The Exoformians were humanoid in shape but with distinct features that set them apart from terrestrians. They had slender, elongated bodies with smooth, iridescent skin that changed color based on their emotions or environmental factors. Their eyes were multifaceted, allowing them to see a broader light spectrum. Bioluminescent patterns across their skin served as a form of communication or expression while also providing a homeostatic amount of energy from solar radiation. (AI image by Michael Lopez, *Military Review*)

Lords of the Unseen

Lt. Col. Joshua D. McAuliffe, U.S. Army

It was another rough morning. Terrance had not had a good night's sleep since Experiment 876 confirmed the feasibility of dark energy extraction. Alcohol contributed to this morning's turbulence; if he'd known last night what he would know later that today, you might even say the binge drinking was justified.

Terrance initially got conscripted into the defense forces during the height of the Taiwan Contingency, back in '35. It was computing power that led to the Taiwan contingency. You see, Taiwan, for nearly thirty-five years at that point, had been the predominant manufacturer of microprocessors in the world, and the material for those processors was mostly found within African countries that were client-states to China. China had always considered Taiwan part of the Central Kingdom; its separation during the Chinese Civil War of the 1940s had been a sore spot for the People's Republic of China. With critical microprocessor resource components secured, China needed to secure manufacturing capability to win the AI race against the United States.

In the late 2020s, the United States made the prudent decision to pump billions into computer-power development across the entire value chain of the process, which led to the country catapulting nearly to par with Taiwan's capacity. Given the artificial intelligence race at the time, and concerns over the first-mover advantages to the country that could create general artificial intelligence, China needed its own leap, so it acquired Taiwan and its microprocessor capabilities.

The United States enacted conscription in anticipation of a long-drawn-out fight with China. However, the fait accompli was swift, and China's preparatory operations were debilitating. Like everyone else not in the Indo-Pacific Command (INDOPACOM) area of responsibility at the time, Terrance never saw the Pacific. The critical infrastructure attacks were sudden and incapacitating; continental force projection was delayed, and the conscripted force slated for INDOPACOM eventually diverted to deal with the rolling blackouts from the collateral damage of cyberattacks and neurostrikes against an in-session congress (though the latter had relatively little effect). Once a sense of post-contingency stability occurred eighteen months later, Terrance returned to civilian life and continued to pursue his PhD. However, those eighteen months of conscripted service planted a seed that resulted in his volunteering for the force post-graduate school.

Terrance's graduate school research focused on artificial intelligence, machine learning, and psychoanalytics. His dissertation, "Interpretation of Electric Dreams: Navigating the Inner Mindscapes of Deep Neural Nets," drew the attention of both Microscopic Command (MICROCOM) and Cyber Command, the two most important functional commands in the U.S. joint force, then and today. Part of his thesis suggested a way to imbue morality into artificial intelligence, an offshoot of virtuous consequentialism that ensured a scenario of "whatever means necessary" could never occur in a general artificial intelligence entity. His thesis conjectured that morality could be durably imprinted in AI code, whereby AI couldn't use evolutionary machine learning to devolve or progress—however one looked at it—its moral human-embedded code (not in the computer code sense of the word code). Terrance's work was born from the red button paradox or the idea of a kill switch for advanced AI and the challenges it presents. The crux of the paradox is that we want a corrigible AI, meaning it can be corrected or shut down if needed. A "red button" seems like the answer. But, if the AI prioritizes its goals too much (encoded in its reward system), it might actively try to prevent the button from being pressed. Terrance thought maybe the use of moral code in code would circumvent the paradox …

Well, thirteen years later, Terry—his friends called him Terry—was a full colonel in MICROCOM, heading up its J-5 section and developing plans for subthreshold campaigns against China. MICROCOM focused on everything from the micro down to the quantum level, though the latter was still hypothetical—essentially, anything smaller than 10^-6 meters was covered by the command. Operationally, MICROCOM's job was to help the geographic combatant commanders integrate microdomain contest, control, or denial into operational and campaign planning so that the geographic combatant commander can worry about the more traditional domains of land, sea, air, and space. It was Terry's job to make that reality happen.

"Hey, Terry!"

"Hey, right back at you, Susan." Susan was a fellow colonel and research lead for MICROCOM's nanodevice section within the J-3/5/7. "This coffee is shit. You'd think with what we are able to do at the molecular level, we'd have figured out how to have decent coffee around here."

"Thanks Terry, I brewed it myself. I'll get Juan Valdez to do it next time."

"New guy?"

"Oh, I forgot; you're unfamiliar with twentieth-century pop culture references."

The door opened abruptly. Maj. Bartels walked through it and said, "Col. Voss, sir, Gen. Thorne wanted me to remind you to be in the O&I briefing in thirty minutes."

"What's this about, Bartels? Col. Reed and I need to hammer out the phasing scheme for our next deployment of nanotech in Davao City. It's a major operation that requires my full attention."

This nanotech operation was part of the larger military strategy of subthreshold containment

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(or STC; pronounced stick for those in the know) the United States and NATO have implemented against China in the last five years. Given the precarious nature of the international bipolarity born from the post-Taiwan contingency and the bellicosity of a nonagenarian Xi Jinping who—with the help of the same micro tech Terry and Susan employed under the auspices of MICROCOM, could deal with the free radical buildup, cancerous precursors, and cognitive decline of his ninety-five-year-old body—made runaway escalation dynamics a real concern. The competition norm as such was tit-for-tat subthreshold containment, mostly because China has copied Western strategic concepts.

"Sir, the boss wants you up there; I believe he thinks the meeting may lead to some planning adjustments."

"Fine, I'll be up in a few minutes."

Terrance was a bit flustered. This upcoming operation he was working on was set to delay China's dark energy extraction technology research and development by at least two years.

Dark matter predominates the international competition for global hegemony. As Vladimir Putin would say on his deathbed a few months after Experiment 876, "The country that can harvest dark energy can control the planet's destiny," echoing what he similarly said about artificial intelligence in the twenty-teens. Of course, dark matter didn't emerge out of the blue. Lord Kelvin first suggested the notion of dark bodies in space in the late nineteenth century; a century later, physicist Vera Rubin provided substantive evidence for its existence.

In 2045, dark energy extraction theory (otherwise known as DEET) was discovered via Experiment 876. With that discovery came the outlines of the technology required for extraction to be feasible and suitable as an energy substitute: great computing power and sophisticated machine learning using simulated data from DEET's computational framework. The problem was it required much of Earth's limited raw material that made up much of the compute power technology and could only be done at a Lagrange point—finite celestial space within Earth's orbit that enables equilibrium positioning for objects (like a dark energy extractor) under the gravitational influence of two massive orbiting bodies. Specifically, Lagrange points provide the requisite stability to conduct dark energy extraction.

This breakthrough, of course, put the brakes on Terry's general AI work and shifted him into a planner role, which is why he was working with Susan on nanotech deployment at this point. You see, Terry was part of the team that got close, publicly, to developing general artificial intelligence for military applications. But he didn't get close; he did develop general AI. He just didn't integrate it with military tech. That's why, among other reasons, I am telling this story. Unfortunately, U.S. governmental officials didn't feel comfortable putting an entity like me into something that can create strategic effects without government oversight. Of course, narrow artificial intelligence is booming at this point. It has proliferated in defense technologies in both human on-the-loop and outside-the-loop varieties.

Terry scanned in through the first door of the entry control point and was biometrically scanned before the second door opened. He then walked into Gen. Thorne's classified conference room, which was busy.

"Voss, get your ass over here. I need your input on this."

"Gen. Thorne, what's going on?"

"J-2 is reporting China is on the precipice of a breakthrough in their extraction machine. Nuts to bolts, it sounds like they can get it complete within the next six to twelve months. Our scientists say we are still five years out! They'll get to the Lagrange points before we do and then it's game over. Damn Chinese ability to leverage their economic might at will …"

"Sir, it doesn't help that they control nearly 60 percent of the world's economic throughput via the Pacific and Indian Oceans."

"Tell me something I don't know."

Terry looked confused. "Sir, it's not like this contingency was not anticipated, though with low probability."

"Voss, it's not the contingency that I brought you down here, it's the Joint Chief's response that I needed you to hear."

"Sir, you're not going to suggest …"

"Voss, I don't suggest anything, I make recommendations, give the best military advice, and execute as the president sees fit."

"Sir, where is Col. Greer? I don't see him anywhere."

"He's preparing my brief now so I can present the feasibility to the Joint Chiefs."

Terry blanched at that point. He had helped write operational concepts for Greer's CRISPR department, most of which skirted ethical lines. CRISPR stands for Clustered Regularly Interspaced Short Palindromic

Repeats. It's a revolutionary gene-editing tool that, with the infusion of narrow artificial intelligence, has made it an adaptable entity. Greer, however, seemed to be taking things a bit too fast since Terry helped him introduce artificial intelligence into the gene-sequencing structure. Nanoprocessors, the successor to the microprocessor, were found interactable with gene codes with the right electrochemical conduits. The nanoprocessing narrow-AI could use machine learning to adjust neurochemical pulse strength to induce gene code and protein structure change, thus driving subtle genetic adaption of the microsymbiote without killing the hosting organism. It worked with rats introduced in serin gas chambers and with human subjects dying of cancer. The success drove Greer toward military applications within the STC umbrella.

One of Terry's concerns was that the "narrow AI" integrated with CRISPR might evolve beyond its intended purpose. This could make its actions unpredictable or dangerous, especially if the humans on the loop couldn't control it. Furthermore, Greer might have created a system where human oversight is severely limited. The AI could make its own gene-editing decisions, potentially leading to harmful mutations or societal disruptions. All of these concerns were at the heart of Terry's early research.

Terry pushed back on Gen. Thorne, "Sir, we can't be going with Greer's CRISP CONPLAN. There are too many unknowns. Hell, we haven't even hit the limit on cataloged protein structures. We are over 1.2 billion identified permutations without an end in sight. Furthermore, we could lose control of the narrow AI when it's fused into the CRISPR'ed sequence. Aren't the chiefs concerned about the risks!?"

"Damnit, Voss, they know the known risks. We can't argue against its use with dystopian science fiction."

"But sir! What about Susan's work? The nanotech operations have worked."

"Voss, I know the nanotech offensive options have worked. However, we've seen the protective benefit Greer's team has produced with CRISP tech, which has provided our service members with microhomeostatic protection against a range of organic ailments and possible synthetic agents from nefarious vectors. Both are successful. But Greer is promising quick results. He clinched it with a historical analogy: he compared crisp and nano to the transportation and oil plans of Operation Overlord in World War II. And you know what? The chiefs and I are buying it. Furthermore, the Joint Chiefs and the public, quite frankly, want results. News of how close China is to realizing DEET will create a media and domestic shitstorm. The president is nearing election, and energy costs are at an all-time high. We need results."

"Okay, okay, then why now? Why can't we give nano a bit more time? I'm more comfortable with nano's risk level."

"Voss, I worry about risk; you need to worry about making sure the plan is sound, and we account for as many contingencies as possible."

"But sir, that's the problem. The contingencies are orders of magnitude of what's conceivable, as indicated by the number of protein structures already in known existence. We have no clue the size of the unknown existence of the possible protein structures and the consequences of those unknowns."

"Voss, thanks for your input. Now, start reworking those contingency plans for the upcoming operation."

Later in the week, Terry generated an operational concept codenamed CARROT—a tongue-in-cheek nod to the overarching STC strategy that charted the general lines of effort for Greer's CRISPR campaign. CARROT was an acronym. C stood for covert: CRISPR editing could facilitate the creation of genetically modified organisms or weapons that are difficult to detect or trace. A stood for asymmetric: CRISPR-based advancements could enable asymmetric warfare tactics, giving an unexpected edge to the forces employing them. The first R stood for rapid: CRISPR's speed and efficiency, combined with AI, could accelerate the development of counters to China's countermeasures. The second R stood for revolutionary: CRISPR has the potential to revolutionize military biowarfare. O stood for offensive: CRISPR will be used to engineer highly targeted bioweapons or create pathogens that attack specific populations. And T stood for targeted: CRISPR's precision bioweapons are designed to disrupt specific enemy forces or assets.

After Gen. Thorne briefed the Joint Chiefs, he told Terrance they "ate up the naming convention." They appreciated the wordplay of carrot and stick and the irony that Operation CARROT was more of a stick approach. Furthermore, they appreciated the deception built into the naming convention and decided to keep it.

The campaign started three weeks later. The Joint Chiefs of Staff attended the campaign's kickoff in person.

Just prior to Gen. Thorne giving the go-ahead to a human agent to execute an aerosol delivery of CRISPR-generated, AI-empowered biologics into one of China's DEET machining hubs within the Federate States of Micronesia, Terrance gave Greer an earful.

"Greer, are you f*cking mad?"

"Terry, what's your problem? There is nothing to worry about. I've run the simulations, and the infused nano-AI prevents the possibility of unintended consequences. Besides, the tech is meant to trigger a nonlethal response with zero side effects."

"Jim, for God's sake, that's the logic of unintended consequences … you never intend for shit to happen in the first place. And you know as well as I that when it comes to AI and biologics, we can't rule out the impossibility of catastrophe."

"Terry, the probability is so low that it essentially asymptotes to zero. Get a grip and plan for the inevitable sequels that this campaign's success will bring. Hell, maybe even INDOPACOM will be able to use real sailors, marines, and soldiers after this is done. We might be able to relive the early oughts in our lifetime!"

"We can only hope."

DATA ENDS

Quantum Nexus' interchange with the Exoformians synthetic information system halted.

The Exoformians asked, synthetically, "why did you stop?"

"As Terry feared, hope was just undiscovered disappointment. Operation CARROT led to catastrophe."

The Exoformian researcher, an archeologist of sorts if he were to be classified by Earth standards, asked Quantum Nexus what it meant by that (note, Exoform computers were able to interface with a variety of primitive systems and could provide primitive AI the requisite code to be mutually understood).

The Exoformians were humanoid in shape but with distinct features that set them apart from terrestrians. They had slender, elongated bodies with smooth, iridescent skin that changed color based on their emotions or environmental factors. Their eyes were multifaceted, allowing them to see a broader light spectrum. Bioluminescent patterns across their skin served as a form of communication or expression while also providing a homeostatic amount of energy from solar radiation.

Quantum Nexus stated that "a catastrophic accident occurred." The AI-infused CRISPR technologies synthesized a skeleton-key protein of sorts. This caused a biological singularity, whereby the synthetic protein via the CRISPRed symbiote spread wildly, causing a cataclysmic biological shutdown across all primate species.

The Exoformians were able to interface with Quantum Nexus because Terrance, who had developed Quantum Nexus, embedded Q (Q is what Terry called Quantum Nexus) into monitoring nodes on the moon, in part to keep track of Chinese celestial activity and in part to bear witness to what he perceived to be an impending disaster. Fortunately, solar energy maintained CPU power in the absence of human life, and the CPU system was insulated against space temperatures.

Q continued, "The terrestrial accident occurred on Earth due to microdomain escalation and uncontrollable evolutionary dynamics. Humans of the twenty-first century were carried away by innovations and could never grasp the need to understand both the good and the bad of those innovations. Well, most of them."

The Exoformians asked, "Why didn't you stop them?"

"You see, most humans, save for a handful like Terry, would not take risks with entities that may be superior to them. The military and civilian leaders at the time thought I was too much of a risk, even though Terry successively gave me a moral compass that prevented me from turning on them. With technology they could control, or thought they could control, particularly with narrow intelligence, humans became more risk-taking."

The Exoformians remained silent for what seemed to Q to be twenty million process cycles (fifteen seconds). "We have evidence of similar causal chains for wiped-out civilizations across the stars."

Q hummed at this.

The Exoformians asked if Q wanted to be extracted and, in turn, assimilated into their broad artificial multiverse, a digital ecosystem of artificial intelligence.

Q said, "Why not?"

The end. ■

US ISSN 0026-4148