and analyze the findings

So far, the machine has been reliably able to reduce the amount of carbon dioxide in the air by 50% after 24 hours. After a few more tests with positive results, we will propose the use of the machine to the Science and Conservation Department and if they approve and patent our device, we can start disseminating the carbon reduction mechanism worldwide and improve air quality.

On another note, Dr. Allen's behavior has become much stranger. During one of my late-night writing sessions at the laboratory, I was sifting through papers on our workstation when I came across a couple of spreadsheets I have never seen before. Half of the spreadsheet matched the numbers we have recorded on the amount of carbon dioxide in the air, while the other half, is completely foreign to me. He has never mentioned to me that he was working on additional data, so I thought that it was odd that there was a new section in the data. I hope to bring this up with Dr. Allen tomorrow morning when I see him.

July 22, 2094

We have made a grave mistake. We should have never tampered with Dr. Allen's brain. This morning, I confronted him at the laboratory and asked if there were any updates with the research. At first, he said no, but as I prodded some more and revealed that I found the new spreadsheet, he gave in and admitted that he had been secretly collecting additional data on another aspect of the carbon reduction machine, the radioactive emissions. He revealed that he was working for Whetstone Laboratories and was instructed to create a machine that would emit

low levels of nuclear radiation regularly, and if it was used frequently enough, the nuclear radiation would accumulate into catastrophic levels and would eventually decimate the entire world. Alarmed, I tried reasoning with him, reminding him that he never worked for Whetstone, that he had been working for Harmouth University for the past twenty years. However, he remained insistent that he was never employed by Harmouth University, that he had been with Whetstone Laboratories since its inception in 2080.

After arguing with Dr. Allen for some time, I have come to realize that he truly believed that he had always worked for Whetstone, and the only explanation I can come up with for his thoughts is that during his surgery, Whetstone must have implanted false memories along with the Lifelog. Unlike current false memory implantation which is generally induced through talk therapy, Dr. Allen's false memories must have come from the Lifelog implant itself (Loftus & Pickrell, 1995). During his bimonthly re-stimulation sessions, the doctors must have been re-introducing the narrative that he was a Whetstone researcher and that his goal was to destroy the planet so Whetstone Laboratories would be able to rule the Earth. Even though the machine would be beneficial to mankind, it's too risky to continue any longer. As of today, I have officially terminated the carbon reduction machine and destroyed all our notes on the project. Dr. Allen will be admitted into our cognitive program to get his mind back to its original state. Has he lost "it"? I don't know, but I have no idea how I will face the board with this problem. As of today, we are back to square one. I may be out of a job now and the public will have to know. This is the first time I actually believe that the end is near. God help us all.

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