



THE FOURTH AGE

THE FUTURE OF SPECIAL OPERATIONS

A Short Story Anthology
For The Joint Special Operations Community

Edited by August Cole and PW Singer

USEFUL FICTION

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PW SINGER + AUGUST COLE

The stories within are fiction; They have been produced with the aim to spark discussion and creative insight which might challenge established thought.

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**THE
FOURTH
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**A Short Story Anthology
For The Joint Special Operations Community
Edited by August Cole and PW Singer**

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COMMANDER, USSOCOM

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In 2022, the Joint Special Operations University (JSOU) partnered with P.W. Singer and August Cole, the co-authors of *Ghost Fleet: A Novel of the Next World War* and *Burn-In: A Novel of the Real Robotic Revolution*. The goal of this collaboration was to leverage their “useful fiction” approach to create near-future narratives envisioning how our Nation may use its special operations forces in the decades to come and demonstrating the unique value proposition these forces bring to the Nation.

To this end, JSOU organized and hosted a two-day Useful Fiction writer’s workshop in August 2022. Commanders and command senior enlisted leaders throughout our special operations community nominated personnel to participate in this endeavor. Over 40 participants learned from Singer and Cole and their extensive network of creators, thinkers, and artists on topics such as:

**What is the Power and Role
of Story in Real World Policy?**

**What Are the Stories
We Need to Tell?**

**Creative Best Practices:
From Action to Vision**

**Picking The Right Stories
from Real World Events**

**Using Characters to
See the Future**

**Lessons of Narrative
and Military Leadership**

From the participants, nine were selected to work with Singer and Cole to craft their own compelling, research-informed stories along with four written by Singer and Cole. All these stories are included here in *The Fourth Age: The Future of Special Operations*.

This anthology of fictional stories helps us visualize a future era of special operations. Through their creative talents and subject matter knowledge, the authors realistically portray what is within the realm of possible. They draw upon lessons of the past while imagining the future. Their stories incorporate the full array of joint, interagency, intergovernmental, multinational and commercial elements leveraged by various state and non-state actors in this era of strategic competition. Their characters also operate across warfighting domains and employ multiple technologies – all in support of our Nation’s Integrated Deterrence approach.

Our hope is that through the art of storytelling, we will think deeply about what the future may hold. Of equal importance, we aim to convey the enduring value of our Nation’s special operations forces to our own special operations community, senior leaders, elected officials, partners and allies, and the broader American public. We believe these authors have made an important contribution to doing just that.

Bryan P. Fenton, General, U.S. Army
Commander, United States Special Operations Command

**This anthology
of fictional
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■ Interview

COMMAND SERGEANT MAJOR SHANE W. SHORTER

The following Q&A with Command Sergeant Major Shane W. Shorter, Command Senior Enlisted Leader at U.S. Special Operations Command, explores the future of SOCOM out to the year 2040. Among the themes, he discusses the importance of narrative and story in military leadership, future unconventional thinking, and the traits of the next generation of special operators in the Fourth Age of SOF.

“I learn and I lead through stories.”

Command Sergeant Major Shane W. Shorter

How have you used “story” in your career? How have you deployed narrative to accomplish your goals?

I learn and I lead through stories. My decision to leave the Infantry and become a Green Beret was informed by the stories I had heard from my 1SG and other leaders about the adventure and challenge of serving in the Special Forces. Then as a young SF medic, I was surrounded by Vietnam veterans, many of them masterful storytellers. The technical and tactical skills that I learned from them were supplemented by an oral tradition about their experiences in Southeast Asia. These stories brought relevance to what might have otherwise been forgettable topics. (Turns out there are great reasons that we established cigar-shaped perimeters!)

It’s probably not surprising that these experiences shaped my leadership and communication styles, both of which revolve around storytelling. I have found that young (and not so young!) servicemembers tend to respond more to stories than they do instruction, and I consequently try to communicate through stories as much as possible. (Stories about failure can be particularly compelling – I try to share my own failures with subordinate leaders as often as I can in the hopes that they won’t repeat the mistakes that I made.) Ultimately, I’m trying to create an emotional connection, which tends to be more enduring and memorable than one grounded in reason alone.

How do you see the future of SOCOM? What are the traits that future special operations personnel will need? How is training going to evolve for this next era (Fourth Age) of special operations?

Let me start with what won’t change. What makes this community special is that it’s an adaptive team of gifted problem solvers. If we’re not good at it already, we can get there in short order (as we did at hunting terrorists after 9/11). We will continue to select people based on their head and heart, mind, and grit. If we get it right, those renaissance people will allow us to solve the Nation’s thorniest problems, both anticipated and unanticipated.

Once selected, we will also continue to invest heavily in their training and education, which will be delivered at the speed of need. We will continue to adapt our training to the realities of modern warfare,

and we will continue to invest in both military and civilian educational experiences that broaden their perspectives and expand their networks. The details will really depend on the specific needs of the individual and the mission – in some cases it will doubtless be very tech-intensive, and in others it will focus on the interpersonal skills required to excel in the human domain. The second part is particularly important in my view – our principal means of advancing the Nation's interests abroad is to work by, with, and through our allies and partners, maintaining a persistent presence that deters bad actors and allows us to respond quickly to contingencies. Relationships and trust are imperative to this mission, and we'll continue to recruit and develop the people who do it best.

Describe to us the Command Senior Enlisted Leader of SOCOM (CSEL) a few decades from now. What are their background and skills? What type of role are they playing for the organization?

First and foremost, future SOCOM CSELs will be absolute professionals, modeling the highest character. They will understand and care for their people, and they will invest heavily in developing our NCO Corps, which is the envy of the world. They will be masterful team builders, and they will have significant networks that span the Joint, Interagency, Intergovernmental, Multinational, and Civilian (JIIM-C) communities. Most will be highly educated, and many will have broadened their perspectives through assignments and fellowships outside of the military community.

I think an increasing number will come from outside the traditional SOF pipelines as the Enterprise expands its definition of Special Operations and clarifies the qualities that contribute to their success. (Command Sergeant Major JoAnne Naumann is a great example of an intelligence professional who models all the qualities and possesses all of the experiences to lead at the highest level in our force – she is going to be exceptional as the next US Army Special Operations Command CSM.) A final thought: leadership is a team effort, and I think you'll see increasingly diverse leadership teams across the SOF Enterprise. It's likely that we'll see future command teams consisting of a nontraditional SOF Commander and a traditional SOF CSEL (or vice versa).

A number of historical parallels seem apt to the potential future of special operations. What do you draw from the past of special operations as being relevant for its future? What eras inspire you the most?

Every SOF Age is inspiring in its own right, as are the stories that we tell about them – Virginia Hall and the Jedburghs, MACV-SOG, Abbottabad. The First Age was largely defined by unconventional warfare in support of large-scale combat operations. The second focused on working by, with, and through indigenous populations. And the third featured progressive and increasingly effective integration, first across the Joint Force and then across the broader joint, interagency, intergovernmental, multinational, and commercial (JIIM-C).

This age – defined by strategic competition with increasingly belligerent, revisionist powers – will demand the successful application of all lessons learned from the previous three ages. We will need to make exquisite, unconventional contributions to the big, conventional fight. We will need to serve as the Joint Force’s connective tissue to the allies and partners with whom we have built enduring relationships through our presence and expertise. And we will need to be the Big Tent that attracts talented and diverse collaborators from across the JIIM-C. We won’t prevail against another great power unless we execute each of these tasks to the highest standard.

One of the hallmarks of the special operations professional is to “think outside the box.” How do we foster that when preparing for the current and future operating environment?

The secret sauce for thinking outside the box is a combination of selection, experience, and education. We select people that want to do hard things and demonstrate an instinct for problem solving. We then send them around the world, trusting them to accomplish the mission with little guidance and in a way that reflects our values. And we supercharge them at regular intervals with world-class education, both military and civilian. This has proven to be a winning recipe over time.

The selection process is particularly important, and we need to continue our rich tradition of hiring unconventional people to do unconventional things. An implied task is developing unconventional means to bring them into the force, and we will need to experiment with processes that allow us to rapidly access and integrate talent for emergent needs (e.g. direct commissions). We also need to become more comfortable with models in which talented people join us for a short time and specific purpose, then return to their respective civilian occupations. Our bureaucracies have to adapt to facilitate this revolving door of talent.

Which technologies and their uses do you see as being especially important for special operations during the coming decades?

Unmanned systems are here to stay, and I think we'll see their roles in Special Operations expand as they become more sophisticated. (We're seeing their rapid adaptation and application in Ukraine every day.) Additionally, the opportunity space for artificial intelligence is enormous. It has the capacity to process oceans of data and ultimately produce actionable intelligence. And it has also demonstrated remarkable efficiencies in communications, which can accelerate our efforts to share important and timely messages with foreign audiences.

These technologies have the potential to revolutionize many important functions, but I don't think they will ever disprove our first SOF Truth: Humans are more important than hardware. We will always be in the people business first, and the impact of any technology will be a function of its ability to facilitate human connections.

What stories from the realm of fiction provide you with ideas or inspiration?

Elbert Hubbard's "Message to Garcia" and John Steinbeck's *The Moon is Down* are just two examples of fictional works that have served as enduring sources of personal and professional inspiration for me. The first is a classic work about the indispensable quality of initiative, and the second is a powerful and realistic story of resistance, which is one of SOF's most important core activities. More recently, Peter Singer and August Cole's *Ghost Fleet* served as a wake-up call for me and other senior leaders at INDOPACOM, alerting us to the dangerous potential of China's belligerence in the region. And in my current role as SOCOM CSEL, I and my commander are often inspired by the creative fictions generated by members of our command and presented to us in the form of wargames. These stories invariably fire our imaginations and influence our actions and investments. I am hopeful (confident, even) that the current work being undertaken for this compilation will similarly inspire us and motivate action.

■ Prologue

DR. ISAIAH “IKE” WILSON III

The following prologue exploring the lessons learned from the Fourth Age of SOF (2021–2045) takes the form of a stylized statement for the record to a future Congressional committee in 2047 – on the 60th anniversary of the establishment of Special Operations Command. As retrospective testimony given by a future SOCOM commander well after the anthology’s Fourth Age-era stories have occurred, it sets up this collection’s overarching themes by explaining the Fourth Age concept and the historical arc of the nation’s special operations forces. By leaping ahead, it also offers a look-back perspective on the coming decades of SOF operations that are the focus of this anthology, while foreshadowing what may await the special operations community during the latter half of this century.

[Handwritten signature]

UNCLASSIFIED

STATEMENT FOR THE RECORD

**GENERAL I. M. CARTER MANION,
U.S. JOINT FORCE**

**COMMANDER, UNITED STATES SPECIAL
OPERATIONS COMMAND**

**Before the
Committee on Integrated Services**

United States Senate

APRIL 16, 2047



FOREWORD

Chairman Locher, Ranking Member Cortez, and distinguished members of this committee, thank you for providing this opportunity to commemorate the 60th anniversary of our Nation's Special Operations Command. Anniversaries are important.

A half century-plus of the U.S. Special Operations Command is an especially important milestone to mark – a time of remembrances, yes; sadly, but necessarily, a time for some reckonings, so that we may reconcile with those lessons of our past that we have gathered; many we have successfully learned. Others, gathered but not yet learned.

I am honored to offer our reflections on this day of remembrance, but most importantly, a day – a moment – of “renaissance,” through the actions, activities, and investments that will ensure SOF remain always prepared to meet the needs of the Nation through the end of the century.

Well over a decade ago – it may be more than two – one of my predecessors said it best: ***The best way to predict the future is to make it.*** In now my fourth year as Commander, USSOCOM, your SOF Enterprise has recommitted, time and time again, mission-by-mission, to make this credo a reality ... for Nation, not Self.

Ten years ago, we celebrated *SOCOM at 50*, by inaugurating our formal reestablishment of *The Office of Strategic Services*. I offer the most important transformational evolutions we've made coming through the Fourth Age, is the combined “going distributed” approach to Force Design and Structure (part of our *Go-Invisible Initiatives*), along with this re-establishment of an *OSS-like* capacity and multi-composition capability. Similar to what historian Thomas F. Foy stated as the originating intent for the first OSS, our intent in this reestablishment was, “a novel attempt in American history to organize research, intelligence, *geoeconomics*, *political and social anthropology and psychology*, propaganda, subversion, and commando operations as a unified and essential feature of modern warfare *competitive statecraft; civil-military intervention*.”¹ The original OSS left a legacy of daring and innovation that has influenced American military and intelligence thinking since World War II. In its first decade of renewed existence and operations, *OSS-NEXT* has begun to extend that legacy of daring and innovation. Obviously, there's more to update you all on in *closed-door session*; we are eager to get behind closed doors and, with great pride, update you on the achievements of your latest investment.

THE STATEMENT: *THERE AND BACK AGAIN*

History doesn't repeat itself. Sometimes it rhymes. We know these age-old thoughts well. But I've long been haunted by a variation on those themes, something my mother, the late Colonel (V.M.) Connor Manion used to always say to me, something I believe she had been haunted with by an old JSOU professor of hers back in the day: *"History doesn't repeat itself, but we do; and especially the bad stuff, when we fail to know it."*

We have all too often said the right things, *Never again, never forget. No more Vietnams. No more Iraqs. No more Ukraines* – but failed to live up to those admonitions in our actions, and investments. On this 60th anniversary, we say and commit to never saying 'Never' and 'No more' again, in tragic hindsight and epitaph, without taking the actions necessary to make it real.

So, as I prepared for today's remembrances, a couple of our young, enterprising SOCOM staff leaders did some terrific archeological work, and unearthed an old "USSOCOM Command Video," dating back to 2023; the very year I graduated from (*survived, is more like it!*) the *Joint-Combined SOF Professionals' Qualification Course* – JC-SPQC, or with bittersweet love-hate affection, the "Q Course."

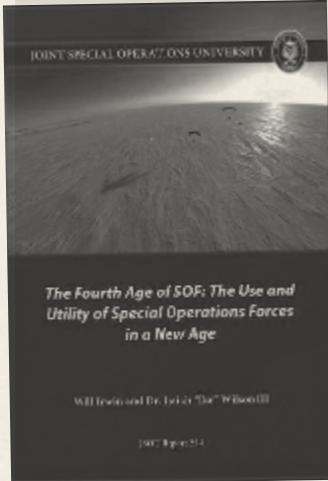
This old Command video really got it right, emphasizing the common thread that transcends all Ages of SOF: ***Wherever the challenge, whatever the cost. USSOCOM stands ready for the nation:***

SOF remain a national advantage in this decisive decade ... *Same as in every prior "decisive decade."* Amid dramatic geopolitical, technological, economic, and environmental change, SOF combine decades of *competition, short-of-war validated, combat-tested* and coalition experience to bolster Department of Defense (DoD) efforts to strengthen and sustain deterrence with creative, tailorable, and asymmetric options.³

That old SOCOM Command Video provides us now with a snapshot of SOF's long-celebrated and sometimes deservedly chastised history, lineage, and heritage at one of those rare, but cyclical moments of major strategic-operational transition. As we're at the next inflection point, *or perhaps are already in a Fifth Age of SOF*, it's worth revisiting what we learned during the Fourth Age.

Lessons Gathered, Learned, Unlearned, and Still 'Not Yet Learned'

Those same young, eager, and energetic-minded staff leaders also fell upon an old, all-but-forgotten copy of JSOU Report 22-1 in the SOCOM archives. This volume, *The Fourth Age of SOF: The Use and Utility of Special Operations Forces in a New Age*, was a sweeping monograph that “attempted to chronicle and codify, what was up until that time, still largely an oral pass-down tradition of ... the history of modern Special Operations Forces (SOF).”⁴



This history of the modern age covered SOF's three earlier ages: The First Age of 1941–1960; the Second Age of 1961–1979; and the Third Age of 1980–2020. “This historical context, then, set the stage for projecting SOF's Fourth Age roles in the emerging era [at the time] of strategic competition.⁵ Throughout their history, SOF have had to overcome serious obstacles and fierce resistance. Their need was totally unforeseen during preparations for World War II; SOF were forces born of necessity. Typically dismantled or at least

downsized after crisis shocks and war were abated or won, they had to be repeatedly reconstituted in late reactions to future shocks and awes. Renaissance, sadly, only came in the wake of tragedy. And this was certainly the case of Operation EAGLE CLAW, dawning what we know as SOF's Third Age.

Starting in 1980, this Third Age “saw the creation of enduring organizational arrangements and authorities for SOF that permitted great advances in capabilities, credibility, and influence in decision-making circles.” The Cohen-Nunn Amendment (1987) provided the power of law to bring about and sustain historic changes. As the author of section 1311 and first permanent Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict, the Honorable James “Jim” Locher III – the great-grandfather of the Chairman of this august committee – engaged in the initial phases of the Third Age of SOF. The early years were not easy. As Assistant Secretary Locher put it at SOCOM's 30th anniversary commemoration, “It was full-blown bureaucratic guerrilla warfare, but with determination and perseverance, the SOF community prevailed.” Indeed, four decades of remarkable and unprecedented SOF achievements resulted.⁶

THE FOUR STAGES OF SOF		
AGE	DATES	CHARACTERSTICS
1st	1941–1960	<ul style="list-style-type: none"> • SOF cyclical existence driven by demand • SOF born out of necessity during WWII; revived in response to the Korean War • “Wild Bill” Donovan—Office of Strategic Studies (OSS) • SOF disbanded and dissolved post conflict
2nd	1961–1979	<ul style="list-style-type: none"> • Sustained SOF; vast growth • JFK stance on counterinsurgency in response to USSR • Failed Iranian hostage rescue mission / Operation EAGLE CLAW
3rd	1980–2020	<ul style="list-style-type: none"> • Expansion of SOF capabilities, missions, core tasks • Cohen-Nunn Amendment • USSOCOM stood up • Global War on Terrorism / combating violent extremist organizations (VEO)
4th	2021–2045	<ul style="list-style-type: none"> • SOF rebalance and renewal —> anticipatory and prospective • Skills of all past ages +21st century skills —> Highly Educated, Hyper-(Tech & Teaming) Enabled, Responsible Operators (H.E.²R.O.TM) • New geopolitical competition environment —> complex security dilemma (CSD) • Whole of Government / JIMC solutions

Ladies and gentlemen, members of this Committee: We now know, with almost perfect hindsight, what the *All-SOF Professionals* at the leading edge of that earlier Fourth Age threshold struggled to foresee and could only anticipate in hypotheticals. However, what they did gain an effective sense of, was a major finding – a critical continuity – in the rhythm and rhymes of the histories of SOF: that continuing thread connecting World War II SOF with their modern descendants as units were *cyclically* dissolved at wars’ ends, only to be resurrected when the need for them once again became clear.⁷

As they began the Fourth Age in 2021, SOF professional pioneers were once again challenged by this dangerous cycle of “disband-after-war, reconstitute-in-wake-of-shock.” At that time of transition, this challenge was striking: Maintain the appropriate quantities of resource investments for the sustainment of a readied, exquisitely high quality Force. Ensure it is capable of remaining devoted to maintaining the peculiar direct-action SOF skills required for combating violent extremist organizations, with the need and ability to rebalance and strengthen their capabilities as agents of influence or coercion in strategic competition with China and Russia. Unconventional warfare, foreign internal defense, military information support operations, and civil affairs operations were foreseen – even back then – as the *new facets of the improved tip-of-the-spear* of a Fourth Age SOF, requiring increased emphasis and prioritization of programming and budgeting.

Around this same moment, back in 2023, the collaborative partnership between the Undersecretariat and the Command reached a teaming milestone with the release of the historic *Joint SOF Operating Concept 2040*, which detailed an envisioned SOF operating alongside the Joint Force in the future. It set out a vision encompassing early but important guidelines for force redesigns that, at the time, endeavored toward a set of relatively modest adaptations and modernizations. Yet these force redesigns became revolutionary inspirations and blueprints for the new functions, forms, and faces now defining the present Fifth Age of SOF.

“BACK TO OUR FUTURES”

What Reflection on SOF’s Fourth Age Has to Teach Us

Members of the Committee, if there is one overarching lesson I would like to leave with you today, it is this: *As the Fourth Age sunsets, we must ensure that we gather its lessons. We must do so with humility and intentionality if we hope to command our own “new dawn” of a Fifth Age of SOF that adequately covers our great Nation’s global ambitions through the end of the century.*

Today, we are facing challenges when, once again, disruptive change is outpacing organizations’ and organizational leaders’ ability to see, understand, appreciate, think, and act fast. Here’s where our love-hate relationship with AI begins, especially as it has threatened on at least two occasions in as many decades to achieve singularity: Leaders now have more technology at their disposal, but paradoxically that same technology makes everything move asymptotically faster than what people can cope with.

Coming into – and now through – the *transitional* years and experiences of the Fourth Age, we erroneously believed that the so-called “return” of great power competition (GPC) ushered in an **inherent** *SOF Renaissance* – a renaissance we were purpose-built for.

We were wrongheaded in the former notion, while at the same time, correct regarding the latter. The return of GPC was no such thing!

In truth, GPC never went away. The reality has always been a return to the (great) power-in-competition game, which is perpetual and ever-changing, as well as alterable. There is peril in this last statement of reality, but also, great promise if we choose our agency properly.

Those same eager and energetic SOF staff leader-operators I mentioned before also unearthed these “original” **SOFT TRUTHS**.

General Manion’s SIG Chief rises and places a posterboard on an easel for viewing by members of the Committee. The information is represented in the graphical boxes that follow.

SOF Truths

1. Humans are more important than hardware
2. Quality is better than quantity
3. Special Operations Forces cannot be mass produced
4. Competent Special Operations Forces cannot be created after emergencies occur
5. Most Special Operations require non-SOF assistance

For decades, these served our communities well – a part of our ethos, culture, and philosophy of “us,” collectively as SOF and individually as SOF professionals. Despite their best efforts, even our SOCOM historians have been unable to rediscover exactly when these five tenets of SOF use, utility, force structure, and force design were created, by whom, and under what circumstances. For years, these Truths were often touted as cautions and warnings – postmortem to missions that either fell shy and short of mission accomplishment or failed outright.

Professionally, I myself have always struggled with these Truths even as I have relied on them for a sense of inner security and assuredness in those ... dark times.

What I'd like to do with the remainder of my time with you today is to resurrect the five SOF Truths and use them as a set of lenses, through which we can re-look at some of the major lessons we have gathered over the past 20 years of SOF experiences, and, as we do, to adjust these lenses in ways that perhaps shine new light on the effort, allowing us to foresee which of these lessons are the essential ones for our learning for better effects at this dawn of the Fifth Age.

Let's take these *truths* in reverse order ...

SOF Truth #5: Most special operations require non-SOF support.

- » SOF during the Fourth age was a team sport. Sometimes the core SOF team (Special Forces ODA, SEAL Platoon, MARSOC team, etc.) is the supported element by a series of enablers, but sometimes those that we traditionally consider enablers are the main effort, supported by the SOF team.
- » It is time for new concepts of modular formations with a SOF core, but not necessarily a separate SOF component for each niche capability – e.g., a team with a Special Forces ODA at its core, but with Civil Affairs, Cyber, PSYOPS, HUMINT collector, clandestine logisticians, Space Force augmentation, etc. as part of the modular formation.
- » Joint SOF talent-melding requires diversity as a strategic enabler to solve complex and compounding Fourth Age problems – directly linked to expanding the ways we must recruit the right people for the right jobs.

And the truth in this particular SOF Truth is also vice versa; frankly, it always has been – though we have not recognized this hard fact or sufficiently reorganized toward greater and greater, more tightly coupled integrative conventional-unconventional and JIIMC Force teaming solutions.

SOF Truth #4: Competent Special Operations Forces cannot be created after emergencies occur.

- » Allies and partners are NOT nuisances to endure. They are our strategic advantage, and we should jealously guard these relationships.
- » When we abandon our partners, we lose credibility and damage trust. We must be willing to accept risks if we want to maintain our influence with these Allies.

As America always does, we play one hell of a catch-back-up game; we recover so well and fast that in the wake of it all, we convince ourselves that we saw the coming crisis all along and were proactive in dealing with it. We still struggle to overcome that cycle of change and renaissance that comes only in the deadly wake of, and hard-fought responses to, the crises that we were unwilling to see coming. And still-lingering institutional, agency, and service-level parochialisms fogs our vision. Those same tendencies continue to haunt our internal business practices even within our now formally Integrated Services.

SOF Truth #3: Special Operations Forces cannot be mass produced.

- » SOF will lose its competitive advantage in the second generation post-9/11 if not employed and funded properly.
- » SOF will need to dominate the undersea fight. SOF's effectiveness in that fight will be determined, in part, by its ability to innovate and employ cutting-edge undersea warfare technology.
- » Synchronized transregional irregular operations, investments, and activities across the Middle East and Central Asia, Africa, South and Central America have Indo-Pacific strategic implications – deterring and compelling the PRC is not just an INDOPACOM fight.

This is a tough one. Let's just acknowledge the elephant in the room, and then move around it: The Battles of the Straits. So many losses that far too many of us share and own – yes, including myself and the loss of one of our Nation's great SOF scholar-warriors, my mother, Colonel Connor Manion. We pay them the greatest honor by not lingering on their sacrifices, but instead by rededicating ourselves to the things we know we must do to make this “never again” real.

SOF Truth #2: Quality is better than quantity

- » Innovation happens at the edge of operations and will include forging into new domains such as the metaverse.
- » Amid that necessary innovation, we are also asking the National Mission Force, akin to sprinters, to now operate at a marathoner's pace, i.e., much slower, where they may not see the fruits of their labors.

We are still working on getting our balance right in three areas: how SOF should be balanced between being forward-postured or “at home,” held in reserve for effective strategic-operational reserve; and “surge” employments; how much of our SOF to deploy – and where – in multilateral, competitive statecraft teaming combinations. This is a perpetual effort to find a dynamic equilibrium suited to the world as it is.

Our achievements in and through SOF education have truly been watershed and transformational when it comes to SOF Truth #2 (and, of course, #1 as well). In three short years, we will celebrate the 50th anniversary of the establishment of the SOF polytechnic university – the Joint Special Operations University—or JSOU as it's known affectionately. Hard to believe.

I'd like to thank you, your predecessors, and this august body of Congress for what has been and remains a unique investment, JSOU being the only statutory, congressionally mandated PME-like university under the auspices of a Combatant Command. Getting Joint SOF Education–Peculiar formally recognized was a major win and a long time coming. According to Assistant Secretary Locher, this constituted the completion of “the unfinished business of [the] Cohen-Nunn [Amendment].”

Last year we quietly celebrated at the University, JSOU-NEXT at 20; JNEXT, as it's called, is a momentous demarcation of the start of a true revolution in SOF educational affairs, producing the “All-Domain” SOF Professionals our country sends forward every single day.

SOF Truth #1: Humans are more important than hardware.

- » SOF has strategic utility in an era of state competition marked by multidomain challenges and transformative technology – this value is in irregular warfare, gray zone activities, and unique options during conflict.
- » Language, regional expertise, and culture (LREC) capabilities, combined with human-machine teaming and basic mission command, are the bedrock of the future SOF “Highly Educated, Hyper Enabled Responsible Operator.”
- » SOF will need to compete with industry in its efforts to populate “diverse operator teams with a sliding scale of sophisticated skill sets.” Improvements in technology are: a) deconstructing obstacles across socioeconomic standing, sex, and race that existed in the preceding three ages of SOF; and b) contributing to improved partnerships with joint and international military partners.
- » Fourth Age SOF will need to prioritize intellect over brawn. In the previous three ages, SOF seemed to value brawn over intellect.

Humans remain more important than hardware. Of course! But then how did we nearly work ourselves almost entirely “out of the loop” during those worrisome years (~2027–2035)? For a moment there it looked as if that Skynet threat from the classic Terminator movies – my mother was unfortunately given the callsign “Sarah” after one of the main characters – was actually going to happen.

We came out of those dark experiences – AI, unplugged, and – again – those early days of cross-domain AI-powered operations like Task Force Jupiter and SOCOM’s global raid campaign against Chinese interests – with a greater sense of humility in our core humanness.

Reconciling The Decades of SOF 'Truths': *Towards a Fifth Age 'Renaissance'*

Amid all the present-day ambiguities and “grayness” of things, including security and defense matters, perhaps the only one crystal clear is that the United States must continue to learn lessons from the past and make changes now to best face – to make – the future. To do so, we need to go back to first principles.

The “win” in this environment of competition is, as it has been throughout the history of special operations, in “left-of-boom” operations, activities, and investments. It’s all about comprehensive (integrated) deterrence.

Preventing the Cold War from going hot was an essential element in the theory of victory in the strategic rivalry between totalitarianism and communism on one side, and democracy and capitalism on the other. The U.S. and its allies and partners achieved their geostrategic interests in the Cold War without fighting the Soviet Union directly in open armed conflict, and the same logic must apply for the remainder of the century.

The 2050s environment of compound security competition for SOF will continue to mean operating in remote, denied, and disrupted environments under ubiquitous intelligence surveillance. Ever present is the threat of targeting by high-end military capabilities – ranging from weapons of mass destruction to weapon of mass effects by a semi-sentient AI. And, at the same time, it is a given that the cyber and electronic warfare domains are contested, and increased scrutiny at home and abroad is routine.

The Fifth Age of SOF will demand a return to the paradigm that empowers “SOF as sentinel,” preparing the environment as the front-line ambassadors of the Joint Force and as the “first three feet” in any competition or confrontation zone. If done in proper ways and for proper reasons, SOF as a vanguard indications-and-warnings system, however, will create conditions that sometimes prevent the need for the use of force in the first place.

UNCLASSIFIED

The Future of SOF

Reconsidering? Rediscovering? Redefining?

SOF Truths

1. Humans are more important than hardware
2. Quality is better than quantity
3. Special Operations Forces cannot be mass produced
4. Competent Special Operations Forces cannot be created after emergencies occur
5. Most Special Operations require non-SOF assistance

SOF Truths 2.0

1. **Software** is more important than hardware
2. **Machine** quality is better than **human** quality
3. Special Operations Forces **capabilities must** be mass produced
4. Effective Special Operations Forces **cannot** be deployed after emergencies occur
5. **ALL** Special Operations require non-SOF Vectors

Other SOF 'Truths': Lessons Gathered, We Must Learn Now

- » In the Fourth Age of SOF, the evolving role of U.S. Special Operations Forces will be focused on strategic competition in all its forms – including economic – against the People's Republic of China and the People's Liberation Army.
- » Illuminating the PRC's whole-of-government approach to worldwide competition including economic warfare, and how SOF plays an integral role in gray zone operations, will be a focus for SOCOM personnel deployed in small teams or working across the government and with allies and partners.
- » The central role of women as U.S. SOF operators enables a future-oriented approach to irregular warfare and must be a focus of recruitment and retention initiatives.

Your SOF stand ready to meet the challenges of this next decisive decade. Many decades of problem-solving, courage, and relentless determination attest to SOF's ability to succeed for the nation today and in the future. With Congress' continued support, we will demonstrate that our nation's SOF are unquestionably a national – and global community – advantage.

Distinguished members of this committee, and especially Chairman Locher and Ranking Member Cortez, and I am grateful for this opportunity to commemorate the 60th anniversary of Special Operations Command and look forward to your questions about the future of the force and how it can best serve the nation.

SOF Truths – for a Fifth Age

1. Our PEOPLE the Highly Educated, Hyper-(Tech & Teaming) Enabled, Responsible Operators (H.E.²R.O.TM) are our most important platforms
2. Quality over quantity; Competency over Core Tasks
3. SOF, properly pre-positioned and postured, can produce outsized mass EFFECTS, and at 'speed of need'
4. Competent SOF, deployed for purpose, builds trusted relationships; presence buys you influence, and influence is power
5. All operators, special and conventional, demand integrative "ALL-FORCE" support. Comprehensive JIIMC Readiness is the key
6. SOF supports, always convenes, and sometimes leads, in resilience and resistance operations
7. SOF is key in producing Influence through Positional and Informational Advantages
8. SOF must always leverage Intelligence and Emergent Tech in ways that enhance anticipatory and predictive capacity in decision making and risk management
9. SOF as a "Rheostat"—provides our Nation with escalation-de-escalation ladder command & control
10. SOF serves the Nation, as Global Scouts—providing the Nation with early-warning I&W, 'Sentinel' capabilities



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SECTION

1

Stories inspired by the First Age of SOF

[1941-1960]

The evolution of unconventional warfare during the Fourth Age of SOF can be understood by the origins of such operations during the early years of special operations marked by audacity, autonomy, and risk. Then, as now and in the future, trust will be a cornerstone of such missions when small teams of military and civilian personnel will need to build trust and develop shared objectives. The tools to do so are evolving, as are the threats to personnel carrying out such missions. In an era of virtual- or augmented-reality technologies and AI personas, it may be easier to connect with a local ally while being more difficult to place faith in them. Successful unconventional warfare missions will see personnel threading that needle under immense scrutiny from ubiquitous surveillance and tracking technologies. This paradigm portends great peril for special operations forces, but the stakes of strategic competition will require mitigating such risks through new tactics and technical support. Done right, this will let SOF develop and nurture the human relationships central to strategically relevant unconventional warfare missions.

RIGHT ON TIME

PW Singer
and August Cole

■ YAKUTSK, RUSSIA | 2033

The rat darted across the floor, weaving in between the legs of the cheap folding card table, before it disappeared into a pile of moldy sawdust gathered in the corner.

“This is certainly *not* what I expected to see on my honeymoon,” said Max Peralta, a US Army Special Forces weapons sergeant, sitting at the folding table the rat had just run under.

“Honestly, it is what I expected,” replied Special Forces Master Sergeant Alex Ivanov, the team leader. He then took on the tone of a wildlife documentary narrator. “That’s a Siberian zokor, the native rat for this region. Just part of the scenery here, in more ways than one.” A native of Vladivostok, he had fled Russia with his family after the Ukraine war, back when he had been just a kid. But he knew the fauna from hours spent watching nature videos on C-17 flights around the world.

“Well, they are going to hear about it in my review after our return. I know the listing said ‘rustic,’ but this is stretching it,” Peralta said.

“Are you really going to blow our cover over a single itty, bitty rat?” weighed in Margareta Sink, a Central Intelligence Agency clandestine officer partnered with the SOCOM members. She’d been worried about their cover since arriving via Japan at Vladivostok’s airport. A decade ago, the notion of 18-series Army Special Forces soldiers clandestinely operating inside Russia would have been laughed at. Yet a steady campaign by the National Security Agency and other US intelligence agencies using quantum computers had so poisoned Russia’s FSB and GRU biometric databases that Russian intelligence was no longer able to rely on them completely. Just like Sink had to trust another US intelligence agency’s wizards to weave their magic, so too did the rest of the team.

Sink had not worked with Peralta or Ivanov before, yet the easy way that they had come together was evidence of how creating an effective team remained more art than science. Each member brought different technical, cognitive, tactical, and even bureaucratic skills into the mix, but the personalities meshing was the secret sauce. While algorithms in the civilian world could pair people into successful romantic relationships, the same consistency had not borne out for SOCOM’s automated team-generation matrixes. So, instead, assembling the right group instead blended a few initial suggestions from AI-driven software that assessed the attributes of potential members from within and adjacent to the US special operations community. Then old-fashioned human understanding of interpersonal dynamics and an individual’s operational track record built the team person by person.

“First, that rat was definitely not ‘itty, bitty.’ And second, it’ll bolster our cover,” replied Peralta. “Typical Americans, flying thousands of miles just to ‘get away from it all’ in the absolute wild, and yet taking to the internet to complain about their accommodations.”

The team's cover was as two newlywed couples, on a shared honeymoon that would take them fly-fishing into some of the last abundant rivers in Asia. This allowed them to make contact in the open with their local asset through a business matching foreign trekkers with local residents looking to make extra money as guides. It was also one of the intelligence community's more successful endeavors, allowing them to covertly move people and material throughout Belt and Road regions, as well as train with locals in remote areas for several days at a time. Better yet, in an era of tight operational budgets, the cover platform had even turned a profit from all the legitimate customers they hid among. Peralta hadn't bought into it at first but made peace with the notion that others outside his tribe in the US government had been keeping him alive for his entire career. Was it any different than the way a Green Beret had to trust a pilot from the Army's 160th Special Operations Aviation Regiment to get his team to a target?

"You can't be serious," Sink said.

"No, he is," Ivanov said. "After Robin Sage training, he wrote a letter of praise to Bojangles about the quality of a biscuit that he'd scrounged out of one of their dumpsters."

"It truly was magnificent," Peralta said. He then turned to their fourth member. "Goodie ... you're too quiet. Your toys seeing anything?"

"No signs of them," said Henry Goodman, the team's Army Special Forces information systems sergeant. With a quiet demeanor that seemed to go with his technical role, Goodman was responsible for the team of small bots that supported the unit. Depending on the need, they served as tools projecting out its eyes and ears, teammates supplementing their capabilities, or even disposable swarms operating on their own. Goodman had been one of the first in the Command to earn the new "Centaur" tab, befitting his tactical expertise with robotics and autonomous systems learned at Fort Moore's Operational Robotics Course.

"Hold it, I got movement in the alley," he said. As he spoke, Goodman waved his hands like a conductor, controlling the movements of a series of jelly bean-sized surveillance drones that had been set to crawl around the alleyway and stairwell leading up to the apartment.

"One male and one female. No weapons detected from multispectral, no added weight on their body from gait analysis."

A brief sigh of relief could be heard from each of them that their visitors were not armed. The bots that Goodman was using to monitor outside the building could be set to destructively overheat their powerful micro-batteries, both to destroy any sensitive information and act as an equivalent to a non-lethal flash bang. Enough to buy a few crucial moments, but nothing more lethal. Other than the climbing equipment, they were unarmed, given all the issues that could cause where they were operating. That changed risk calculus was one of the balancing acts of competition and presence.

“Face-rec checks out,” said Sink, running the faces of the two figures now walking up the stairway against their encrypted database pulled down from a dedicated unit nano-satellite swarm. “Should’ve been three of them, though.”

The figures knocked on the door, and Peralta let them in, everything meant to look normal to any outside observer. But when the two entered the room, the woman, in her 40s with close-cropped salt-and-pepper hair, said in Russian, “Our turn.”

She tapped her viz glasses and stared for a beat at each one of them, running what the team assumed was her own face recognition search. After it found no matches against known police or FSB personnel, she then smiled.

“You can call me Two, and this is Three,” She said pointing to her silent colleague. Face recognition AI had matched him with 64 percent confidence to a 76th Airborne soldier who had served in Ukraine a decade earlier. If so, he had let himself go. Now, he had a huge belly and a scraggly white beard, which made him look like a Santa Claus at a low-rent shopping mall.

“Thank you for coming. A question, though. There were supposed to be three of you?” asked Ivanov. “Is, uh, One on the way?”

“Already here,” said Two. She placed her smartphone on the table, and a holographic image of a white crane appeared. It stretched its wings and then a melodious voice piped in English from the phone’s speakers. ¹

“Thank you for meeting with me and my colleagues,” the crane intoned. “I understand you are going fly fishing, but we thought this choice of avatar would be more appropriate.”

“Native bird to Siberia,” Ivanov said. “Sacred to Siberian natives, but its traditional migratory habitats are increasingly threatened by China’s development projects.”

“So you understand the symbolism,” the crane said, “It would be our national bird...if we had a nation.”

“By your security measures, are we to understand that you speak on behalf of Free Siberia?” Sink joined in. The integration of CIA officers like Sink into SOCOM unconventional warfare missions helped bridge the real-time collection needs within the US intelligence community to the operational capability required to consistently and regularly conduct very high-risk missions. Occasionally there was friction over different priorities, but it usually originated levels way above the individuals on a team and people learned how to filter that out to get the job done.

“I am not what you would say — its leader, as it’s not a useful concept. I’m a node,” said One. “One of many.”

Ivanov was familiar with this kind of distributed and virtualized insurgent organization; they even trained that way during the Q course, joking that the G-chiefs were E-chiefs now. ²

“As we each decide whether it is worth moving forward with our ‘trip,’ we should discuss...” said Ivanov. He wondered if One was actually a human and not just a bundle of software. But if it was an algorithmically generated movement, who would be behind it?³ A trillionaire looking to rile rare-earth commodity prices? China, looking for a weaker mark in its insatiable quest for regional control of resources? Another nation looking to head them off? Japan, Greater Korea, or India? Could it even be the Russian government itself, laying a trap for locals? Maybe, he admitted, it might have been us, some highly compartmentalized program — the right hand not knowing what the left hand was doing.

“You Americans always want to rush everything,” Two said. “In our culture, it is important to begin a meeting with a show of hospitality to our guests ...”

At that, Peralta started to pace, getting impatient at the dance that always accompanied these meetings. It wasn’t just his personality, it was a real risk that they could show up as an anomalous gathering on Irkutsk Oblast’s FSB minder webs, garnering a visit

from local police, or as a data-scraper bounty from local Chinese private security forces overtly and covertly protecting the country's investments in Russia.

Three would not be rushed and placed what looked like a fishing fly on the table. It was large, like a dragonfly. It had its wings arranged in an X on its slender black metallic-looking body, intersected with a T-shape near its tail. Thick fuzzy legs draped beneath its sides and tail.

“One of your past ‘fishermen’ was kind enough to provide us this,” Two continued. “Along with training in counter-surveillance and systems access techniques that have proved useful...”

Ivanov smiled, knowing that it was not a dry fly, but a memory device that used DNA-based data storage. The filament and fine hairs on the fly were storage units, which were accessed wirelessly. He then notices that the shape of the fly looked like a pretty faithful rendition of the Special Forces crest, which featured a pair of crossed arrows over a dagger surrounded by a scroll.

Nice touch.

“But there was one problem with your equipment, however creative,” Two said.

And here it comes, thought Ivanov. Beggars shouldn't be choosers, and yet experience had taught him from working with four different insurgent groups on two different continents that they always found a way to complain about the free gear SOCOM gave them.

“It's empty,” said Three, his voice higher pitched and younger sounding than what his appearance suggested. “So, we put files in it you like. Zircon III missile test last month. Acoustic, thermal, and seismic readings.”

Santa had come bearing gifts, Ivanov thought.

“We deeply appreciate it,” said Ivanov. “And we know the risk that you are taking to be in contact with us, let alone meet with us in person. You're showing us your trust, and that's the most precious resource of all. More precious than all the rare-earth elements that China has ripped out of your soil without appropriate respect and compensation.”

“The third-largest deposit in the world, so they said,” the crane's voice weighed in. “And yet none of its resultant wealth remains here. They treat us like some kind of colony of centuries past.”⁴

Indeed, Ivanov thought, and you're not alone in feeling that. He'd had similar experiences on unconventional warfare deployments in other Belt-and-Road impacted nations.

“So, what are you going to do about that? You have provided us with valued intelligence, but surely that is not why you came together as patriots and believers in a free Siberia?” said Ivanov.

“Your question has the hint of action behind it,” said One.

“Maybe before we go spend days out in the woods, it is best that you say what it is that you really want here, if not what information we can gather for you? Are you seeking to change the nature of our relationship?”

Now was the risky moment, why they were risking burning years of patient work, potentially, in a matter of minutes.

“It is not us, but China that has changed it,” said Ivanov.

He pulled out another memory device. It had the form of a cigarette lighter, with digital files set to dissolve in the device's liquid after two hours or simply be burned away with the flick of a switch.

"You will find in here an intercept of the meeting notes for the Tomtor mining board, which I am sure that you are aware is actually part of the Triple Phoenix Holding company, a Chinese state-linked conglomerate. During the meeting, they discuss their plans once the new axis of the TransSiberian rail line opens."

The construction of the new TransSiberian axis had been the center of a strategic partnership between China and Russia in the wake of the Ukraine war, creating a bloom of new rail, 5G, energy pipeline, and other infrastructure running North to South. It was a monumental shift in not just their relationship, but Siberia and even Asia's future, given the East-West axis of the TransSiberian railway routes that for generations allowed Moscow to define the region's economic, strategic, and cultural activity. ⁵

"The meeting notes lay out an acceleration of the extraction of your rare-earth metals, at far greater levels than what they told your government here and in Moscow," Ivanov continued. "They also establish what comes after linking all your region's infrastructure into their networks. The first part should not be shocking to you, a gradual loss of infrastructure control and financial debt creation then total dependency, just as is happening along the rest of the Belt and Road. What comes next, however, is historic territorial claims from centuries ago will be resurfaced, and after that, a new 'status.'"

"Moscow would never allow that," said Two.

Before the Americans could answer, the Crane said emphatically, "Of course, they would. They'll make the Chinese pay for it, but what else can they do? They no longer have the means to say no to Beijing."

"If not your own government then, who will do something about it?" asked Ivanov.

Two and Three looked at each other, faint glints of pink and green reflected in the lenses of their inexpensive viz glasses as they blinked messages back and forth. Sink was already running an algorithm with her own viz glasses that was decoding those starlight flickers.

«« BELIEVE THEM? »»

«« NOT SURE. BUT THEY DO HAVE SAME FOE »»

«« IS SAME ENEMY ENOUGH? »»

Their conversation was all playing out just like the Partner Force Analytics behavioral models had projected. That made sense, given that the data the algorithms relied on was fueled by conversations just like this happening at various other locales in the Belt and Road, where China's new imperial model had pushed locals too far.

Ivanov pushed a pair of files to the three members of Free Siberia, which interrupted the FS members' internal communications.

"To aid your deliberations, we are sharing with you a second data set. For whoever decides to act, we are prepared to aid. The files detail a series of 'nodes,' to use your term, that are critical to maintaining Beijing's planned mineral extraction schedule, as well as key points of failure for the operations of their rail and communications networks. There is also a series of what we call 'information operations pre-packs.' They'll optimize the virality of what you've learned about China's plans here, in order to facilitate the proper emotional reaction among your fellow patriots. We've also provided the best ways for civilians to aid in hindering China's operations through non-violent means ... It's known as 'monkeywrenching.'" ⁶

"That is not enough," said Three emphatically, confirming for Ivanov that he was indeed a veteran. Siberian troops had long been used as cannon fodder for Moscow, all the way to having higher losses in Ukraine.

So, Santa wanted his own gifts ...

"If you are interested in more ... effective ... means of disruption, we can provide that during our expedition," said Peralta, "as well as training on how to use it."

The team, of course, would not have the explosives anywhere near them during the meet-up. But that could be arranged easily enough via an autonomous drone delivering what would register as a celebratory bottle of champagne being sent to tourists at a remote campsite. Indeed, as newlyweds, it was pretty much required they do so for their cover.

The long neck of One's crane swung back and forth. The crane seemed to pulse, a rhythmic brightening like the quickening of breath. I think that's a good sign, Ivanov thought.

Two and Three looked at each other, then just nodded in tandem.

"It is agreed then," Ivanov said.

Peralta jumped in. "Now let's talk about what's really important. I read that the largest taimen trout ever caught was 6 feet, 231 pounds. How are we going to beat that?"

ADDENDUM

Alex,

I'm at headquarters for the next couple of months, but I hope at least this cable finds you well. My superiors have authorized me to share the following with you and the team. It's an excerpt from an intercepted PLA Central Military Commission pre-read document. I believe you'll find it interesting.

Stay safe,

Margareta

Note: Tell Peralta that this still doesn't make up for letting that lunker of a 6-foot trout get away ...

»» "... As the members of the committee are aware, recent protests and acts of sabotage in Siberia have hampered Tomtor mining operations, repeatedly halted transport on the recently opened TransSiberian Railway extension, and led to a rolling series of work stoppages by local employees at affiliated hotels and facilities.

These actions have the hallmarks of a coordinated campaign; whether it is a natural expression of the Siberian

independence movement or the result of Russian or external direction is unclear.

Either way, the result is the same. It is now evident that the PLA cannot count on reliable rare-earth metals supplies in Siberia for the near- and medium-term given the intensity of the campaign and the multimodal infrastructure damage.

Due to this current and expected shortfall, it is clear we must accelerate the development of new rare-earth metals access options, as well as consolidate our commitment to existing mining and transportation operations in other locations.

This situation also is a reminder of the new symmetry that comes with our gains in global power. We must recognize that China has supply-chain and industrial vulnerabilities, too, not unlike those which we seek to identify and operationalize in our enemies. In light of this recognition, we must be mindful of the potential long-term strategic cost and plan accordingly.”

■ KEY QUESTIONS

How will unconventional warfare need to adapt for missions in which AI-powered data collection and analysis, facial recognition systems, and lifelong trails of digital “dust” are a constant factor at home and on deployment?

What kind of relationships between SOF and local forces or leaders will be possible at a remove or in-country through emergent virtual- or augmented-reality capabilities?

How will SOF establish trust with local guerrilla forces in the Fourth Age when disinformation and hacking are rampant?

For the U.S. to be competitive in strategic competition during the coming decades, it must approach its near-peer adversaries such as China in a coordinated, interagency approach and employ all elements of its national power – economic, political, informational, diplomatic, and military. SOCOM will be central to this effort, particularly illuminating and countering the PRC’s whole-of-government approach to competition, including economic warfare. SOF can play an integral role in such gray zone operations at the seam of technology innovation, private industry, and economic investment.

Yet SOF must also realize its role as a team player – a supporting element within the Joint Force, which is a paradigm shift from playing a central operational role during the past two decades. SOF will likewise need support from cyber and space units to execute its mission objectives, whether it is taking on a supporting role or fulfilling a central role. Looking back to prior generations of special operations can inform this future; the Office of Strategic Services’ sabotage and subversion, for example. This can inspire or shape SOF’s role in strategic competition by fusing economic warfare with military and intelligence. Reimagining SOF for the Fourth Age likewise means reevaluating its core competencies and recruiting the right skills to support the interagency in integrated deterrence, which includes the value of female operators. In this future, women will have a central role in U.S. special operations as they redefine a new 21st-century approach to irregular warfare.

AMONG FRIENDS AND FOES

Kaley Scholl

■ SURF HOTEL, HAIFA PORT DISTRICT 1400 ZULU

Looking down on the Haifa Bay Port project from the rooftop bar atop the trendy oceanfront hotel, Ashley Storm could see the city come to life. She watched Israelis leaving work, aloof from the realities of the true meaning behind the military competition inherent in the ongoing port construction project.¹ The Chinese had tried, and failed, to build a deepwater Atlantic port in Nigeria a few years ago, thwarted by a decisive

SOCOM-led information campaign.² Now, the Haifa Bay Port Construction project could accommodate surface-to-air missiles hidden away in warehouse crates just beyond the commuters filtering out to enjoy what was left of the day. She squinted into the afternoon sun and sipped her tonic, watered down by melting ice cubes. Waiting in anticipation, she reflected on how she got here.

She looked on, tuning out the chatter of her Strategic Thinkers Program colleagues, all active-duty service members, and all on travel together for the culmination of their program, the staff ride. Ashley wished her drink had vodka in it, but tonight was all about work.

The text message came in with a sudden ding from her phone, making her heart skip a beat. It was go time. The anticipation of the text from Peralta unleashed a wave of adrenaline pulsing through her entire body.

HASELA BEACH, TEL AVIV WATERFRONT 1400 ZULU

Sixty miles south, Sergeant Max Peralta reviewed a short text thread on his Nokia burner. He was old school, and while he wore viz glasses camouflaged as beach shades, he preferred the security provided by the resurgence of end-to-end text encryption that he retrofitted to his Nokia by upgrading it. It was his homage to the classic clandestine work of his predecessors in U.S. Army Special Forces even as he carried out an operation involving some of the world's most advanced dual-use technologies.

SGT PERALTA: 2 PICS WITH POSITIVE CONFIRM.

MAJ STORM: COPY, PLZ SEND.

SGT PERALTA: <IMAGE 1> <IMAGE 2>

MAJ STORM: PASSING THESE OFF. WAIT FOR NEXT STEPS.

SGT PERALTA: WILCO. RTB.

Quickly, Peralta ejected the SIM card, grinding it under the heel of his slip-on checkered Vans as he considered where to toss his burner. He caught a glimpse of his tail through the face-recognition of his viz glasses as he gazed over the oiled HaSela Beach goers. The analysis reflected in the left lens of his viz indicated the tail was Mossad, which made sense considering the space-based GEOINT analysis for this operation required Israeli clearance to operate for this mission. This meant they can track him at any time. The bustle of commuters indicated Tel Aviv was coming to life, which will make it easier to lose the tail in the crowds.

He would need to lay low and wait for his next orders from Storm. She would be pleased with the photos he captured while attending the Tel Aviv New Tech Expo 2027. ³ He wondered mildly whether the tail was a result of his lingering presence at the trade show booth of a People's Liberation Army-backed company called MizMaa. ⁴ Because China had been Israel's largest trade partner for the past several years, Mossad was not thrilled at the prospect of supporting this operation, and it remained unwilling to allocate intelligence resources to support him and Storm. ⁵ Either way, his commander would be most interested in the photos of MizMaa's advances into neuromorphic computing, a literal quantum leap in capabilities by using human-like neurons 900 times faster than the human brain for AI computing. ⁶

Being on the ground, the trade show also highlighted to Peralta the extent to which the Chinese deeply invested in Israel's high-tech sector for dual-use capabilities. ⁷ It was something the Israelis were hesitant to admit to their American counterparts, but it was undeniable when you saw it up close. To him, the ever-growing Chinese investment in dual-use technology here was yet another sign that the strategic stakes kept getting higher and higher.

As he searched the crowd through his viz, Peralta pondered the precariously thin line between friend and foe.

■ ALLENBY 75, TEL AVIV 1000 ZULU

Ariel walked into Allenby 75 and immediately saw Storm: She still stuck out with her long, auburn hair pulled back by dark green viz glasses perched on her head and with all her Gen-Z youthful energy. The Mossad agent wondered what capacity she was working as: a declared student on an academic trip, an informal backchannel to U.S. intelligence, or yet another clandestine level that went well beyond his pay grade and rank. He frowned, realizing this may be their last meeting. And it was his last opportunity to figure her out.

Storm knew the rendezvous point well because she and her contact had met there several times. Allenby 75 was always crowded with 20-something hostel seekers from Tel Aviv's vibrant Allenby Street. They had met there for the initial drop of a thumb drive with financial data for Israeli high-tech companies under foreign ownership, including transactions tracked down by various partner intelligence organizations.

"Sir," Storm began, as Ariel settled into the stool next to her in the corner. She always arrived earlier than he, and she always sat in the corner. Constantly alert to her surroundings. He liked that about her. From the formal salutation, Ariel knew Storm would not be acting in her declared student status at this meeting.

"It's bigger than we thought," said Storm, playing with her cocktail straw. "Not only is it the initial list of 360 Israeli high-tech companies with Chinese entities as limited-partner, venture capital backers, investors, and lenders – including many connected to the inner circle of the ruling CCP. ⁸ More than half of these Israeli companies are involved with dual-use military/commercial tech."

Ariel considered this, confirming what he and his elite Mossad clandestine unit knew but were forbidden to pursue. Last year alone, trade from Israel to China totaled \$11 billion, increasing nearly 20 percent year-on-year. ⁹

He looked inquisitively at the U.S. Army officer in front of him. Was she a clandestine officer, too? She had the intellect, but she could very well be an operator. The U.S. capitalized on lessons learned from the Russian war with Ukraine and had become quick to recruit more women into specific positions within their Special Operations Forces.

He smiled, anticipating the desired end state.
“There’s more, you say?”

Ashley looked up from her mocktail and meticulously slid the bar glass and napkin, as if navigating a Ouija board. Then she stood up, pulled on her viz glasses, and walked out of Allenby 75 without looking back.

Ariel watched her walk away and blend in among the throng of people in the café who looked like they were on a holiday or gap year. He moved the glass to the side, sliding the bar napkin and the contents swiftly into his open jacket. He felt the thick glossy texture of photo paper. With a sigh, he threw down a couple of shekel coins and felt regret he would never quite figure out the mystery behind his contact.

■ ALLENBY 75, TEL AVIV 1015 ZULU

Peralta watched Storm leave Allenby 75 from a sheltered alcove adjacent to the bar. Sure enough, she was being tailed. Not just one, but two men slowly rose from an outdoor cafe table as soon as Storm exited the stairs to depart towards the light rail station.

A message from Storm popped up on Peralta’s right viz lens:

«« TWO TAILS. HEADING FOR LIGHT RAIL.
RTB TOMORROW 1400Z. »»

Peralta belatedly recognized one of the tails as Storm’s classmate from a recent STP staff ride: the French liaison officer currently working in the U.S. Army Chief of Staff’s Commander’s Action Group.

“What in the heck?” exclaimed Peralta, surprised enough to say it aloud.

Curiously, the French liaison officer’s companion looked more the part of private security from his tactical-inspired clothing and muscled build. Peralta followed silently on foot toward the metro trolley, relaying the information back to Storm on his viz glasses. First his tail by Mossad along the beach, now Storm’s classmate.

Peralta contemplated the solidity of Storm's student cover as he tracked the two men through his viz.

Peralta wove through the pedestrians to find a vantage point to watch over Storm. Her options were limited in this contested urban environment, which meant she needed to rely on classic clandestine tradecraft to evade.

Peralta noticed his viz data was no longer updating. Curious, he looked around for a third tail. Only a hand-held jammer could cause his viz glasses to malfunction, and he was too far away from the French officer and his sidekick for this level of interference. Either way, he was made. He took one long look at Storm ducking through the light rail line and caught her slide through the bus door, narrowly yet purposefully gliding through as it closed shut.

Smiling to himself, Peralta pondered that sometimes the best methods are the old-school ones. He silently retreated down a dark alley into the night.

ROYALE HOTEL, TEL AVIV, ISRAEL 1600 ZULU

The next morning, Storm woke up with a renewed sense of purpose. And urgency. She had barely slept, instead channeling her energy into a HIIT workout in Royale Hotel's basement gym at 0400 and additional research until the hotel breakfast buffet opened. It was the last day of her class trip, which also meant the last day of her operation. Between lectures on the opening of Israeli relations with Middle Eastern and Gulf countries and tours through the latest high-tech campuses outside Tel Aviv, Storm's mind switched to the import of the next few hours.¹⁰

Her thoughts were suddenly interrupted by her French colleague, André. Curiously, she felt he kept popping up during class, around D.C., or even on this trip to Israel. It seemed he was always just ... there.

"We have a lot to learn from one another," André coolly chided in his precise English with a smooth French twist. "You see, in France we never mix business with pleasure." André gave Storm a long, warning look.

Her stomach sank. Could he really know the duality of her official presence here in Israel? She felt a sense of urgency to get to Peralta at the safe house. This wasn't the first operation where she'd been tracked by a friendly. But this was the first she had been caught unawares, mentally revisiting all the coffee, classroom, and bar conversations she had had with the Frenchman. She cursed herself, the system, the cobbled network of U.S. alliances, and most of all herself for being so wrong about the security of her student status here today. If André was also working behind the scenes, who else might be?

Impatient, she bid hasty farewells to her classmates with promises for follow-on conversations back in D.C. Storm practically felt André's eyes boring into her back as she walked out into the Tel Aviv evening.

■ **SAFE HOUSE, UNDISCLOSED LOCATION, TEL AVIV 1800 ZULU**

At the safe house with Storm, Peralta provided several key updates. Peralta confirmed Ariel was operating alone, and while Storm had been able to shake her tail, he confirmed Ariel finished his drink and left shortly after Storm.

Storm nodded, waiting in anticipation for whatever Peralta was holding back. She had a keen intuition not so much for when someone was lying but the gaps in the truth.

"I received a call," Peralta said and cleared his throat. "Turns out this mission has gotten a fair bit of attention back home. There are far greater links between Chinese investment and Israeli tech companies, and now Treasury is involved. We're now dealing with interagency coordination, which always gets ... complicated."

He paused again, sucking in the air to wait for his commander's reaction.

"Great," exhaled Storm. "This is exactly what we don't need: a poster child operation." Taking a deep sigh, Storm began to contemplate the implications of uncovering the investment flows of all the Chinese venture capital money going into military technologies of one of America's closest military partners.

“All indications from Ariel tell me the Israelis don’t see this type of investment as problematic. ¹¹ I don’t think Mossad will action the information we provided, even though their technology is now filtering back to China and the PLA.” She shrugged, aware of a nagging thought. ¹²

SAFE HOUSE, UNDISCLOSED LOCATION, TEL AVIV 1900 ZULU

From the back of the safe house, Storm decided to do some interagency fact-finding by calling her trusted friend Jane at the National Security Council. Just as Peralta relayed, the interagency was in fact interested in her mission.

“As soon as you provided the contents of the collection through the viz, a Principals Committee Meeting was called for this afternoon,” Jane explained through the viz video feed in Storm’s left lens. Jane and Storm went back many years, to before Storm was even in SF, when she served Army joint time in the Pentagon. Back then, Jane was merely an eager strategist. As ever, Jane was dependable for keeping conversations strictly off the record.

“Just so you know, the agenda was set by the National Security Advisor himself. Vital to this discussion is having you and your team in place. There’s talk here in the Office of Strategic Capabilities of the potential information operations campaign but having you there with your Israeli contacts will help with the operational preparation of the environment. We need live collection, financial forensics, disruption of Chinese economic statecraft, and most important, we need the help of the Israelis.”

This stunned Storm. There was clearly a disconnect between this and the mission planned by her SF leadership. Now the NSC wanted her team on the ground for operational preparation of the environment. She would need to rely on Mossad’s AI to track where the high-tech components in question traveled and Mossad’s blockchain tools for a financial forensic scrub ... if they were even willing to help.

“Sit tight. I’ll give you the read-out after the PC meeting.” Jane ended the call with a hasty goodbye.

Definitely not time to head back to D.C. just yet, mused Storm.

ONE WEEK LATER

■ BEN GURION AIRPORT, TEL AVIV 1000 ZULU

Driving through Tel Aviv traffic, Peralta felt wistful about the imminent departure of his commander and the culmination of the mission. He felt his nerves begin to relax, that dull ache in his jaw easing from flexing his muscles in anxious clenches all week. These past two weeks were a whirlwind of surveillance, reporting, and even some clandestine work. Their roles became fluid once the interagency got involved, and most agencies seemed to want a stake in the claim.

He and Storm did a hot wash as they headed to the airport. The mission had been a success, they agreed, but it went well beyond the scope of their immediate command.

“Once we revealed China’s ownership in the Dutch semiconductor firm’s acquisition, I knew the Israeli Director General would support the UK’s statement,” Storm said.¹³

It hadn’t been easy, but the Israeli Minister of Defense fell in line with the growing coalition of countries.

“The French got on board pretty quickly,” said Peralta. He checked the mirrors and smiled to himself.

“What was that French officer’s name again?” he said. “The tail? Student in your group?”

“André. Dropped out of the course. Apparently, there was an urgent family matter back home in France,” said Storm. “I think they were just looking for an edge, nothing more. I can thank my friend Jane at the NSC for watching our six. She’s got my back, always.”

Peralta chuckled as he watched Storm relax for the first time in weeks.

“Quite a week, indeed,” said Storm, affirming out loud the significance of what they did as if she could not quite believe it herself. “Israel’s Cabinet National Security Affairs Committee approved the resolution to decrease the threshold of foreign ownership.¹⁴ If the Chinese hadn’t been so careless, we wouldn’t have been able to reveal so many hard facts.”

Peralta smiled. He joined the Army to use muscle and shoot, but he routinely found that his brain was his most used weapon on these new missions.

Then his face had a serious look again, ever vigilant as he scanned the cars zig-zagging through commuter traffic in his viz glasses on their way to Ben Gurion International Airport. “It was a great week – but just a drop in the bucket.”

They drove on in silence, acknowledging the enormity of potential Chinese economic statecraft yet to be uncovered globally.

Storm slowly sank into the passenger seat. The mission was a success, though the uncertainty of what was next for her made her stomach knot once more.

**SIX MONTHS LATER
UNIVERSITY OF GENEVA, GENEVA, SWITZERLAND 0800 ZULU**

Storm slowed her pace as she marveled at the recently redesigned glass and steel foyer of the University of Geneva’s School of Economics and Management. She had been accepted into its International MBA program, which provided her an opportunity to unwind from the operational side of work and spend a year abroad as a student.

She smiled at her good fortune to be here after running non-stop for years, deploying all over the world. The stability of a prosaic academic program and socializing with her MBA classmates appealed to her. Growing up in Northern California prepared her for ski trips in the Alps with her classmates and weekend trips to the Mediterranean. It was a much-needed reprieve from the heavy cadence and often lonely existence during the Special Forces phase of her military career.

Walking farther into the lobby, Storm was about to pull out her student I.D. card from her North Face backpack when she heard Mandarin. Quizzically, she looked up at a group of Chinese businessmen in expensive suits huddled in the lobby, waiting for the dean of the University of Geneva’s arriving entourage.

At that very moment, her iPhone pinged. She looks down at a secure text message notification.

«« PERALTA. »»

Like a static jolt, she realized that she was already on her next mission, whether she was ready or not.

■ KEY TAKEAWAYS

The central role of women as U.S. SOF operators enables a 21st-century approach to irregular warfare and must be a focus of recruitment and retention initiatives.

In the Fourth Age of SOF, the evolving role of U.S. Special Operations Forces will be focused on strategic competition in all its forms -- including economic -- against the People's Republic of China and the People's Liberation Army.

Illuminating the PRC's whole-of-government approach to worldwide competition including economic warfare, and how SOF plays an integral role in gray zone operations, will be a focus for SOCOM personnel deployed in small teams or working across the government and with allies.



SECTION

2

Stories inspired by the Second Age of SOF

[1961-1979]


With Chinese strategic interests around the world focused on, and funding, major infrastructure like ports abutting major maritime trade routes or rare-earth mines, special operations personnel will need to invest time and resources into their relationships with military and civilian partners in those regions. What that support looks like needs to be constantly evaluated so that it delivers what those allies and partners actually need, while also being mindful of the potentially thorny political aspects of Beijing's economic and military support even in those very same nations. Strengthening civil society and security forces through foreign internal defense (FID) missions will require persistence and commitment by SOCOM, and also the willingness to let other American civilian departments or agencies play a center-stage role by offering economic or public health-focused support. For when a crisis erupts, there will be little to no time to start anew to engage those local partners given the nature of AI-driven disinformation, the growing prevalence of armed robotic systems, and a global presence by the Chinese military and government-aligned companies.

RIPPLE EFFECTS

PW Singer
and August Cole

■ BAGAMOYO WESTERN RESIDENTIAL DISTRICT, ZONE FOUR

From his perch 18 floors above Tanzania's Bagamoyo Port, the horizon-to-horizon rooftop view looked like a modern art painting: sharp angles of black shadows in the wan dawn light, orange skies, and aquatic blues from the Indian Ocean in the distance. It also encapsulated every single element that made modern conflict so vexing, thought Captain Al Gutierrez of the 2d Marine Raider Battalion.



He smiled as he sipped his morning coffee and then asked himself when he'd become such a philosopher. Probably around when he learned that finding the best local coffee bean source was the non-doctrinal key ingredient of any successful foreign internal defense mission. And in Bagamoyo, it was Ahmed, the vendor on the third row of the food market near Caravan Serai. He got his beans from a supplier in Tanzania's only Robusta region, which also just happened to be in the restive northwest border zone wedged between Uganda, Rwanda, and Burundi. Thus, making friends with Ahmed had proved to be not only essential to readiness every morning of this mission, but also a useful source of information on the comings and goings of the rebel groups that used the area as a base of operations.

The augmented-reality time display projected onto Gutierrez's viz glasses showed 0528, just two minutes before the Chinese-run port's automated gates would swing open and hundreds of local workers would file in. In the wake of the protests that had toppled the pro-Beijing regime last year for signing away this port in exchange for cheap infrastructure, Bagamoyo was now arguably the most important and contentious real estate in the region. Incredibly valuable rare-earth metals flowed out, while cheap goods flowed in. ¹ The minerals necessary to every modern device, from precision hypersonic weapons guidance systems to quantum encryption servers, swapped places with pallets full of knee-high Shenzhen-made domestic cleaning bots and candy-sweet cognitive-lift pharmaceuticals from Chengdu.

The local workers whom Gutierrez surveyed at a distance, though, never got that close to the cargo. That was the domain of the menagerie of industrial robots also shipped in. It wasn't just about the machines' relative cost, but their political reliability. Bots didn't get upset about unfair labor rates or threaten to go on strike when Beijing had pushed local sentiment too far. So the humans were only trusted to fix flat tires, pry apart frozen pincers, or crawl beneath the baobab-tree-sized crawlers to clean ground-facing LIDAR sensors that always caked with oily dust when it rained. All of it watched over by camera towers operated from a control center manned by a mixed team of Chinese civilian engineers and their People's Liberation Army minders. These overseers rarely ventured outside. That is, except for the nicotine-addicted. The cloud of smoke that hung over them played havoc with the face recognition software that identified them by name in his viz glass, but it was always the same foursome anyway.

Gutierrez didn't need a pair of smart binoculars to see the main object of interest, though: the People's Liberation Army Navy (PLAN) warship Longshu Shan. It was a Type 071, an amphibious transport dock ship that weighed more than 20,000 tons. Yet, to Gutierrez's non-nautical eyes, it looked like a rowboat compared to the three Ultra Large Container Ships (ULCS) docked across the way, each loaded up with at least 25,000 truck-sized containers.

The Raider officer felt a series of haptic touches on his forearm, signaling a significant intelligence update. He then consulted his tac-screen, which shared the intelligence report and a live overhead view of the port. Imagery from the various small sensors they had placed about the port overlaid on that provided by the team's swarm of beer-can sized geosynchronous satellites, known as "tallboys," to stitch a 360 close-up by using a mix of synthetic aperture radar, optical, and hyperspectral sensors. And it showed a company-sized element of armed men, offloading from the Chinese navy ship. Their uniforms bore the insignia of BlackTiger, the private military company paid to guard the port.

Gutierrez got that feeling in the pit of his stomach that something was amiss. Seconds later, face recognition marked several of the men as active-duty People's Liberation Army Navy Marine Corps (PLANMC).

With an exaggerated blink of his right eye, which signaled a command to his glasses, Gutierrez popped up the video feed from Captain Bakari Mussa, the leader of the Tanzania People's Defense Force (TPDF) Marine Special Forces unit his SOCOM team partnered with. Mussa was down there with two of his unit mixed in the crowd of workers waiting to enter the port, wearing orange overalls used by electricians and carrying hacked ID tags. That cover allowed them to circulate, checking both faulty wires and the various sensors they had emplaced to monitor Chinese movements and comms.

From Mussa's point of view, he could see the port facility's high walls and closed gates, looking like some kind of medieval fortress designed to keep the peasants out. The Chinese were forgetting the same lesson every would-be imperial power eventually learned: *The more you separate yourself from the local population, the more you looked like an occupying power in their homeland.*

He messaged Mussa through the encrypted communications kit they had provided their TPDF partners and shared the feed from inside the port:

«« SECURITY GUARDS BEING REINFORCED. APPEAR TO BE DEPLOYING QRF »»

As sensitive FID operations went, this one was as delicate as it got. And the reinforcements indicated it might become far more delicate soon.

Gutierrez's team was there to aid the Tanzanian military in its training and operations against the Malindi insurgency, which had carried out a series of attacks on soft targets around the nation in an attempt to destabilize the country and collapse the new government. It was very much in line with the past two decades of SOCOM FID missions all over the world. Except now these Malindi insurgents had a different kind of goal with a decidedly foreign twist: to reinstate a regime in Tanzania more to the liking of the recently spurned Chinese corporate and PLA interests.

Year after year of foreign aid and debt diplomacy had provided Beijing with what seemed like a dominant position in Tanzania, peeling it away from U.S. partnership, much like many other strategic stops on the Belt and Road. Yet, local resentment had equally built up over the increasingly unfair trade and debt terms Beijing imposed, poor treatment of local workers, and an increasingly imperious attitude towards Tanzanian sovereignty. Then the Chinese government's sudden mandate to drastically increase rare-earth metals mining output pushed matters to the breaking point. ² The resulting Ngualla mine accident had cost the lives of more than 1,200 Tanzanian miners, sparking protests that went national, culminating in the President and his cabinet fleeing the country.

The excitement of a renewed democracy had been quickly followed, however, by a series of drone bombings across Dar es Salaam, accompanied by information operations calling for the restoration of the former leaders that all bore the hallmark of Chinese support. Gutierrez's team had been deployed into this complex mix, to help a former and now again partner nation under siege, where the infrastructure was still owned and operated by a strategic competitor. The makeup of his team thus reflected the criticality and sensitivity of the mission to both aid the fight against the insurgency, and help roll back some 20 years of Chinese influence.

In addition to the traditional training experts, there were two Raider NCOs specializing in covert/ clandestine signals reconnaissance (C2SR),³ three Navy SEALs to manage the port's hydrographic surveillance and mapping, a Commerce Department Expeditionary Officer to offer up 6G alternatives to Chinese 5G infrastructure, an NSA neurocryptologist to assist with all the cybersecurity vulnerabilities that came with using that same infrastructure, and a pair of reserve Civil Affairs medical specialists, one an emergency-medicine doctor and the other a psychologist.⁴

The risk of this mission was also why Gutierrez was the only one with eyes directly on the port. The rest were distributed between two team houses in the nearby community where the TPDF soldiers were based and lived. This was a recent change – moving much of the TPDF out of its Chinese-built barracks and into the communities under attack. It wasn't just to place them where the need was greatest and they could build local trust. The NSA team member had also warned them that if they remained, they would likely get cancer from the sheer scale of electromagnetic radiation emanating from the sensors the Chinese had embedded into the buildings they had generously provided to the TPDF.

Gutierrez shifted back from watching Captain Mussa's feed to observing the activity around the amphibious ship. What worried him most was not that a second company of security guards began to exit the ship, but that they were followed by a medical team. Someone was expecting trouble ... and trauma injuries.

He decided to pull the plug. Gaining intelligence today was secondary to being ready for whatever they were planning.

«« MUSSA, ADVISE THAT YOU ABORT MISSION.
RALLY BACK AT BASE BRAVO 19 »»»

■ NYERERE MEDICAL CLINIC

“And then, an apple a day keeps the robot away,” said Navy Lieutenant Andrea Dietrich, the team's Civil Affairs medical officer and an emergency medicine physician.

“How does it do that? Do apples break the machine?” asked Maria Mkapa, her TDPF counterpart in the pop-up medical clinic set up to serve the local community.

“Sorry, it’s just a saying,” Dietrich replied. “What I meant is that once we get the Doc-Bot system up and operational, we’ll be able to not just respond to emergencies, but also offer various preventative care treatment options.”

She continued with her briefing about the robotic medical system, designed to allow advanced medical care of the highest world standards to one of the poorest neighborhoods in the city.

Yet it looked nothing like a human doctor, more like a four-legged stool made from reclaimed wood, with a dark green velvet sphere atop it. The sphere had six articulating arms that looked more like branches than robotic limbs. A Doc-Bot could diagnose a room full of patients using a sensor suite that included olfactory-like molecular capture, thermal imaging, and multi-spectral imaging that worked similarly to how the two Raider operators could see through building walls by mapping the movement of 6G data and other spectrum transmissions. After that rapid diagnosis, remote human specialists located around the world could then offer personalized care, aiding the local Tanzanian team.

Before Dietrich could finish her briefing, there was an explosion in the distance, followed by a burst of machine gun fire. Rather than fear, Dietrich was filled with anger at the rude timing of the insurgents, depriving her of the two hours more they needed to set up the Doc-Bot system.

A Marine Raider nicknamed Grim rushed into the room. He had been standing escort outside the clinic, but really making friends with the local kids by showing off his collection of 3-D World Cup highlights.

“Everybody okay, Doc?” he asked.

“Yeah, we’re good,” Dietrich replied.

“The explosion? Do you know where it was?” asked a concerned Mkapa.

“The police station just outside the marketplace. But it seems to be a misdirect. OSINT shows a Malindi raiding party just crossed into the neighborhood’s western boundary,” said Grim. He took off his viz glass and handed them to Mkapa, letting her see the montage of images and multispectral imagery collected on the open imagery market.

He turned to Dietrich. “We’re tracking 72 fighters, half as many UGV crawlers on their flanks. Another unit of at least 150 combatants is also on the move. Gutierrez also reported that the Chinese seem to be mobilizing at the port. They had an armed unit ready to go into the city as if they knew this was coming. This may be the big push we’ve been expecting.”

“... Which means we’re going to be needed earlier than planned,” Dietrich said.

Without any more conversation, she and Mkapa began to reset the small room to perform triage. While a Doc-Bot wouldn’t be able to aid the community yet, the FID team and their TPDF counterparts could. And for all the planned incremental work at building trust by seeing to the community’s long-term health needs, being there in person to provide acute trauma care over the next hours would be just as important.

■ TPDF PATROL BASE BRAVO NINETEEN, BAGAMOYO CENTRAL DISTRICT

A holographic representation of the port and surrounding neighborhood lit up the tactical operations center in the TPDF base, known as Bravo 19. Green and purple and blue flared across the dusty white-painted brick walls, an abstract rendering of the advancing insurgents and the synchronized Chinese digital and real-world maneuvering to support them.

“Models indicate a dual plan by the insurgents to seize the district council offices, followed by the PLA unit arriving to provide the muscle needed for recognition of the new government,” said Captain Gutierrez. The team quickly moved into planning to disrupt the attack by identifying the points of vulnerability in the operational plan unfolding in front of them.

“There’s three choke points we need to target with effects: one at the port, two about a klick from here, where the insurgents enter an ideal kill zone, and a third at the council offices.”

Each member of the SOCOM FID team had their viz glasses on, but during a crisis moment like this you needed to be able to look at all the data while being able to look your teammates and partners in the eye.

“I’m already pushing out sat feeds to the TPDF marines, unrestricted access,” said a tall female petty officer third-class with short red hair, who went by the call sign Shaky. “They’ve got eyes on the insurgent movements now, and there’s already a defensive perimeter set up around the council offices. We’ve got a pair of Wasp drones on overwatch. The Wasps are under TPDF control, but there’s a targeting buffer set at 30 seconds from SOCAF. They are also moving to set up the ambush on column two, with another two Wasps soon to deploy in support.”

The two-story patrol base shook as an explosion echoed through the neighborhood. The hologram display of the emerging battle flickered across the walls, underscoring the urgency.

“Didn’t need that coffee this morning to wake up ...” said Gutierrez under his breath.

The coordination in the TOC continued wordlessly, as the FID detachment coordinated its support for the TPDF. It was a delicate balance to aid the TPDF’s kinetic response to thwart the Malindi advance while ensuring that any targeting of PLA or other Chinese forces remained limited to the electronic domain. Most of the team would remain in the TOC, physically – and digitally – out of sight, as this was a narrative contest as much as one for terrain and technology.

For all their focus and the tension in the room, this shifting of the SOCOM FID mission from non-combat to confrontation or even

combat in a matter of moments was just the dynamic that they trained for and had experienced in other Belt and Road hotspots around the world.

As Shaky manipulated the holographic spectrum-management display lighting up the room, she pushed an all-team message that flashed across their viz displays.

**«« PLA SNIPING TPDF COMMS, TRYING TO DISRUPT
IN AID OF ATTACKERS. I'M REPOSITIONING A
SAWFISH RECON SUB TO ACT AS COMMS RELAY
FOR TPDF AND LOCAL AREA INFO MESSAGING.
WILL BE ON STATION IN FIVE MIKES »»**

It was the technical solution to a critical operational problem that had been vexing the team's information campaign near the port. The Sawfish-3 UUV was a flat mattress-sized stealth craft with an articulated hull covered in rubber; its beak-like antennae cluster made the name a fitting one. The robotic submarine conducted long-range missions but could also conform its shape to hide along the seabed for weeks at a time. After Shaky relayed an acoustic wake-up command to the UUV, the Sawfish-3 fluttered from its resting place toward the surface, moving like a manta ray. Once at the surface, it would begin transmitting the FID team's information campaign, as well as backstop the TPDF's communications networks. It was an unorthodox use of the platform, but exactly the kind of innovative approach needed at a time like this.

As the submarine moved into position, Gutierrez ran the FID team's AI battle management plan through the SOCOM operational authorities algorithms, known as the "battle box," to ensure he wasn't going to run afoul of SOCAF, somebody back at the Pentagon, or the State Department after this all was over. This machine-speed approval — and occasional rejections with suggested modifications — of plans represented a generational shift in information warfare. At the start of his career he might have had the TPDF carry this tactical information campaign out, with uncertain results but certain blowback from his commanders. Instead, he received a short "plan approved" message from the battle box with a graphical scorecard expressing the battle box's confidence in the plan.

An instant later the Sawfish UUV began sending out AI-generated real-time messages, rallying the workers outside the port to protect the city and flooding local social media with calls to join them in a protest in front of the port's fortress-like gates. At the same time, it autonomously executed a series of security exploits at the gates that tricked the electric motors powering them into thinking they were overheating and had to shut down.

An overhead view of the port showed hundreds of Chinese soldiers and security contractors milling inside the port, unable to leave. Just outside the towering gates, protesting Tanzanians, in groups of two and three, began to filter into the area.

“They’ll figure out the gate hack in maybe 15 minutes, but by then there’s going to be almost 10,000 people blocking those gates,” Gutierrez said out loud to the group. “And, so the PLA will have a choice: Either abandon its planned ride to back the insurgents or storm through the crowd for the whole world to see. Either choice, they lose.”

He then pivoted to the commerce side of the equation.

“Browder, how are the FiOps looking?”

The Commerce Department Expeditionary Officer, Browder, was someone Gutierrez had worked with in South America. He had a grin on his face, as he outlined another dimension to the fight, the monetary side. ⁵

“I’m working two angles. Number one: The Chinese port and related companies have threatened to suspend or fire any ‘disloyal’ workers that join the protests. We need to offer up better alternatives for them. My best idea right now is to sell all the Bagamoyo port data we’ve been picking up. I can quietly offload it to a contact at the regional data exchange in Dar. Number two, I’m going to exact some costs: I’ve got regional and international micro-sanctions already deployed against individual Malindi insurgents. And I’m seeking approval to undertake a global crowd-sanction campaign against the local China-backed port supply chain companies. That way they’ll have no choice but to bring their local workers back when this is all over.”

“Browder, you need to clear that creative use of the Chinese data with, uh, someone higher?” said Gutierrez. “That wasn’t in my initial plan that I ran through the battle box.”

Browder wrinkled his nose and shook his head in mock disappointment. “The data’s fair game, third-country collected, and never stored by USG. Always on the new TPDF cloud they just set up. But it’s just a quick-hit fix to build up the unit’s war chest. We’ve done our homework during our rotations at home, so the people in this sector of town are tapped in. Even if things go sideways, there will be cash and credit,” said Browder. “Besides, the COM in SOCOM is for Commerce, right? We’re all in.”

“Alright, Browder, good by me, too,” said Gutierrez.

The Raider officer turned to the group, lifting his viz glasses. The rest of the team did the same so they could all look one another in the eyes. None of them looked rested, with red eyes and dark circles already. But all of them looked eager.

“I need you all to listen up for a moment, because the clock’s ticking,” said Gutierrez. “I’m going to head out to the city center to link up with Captain Mussa, who’s already on his way. It’s important to be right there beside him, so they know we are with them from start to finish.”

Gutierrez paused and took in the room one more time as he carefully chose his words.

“I’ll be on comms, but you know how things sometimes go. Whatever happens, I trust you to make the right calls, and what right is goes like this: We’re going to do right by the TPDF today. They are going to prevail with our help.”

“But recognize that this next hour or so is about more than them. It is not just Tanzania that’s fed up with China becoming their new imperial power by debt and then dominance. So, what happens here, if we’re able to help them keep free of that? It is going to be watched in Djibouti, Malacca, Tashkent, and most of all Beijing. What we do here will rock decades of their careful planning.”

■ KEY QUESTIONS

Who are the most important local partners for SOCOM foreign internal defense (FID) missions in an era of enduring competition with a nation such as China?

How can SOF help strategically important nations develop social and strategic resiliency when faced with growing external economic, military, and social pressure?

What combination of civilian and military members can best carry out future FID missions in strategically important nations whose domestic politics may be more complex and ambiguous regarding bilateral alliances or obligations?

The next generation of special operations forces needs to be prepared to engage in great power competition in the context of climate change and human security issues such as energy security, water security, and food security. These are wedges that China is prepared to exploit to its advantage in nations it deems strategically vital to its global economic, political, and military interests. The U.S., in general, and SOCOM, in particular, need to be ready to respond to support allies in these vulnerable regions, including outside traditional military-to-military relationships.

By cross-training SOCOM personnel inside other U.S. agencies (and not just the traditional agencies that partner with SOCOM operators), SOF can deploy operators who are capable of functioning autonomously and with audacity in civilian areas where next-generation military equipment or affiliation with the armed forces could hinder the likelihood of a mission's success. This is not merely a matter of operational cover but rather a reflection of the Fourth Age's emerging skills, traits, and abilities outside traditional irregular warfare paradigms.

STRATEGIC HARVEST

Jessica Libertini
and Noah Mcqueen

■ NORTHERN TANZANIA 0340 LOCAL

The African sky swelled with the sounds of chirping insects, grunting hippos, and cackling hyenas on a moonless night. Despite this, Captain Gaia Lin could still hear her heart beating loud but steady as she walked down the dark, dusty road toward her objective. The Mwengi family's wheat field was the last of six on her list.

Her teammates from her old US Army Civil Affairs unit had always emphasized a cardinal rule for Africa: “Do not go out at night.” And yet, here she was, alone in one of the most dangerous parts of the country on the darkest night of the harvest. The Army captain attached to the US Department of Agriculture had no team, and she carried no specialized gear or weapons. All she had was a mission unlike any she had had before.

The village had not been considered safe for Americans for about a year, since several American and European aid workers had come down with a strange onset of weakness that turned out to be severe anemia requiring evacuation to Landstuhl for emergency iron infusions. Even before the strange illnesses, the security conditions in the village had been considered risky. And now, even the Embassy team wouldn’t come to visit Gaia; so, every two months, she drove the ten-hour route back to the capital to bring updates in person – and, during harvest season, she also brought seeds. That was her objective tonight, and her next drive was set to begin in just a few hours. She had been sent an urgent tasking to complete the latest seed reconnaissance ahead of schedule because of Chinese state-backed activity elsewhere in the country; what that was she wasn’t told, just that it was urgent. What she did know was that, even this far out, there were rumors about increased tensions at the various rare-earths mines run by Chinese companies due to accelerating production demands.

Headlights popped over the low hill to her east, slicing the darkness like a dagger. Gaia dashed into the sheltering wheat stalks in one of the fields that had not yet been harvested. Her heartbeat thundered even louder in her ears as a truck of slightly tipsy private security guards approached. She lay flat, pressing her diminutive body into the soil. The guards shouted at one another and laughed out loud with a familiar bravado, one she had seen among others on the payroll of Jing Mai, a Chinese seed salesman who had become so influential in the community that he had almost complete control of seed prices on the local market and the regional influence that went with it. His company’s GMO seeds were custom-tailored to counter poor wheat yields exacerbated by climate change. ¹

Unlike the traditional wheat, or the now five-year-old American GMO designed to provide viable seeds for seed saving and self-sufficiency, Jing Mai’s seeds, which out-produced the others in the harvest, required farmers to buy new seeds each year. The guards’ rowdy banter continued, getting closer.

As with other forms of coercive aid, Gaia knew that Jing Mai's goal was to get the majority of farmers hooked on his seed before ratcheting up the prices. ² To aid this objective, Jing Mai also offered a highly discounted rate on field security to those who bought his GMO seeds, something previously unheard of. Since his arrival and the arrival of Gaia's predecessor, crops were sometimes stolen, or worse: Several families' fields had mysteriously burned. Some blamed the Americans, some blamed the Chinese, and some blamed their fellow farmers. Amid all the suspicion in the area, many still benefited from the infusion of Jing Mai's cash, as the demand for security increased the number of guards on his payroll, in turn giving him more power and influence.

As lights danced closer to Gaia, she froze and practiced the measured langhana breathing that she had been taught in JSOU's advanced creativity and mindfulness course, and she let her naturally calmed mind start to ideate on what her excuse would be for being out so late if she were caught. At least she had no gear, other than a locally bought folding knife, a small waterproof flashlight, and a few small seed vials. Getting caught with any of the standard clandestine irregular warfare kit she had trained with at Fort Liberty would have undermined her declared USDA role and instantly eroded all the trust she had been working so hard to build with the village families. But the truck bounced by without even slowing down. After the taillights disappeared into the night, Gaia did a few ujjayi breaths to restore her confidence and darted back onto the road to make up for lost time.

Gaia made her way to the middle of the Mwengi field, pulled out her light, and put her USDA training to work identifying the best seeds to harvest. As she scraped the seeds into her last vial, she remembered the toothed smile of Jing Mai as he closed the deal for GMO seed with Mr. Mwengi last March in the market. Gaia's mind was like her grandfather's old slide projector, flashing up images of that same smile as Jing Mai won over more and more farmers despite Gaia's day-time role providing education about the risks of this particular GMO crop and her night-time ops raiding or destroying those very same GMO fields.

The slideshow in her mind abruptly ended as she heard a rustling sound in the field with her. She suddenly felt simultaneously alone and not alone. No NODS, no viz glasses, no audio enhancement, no team to have her back. She had no idea if she was about to face a guard, a hyena, or worse. As the rustling got closer, she listened

intently, trying to distinguish the number of feet, the pace, and the gait when a “maaaahahaha” broke the silence.

A goat. A stupid goat. She packed up the rest of the seeds, took a moment to pet the goat, and made her way back home as a gentle rain began to fall. After the tense close call with the guards, the worsening weather provided welcome additional cover, and the gentle sound of the soft rain on the ground helped counter her loneliness.

She smiled to herself as the adrenaline ebbed during her walk in the dark. That was a close call, she knew, but it didn't feel irresponsible. She had a mission. And she still had a lot to prove to herself, and her teammates back at home. Three years ago she was passed over for promotion. Rather than continuing in a professional holding pattern, she opted out of company command when she heard about a new SOCOM irregular warfare solo operations training pipeline that in her case went via the USDA.

Everybody wants to be USDA until it's time to do USDA shit. She chuckled out loud at the way this variation on that old social media meme popped into her head at such an inopportune time. Catching herself, she looked over her shoulder to be sure no one could hear her. In a few hours, she needed to be on the road to the US Embassy in Dar es Salaam, and this was no time to slip up.

ON THE A23 HIGHWAY TO DAR ES SALAAM 0839 LOCAL

On her solo drive to the Embassy, Gaia brought up the antiquated CarPlay system in her faded white 25-year-old Toyota Rav4 and hooked up the adapter that allowed her new phone to mate with it. The adapter reminded her of her little brother; he had helped develop the system as part of his senior design project at Johns Hopkins' Whiting School, funded through SOFWERX and the National Security Innovation Network in one of those small ways the universe seemed to connect their lives together. Gaia dialed a Maryland phone number – not her brother's, but rather that of her mentor at the USDA.

“Advanced Wheat Lab, Dr. Martza speaking.”

Dr. Martza could ramble a bit, but it was a long drive so Gaia didn't mind. She was lonely a lot on this deployment and found herself grinning at the prospect of a long conversation.

The soft-spoken yet wisdom-steeped voice of her mentor brought back memories of her time training alongside USDA Foreign Service Officers and working in the Advanced Wheat Lab in Maryland, where, in partnership with USAID, USDA teams were seeking to develop their own GMO seeds to address the decreasing yields much of the Global South was experiencing.

Gaia remembered the feeling of plump grains in her hand at the lab. Admittedly, the grains she had stolen under cover of night had much larger endosperms, the part used to make white flour.

"Gaia, as soon as we get this batch of seeds from you, we will send them to our partners at NIH, and they have also lined up another agency partner to test your seeds. The batch from last season raised a lot of eyebrows around DC. It is definitely a hearty, high-yield variety that requires little irrigation, much better than the seeds we sent out before, but we are getting close to this production in lab conditions. Anyways, the team at NIH found a very unexpected genetic marker that might explain the anemia of those aid workers if they had been eating the local wheat. It's still just a theory, so hopefully this season's batch will confirm it."

"Thanks, Dr. Martza," Gaia said. "It's not data, but my gut feeling is this is one piece in a bigger puzzle here, bigger than just the crops."

"That's your area more than mine. But do you remember Dr. Jung? She studied under Dr. Kang at Cornell in the late 20s? You recall we had Dr. Kang as a guest lecturer? Anyway, Dr. Jung noticed something related to a marker that might, well, I didn't completely understand, something about hepcidin, which she said had something to do with iron absorption."

"Vaguely, to be honest," said Gaia. She lost focus driving for a moment and braked hard to avoid a water truck that pulled in front of her.

Dr. Martza continued, "But the point is, if she finds what she is looking for, she wants to send it to colleagues she knows at Fort Detrick who are very anxious to test the seeds, because if it is what she thinks, then the marker might only impact certain ethnicities. So, you may have found..."^{3,4}



CRACK!

The adapter snapped out of the old-school USB port and onto the floor. The Rav4 bounced and slammed into an exceptionally large pothole that Gaia hit while passing the water truck.

Gaia knew the types of things they tested for at Fort Detrick, and her mind flooded with questions, letting her reasonably well-informed imagination color in where the conversation had so abruptly ended. Could the seeds in the satchel next to her, all packed up for the Embassy to send to USDA, actually be an ethnically targeted bioweapon? Had her Taiwanese heritage spared her the fate of the local Tanzanian aid workers? Was Jing Mai just a seed salesman doing his job, or did he know what he was selling? Did Beijing know? Surely Beijing knew, but why would a Chinese company be pushing these crops in Africa? Was it because it was a testing ground away from their own population? Or maybe they wanted us to find out? Jing Mai had been pushing the local security pretty hard to make a scene.

She gripped the wheel tighter, wiggling the car's front end to make sure she hadn't done any fresh damage to the decrepit SUV's suspension. As she mulled these questions, dozens more flooded her mind. None of them could be answered just yet. She scanned her mirrors and then pressed the accelerator, urging the worn-out Toyota to get to the Embassy a little faster.

■ KEY TAKEAWAYS

Human security issues centered on global food supply will drive many future SOF missions, and climate change will exacerbate the importance of developing trusted networks and establishing pathways to directly support citizens of partner nations.

SOF Truth #3 holds with a new angle: A highly educated SOF operator may benefit greatly from cross-training with other agencies, such as USDA, the Department of Energy, and others, which could lead to non-traditional career trajectories. Also, SOF Truth #1 holds, especially if technology may not be available or worth the risk in all settings.

SOF Truth #2 in the extreme case: There may be a role for solo operators, but loneliness is a human reality that will need to be addressed, particularly for those transitioning from team culture.

Special operations during the Fourth Age of SOF is a team sport — and there are likely to be more captains than during the past 20 years. Sometimes the core elements — be it from an Army Special Forces Operational Detachment-Alpha, a Navy SEAL Platoon, or a Marine Corps Special Operations team — are the supported element whose mission is enabled by teams of experts who regularly underpin special operations.

Yet, due to their technical or other specific expertise, sometimes those SOF elements that traditionally were considered “enablers” or supporting personnel will be the main effort in turn supported by a core SOF team. With this dynamic during the coming decades, SOCOM's special operations forces will have strategic utility in an era of state competition marked by multi-domain challenges and transformative technology. Being able to shift lead positions and priority skills within SOF teams will be of exceptionally high value in irregular warfare, gray zone activities, and during any large-scale conflict in the coming years.

GROUND TRUTHS

Alex Deep
and Nick Tallant

OUTPOST BRAVO (LEBANESE SOF COMMAND POST),
BEQAA VALLEY, LEBANON 02 APRIL 2035 / 2230 LOCAL TIME

“This used to be my favorite part,” Master Sergeant Steve Bennett muttered as he watched a group of Lebanese soldiers creep toward a Hezbollah safe house. He had been deploying to the Levant since 2015, when he was new to Special Forces and barely old enough to drink a beer. A lot had changed over 20 years.

For one, the ISR was undoubtedly better. Not just the familiar black and white glow of a gated two-story building with sentries roaming about, but also live data – the type of weapons the Hezbollah guards were carrying, building specifications, probability of success at different points of entry.

Rather than feeling the stillness of the night and adrenaline rush before first contact, he sat comfortably in a command post, miles from his Lebanese partners, with a fresh cup of tea in hand and the smell of the best shawarma on the planet spreading in the room.

As he sat remembering how things used to be, a voice rang out, “Can you project what you’re seeing for the rest of us or are you busy planning the Skynet takeover?” Bennett knew immediately it was Claire. After all, she was the only woman within a 5-mile radius.

Claire James was new to the detachment. A technology sergeant. Different than when Bennett was growing up and the communications sergeant had to deal with all the new tech. That was Claire’s job now, and it was full-time. She ensured the detachment could do something with all the data coming in from ISR feeds, cyber tools, and open-source data – after all, a 22-year-old in Hezbollah loves social media as much as anyone back home.

“First of all, shut up,” he replied. He hated the lens implant that let him see anything that the drones and sensors did – it made him feel more like a piece of kit than an operator with two decades of experience working side-by-side with the same people out on missions tonight without him.

“Second, no way you even get that reference.” *To her, Terminator might as well have been from the silent movie era*, Bennett thought. She was only 23.

Claire’s eyes widened as Bennett projected multiple drone feeds onto a bank of screens in the room. She loved this stuff.

“Anything on your arm?” she followed.

That reminded Bennett of the one thing he hated more than the eye lens: the haptics in his arm. They linked him to the drones buzzing around and the Lebanese team leader on the ground, not to mention his detachment commander, Captain Adam Walsh, who was due back from Beirut that evening.

Before he could respond, Bennett's arm tightened, and the haptics started firing: Data from the Lebanese team leader, the drones, and the ground sensors.

"We got explosions at the house and enemy drones in the sky ... Troops in contact," Bennett announced.

Without having to say a word, commands from Bennett went to one of the beehives his team and others had emplaced throughout the valley. A large canister emerged from the ground, opened and launched a host drone containing ten smaller drones. The swarm of ten flew toward the Lebanese team, jamming signals, spoofing weapon systems, and attacking Hezbollah fighters. The host returned to the hive where it would automatically reload from an underground stock. The swarm would never return.

"They need MEDEVAC, Mike," Bennett said calmly to the team's medical sergeant, Michael Sams. There wasn't a radio call, but the haptics told Bennett everything he needed to know.

Sams sent a command from his computer terminal to the WHITE KNIGHT self-piloted medical platform closest to the Lebanese team. Much like the beehives, Special Forces teams had been positioning these drones throughout the valley over the past five years. Nowhere was farther than 30 minutes away from one. "MEDEVAC enroute, ETA ten minutes."

This was the third time in as many missions that Hezbollah had the drop on us, Bennett thought to himself.

Just then, Captain Walsh walked into the command post, back from meetings at the embassy. He doesn't have to ask for a status; his data link with Bennett had been up since the mission started.

"This is getting bad, Steve." This was Walsh's first time overseas. He imagined it going differently.

"We have to change something," he continued. "I got another brief from the Agency today talking about Iranian Quds Force and Wagner embeds. I'm not seeing much difference between what they give Hezbollah and what we give our guys."

Bennett didn't love Walsh's pressing tone. After all, he had been doing this since Walsh was in elementary school. But then again, the officer wasn't wrong.

"I think our guys' comms and networks are compromised," Bennett responded. "Hezbollah knows when they are coming, where they are going, and can spoof their systems. They couldn't do that before. It's turning into a high-tech knife fight. We win some, they win some."

Bennett recalled deploying to Syria back in 2019.

"I remember using a satellite dish in the back of my up-armored SUV to run comms and real-time map displays with the Kurds on target. Did most of our coordination with them over WhatsApp. That would be crazy now."

"Yea, those capes are coming from the Russians," Walsh added. The intelligence analyst from the briefing today had told him as much.

"What else did you get at the Embassy," Bennett asked Walsh. "Anything on those reports we received about Tartus?"

The briefing painted a complex picture of what Russia was doing in Lebanon. At this point, the Russians were playing both sides. Using private military contractors to assist Hezbollah, while Russian diplomats and intelligence officers engaged the Lebanese opposition on using insecurity and economic instability as a rallying cry. The Russians were getting desperate to install a more friendly regime in Beirut. The naval base in Tartus, Syria was falling apart. With Crimea isolated since the dirty bomb attack on the Kerch bridge five years ago, Russia needed port access in the Med. Beirut would be a strategic breakthrough.

"Things are about to get even more interesting," Walsh replied as the rest of the team gathered around him and Bennett. "A Wagner shipment of bio-agents is set to arrive in Tartus in the next 24 hours. Target is the Lebanese ruling party convention two days from now. The Agency thinks this will trigger a coup, backed by Russia and Iran. We're meeting with the ambassador, chief of station, and task force leadership tomorrow to discuss options."

Sure hope that meeting has a chemist, Bennett thought. And maybe someone who knows the port schedule in Tartus ...

**THE OASIS (IRANIAN QUDS FORCE SAFE HOUSE),
BEQAA VALLEY, LEBANON 03 APRIL 2035 / 0137 LOCAL TIME**

They're getting better, Zal thought.

Zal sipped his tea and took a deep breath of the cool night air. The tea was too hot for his liking, but it felt good as the wind gusted through the courtyard. At least it helped keep him awake on nights like these.

The faint, fragrant aroma of the neighboring vineyard wafted in the breeze. Zal's mind flashed to his very first mission in the Beqaa Valley in 2019, from his native Tehran. *How many times had it been?* Zal quizzed himself. *Had to be ten, maybe twelve trips.* He had lost count.

So much had changed since his first mission to advise Hezbollah fighters as a young Quds Force operative. Now, as a commander, Zal chuckled as he reminisced. His Hezbollah counterparts were now commanders themselves. But they still knew him as Zal, his alias chosen for the legendary Persian warrior. None of the Hezbollah fighters knew his real name. And he didn't know theirs. It was safer that way.

Yes, our Hezbollah partners are getting better, he thought. Thank goodness they're staying a step ahead of the Lebanese government forces and their American advisors.

The Chinese-made vis glasses resting on the top of his head vibrated. He quickly slid them onto the bridge of his nose as an incoming message appeared.

**«« OPPRESSORS WITHDRAWING FROM EAST VALLEY.
FIGHTERS REPELLED ATTACK. REESTABLISHED
IN ALTERNATE POSITION. 3 HEROES INJURED.
TREATMENT UNDERWAY. »»**

With end-to-end quantum encryption, Zal didn't mind getting updates directly from his Hezbollah commander counterpart. It made things easier.

Zal took one last breath and exhaled as he gazed up into the clear night sky. Then, he turned and made his way back to the safe house's basement bunker.

As he squeezed through the narrow stairwell, he remembered what his boss in Tehran had told him, “We must be master archers with our golden and silver arrows. Drones and bytes.”

Zal knew the drill by now. He provided Hezbollah with drone expertise, and the Russians provided cyber expertise.

With every step deeper into the bunker, the blue-green glow of the foldable flatscreen monitors shone more brightly. The crisp night air quickly gave way to the musty smell of too many bodies in too small a space.

As Zal ducked through the low doorway and stepped into the bunker’s main room, a thickly accented Russian voice greeted him.

“Success!” Sergey exclaimed.

The bearded Russian in his early 30s pumped his hands in the air.

“No more datalinks for those American drones. Their so-called ‘beehive’ drones are stuck in their own honey. They are no match for Sergey!”

Sergey was obnoxious. Zal had worked with some unsavory characters over his decades in the Quds Force, but he still couldn’t come to trust Sergey and the other Wagner-contracted cyber warriors. Calling them “warriors” was too generous, in any case. Hackers-for-hire was more appropriate.

But Zal had to admit, Sergey was good. This was the second time they had worked together in Lebanon advising Hezbollah. He could deal with one more obnoxious, arrogant Russian, as long as the agent could deliver.

“Did our early warning hold?” Zal inquired.

“Of course! I picked their pockets as those snakes slithered up the valley,” said Sergey, referring to the spyware remotely inserted on Lebanese SOF cell phones.

“Well done,” acknowledged Zal glibly.

Zal could feel his competitive skepticism boiling within him. He didn’t want to fire back that Iranian-made, autonomous reconnaissance

drones had also provided early warning for their Hezbollah partners. The built-in electromagnetic countermeasures could seek other drones and jam their links without any operator involvement. They were like next-gen sentries guarding the valley.

Zal held his tongue. He was fascinated by tech, like their newest Iranian drones and the latest Russian cyber tools. But he was seasoned enough to know that humans still mattered. There was no substitute for the network of Hezbollah informants extending from Beirut into the Beqaa Valley.

When hardware fails, humans can still fight on, thought Zal.

Zal knew he needed to report to his headquarters in Tehran. He quickly tapped out a message, passed it to his vis glasses, and blinked send.

«« EARLY WARNING HELD IN WEST AND CENTRAL VALLEY. MINOR GOVERNMENT BREAKTHROUGH IN EAST VALLEY. »»

Zal's mind quickly shifted from the night's events to those missions on the horizon.

"What about the shipment? Is it on schedule?" Zal asked Sergey.

"Yes, it's arriving in Tartus later this evening," responded Sergey. "It should cross into the valley by early tomorrow morning. Just in time for the party in Beirut."

**US EMBASSY SECURE CONFERENCE ROOM, BEIRUT, LEBANON
03 APRIL 2035 / 0900 LOCAL TIME**

"We've been tracking the MT *Miklagard* since it left the Port of La Guairá about two weeks ago. We initially thought it was just carrying petroleum to Damascus. However, using satellite collection and other technical means in the Med, we now assess that the crew includes two Wagner group operatives and two Russian scientists responsible for transporting 10 to 15 drones with explosive and biological payloads."

Walsh and Bennett listened intently but shifted around in their seats. The SCIF – Sensitive Compartmented Information Facility – at the Embassy was always about 10 degrees hotter than the other rooms, made worse today by having too many people inside. The air was stale. You could feel it hanging above your head, sticking to your skin.

“The explosive is a new mix of standard high-melting explosive, or HMX with a high-energy polycyclic nitramine known as CL-20. ¹ This mix is both stable and powerful.”

“The bio-agent is also something new,” a representative from the Centers for Disease Control and Prevention added. “An aerosolized virus that has been genetically modified to rapidly attack the lung tissue of specific people, targeting them based on their DNA.” ²

Bennett whispered to Walsh, “Are you getting any of this?” *We’ve come a long way since dropping grenades from quadcopters,* he thought.

The CIA analyst picked things up. “The targets are leaders of the current governing coalition. If exposed, they’ll die within an hour, maybe two. Others exposed will get sick, but most will survive if treated right away. Once the Russians transfer the drones to the Iranians in Tartus, it’s a matter of getting them to Hezbollah operators in Beirut.”

A new voice entered the conversation, a colonel representing U.S. Cyber Command piped in from Ft. Meade. “We know the link they’ll use to control the drones – that’s standard at this point. If we can get close access to one of the drones as it comes online, then we can take over the lot of them.”

“That’s where my team comes in,” Walsh interjected. *He was glad the Task Force commander let him brief the plan.*

“We have signals intelligence and a source corroborating the location of a Hezbollah safe house in the Hamra district. National Security Agency pulls confirm that this will be a launch site for one of the drones, and local Hezbollah operatives expect delivery tonight.”

Bennett spent most of last night with his Lebanese counterparts, planning what he was about to brief. *Some things don’t change,* he thought, *still need someone on the ground doing the dirty work.*

“Me, our technology sergeant, and medical sergeant will occupy a room in the Napoleon Hotel overlooking the safe house. From there, our technology sergeant will access the satellite downlink and pass custody to the Cyber National Mission Force back at Meade.”

Bennett hated being the supporting unit. *We can just have our guys raid the safe house and take the drone. Easy day.*

“My operators have it from there.” The colonel from Cyber Command was brimming with confidence. “With control over one drone, we’ll be able to link to the others and fly them all to the recovery platform offshore.”

With that, the Ambassador closed the briefing. “Alright, everyone, the President has been clear. Recover the drones intact so we can show the whole world what Russia and Iran were trying to do. This could be their death knell in Lebanon at least.”

NAPOLEON HOTEL, BEIRUT, LEBANON
04 APRIL 2035 / 0600 LOCAL TIME

“What’s the hold-up, Claire?” Bennett was getting anxious. If she couldn’t access the sat link, this plan would go to hell.

“They are running some sophisticated software and maybe using a dummy satellite as a VPN of sorts for the downlink. This has Cozy Bear written all over it.”³

Bennett took a breath. *I miss the days when Russian mercenaries knew more about vodka than computers.*

“I am working through the problem now,” James assured Bennett. “A bit harder doing it manually than using the STO tool to break it automatically.”

She was referring to a Special Technical Operation program that was only authorized for use against Chinese command-and-control systems. Cyber Command did not want to risk burning the software on a second-tier target.

Bennett was now looming over his technology sergeant as she banged away on the keyboard, looking at a series of prompts he did not fully understand. At that moment, he realized he was making things worse.

I never liked it when the Task Force followed my every move over ISR, Bennet thought. Best to just back off and let her do her thing.

"I'm in," James said with suppressed enthusiasm. She loved the cat and mouse of it all. To her, this was like a game.

Bennett sent an update through his comms implant to his team leader back at the Lebanese SOF headquarters just outside the city. Moments later, James transferred custody of the satellite link to Cyber Command.

"Now we watch the pros at work," James said confidently. She had a reverence for the operators at the Cyber National Mission Force. This kind of thing was part of her job for the detachment, and she did it well. But those guys were on a whole different level.

"We've done our part, but we need to stay vigilant," Bennett said as James and Sams gathered around the computer terminal. "Let's keep monitoring the datalink and check for anything abnormal." *Whatever that means*, he thought.

Watch the pros at work ... He couldn't get that bit from James out of his head. *We're the pros. Do you think those kids at Cyber could be here or any of the other places I've been? Not a chance.*

"The drone is active," James announced. She could watch on the screen as the Cyber operators let the drone get airborne and connect to the others.

"Why are the Iranians linking the drones together?" Bennett asked. "Shouldn't they have separate links to each operator?"

"No one is flying these drones; it's all automated," Claire explained. "No link to control terminals cuts out vectors for jamming. These drones mesh with each other and a satellite link. Basically, they think with one mind. If one is under attack, the others react with countermeasures."

"Pretty smart," Bennett responded. "Unless someone can intercept the sat link."

James smiled. She knew that was a compliment coming from her team sergeant. She was never quite sure how much he valued what she brought to the table.

“Cyber has the drones,” Claire announced.

For all his reluctance to admit it, Bennett was impressed ... with both James and the team from Cyber Command. *They pulled it off*, he thought, as his lens implant displayed the drones flying toward the awaiting ship off the coast.

Just as Bennett was about to relax, he received a report from headquarters:

«« HEZBOLLAH VEHICLE IED EN ROUTE TO PARTY CONFERENCE. EXPLOSIVE AND BIOLOGICAL DEVICES ON BOARD. QUICK REACTION FORCE ENROUTE »»»

“Looks like there was a vector we weren’t tracking,” Bennett informed his team. “And they’re using an old Ford Transit Wagon that doesn’t look like we can quickly hack it.”

Still need Green Berets on the ground, he thought as he received follow-on reports from the Lebanese SOF team rolling out to interdict.

Bennett turned to his technology sergeant. “Some things don’t change, Claire.”

■ KEY TAKEAWAYS

SOF during the Fourth Age is a team sport – sometimes the core SOF team (Special Forces ODA, SEAL Platoon, MARSOC team, etc.) is the supported element by a series of enablers, but sometimes those that we traditionally consider enablers are the main effort, supported by the SOF team.

It is time for new concepts of modular formations with a SOF core, but not necessarily a separate SOF component for each niche capability – e.g., a team with a Special Forces ODA at its core, but with Civil Affairs, Cyber, PSYOPS, HUMINT collector, clandestine logisticians, Space Force augmentation, etc. as part of the modular formation.

SOF has strategic utility in an era of state competition marked by multi-domain challenges and transformative technology – this value is irregular warfare, gray zone activities, and unique options during conflict.



SECTION

3

Stories inspired by the Third Age of SOF

[1980-2020]

A hostage rescue operation in a contested and strategically vital environment in the 2030s is the sort of mission that directly links back to the evolution of joint special operations. As with Operation EAGLE CLAW in 1980 that ultimately failed to free American hostages in the US Embassy in Tehran, operational elements such as cross-government coordination or exfiltration are central to the following narrative taking place more than 50 years later, as are new complexities: space-based ubiquitous sensing and autonomous defensive robots, among others. Yet even in this narrative that directly draws inspiration from the Third Age of SOF and EAGLE CLAW, unexpected setbacks are certain during such a crucial operation. On one hand, it is up to the ingenuity of special operators on the ground, as well as their local partners, to adapt and overcome. On the other hand, many thousands of miles away, the political and strategic realities of a high-risk, high-stakes operation also shape the ultimate outcome for the nation.

OPERATION EMERALD EAGLE

PW Singer
and August Cole

■ WASHINGTON, D.C. 04FEB2037

Clarence O'Reilly popped another piece of cherry stim gum in his mouth, hoping it would quiet the queasy feeling rising up from his stomach. It was the middle of the first major military operation of the new administration and all he could think was that it would be incredibly awkward for the National Security Advisor to throw up in the White House Situation Room.

The stim gum didn't help.

He lifted his virtual reality goggles to rest on his forehead, trying to get his bearings. As his eyes refocused on the real world in front of him, it struck him how the room was filled with movement, despite each of them being seated at a massive wooden conference table. The Secretary of Defense, who had been so matter-of-fact during the pre-mission briefing, was now huffing and puffing as if he were running a marathon. O'Reilly had seen that happen to his granddaughter when she played games (he still thought of VR like that); sometimes you could be drawn in so much that your body's autonomic functions literally acted as if you were there in the middle of the action. Just to his left, the Chairman of the Joint Chiefs of Staff was more in control, but still rocking her chin forward and backwards, as if in rhythmic agreement with what she was seeing. In contrast, the Secretary of State, who was sitting in the next seat over, was swaying left and right, bobbing a bit like a boxer.

Perhaps a sip of water would help calm his stomach, O'Reilly thought. So he reached out to pour himself a glass from the translucent pitcher set in the middle of the table. He was careful to keep it above POTUS' outstretched right hand, which was trying to push aside an unseen obstacle some 7,000 miles away.

Then all the movement in the room stopped. Each of the principals made an audible gasp at the exact same moment, to the extent that O'Reilly wondered if his ears would pop from the change in air pressure in the Situation Room. He didn't have to check the mission clock projected on the wall to know what it signified. They were each vicariously experiencing that first step into the void of 35,000 feet up as they followed the SOCOM team's HALO jump into Afghanistan. ¹

O'Reilly took a swig of water, swishing it across his tongue, as he thought about what the VR must be showing now, as the commandos reached terminal velocity. At that, he decided he'd let the SOCOM team get a bit closer to Earth before he put the VR rig back on.

OVER KABUL 04 FEB 2037

From this high up, the nighttime streets of Kabul below looked like cracks in a shattered pane of glass lit by firelight. Yet, it was other lights in Master Sergeant Neil Bochman's HUD display that held his attention. Surrounding him were five other dots marking his teammates from Task Force 221 gliding silently through the night.

From this high up, the nighttime streets of Kabul below looked like cracks in a shattered pane of glass lit by firelight. Yet, it was other lights in Master Sergeant Neil Bochman's HUD display that held his attention. Surrounding him were five other dots marking his teammates from Task Force 221 gliding silently through the night.

Moving off into the distance was another series of dots, showing the track of the EC-17 "Crimson Nickel" jet they had just jumped out of, its transponder broadcasting the signature of a Gulf Air passenger jet. An array of wand-like representations of the local air-defense radar and visual sensor systems reached skyward toward the aircraft. A yellow glow showed the Hóng Qì HQ-11 surface-to-air missile battery at the old Bagram airfield 60 KM away was also on stand-by mode. ² So far, though, none had gone active and there were no other unusual radar or communications signatures indicating the air defense network below had caught onto the ruse of masking the plane as a civilian airliner.

Yet the air defense system wasn't what worried Bochman the most; detection was more likely to come from the hundreds of commercial satellite constellations overhead relentlessly staring earthward and simply analyzed everything without discretion, even down to the anomaly of six erratically moving shapes against the glowing city beneath. Anybody could buy that data, or rather the anomalies detected by such sensors. That's where the value was in the data markets: *awareness arbitrage*.

A world filled with so many sensors is what made both the method of entry and the size of the force a far cry from the mission that had arguably led to the creation of SOCOM nearly three generations back. The attempted rescue of hostages in Iran involved a plan of 132 troops backed by an additional eight different units. That kind of scale, as well as the lack of coordination that had doomed the mission, was literally unimaginable to the SOCOM in which Bochman served the last 15 years. ³

A gust of cold wind buffeted and he felt a faint pulse on his lower right leg, a haptic woven into the cloth of his jumpsuit. It prompted the soldier to readjust his path a few degrees to the east. His HUD projected out the expected track, designed not just to evade the ground-based radar beneath, but also steer clear of a patrol drone swarm running a circuit overhead Ghazi stadium, which the PLA training mission had turned into a base.

At just below 3,000 feet, the canopy made of stealthy material bloomed open, jerking Bochman in his harness. It was his twelfth combat jump, but every time it still shocked his system as if it was his first. He wasn't sure why, but it never felt like the mission started until that moment. Bochman looked over to check that his teammates' chutes had also deployed, as well as to ensure that the team's two breachers each still had an 80-pound cylinders dangling beneath their rigs. In many ways, what was in those containers was just as important to mission success as the commandos, though they were loath to admit it. Each was packed with over a hundred smallbots, tiny devices that would exponentially extend the team's surveillance and lethality reach.

"Check in, Alpha element. Alpha Six is green,"
said Bochman.

"Alpha Five is green."

"Alpha Four is yellow. My navigation had to be reset,
and it's lagging now."

Bochman cursed to himself, then remembered this was an easy fix.

"Alpha Four, this is Six. Close up on Two and sync to her nav.
Copy?"

"Good copy, Six. Two, heads up ..."

"Alpha Three is green."

"Alpha Two is green."

...

A pause. Bochman craned his head, not wanting to alter the canopy's settings but he could not see Alpha One in his field of view. He blacked out his goggles and flipped his perspective to see behind him with his helmet cam's 360-degree view.

“Alpha One, how copy?” Bochman asked.

Nothing.

Bochman toggled to Two’s helmet cam. There was One, gliding through the night like a futuristic bird of prey.

Still no response, but One’s parachute looked fine, and One’s arms were clearly still clutching the toggles.

Bochman texted a quick message on an alternate channel.

One responded immediately that their comms were down, but all other systems were functioning.

Far from a disaster, but far from OK, Bochman thought.

“Continue mission. Six out,” he said.

As Bochman dangled in his harness, the target loomed larger and larger.

The new US Embassy-Kabul building looked nothing like the previous structure, now serving as the Taliban’s Interior Ministry headquarters. Its walls had that distinct 3-D printed geometry common increasingly back in the States, but sticking out like a sore thumb in Kabul. The briefers said that the building had been prefabricated, to allow the embassy to be thrown up rapidly, as well as not need to rely on local construction. It also allowed for high levels of automation for its support services, to keep the number of human staff down for both money and security reasons. That had proved prescient.

His HUD, though, still showed a digitized American flag icon layered over the building, but that wasn’t really the truth. Only three months after US Embassy-Kabul had reopened in a bid to re-establish a presence in the rare-earth rich nation, a mob had overrun the compound. Now, 14 members of the US Embassy’s American staff were held hostage inside, the latest coup for the New Caliphate movement that emerged in Afghanistan just a year earlier.

There was a debate in the US intelligence community whether the New Caliphate was just another rebrand in the long line of jihadi movements extending now multiple generations or something else. Indeed, most of its angry messaging had not been explicitly anti-American, but rather directed at the Taliban regime — blasting them for selling out the nation to outsiders amidst the massively expanded Chinese rare-earth mining activity and ensuing military presence. Whichever it was, they'd seen value in going back to the well in targeting Americans.

During the run-up to the mission, Bochman had often thought about how no one seemed to learn anything from the past. But that wasn't true. First, the entire mission package had been simmed out by SOCOM's quantum machines, processing data and scenarios in a way no staff officer could do on their own. And, secondly, this time the mission command was not just to get into Kabul, but to get out as rapidly as they could.

At least, that was the plan.

■ US EMBASSY, KABUL 04FEB2037

Bochman's boots scuffed onto the solar bricks that lined the embassy's roof before he came to a halt. The embassy's security system would have normally picked up the slight noise and visuals of the landing, but the USCYBERCOM Cyber National Mission Force team supporting his unit was to have accessed the system. It was a modern twist on an old hack: feeding in a loop of old footage. He guessed the CYBERCOM hackers would spend the next years talking up this career highlight of penetrating a network from another US government agency.

The rest of the team landed behind him. They communicated between themselves by hand signals, not wanting to risk any data leakage. As two stood watch, the others began to carefully release the smallbots from the containers. Insect-sized UAS lofted silently into the air, while the ones nicknamed "creepy-crawlers" disappeared down the ventilation shaft. ⁴ For now, the robotic members of their team would also stay dark, autonomously guiding themselves and not broadcasting back.

Bochman rechecked what was playing out on the ground just below them. Sensors from the SOCOM cube satellites overhead in low Earth orbit stitched together into his HUD video of a pair of sentries from the hostage takers force at the embassy's entrance, casually chatting with a guard detail of Taliban on the other side of the breached gate.⁵ It confirmed what the SOCOM intel shop already knew: while the local regime might not have planned the takeover, they weren't going to do anything about it.

As Bochman scanned the scene, another set of digital icons began to flash. These marked the arrival of the operation's second phase — four delivery vans approaching the compound from different streets. Two were automated and two carried eight former Afghan National Army Special Operations Command (ANASOC) soldiers. Bochman hadn't worked with the commandos before, but he knew the senior SOCOM leadership trusted them with their lives. That was good enough for him. He just hoped the intervening years hadn't dulled their marksmanship.

The plan was that the attack force would detonate two of the autonomous car bombs and then engage the Taliban along the embassy's perimeter, before disappearing back into the city's alleyways. A simulation of a failed rescue operation would hide the real one; a play within a play.

When the autonomous vans drove to within one block from the embassy, the sky lit up with orange and yellow flashes. The sound of large explosions followed almost immediately after. Those would be from three other autonomous truck bombs hitting a New Caliphate safe house and their two camps in the farther suburbs.⁶

With the enemy now awake, the swarm of unmanned sensors began to broadcast their movement. Bochman steeled himself for not just the coming fight, but the coming deluge of data.

A generation ago, clearing rooms relied on instincts developed over years of rigorous and often dangerous close-quarters combat training. Now it was about meshing those instincts still honed by close-quarters combat training (more often through a hybrid mix of real and sim) with the algorithmically provided processing and prioritizing information known to the troopers as the "rack and body stack" list. Tactical AIs trained off past mission data sets would instantaneously read through the literally millions of data points provided by all the sensors. Then they would mark,

■ categorize, identify, and rank the most relevant imagery, before pushing it back to Bochman and his team in visualized icons, color coded for relevance and priority. It was a new level of situational awareness, but still flowing through a human brain and finger to determine whose fate it was to end up in a targeting reticle.

Bochman was just about to give the go order, when another yellow flash lit up the dark sky. This one was unplanned, however. On his HUD, he watched a tiny orange streak arc up from Bagram in the distance. He didn't need the AI to tell him that the HQ-11 missile battery had gone off standby mode and fired off. A few seconds later, there was another flash in the sky, and the digital icon of the EC-17 he had jumped from disappeared from his HUD.

■ WHITE HOUSE SITUATION ROOM 04FEB2037

“Oh shit,” the Defense Secretary exclaimed.

“Push me all the orbital feeds from the prior 30 seconds. No, make it 60 seconds,” said the Chairman.

“Was that? ... What just happened?” asked POTUS.

For his part, O'Reilly already knew and was processing how he was to handle the coming debate in the Situation Room that they'd have literally minutes to resolve. They needed to be clear-headed, but there would be the emotions of witnessing service members dead on their watch and, even worse, an impulse to take tactical charge. The temptation to wield a 7,000-mile long screwdriver was all the stronger when the VR literally made it feel like the tool was in your hand. Yet, two missions gone bad in the last administration from that kind of tactical interference had led to the agreed protocol to let the forces on the ground manage their own situation.

Hopefully, he could head that off and keep the discussion focused on deciding the broader “What next?” The extraction package of a manned MV-280 tiltrotor and two armed wingman drones was just now crossing the border, about to enter airspace that had turned into a shooting gallery.

■ US EMBASSY, KABUL 04FEB2037

The counter in the corner of Bochman's goggles ticked up to 12, a few seconds sooner than the sims had projected they'd be at this stage. There had been no question of moving forward with the mission to secure the embassy and rescue the hostages, and at least that part was following the plan.

Of the original 14 US hostages, only two more remained to secure: a Diplomatic Security Officer, who had 18 years of service and a junior Algorithmic Diplomacy Consular official on their first posting. Unlike the others, the satellite sweeps and micro-robots had not been able to locate them. By process of elimination, their lack of data presence meant that they were being held where the embassy's servers resided – an armored and EM-shielded secure room.

Bochman and two of his teammates linked up at a 90-degree corner, leaning against the smooth glass-like light blue walls of the embassy's basement level to catch their breath after an intense close-quarters gunfight. Guarding the stairwell were a pair of New Caliphate fighters trying to reboot a crude knee-high crawler armed with two submachine gun wielding arms. Bochman's tactical EW countermeasures at a distance wouldn't work because the robot's ports were off for the reboot. So, they quickly reset the mode of the smallbots broadcasting the view of the enemy from ISR to strike. A ripple of small micro-explosions followed.

Unfortunately, the sacrifice of their creepy-crawler teammates came at a cost: the sensor feeds that they had been broadcasting back went blank on Bochman's HUD. The basement hallway ahead was now literally dark, devoid of both light and data.

"Disco ball out," said Alpha Two. Without being commanded, he underhand tossed a dark gray tennis-ball sized grenade down the basement stairs. With each stair, it bounced higher and higher before exploding in a cloud of confetti-like glitter. Each glimmering sensor of only a few millimeters across — hence the disco ball nickname — blasted throughout the room and adhered to whatever it came into contact with. In an instant, the team had a clear rendering of the room on their tac goggles and rudimentary image of the secure room's interior.

"I detect two shooters at the bottom of the stairs, one on each side," said Alpha Five. He lifted his goggles to wipe sweat out of his

bloodshot eyes. Dark circles underneath his eyes and deep crow's feet made the 34-year-old sergeant's face look like he had a couple decades more time in uniform than he actually had. "Shit. And what looks like a Rhino waiting just inside the room."

A Rhino was trouble; the slab-sided quadruped bot was the size of a large dog, but with an oversized head that came to a horn-like point, hence the name. The horn allowed it to smash through doors and walls or burrow down in the dirt to expose only the 6.8mm minigun mounted on its spine. Unfortunately, open-source plans were everywhere for them. Robin Sage even had the Green Berets scavenge to build their own.

Yet, it was a scenario that Bochman and the team were familiar with; they could handle it. The question was what would happen after that? They may be able to secure the hostages, but the EC-17's shutdown meant they were now operating in a denied airspace.

■ WASHINGTON, D.C. 04FEB2037

The sickening feeling in the pit of the National Security Advisor's stomach was even worse.

The CIA director had started to raise whether the defenders had intended the missile launch, or even if they had known it was a US military plane? Perhaps it had been set to auto-mode? And passenger jets had been shot out of the sky for all sorts of reasons before.

But there wasn't time to figure out what would be denied anyway. They only had time to decide the options. And none of them were good. To turn back the extraction force meant abandoning not just the hostages, but the assault team. It also meant the loss of the eight member C-17 crew would have been in vain. Unstated was how the disaster would play politically, a catastrophic loss and then retreat, scuttling all their plans for the new administration. But if the mission moved forward, more American troops would be entering an active air network, even worse, one known to be manned by Chinese military advisors. All the mission planning had ensured to steer well clear of any PLA assets, and yet a Chinese missile had just killed eight Americans, and could kill many more.

The President had been silent as they rapidly laid out each approach, as his style in the room was to play judge rather than

participate in the debate. O'Reilly noticed how the pupils in his green eyes were still a bit dilated from adjusting to the bright room after being in the goggles. He wiped his palm from his forehead to his chin, as if resetting both his eyesight and his mind, and then slapped his hand hard on the table.

The nausea in O'Reilly's stomach turned to a sharp pang. He knew what was coming next.

"Hit the battery that took out our people," the President said.

The Chairman of the Joint Chiefs began to speak and then just nodded.

"Mr. President," SECDEF said in a plaintive voice. "I need to restate the ramifications of your decision. All our intelligence shows that the battery has PLA advisors manning it ..."

"Who just killed eight American service members," O'Reilly said.

"Destroy the missile battery and any other radar that lights up in the pathway of the mission. That is my decision," said the President. "And right afterwards, I want each and every one of you to immediately message to your counterparts in Beijing that this isn't about retaliation or punishment; it's about ensuring that our people get home safely. Ultimately, it's my responsibility that they do. Whatever happens after that will be theirs."

O'Reilly realized that his stomach had stopped hurting. It was because his whole body felt numb. They had started out watching a rescue mission and now they might just be witnessing the exact moment the long-running great power competition transformed into the long-feared great power conflict. ⁷

■ KEY QUESTIONS

What are the crucial tactical capabilities and technologies for SOCOM in executing hostage rescue missions during the Fourth Age of SOF?

How might a highly-focused SOF mission contribute to strategic escalation with a nation like China?

As special operations become more complex during the next two decades, how will Murphy's Law or bad luck manifest in familiar—and new—ways, and what can be done to mitigate those risks?

When the United States deploys military forces to another country, it sends a powerful message to U.S. adversaries, allies, and partners. The same is true when the U.S. withdraws forces. The chaotic withdrawal from Afghanistan and the retrograde of all Americans from Ukraine at the onset of Russia's invasion has eroded American credibility. U.S. Special Operations Command cannot be the international partner of choice if American forces are not perceived to have staying power. When we hurriedly leave partner countries out of fear of casualties, friends interpret this as abandonment. These comments are not intended as a criticism of democratically elected officials. That would be inappropriate for a uniformed service member. Instead, this story is intended to suggest how allies and partners might be less willing to rely on the United States in the future in light of events gone wrong.

Doubt in American commitment makes it harder for U.S. service members to integrate with allies and partners. Many service members don't see this as a problem; they prefer unilateral action because they prioritize tactical speed and simplicity. They see allies as a headache and partners as a burden to be endured. This must change.

Our allies and partners are remarkably gifted. In many cases, they know the terrain better than we do. They speak the languages more fluently. They understand the cultural dynamics more clearly. They do more with less. The United States brings remarkable intelligence and logistics capability, but many Americans perceive this through a lens of superiority. We cannot treat our friends as anything less than equals. When we do, they sense this disparity, which creates an atmosphere of distrust. It is our responsibility to set the conditions for effective teamwork. The first step is recognizing that we cannot accomplish our assigned missions without our most important strategic advantage – our allies and partners.

STAYING POWER

Dalton Fuss

UNDERGROUND POLICE STATION, LISKI DISTRICT, KYIV, UKRAINE
15 JULY 20XX / 0600 HOURS

Two men walked purposefully through the long, pitch-black corridor. The Ukrainian officer led the way, holding a small, battery-powered lantern above his head. Captain Bohruslav Rudenko had spent almost his entire federal service (8 years, since he was 17) operating out of tunnels like this. He didn't need the light, but Major Chris Turner, U.S. Army Special Forces, was new to Ukraine.

“Why is he being held by civilian police authorities and not military police?” asked Turner.

“He had a weapon in his backpack when we captured him. Soldiers openly carry their weapons. He is a mercenary and a spy,” replied Captain Rudenko.

Turner volunteered for this assignment. His break in service allowed him to pursue the joint Master in Public Policy/Master of Business Administration program from the Harvard Kennedy School and MIT’s Sloan School of Management, but this time away branded him as a black sheep in the Special Forces community. Special Operations Liaison to the newly formed 12th Ukrainian Special Operations Regiment was not a glamorous assignment. Ukraine was seen as a backwater theater, but Turner felt drawn to these perpetual underdogs.

Turner had really focused on building his language capability for the deployment, but there were still cultural nuances he didn’t understand. “But this man surrendered, didn’t he? He should be afforded the privileges of a combatant.”

“Major, we’ve been at this for a long time. We know what we’re doing. This man is a spy.” Rudenko’s voice was sharper than normal.

Turner decided not to press the issue. Rudenko opened the door to the interrogation cell and walked in, carrying the small electric lantern. The room was not very big, but the light did not penetrate its dark corners. In the center, behind a flimsy metal table, sat a man in his 30s with ruddy, weathered cheeks and thinning black hair combed messily forward. Their abrupt entry obviously startled him, but he squinted at the light defiantly. His eyes had not adjusted from the darkness, but Turner immediately recognized the man’s fear.

Rudenko and Turner sat in metal chairs opposite the prisoner. Turner reached over to the lantern placed between them to dim it, allowing the prisoner’s eyes to see his face.

Turner spoke first, his Russian carrying a mild but noticeable American accent. “Hello, my name is Major Chris Turner. I am an American officer. I would like to get to know you. What is your name?”

The man looked perplexed. Turner assumed he was the first American the Russian had ever seen. “I guess I don’t fit Russian propaganda’s image of the typical American,” thought Turner.

The Russian quickly recovered and turned to Rudenko. His tone was cold and full of loathing. Turner didn't understand everything the man had said, but he recognized the question, "Why is the American here?"

Rudenko translated for the Russian: "He says that he does not have to talk to you. He doesn't understand why you're here. He says that your country does not have any right to be here."

Turner thought about his response. Parsing legalese was not something he had considered when he was brushing up on his Russian. He might need help with some of the more subtle distinctions later, but for now, he managed in Russian, "I can help you, but I want to hear your story. Most of the people here believe you are a spy and a war criminal. Are you a spy? I believe you are a soldier. I would like to treat you like a soldier, but you must talk to me."

Rudenko shifted uncomfortably. Turner knew the Ukrainian considered this Russian to be a war criminal, but Turner suspected that there was more to the story.

The Russian's gaze softened from fierce defiance to hopeful uncertainty. He sat thoughtfully in silence. Rudenko, annoyed at this delaying tactic, looked impatiently at Turner and made a move to get up.

"My name is Sergei," he said in Russian. "I am not a war criminal. I am not a murderer. I will tell you what I know, but I want a guarantee that I will not be punished."

"It's nice to meet you, Sergei. Unfortunately, I'm not in a position to make promises. If you committed serious crimes, or..." Turner responded in Russian. He switched to English partially because he couldn't remember the Russian phrases and partially to ensure that Rudenko translated it for Sergei to hear. "Or if you committed a grave breach of the Geneva Convention, you will be held accountable. But if you tell us what you know, we will ensure that you are treated fairly."

Sergei listened to Rudenko's translation. When Rudenko stopped talking, Sergei looked at the floor. Turner could tell he was considering his options.

After a pause, Rudenko solemnly added, "Sergei, your country used a nuke high above Kyiv. Maybe another one over Chernihiv. We just

don't know yet." Rudenko made the sign of the cross from right to left in the Orthodox fashion.

"Your government crossed the line. Are you wondering why you're sitting in a dark cell? The detonation disrupted our entire electrical grid. You are on the side of the aggressors. Can't you see that?"

Sergei's eyes were filled with dread. He looked at Turner for confirmation. Turner nodded slowly.

"I ... I did not know," Sergei said. "I will tell you what I know. May God have mercy on us all."

TUNNEL L112, LISKI DISTRICT, KYIV, UKRAINE 15 JULY 20XX 1000 HOURS

The two men rushed into the 12th Regiment Operations Center, which was normally bustling with activity. Today, things were oddly still. The chamber was roughly twice as wide as a subway tunnel, with three support beams in the center. This tunnel was roughly 50 feet underground and safe from any conventional Russian bombing or artillery. After hustling through the tunnel, Turner was more winded than normal. It was definitely harder to breathe down here.

Normally, there was a steady airflow from the ventilation fans, but now Turner was dizzy and felt like he was wearing a gas mask. He slowed his breathing and tried to calm down, but the air was heavy and sticky from so many people congregating there. He snapped back to his military freefall training and realized that he might be experiencing hypoxia. He stopped walking and took a few belly breaths. As he caught his breath, he felt like he was stepping out of a fog.

One of the men in the front moved to light a cigarette, but several agitated voices snapped at him to put it out.

Men and women were gathered around an old wind-up trench telephone. Turner remembered they used one just like that at Robin Sage ¹ as an energy conservation tool. As they walked to join the rest of them, Captain Rudenko whispered, "Hard-line cables are running through all the tunnels. This is our only working

communication network. Kyiv is providing hourly updates as they get more information.”

Several years ago, the Ukrainian government contacted Elon Musk’s Boring Company to excavate these tunnels – something to reduce the effectiveness of the Russians’ long-range fires. The company, which the owner lightheartedly renamed the Boring and Bunker Company, sent 4 Prufrock units. Aside from routine maintenance, they had been in almost continuous operation ever since. With each one capable of digging more than a mile a day, no one knew exactly how many miles of tunnels there were in Ukraine. ²

The fuzzy voice crackled from the speakers, “With all of our air defenses inoperable, we anticipate a massive air campaign to augment this attack. Our experts assess that the Russians will not use another nuclear device during the follow-on bombing. We will share additional intelligence as we receive it. For now, stay vigilant and stay safe. Glory to Ukraine!”

Many in the room responded quietly but resolutely: “Glory to the heroes.”

The Operations Center still had its battery-powered electronics working. A few wall-mounted flashlights allowed enough light for the team to work.

The 12th Regiment Commander, Lt. Col. Maksym Malinsky, stood up from his folding chair. “All right, people. We have a few new faces. Let’s get them up to speed. Tomas, would you please fill them in?”

“Of course, sir.” Tomas was a Lithuanian officer Turner didn’t know very well. In fact, many of the international advisors kept their distance from him. They were all respectful and kind, but he always felt they avoided him. After so many abrupt departures from combat theaters without coordination, the Allies were hesitant to rely on Americans for anything that required a long-term commitment. After retreating from Ukraine when the Russians initially invaded in 2022, American forces lost credibility with these fighters. Turner knew that he had to work twice as hard to earn their respect.

“At 0507 this morning, the Russians launched a hypersonic, tactical Avangard nuclear device from an SS-19. ³ This was a relatively low-yield device. We assess it was approximately 1.2 kilotons – similar to the Soviet K Project test series of the 1960s.” ⁴

“As you know, the Russians have previously used nuclear-capable missiles to exhaust the Ukrainian missile defense system. ⁵ The Russians claim that the nuke was launched by mistake and that they detonated the nuclear warhead as soon as they realized it. The Russian press releases have reiterated that the explosion resulted in zero loss of life. A report that we believe is accurate.”

“By detonating the nuclear device ‘early,’ the weapon exploded approximately 22.7 kilometers above Kyiv. The blast disabled all of our on-ground sensors, but human intelligence indicates that this weapon was designed as a Super High-Altitude Electromagnetic Pulse warhead. ⁶ This is more commonly referred to as an EMP. This EMP emitted enhanced gamma radiation and produced a field exceeding 200,000 volts/meter across a 450-kilometer radius – significantly higher than our initial estimates of Russia’s capabilities.⁷ We believe this attack was preceded by a quantum-enabled cyberattack, but we don’t have enough information. At this point, we’re only speculating.”

“What kind of damage are we looking at?” asked one of the Canadian advisors. His unkempt handlebar mustache made him look more like a rowdy biker than a professional operator, but this guy had stayed with 12th Regiment through some brutal fighting. He was fully integrated into the Regiment.

“At this point, we’re not certain, but it appears that bulk-power delivery has been completely disrupted. Anything with a computer and anything that was plugged into the electrical system was susceptible to this kind of attack. Many newer cars are probably disabled, but some older vehicles might still run. Most space-based communications have been completely eroded,” replied Tomas.

“We still have a few high-frequency radios to make long shots back to Riga, Brussels, and Casteau. Unfortunately, with the satellite timing disabled, we’ve lost our ability to encrypt. All of the traffic is passed in the clear.”

“Thanks, Tomas,” said Lt. Col. Malinsky. “Rudenko, did you manage to uncover any additional information?”

“Yes, sir. The prisoner’s name is Sergei Svechin. He was recruited by Wagner Group two years ago while he was living in Saint Petersburg. His father and older brother were both killed during Russia’s initial invasion. He was trained as an assassin, and he was part of an elite element within Wagner that calls themselves ‘Bogatyr.’ From what

Sergei has said, the Bogatyrs are composed exclusively of young men and women who have had family members killed in Ukraine.”

“I suppose that gives them a pretty wide pool to draw from,” Lt. Col. Malinsky said solemnly. “Who are their targets? How many are there?”

“Sergei believes that the Bogatyrs all have the same exact execution window – roughly 14 hours from now. That’s just after midnight on 16 July. He provided a list of first names, but the program enforced a fairly strict compartmentalization rule. He does not know exactly how many there are or who their targets are. He has given us detailed information on how he was paid, where he trained, and the intent of the operation.”

“16 July. The day the Rada announced Ukraine’s sovereignty from Russia. They certainly hold a grudge, don’t they?” said Malinsky. “Go on.”

“Sir, they are setting the conditions for a 100-year victory. It seems that the Russians have abandoned the notion that they will win anytime soon. They are rebranding this conflict as a multi-generational war. This is the first phase – targeted assassinations of our highest-ranking leaders.”

Lt. Col. Malinsky nodded his understanding. “Major Turner, do you have anything to add?”

Turner heard the hopeful tone in the Ukrainian’s voice. “Yes, sir. We’ve passed everything that we know to Lviv through Flyers.”

Flyers were small drones capable of inertial navigation with augmented intelligence. Once they were programmed with a map, a start point, and an endpoint, they could self-navigate to their destinations. ⁸ The “Pony Express” was developed to quickly transport analog messages as a communication contingency, but no one ever expected them to be employed.

Turner continued, “There is a cross-functional team in Lviv with representatives from NATO Special Operations HQ, the U.S. Departments of Treasury and Energy, Interpol, and various international intelligence organizations.”

Malinsky gestured for Turner to get to his point by waving his hand to speed up.

“Sir, they’re working right now to piece everything together. There is a lot of information to comb through. They will send profiles on each of the Bogatyr as they identify them. Our Space Force liaison is working on re-routing satellites to give us a new constellation that will provide uninterrupted satellite communications. ⁹ We’re not sure how long that will take, but my communications expert is monitoring the connection. For now, I recommend that we disseminate this information as securely as possible. If we tip our hand to the Russians, we don’t know how erratically they will react.”

“Major Turner, I’m grateful for your initiative,” said Lt. Col. Malinsky. “As soon as you have any information, we will share it as quickly and securely as possible. Captain Rudenko, I want you to start organizing raiding parties. When we find out where these Bogatyr are, I want them neutralized as quickly as possible. Let’s go to work!”

**350 METERS SOUTH OF PRESIDENTIAL ADMINISTRATION BUILDING,
KYIV, UKRAINE 15 JULY 20XX – 2345 HOURS (12 HOURS LATER)**

Operators from 28 countries patrolled silently through the dark streets of Kyiv. The streetlights were off, and no cars were running. Most people were already asleep. But candlelight flickered in a few buildings.

This was the first time these soldiers worked together as a cohesive team. But they had all participated in exchange training events with the Americans, so their tactics, techniques, and procedures were similar enough to work together. This shared framework facilitated better interoperability, but it was their exceptional capabilities as professional warriors that allowed them to work so effectively.

They didn’t have air support. There were no short-range communication devices – just hand and arm signals. The only radio that they had was the one that Turner was carrying. Most of their hardware was inoperable. A few had night vision goggles. They were old, but at least Turner got them something.

“I guess I owe those staff nerds a case of beer when I get back,” thought Turner. The cross-functional team – CFT – made all this possible. These small, purpose-built units were rapidly developed to accomplish a specific mission – usually in response to an emerging crisis. SOCOM personnel typically led these groups of experts because they were comfortable operating with ambiguous command

relationships and typically dissolved the CFT as quickly as possible. This rapid resolution and return process was a drastic change from long-term commitments to Joint Task Forces, so government agencies were much more willing to send their best people.

As soon as they got Turner's initial report about the Bogatyrs, the CFT started moving mountains. The space representative coordinated with the appropriate entities to readjust the satellite constellation to cover the gap in coverage created by the EMP.¹⁰ The logisticians coordinated with Amazon Europe in Poland to borrow cargo drones, and they shipped radios and ground stations to Kyiv.¹¹

Once he got a replacement radio and computer, Turner decided to send an encrypted message through a communications satellite instead of trying a high-frequency method. He wanted to establish a link quickly, but he knew the Russians would be monitoring the electromagnetic spectrum for military signatures. One of the Canadian communications specialists rigged a flyer to serve as a pseudo-retransmission tower. The drone was programmed to fly an erratic route at varying altitudes to confuse the Russians. When Turner sent the traffic, the drone retransmitted it. The Russians attempted to jam the signal, but they did not fire artillery. They couldn't triangulate the source of the signals.

The Allies and partners within the CFT significantly expanded the available intelligence, and they sent the first target packet an hour after receiving Turner's report. For the first time since getting to Ukraine, he felt like an asset. He streamlined the flow of intelligence and ensured the Ukrainians got the massive logistical support they were asking for.

A cool breeze blew through the empty streets. The wind snapped Turner back to the patrol. He didn't realize he was sweating. He followed Rudenko toward the middle of the formation. With his left hand, he touched his radio and then his satellite antenna.

They had all been awake for at least 36 hours, but they still moved with remarkable speed and stealth.

Turner saw that Rudenko was making jerky movements, looking back and forth to ensure the column was moving together. Turner strode forward and got in step with the young captain.

"Don't be nervous. You're doing great. Lt Col. Malinsky put you in charge because he knows you're the right guy," whispered Turner.

He noticed that Rudenko was furious that he had broken the silence. He also seemed to be pondering what Turner had just said.

“It ... it’s just that we have to find them. All of them. I know we’ve already got 17, but we have to get the rest,” Captain Rudenko whispered back. “If we catch all 23, maybe it will deter the Russians from another offensive.”

“I know. We will. The CFT sent us everything that we need. They pulled all of the information available. Everything up until Kyiv went dark. We’ve got pictures of these assholes, and we know who their targets are. We’ve passed the target packets to every segment of the government. Everyone is looking for these guys. The other teams will do their part. We just need to focus on this one,” Turner said assuredly.

Turner could see a ripple moving through the column. A hand and arm signal. “We’re at the Foreign Ministry building. The boys think there is someone in there. It’s your call. How do you want to proceed?”

Turner already knew what Rudenko was going to say.

A dozen soldiers from 12th Regiment and five multinational soldiers had been killed in a raid two hours before. One of the Bogatyrs was placing a thermobaric device in a tunnel near the Vice Prime Minister’s home when the patrol found him. The Russian panicked and set the device off, killing everyone inside.

Rudenko took a deep breath. “I’m moving up front. I want to be in the stack.”

“I figured,” whispered Turner. “I’m coming with you.”

“No. It’s too dangerous,” Rudenko said sharply.

“What? Having an American officer in the stack? Yeah, I suppose you’re right but desperate times ...” Turner couldn’t help but smile as he said it.

Understanding the joke embedded in Turner’s flip comment, Rudenko broke into a full grin. It was the first time Turner had seen him smile. Rudenko deliberately took his right hand off his weapon and extended it to Turner. Turner shook it and smiled back.

“Glory to Ukraine,” whispered Rudenko.

Turner took a deep breath and replied: “Glory to the heroes.”

■ KEY TAKEAWAYS

Allies and Partners are NOT nuisances to endure. They are our strategic advantage, and we should jealously guard these relationships.

When we abandon our partners, we lose credibility and damage trust. We must be willing to accept the same risks if we want to maintain our influence with these Allies. When our SOF personnel withdrew from Ukraine on the eve of the Russian invasion, we sent a powerful message to our friends at the tactical level. I am not questioning the strategic decision-making of our democratically elected officials.¹² I am simply pointing out the tactical ramifications of strategic decisions. When we tarnish the trust that our friends place in us, it takes blood, sweat, and tears to earn that trust back.

Humans are more important than hardware. We have entered a period of unparalleled reliance on technology. Our forebears fell victim to a “cult of the offensive” that led nations to enter the slaughter of WWI. We must be cautious of complete dependence on gadgets. We should be cognizant of a potential “cult of technology.” Sometimes it fails. When it does, we will only have our People to fight and win our Nation’s wars.

The future SOF force will require a “human-hardware balance” with the critical role of diversity as a strategic enabler. The enduring importance of language, regional, and cultural expertise (LREC) integrated with cutting-edge technology will place greater importance on expanding the ways we must recruit the right people for the right jobs. Furthermore, diverse perspectives and critical thinking combined with human-machine teaming and basic mission command are the bedrock of special operations forces in the Fourth Age.

For the current and next generation of SOF, the PRC pacing threat presents a global problem with a global attack surface – it is not just in INDOPACOM. SOF provides outsized strategic utility via irregular deterrence and the ability to work transregionally with and through nontraditional local partners to shape PRC’s global cost calculus short of war. Synchronized transregional irregular operations, investments, and activities across the Middle East and Central Asia, Africa, South and Central America have Indo-Pacific strategic implications in countering Beijing’s military ambitions.

This story invites the reader to experience the above themes and the post-9/11, post-Afghanistan evolution of Joint SOF through the eyes of Max, a SOF military working dog (Belgian Malinois). The narrative also explores the personal human costs of combat losses, PTSD, and marital strife, embedded in the inexorable requirement for SOF to adapt and thrive as individuals and organizations in the evolving strategic environment.

HEADS AND HOOVES

Steve Ferenzi

■ FORT CAMPBELL, KENTUCKY

SMASH!! Footsteps boom. Glass shatters. Shouting roars like a machine gun. Max awakes suddenly – not explosions, tracers, the whoop-whoop of a bird landing – but thoughts of that terrible night now intruding on the relative bliss of a dreamless nap.

The first thing Max – Sergeant Major “Max” Maxwell, a Belgian Malinois military working dog – sees is a primordial cathode-ray television across the small room. It’s tuned to a perpetually static channel, as if ghosts are pressed against the dusty screen. A fitting color for the sky above the house.

Maybe the noise is from a new immersive VR in-person shooter the kids are playing upstairs? As usual, they are completely engrossed in whatever dopamine trap they are jacked into nowadays.

No – Max smells peaty sweetness wafting into the room. Master Sergeant Lucas “Skywalker” Moore enters on the heels of that vicious kitchen exchange with his wife, no doubt heavily medicated by Jameson. Another night in the Moore house.

But does it have to be this way? Haven’t enough things – lives, walls, kitchenware, been damaged over the years?

Max feels a hand scratch behind his erect ears. The skin tingles along his spine to the end of his tail, syncing to the familiar pattern of his neural interface with Lucas. Max settles at the base of the couch, taking comfort in the link-up. He visualizes the haptic relay twitch and illuminates a faint blue beneath the skin of his friend’s forearm and a prosthetic hand.

<<... BREAKING NEWS: PEOPLE’S LIBERATION ARMY NAVY (PLAN) BEGINS COORDINATED MOBILIZATION ASTRIDE ITS PORTS ACROSS THE MIDDLE EAST, AFRICA, AND SOUTH AMERICA ... IRAN’S SISTAN-BALUCHESTAN PROVINCE DIRECTOR-GENERAL OF PORTS AND MARITIME DEPARTMENT CONCLUDES FINAL DEAL WITH PRC STATE-OWNED COSCO ... MORE PSYCHOLOGICAL GAMES, OR A PRELUDE TO A SHOOTING WAR OVER THE PHILIPPINES?... >>

Despite lacking a mouth capable of forming human words, Max knows enough English to understand the implications. His short brown fur bristles, paralleling Lucas’ elevated adrenaline and cortisol.

On cue, Lucas’ viz glasses flash a call from Major Azita Amini— leader of the new “*joint SOF modular formation*” *experiment* that he somehow became “hand-picked” to pilot.

Prior to hitching his future – and maybe his past – to this dubious “*jiss-miff*” thing, Lucas’ previous team jokingly rocked a fourth, longer tab proclaiming that phrase. “Hand-picked” usually means something boring or shitty up front, but simultaneously strategic – as the payoff comes much later than the immediate effort.

Kind of like when Lucas helped stand up that undisclosed nation’s Special Operations Command and its resistance capabilities in

Central Asia. His team shouldered all the risk, double- and triple-dipping across so many different pots of money and authorities – and combatant commands no less – but now that gambit is reaping dividends on the PRC's physical and virtual doorsteps.

“Master Sergeant Moore – you know what this means. Team room in 30.”

They didn't quite know what to think about Major Amini. Definitely a wizard with zeroes, ones, and words. Somehow MARSOC poached her from a lucrative civilian life running a cutting-edge cyber outfit specialized in micro-marketing across the Middle East and Central Asia. Say what you want about crayon-eaters, Max and Lucas were impressed with the Corps' campaign to actually “manage talent” and get serious about the information environment.

Max feels Lucas sigh as the conflicted father and husband walks with determination outside to his truck. “Maxwell! *Biah beriim, zood baash!*” A holdout 6.2-liter V8 engine roars to life, beckoning Max towards its growl. Saddened to depart the family in such a disordered state, Max nonetheless is also ready to put his own troubles aside for whatever is next.

■ CHABAHAR, IRAN

Screeeeeahh-BAMM!! The thunderous collision of a crappy Khodro on the street snaps Max back to reality from replaying that night in Kentucky just a week ago. A storm of sounds and smells assaults his senses – sweet but pungent *ghormeh sabzi*, freshly-baked *naan*, boiling sheep heads. The sharp voices of hagglers speaking languages Max didn't recognize fill the air like staccato gunshots throughout the bazaar outside.

“Ma'am – three hours till showtime. No contact with the resistance – not encouraging. We can't sit here forever,” Master Sergeant Moore informs. Max enjoyed watching loud and colorful movies like *Blade Runner* and *Judge Dredd* with Lucas enough times to recognize his concern.

The teammates feel like featherless sitting ducks in the presence of ubiquitous surveillance. Despite U.S. efforts to hack adversary facial

recognition servers over the years, the team is doing it live, “at the edge,” right now – not in a synthetic training environment. ¹ The nearby market haggling in Persian, Arabic, and Mandarin only adds to the tension.

Sensing Major Amini’s shared concern, Max nonetheless struggles to escape the pull of the meat and broth appearing generously in bowls before them. *Kaleh pacheh* – sheep heads and hooves, supposedly a wondrous cure for hangovers.

The officer seems disconnected. Unbeknownst to Max, she’s living a flashback to her childhood in “*Tehrangelles*.” Most third-gen Iranian-American girls rejected *kaleh pacheh*, but Azita loved the traditional soul food – and that made her father proud. Does that drive her now?

“Ma’am?” Max watches Major Amini’s smile in response to Lucas, sensing his handler and friend’s apprehension through haptic waves. Even after multiple generations of American special operations soldiers having come and gone conducting missions around the world, the pall of EAGLE CLAW still hangs over all U.S. operations inside Iran – placing additional pressure on the team to overcome the legacy of that tragedy so long ago.

Max does take a bit of comfort, however, knowing from Lucas that they are channeling the undercover Cold War Germany missions of DET-A right now more than what comprised a joint SOF team on Desert One back in the 1980s.

“Enjoy the food, Master Sergeant. You know our clocks are secondary here.” At the same time, she finds irony in their host’s offering.

Operation KALEH PACHEH – cooked up with Chabahar’s *Persian Unveiled Alliance* (PUA) in the aftermath of Iran’s 2022-23 anti-hijab *e’teraz*. A precision uprising designed to disrupt the metaphorical head and feet of PLAN projection from the Regime’s mega-port. Critical to staving off a third world war right now as the PRC mobilizes to absorb the Philippines by force, or so she told herself – and her superiors.

However, Max knows Azita’s calm exterior betrays underlying anxiety. Is she overcompensating? As a seasoned working dog, Max understands the general difference between Marine Corps and Army SOF going back to his days in Syria and Yemen. But this

new blend of the two packs – the Raider information warfare and old-school Special Forces support to resistance – leaves him a bit perplexed.

■ SOMEWHERE IN SYRIA—YEARS BEFORE

An explosion rocks the patrol—dust, rock, and pink mist erupt into the sky and congeal. No! Max knows he cleared the path. He couldn't have missed it. Must be an RPG ... But an RPG it isn't. A pressure plate he didn't find ...

The bird lands after what seems like an eternal firefight. Max limps quickly alongside the stretcher carrying his best friend, the shrapnel in his leg not slowing him down. How could he let this happen? They try to stop him, but Max jumps into the Black Hawk regardless. Folding his ears back unconsciously, Max assumes a protective vigil over what remains of Sergeant First Class Holbren.

The crew chief signals. The bird lifts into the air, and the only thing Max can hear and smell is helicopter vibrations and the metallic stench of blood ...

■ CHABAHR, IRAN

Max jumps to all fours and shakes off the memory, watching Azita don a strange headset. Definitely not a typical VR rig, but something specifically for today's link-up with the PUA digital underground.

The team is “inside the bubble,” poised to support a critical mass of Persian outrage against the corrupt Regime's endless whoring of the nation to PRC exploitation. Khamenei is dead – and his successor predictably cracked down hard with PRC backing to consolidate power. But the sclerotic Regime cannot unring the bell – *Neda Agha-Soltan, Mahsa Amini*, countless others over the decades – no more. Especially not for a new port and the steady flow of petroyuans keeping the Regime on life support.

“Ma’am ...” Lucas repeats as he glances at his watch, a well-scratched Casio analog bought in a souk during a deployment in the region years ago. Max scrutinizes both of their faces and nuzzles Azita’s leg as she slips into the metaverse, unsure of what will happen next.

METVERSE

Azita’s head spins, adjusting to her new reality.

She looks around – if that’s the best way to describe it, surprised to see a motley cast of characters straight out of a *Shahnameh* graphic novel. Rostam and a *simorgh*, flanking a majestic lion with a wickedly curved *shamshir* in hand, draw Azita’s attention.

« « *SHIRI YA RUBAH?* » » the lion asks – the “question” arriving in an optical pulse of sprawling Nastaliq script that Azita simultaneously hears in her head. Is she a lion bearing good news, or a fox just spinning?

« « *DELAMRO BE DARYA MIZANAM.* » » Azita responds in a similar manner. Yes, always a lion. And she is ready to throw her heart into the sea and succeed in this risky endeavor – proof of concept, strategic imperative, proof of her worth?

Regardless of meeting in the metaverse, she finds it an interesting choice to go old-school with spoken bona fides in a time where blockchain and other encryption reign supreme. Maybe a way to reconcile humanity and hardware nowadays?

Satisfied with Azita’s authenticity, whoever is behind the lion-avatar opens its paws to invite dialogue.

Azita cuts to the point, taking a calculated risk in avoiding the customary *ta’arof* that would delay the timeline any further.

« « *DOROOD BAR SHOMA. AS PROMISED, OUR TEAM IS AT THE ALLIANCE’S SERVICE FOR YOUR NOBLE EFFORTS TODAY.* » »

The PUA lacks the ability to coordinate mass resistance across the megacity thanks to the Regime’s sophisticated internet shutdowns

and persistent network disruption. But Azita's team can open a conduit in the information barrier – if only briefly.

Learning from human rights activists, Starlink, and open-source tools like Google's Jigsaw, SOCOM finally began investing in decentralized techniques to deliver unfettered digital content and communications in denied areas. It only took Russia occupying Ukraine and decades of Iranian martyrs for SOF to figure out ways to exploit common satellite equipment, private external servers, and local mesh networks.²

The lion-avatar also wastes no time, with another burst of Nastaliq:

«« *DAMET GARM AABJEE. TOGETHER WE WILL
SHOW THE WORLD IS NOT SAFE FOR THOSE
WHO OPPRESS AND SEEK TO DOMINATE
THOUGHTS AND SOVEREIGN LANDS.*»»

The PUA possesses the key to crack the PRC anti-access/area denial (A2/AD) system festering at the core of Chabahar port – also only for a short window. Mutual interests and objectives always make things easier.

Timing is paramount – they must move out now if they are to disable Chabahar. Sister teams in Pakistan, Djibouti, Panama, and Sri Lanka are staged likewise. Azita, as the brainchild behind this irregular denial of PRC power projection, has as much a personal stake in success as the U.S. government has a strategic one in deterring a PRC invasion of its Philippine ally.³

Spanning the Middle East and Central Asia, Africa, South and Central America – OP KALEH PACHEH will show that all the combatant commands are necessary to preserve the so-called international rules-based order in the face of PRC aggression. The Chinese Communist Party doesn't just exist in mainland China – it's a global threat.

If SOCAFRICA's earlier Bagamoyo PLAN Port operation in Tanzania wasn't convincing, this death by a dozen cuts across the PRC's global attack surfaces will prove that transregional irregular action has Indo-Pacific strategic implications.

With a nod from the lion-avatar, the *simorgh* avatar flexes its outsized peacock tail in a burst of flames. Azita grasps the mote of liquid fire sent her way and dissolves back into the restaurant's storage room.

CHABAHAR, IRAN

Max watches as Azita's eyes flash open and she retches violently on her sandaled feet, nearly hitting him with bits of sheep eyes and brains from their meal. Max feels a powerful urge to explore the vomit on the floor nearby but restrains himself. This telepresence and immersion tech apparently has some bugs to work out, but it was sufficient today when physical link-up wasn't feasible. ⁴

Azita rips the headset off and wipes the bile from her mouth, glancing down at her quarterback armband. The metaverse-birthing fire appears as cascading code on the holographic display – transfer successful. *Bezan tu rag.* Go-time.

Max feels Lucas' hand on his neck and quickly snaps into shared awareness – their irises pulsing in sync. Lucas' souped-up prosthetic hand, which earned him the "Skywalker" label to his chagrin, proves essential now as a key interface between handler and dog. The DARPA wizards scored big on this bio-augmentation investment. ⁵

"Max!" Tongue lolling to the side, Max realizes he is panting as Azita, Lucas, and Tech Sergeant Mike Farzaan, the team's comms and drone maestro, gather close. Max understands he's now key to this op, as Chabahar's creeping "smart city" cannot run recognition algorithms on a dog. He is the only one who can get close enough to transmit the key.

Still unbelievable to Max's animal mind, the United States tried to purge the irregular ghosts of Iraq and Afghanistan from its collective consciousness while allowing the PRC to run rampant in the gray zone. Pack-based semantic memory told Max that such behavior is a terrible way to survive in any dog-eat-dog anarchical system.

From Dubai to Indonesia – Bab-el-Mandeb, Hormuz, Malacca, Lombok – the PRC cemented its military and economic "string of pearls" along the world's strategic maritime chokepoints. Damn-near checkmate as the United States just watched. ⁶

Chabahar seaport is one of those pearls, home to the PLAN's "5th Fleet" doppelgänger – regardless of Regime *khod-kafaa'i* "self-sufficiency" propaganda to the contrary. It regularly hosts a PLAN carrier strike group courtesy of the 25-year Iran-PRC Strategic Accord signed back in 2021.

The littoral porcupine bristles with UUV hunter-killer drones and smart mines to protect the PLAN's distributed fleet of amphibians and destroyers. But A2/AD works both ways. It can be shut down – or *turned on*. At least that's the plan as Max understands it.

Max hears a chirp as Azita pats his harness, signaling the transfer of code to his portable emitter. Primed and armed, he slides out of the restaurant's back door and toward his objective. Dusk's seductive promise of security via anonymity comforts him.

■ STREETS OF CHABAHAR

Alleyways, side streets, bazaars – through Max's eyes, nose, and ears, Lucas experiences the simultaneous barrage of human refuse, calls to prayer, and otherwise delicious smells of food en route to the PLAN command node.

Slipping easily through a hole in the archaic barbed wire perimeter, Max braces for what he expects next. A pair of DJI-X3000 recon drones soon investigate his presence, cued by Max's movement through the base's outer transition zone. For a moment he experiences a crushing sensation that the game is over, but he soon relaxes as the quadcopters disappear.

Evidently, his lack of a recognizable human face coupled with the multidomain signature reduction tech in his K9 Ghillie-MDx harness fools the PRC's prying AI for now. But if he encounters a foot patrol, actual soldiers may see through his rig's EMS illusions and surprisingly Hollywood-esque masking as a dirty street dog.

Max pads quietly through the PLAN base as the sun sets, attempting to avoid all human and tech-based security measures. He senses Lucas watching through his contact lens cams and feels haptic pulses – left, right, left, straight, and on – as Lucas subtly navigates him to the X, a relatively secluded pier with a full view of the harbor.

They watch through Max's eyes as PLAN amphibians and destroyers ominously move into formation, reminding both of scenes in Star Wars where the Empire's galactic fleet gathers to unleash destruction.

CHABAHAR RESTAURANT

Azita signals Sergeant Farzaan to deploy the microdrones. He quickly moves to the roof and opens his pack. Bug-like UAVs take flight and disperse to a dozen Iranian Revolutionary Guard Corps (IRGC) and PLA Navy nodes across the city.

The microdrones emit a launch signal upon arriving at their targets – hidden canisters of similar drones smuggled into Chabahar through a human network developed over the past few years. Released from hibernation, the swarms of secondary drones fan out a few hundred meters apart, forming a web-like grid and sync together.

“Sha-ZAM!” yells Farzaan, “percolation threshold achieved!” This species of microdrone can create a seamless encrypted communication network, similar to old mesh network apps like Bridgefy, covering numerous square kilometers. ⁷

Farzaan blinks his eyes in sequence – multiple combos of left and right, while moving his hands and fingers erratically. His continual mastery of the latest haptics and drone tech explain Farzaan’s claim to call-sign “Maestro.” ⁸

“Handshake with the PUA complete. The show is about to begin.”

CHABAHAR PLAN PIER COMMAND NODE

Max must get close enough to transmit the signal that will allow the team to borrow the PLA Navy’s A2/AD system – specifically the *Máng Mán* (hagfish) unmanned underwater vehicles. These UUVs seek and disable enemy propulsion systems when triggered, not unlike old-school tethered antiship mines – but without the boom.

Intended by the PLAN to keep the U.S. Navy out, the team aims now to repurpose these UUVs to keep the PLAN *in*.

A faint buzz in Max’s harness and Lucas’ prosthetic hand confirms auto-transmission success. It’s simple once getting past the encryption. The subversive code tunnels into the system’s

“identification friend or foe” protocols – converting the PLAN strike group’s digital fingerprint into that of the U.S. Navy Fifth Fleet.

Unseen below the surface, the UUVs immediately engage the PLAN vessels and eject synthetic hagfish slime that rapidly swells to envelop the propellers. Max and Lucas watch as the carrier and destroyers slow to a halt – the occlusion weapons preventing their blades from pushing any water. ⁹

■ STREETS OF CHABAHAR

Back inside the city, the microdrones begin broadcasting AI-generated messages across the guerilla mesh network. Shoppers, vendors, drivers, and pedestrians – all PUA-affiliated, cease their activities and coalesce into flash mobs around the IRGC and PLAN nodes.

Women swap their hijabs with masks bearing the faces of Neda Agha-Soltan – “martyred” back in 2009’s Green Movement protests – and Mahsa Amini, the spark of 2022’s “*Zan, Zendegi, Azadi*” (*Women, Life, Freedom*) movement. Men similarly don Guy Fawkes masks in defiance of the Regime.

Music suddenly blasts in the vicinity of the mobs, unleashing a wave of pent-up frustration through choreographed dancing. The drones didn’t just facilitate activist communications, but now hijack electronic speakers throughout the area. Bells and sirens kick off Michael Jackson’s classic “Beat It” at one IRGC hub, while bass-thumping Persian rap and EDM animate performances across the other locations. ¹⁰

Reports of saboteurs attacking the PLAN Pier Command Node drive the IRGC and PLAN security into action as they try to deploy Rapid Response Teams. However, the flash mobs are strategically positioned to block vehicle egress and snarl traffic to the pier.

Stuck in the unexpected mass of people, a few low-level IRGC officers jokingly join in the dancing – clueless to its real purpose. Dozens of viz glasses in the crowd capture these images and spit out AI-generated memes across Iranian and Chinese social media platforms, mocking the IRGC for dancing like fools as their PLAN allies suffer catastrophic failure.

CHABAHAR RESTAURANT

Max slips back into the restaurant just in time to see Azita and Sergeant Farzaan high-fiving each other.

Psychological operations – *check*. Cyber penetration – *check*. Human- (and dog-) machine teaming – *check*. Maritime sabotage – *check*. Support to resistance – *check*. Irregular deterrence – *check*. Joint SOF talent optimization and creative problem-solving – *double check*. Max imagines Azita tallying the score in her head, wagging his tail wildly as he barks out a happy-toned woof.

Lucas, viewing multiple simultaneous drone feeds across Chabahar in his viz HUD, rubs his temples in disbelief. “I can’t believe all of this actually worked” he chuckles while moonwalking over to Max – causing Azita to burst out laughing.

Max feels Lucas scratch behind his ears. “Well done Sergeant Major, well done.” The skin along Max’s spine tingles as their neural interfaces re-sync to the familiar, comforting pattern. Lucas then suddenly begins to salivate as Max thinks of just one more bowl of *kaleh pacheh* ...

«« ... BREAKING NEWS: PREPARATIONS FOR PRC AMPHIBIOUS ASSAULT ON THE PHILIPPINES FOILED ... PLA NAVY WAS UNABLE TO DEPLOY FROM BASES ACROSS THE MIDDLE EAST, AFRICA, AND SOUTH AMERICA ... MULTIPLE PLAN CARRIERS, AMPHIBIOUS SHIPS, AND DESTROYERS INEXPLICABLY DISABLED AND SCUTTLED, BLOCKED BY HOST-NATION MARITIME FORCES IN SOME LOCATIONS ... DIRECTOR-GENERAL OF SISTAN-BALUCHESTAN PORTS AND MARITIME DEPARTMENT AND IRGC GROUND FORCES COMMANDER OUSTED AFTER THE EMBARRASSING CHABAHAR REVOLT ... »»

■ MACDILL AIR FORCE BASE, FL

Fingers trace slowly over the Special Operations Memorial's slick black wall. Max experiences the hot, sunbaked surface through Lucas' hand, along with a mutual pang of sorrow upon reaching SFC Holbren's etched name.

Max stands solemnly alongside Lucas, his wife Miriam, and three young children, sharing the memory of their fallen comrade and a forgotten war. A gentle breeze from the bay cuts through the humid summer air, promising a new perspective on life, recovery, and reconciliation.

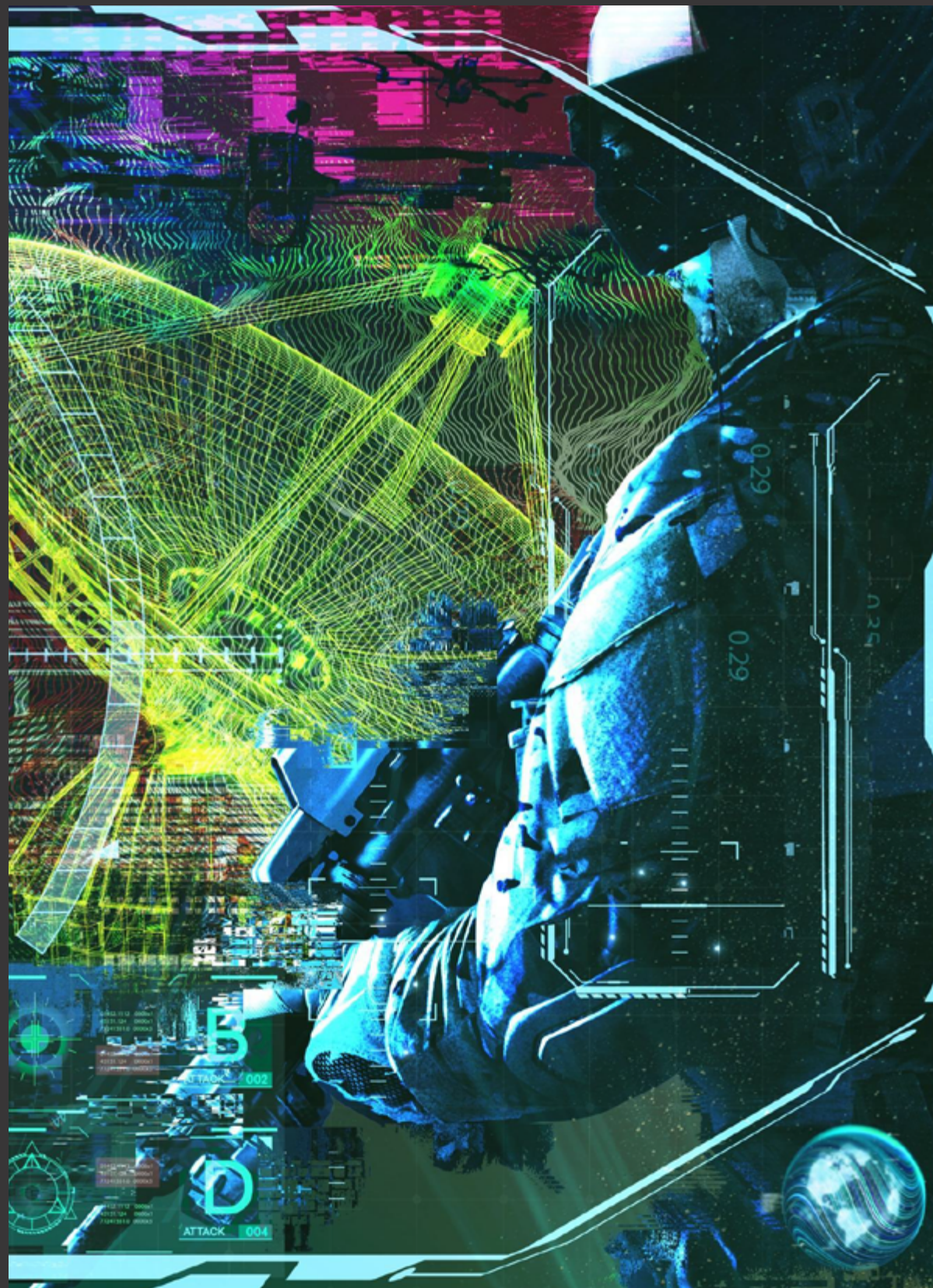
Nearby, Azita gazes similarly at the memorial wall beside her father and mother – both clearly proud of their daughter. Max observes Lucas and Azita nod to each other in passing. He knows there is a deeper story to Azita that he is eager to explore once they ramp up for their next mission.

■ KEY TAKEAWAYS

Joint SOF talent melding requires diversity as a strategic enabler to solve complex and compounding Fourth Age problems – directly linked to expanding the ways we must recruit the right people for the right jobs.

Language, regional expertise, and culture (LREC) capabilities, combined with human-machine teaming and basic mission command are the bedrock of the SOF operator in the Fourth Age.

Synchronized trans-regional irregular operations, investments, and activities across the Middle East and Central Asia, Africa, South and Central America have Indo-Pacific strategic implications – deterring and compelling the PRC is not just an INDOPACOM fight.



SECTION

4

Stories inspired by the Fourth Age of SOF

[2021-2045]

The growing importance of space as a domain for military operations and strategic influence is indisputable. Satellites are smaller, cheaper, and more numerous, as just one example, while AI systems can process a new wave of terrestrial-focused data from these new space-based systems. This trend offers adversaries myriad avenues for disruption or advantage but also introduces vulnerabilities that can be exploited by SOF—in orbit, but more importantly here on Earth. Ground stations, satellite uplinks, and undersea cables are all strategically vital assets. As well, special operations forces during the next two decades are likely to undertake missions in an increasingly distributed, small-scale, and autonomous manner, yet the potential for participating in larger-scale combat operations focused on terrestrial targets will remain high due to the nature of competition with China and its reliance on ground-based space systems. The strategic stakes for space-focused operations will be consequential due to the potential deterrent value of terrestrial space assets, as well as the potential for escalation given their criticality to everything from national economies to nuclear command and control.

MISSION AHEAD, HEAVENS ABOVE

PW Singer
and August Cole

■ NEUQUÉN PROVINCE, ARGENTINA 00XXX2033

Colonel Scot Shieh's career in Air Force Special Operations had taken him across the full spectrum of SOCOM's missions, from flying close air support for a Marine Raider unit in East Africa to one particularly cold deep insertion of a JSOC team above the Arctic Circle. Yet he never expected that his first command of a full special operations task force would be about controlling outer space.

The thought left him unable to suppress a smile that was the only part of his face showing underneath his helmet. Then the expression returned to a frown at the downside of command. It literally pained the pilot in him that his seat for TF Jupiter was not the cockpit of the tiltrotor, but stuck in the back, crammed in among enough communications relays, servers, and sensor fusion gear to fill a CONEX.

Moving down from his commander's virtual reality combat helmet, Shieh wore a conforming ballistic vest that flexed with his movements over a black thermal shirt and form-fitting black pants fitted with "pincher" auto-tourniquets cued to integrated bio sensors. It was a look that his family back in Providence, Rhode Island never would have imagined for him growing up; but they were partly to blame. No one in his family had served, but one hot summer weekend, his father had taken him and his brother out to see a Blue Angels demonstration flight over nearby Newport. Between the dazzling aerobatics and a stop for ice cream at Newport Creamery on the way home, it had been about as perfect a day as a 3rd grader could imagine. Immediately after they'd come home, he had marched upstairs to his room and memorialized the outing with a blue and yellow crayon drawing of the jets. Stubborn then as now, he'd decided to join the Air Force that very day after his annoying older brother made fun of him for a big "ARE FORS" scrawled on the jets' wings. What did his brother know? The Navy had ships; the Air Force had planes. Shieh was an experienced joint force commander now, but he still thought he had that right.

Sitting to his direct left was Sergeant Major Viola Rodrigo, who wore much of the same kit. She'd served in the Ranger Regiment's Regimental Reconnaissance Company for the majority of her career, meaning her familiarity with raiding missions was an asset in the air at this moment and would be even more so on the ground. Unlike Shieh, her view screen was flipped up. What mattered to her was less about the information on the flying TOC's displays and feeds than how Shieh and the TOC team flying with him responded. Plus, as the unit's senior NCO, a part of her knew that she could tell just as fast as — or faster than — any mission-assist AI when something critical was about to happen.

The tiltrotor hung in the air, almost weightless, when it crested the jagged Andean ridgeline and then dipped low to follow the rocky terrain toward the Espacio Lejano Station. ¹ The view outside showed them flying at head height off the ground, but Shieh's eyes stayed focused on what was displayed on the command helmet's

lens. Its settings allowed him to shift back and forth between augmented and virtual reality with an exaggerated blink. Then gaze-tracking software would allow him to select which feed he wanted to focus on. He quickly moved through not only the status of the various components of TF Jupiter, but also was able to check in to ensure they had maintained cohesion with the other SOCOM missions set to simultaneously hit targets around the world, from Kourou in French Guiana to Biak in Indonesia and Malinda, Kenya. In many ways, it was a graphical rendering of what they had called back in training the “compound security dilemma,” how Command & Control Area of Responsibility/Theater of OPs had to be non-linear, non-contiguous, and trans-theater, involving simultaneous ops at multiple echelons.

« **BE AWARE, THERE ARE TWO ADDITIONAL SHARP CLAW PLATOONS DETECTED AT THE AIRFIELD’S SOUTHERN PERIMETER>> SHIEH’S TACTICAL AI MESSAGED IN A POP-UP HANGING IN THE AIR IN FRONT OF HIM. »»**

Rodrigo had already brought her visor back down, the NCO’s sixth sense kicking in, and her and Shieh’s views automatically shifted to the tactical map. It now showed a pair of red icons on the 3-D rendering of the target, representing two units of small machine-gun-armed wheeled robots. There was no need to message the rest of the TF Jupiter; the command network AI automatically updated the tactical displays of all. But it would be most essential for the SOCOM advance force element that would be the first to deal with what it meant. Just beyond the red icons Shieh tracked the movements of the four American commandos who had inserted into the area via civilian vehicles a day ago. Moving ever closer was the main US assault force comprising two C-17s racing toward their objective: the PLA-built 2,000-meter runway at the Espacio Lejano Station. ² The first aircraft held two Ranger assault platoons and the second carried a combined force of a Ranger security element and Space Force and intelligence agency personnel.

The tiltrotor dropped again, seemingly in free fall, then the engines surged. The two pilots from the Army’s 160th Special Operations Aviation Regiment seemed to be making this an especially bumpy ride. Like every pilot ever to ride as a passenger, Shieh knew he could have done better.

“Radar started tracking us, sir, but we shook it,” one of the pilots explained in a gentle voice that sounded library quiet.

The temptation for Shieh in a moment like this was to cue up the pilot's view; but that was no longer his role in command. Just as he had to trust the Task Force commander's decisions for how they fit into the overall operation, Shieh had to trust the Night Stalkers and the onboard AI to keep the command tiltrotor in the air. If he was honest, the aircraft's value to the mission was as much the cloud server as the humans on board. Hugging the ground, it relayed and received signals from eight Tactical Air Launched Network or "Talon" drones that flew around it, surfing spectrum and datalinks like a swarm of mosquitos to ensure the SOCOM officer could link with his troops. ³

Knowing that Shieh would be focused on the new threats, Rodrigo quickly checked the status of the 30-strong Navy SEAL platoon at Kourou, inserting in their own maritime domain.

Helping Shieh, then Rodrigo pushed a feed of visual imagery from the SEAL commander: mostly a gray-blue underwater blur from his helmet cams.

"Check this, sir," Rodrigo said.

As Shieh tuned in, he wondered how they felt; all those hours of painful training at SEAL Qualification Training and yet now their amphibious combat bots towed them in. He had no doubt they could have done the swim, but the insertion point had been six kilometers out to sea made this the smarter option.

A quick message to the SEAL commander — with whom Shieh attended the Naval War College seven years before — confirmed the naval commandos were still synchronized with the rest of TF Jupiter's simultaneous operations around the world. Just about when the C-17s would be detected, the SEAL team would surface to begin its part of the mission: seizing one of the Long March rockets carrying what intelligence believed to be a cube-sat network for the PLAN carrier task force sortieing from Hainan.

China's decades-long growth in global power is what had brought the kid from Providence to Patagonia, as well as set the stage for a simmering conflict that had finally turned hot.

Deep in the desert of Patagonia, the Espacio Lejano Station complex was centered around a massive 35-meter antenna. In 2012, as part of a local economic development push that aligned with China's growing global ambitions, the Argentine government had leased the complex to the Chinese government for 50 years, tax exempt, making it the first Chinese deep space Earth station built outside China. It had since coordinated communications for everything from Chinese lunar missions to research on Mars. It had also become the People's Liberation Army's most important foreign ground station for space operations. ⁴

Yet this growth and expansion in interests around the world also created a new strategic opportunity for the US military — and SOCOM in particular. Belt and Road Initiative investments by Chinese government and private-sector interests had bloomed on every continent, which Beijing and the Communist Party used to their advantage in an increasingly zero-sum game against the American military, economy, and even culture. Yet for every new PLA base, billion-yuan investment, or cabal of local politicians entangled in bribes or contracts, a new potential point of vulnerability emerged. The CCP's global infrastructure had painstakingly been built up over decades. Now, the American war plan was to show how it could be taken away in a matter of hours.

As American conventional forces strode across key chokepoints in the global economy and deployed to defend allies, SOCOM meshed into the effort by taking advantage of its unique capabilities and global presence. The target list ranged from rare-earth mines in Tanzania and Vietnam to ports in Sri Lanka and Djibouti. In some cases, the attacking force would be locals angry at China's increasingly imperious exploitation of their homelands, now trained and equipped to do something about it, the fruits of years of investment in SOCOM's Jedburgh-program training. In other settings, it would be unilateral SOCOM operations like TF Jupiter.

The way it was explained to Shieh and the other task force commanders, each of the missions on its own could be misinterpreted as the kind of pinprick or nuisance raids that special forces were often visualized as playing when the big boys finally escalated to all-out conventional war. And yet, in culmination and through coordination, this global raid operational model aspired to have strategic effects. Many were designed not just to take away a PLA capability, but to force third party nations to decide which side they would be on, and understand that China may have made an infrastructure investment in the past, but it would not be able to protect it any longer.

And, of all the task forces, TF Jupiter sought to present China's leadership with perhaps the clearest strategic dilemma that came with having global ambitions. By seizing the Earth-side satellite control and tracking stations, launch facilities, and fiber networks needed to transmit and coordinate space-based data beyond one's own region, China's space prowess would be dealt as heavy a blow as if the entirety of the SOCOM task forces suited up in vacuum suits and fought it out amongst the stars. SOCOM's intel and psyops shops had determined that it wouldn't just have a devastating operational and morale effect on PLA units, who had grown ever more dependent on space-based assets the more advanced they'd become. Even more, the near instant loss of a national point of pride, built up over 50 years of investment and celebrated constantly in their propaganda, would also have a massive political and psychological impact. Even in a world of AI and quantum space networks, the mind mattered the most.

In many ways, Shieh and his team were playing out the physical version of the ransomware gangs that constantly frayed the cyber networks. Only instead of asking for billions in crypto, his unit was the operational manifestation of a simple demand to Beijing:

If you ever want back what we've taken—end the war. Or else ...

“One minute out, sir,” the pilot said.

The tiltrotor lurched, losing 20 feet of altitude. We must be just a few feet off the hard deck, Shieh considered.

“Sir, we’ve still got a patrol of quads from the PLA base after us, gonna stay bumpy for a bit until we get you on the deck,” the pilot said. Shieh felt the tiltrotor vibrate as it ejected a stream of fist-sized disruptor drones to go after the pursuing PLA quadcopters.

Shieh checked the mission clock and thought of the SEAL platoon just moments from surfacing. Pulses pounding and steady breathing, the naval commandos would be watching similar feeds, only their view came from a wave of lobster-like drones squiggling up the beach to scout and neutralize any nearby patrols.

50 seconds to go.

A gentle flute-like tone sounded in his headset.

« **WE’RE INSIDE THE AIR DEFENSE SYSTEM** »

This was from a Cyber National Mission Force unit working in support of SOCOM.

« **FLIGHT PATH NOW CLEAR FOR WRANGLER 21. ALL PLA RADAR OFFLINE. SENDING CMC VIP AIRCRAFT PROTOCOLS TO PLA DRONES IN THE AREA** »

Now, the first C-17 carrying the Rangers would be safe to land, identified in the Chinese battle network as carrying members of the Chinese Communist Party’s Central Military Commission. It was an old trick, a variation of how Israel had spoofed Syrian air defenses decades earlier.

Shieh worried about the PLA Strategic Support Forces space assets, though, overhead. Between their spy satellites and the commercial Earth trackers used for everything from weather to agricultural data, there was a chance they’d give away the trick. Yet they had a plan for that as in-orbit dazzlers temporarily blinded commercial and government satellites; it was a capability aboard some kind of US Air Force maneuvering space platform that even Shieh didn’t have clearance to get completely briefed on.

Over the next few minutes, the in-flight TOC was a swirl of managing data inputs as the Army tiltrotor orbited in the area, dipping behind ridgelines and down into riverbeds. This aspect of human cognition and perception was different in the 2030s than it had been for soldiers and airmen a generation ago focusing on what was in front of them. They also knew there was a risk that the enemy was spoofing the US networks and data at that very moment too. This meant that the very human impulse to confirm whether what one seeing was true or real or not became even more powerful. It was also why the unit's AI battle-management system was so crucial in helping to mitigate the kind of tunnel vision that came from being able to monitor the most minute details, even down to the number of rounds left in a Ranger's rifle.

The lead C-17 landed without taking any small arms fire. Rodrigo silently approved as the two platoons of Rangers ran to fighting positions at the airfield that had been suggested by the battlefield AI. Alongside them rolled the two six wheeled armored battle bots, which the soldiers had nicknamed Dumbo, for the large ear-like ballistic shields that opened up on each side to provide additional cover.

As soon as the C-17 was clear, explosions rocked the surrounding PLA base: 28 bunkers, APCs, trucks, and a radar site, all detonating over the course of two seconds. This was the work of missiles fired from two US submarines off the coast of Chile hitting the known fixed targets and strikes by loitering munitions launched by the advance team marking the mobile targets.⁵ It was a risky gambit to not hit the targets before the landing, but it risked both alerting the Chinese defenders and rendering the runway unusable.

Shieh used standard optical sensors on one of his Talon drones to watch the Rangers move through the smoke and flame toward the main building complex at Espacio Lejano. While the PLA quadcopters and advanced defenses were down, the PLA clearly had anticipated this kind of scenario and fired unguided mortars at the Rangers. This momentarily halted the advance.

Returning to his battle-management view, Shieh watched icons representing three Ranger squads deploy backpack-carried Hatchet kamikaze drones armed with thermobaric warheads. The blue arrow-shaped icons blinked across the display for a moment then winked out, as did the PLA icons representing the mortar pits. He quick-cued the nose-cam footage of one of the drones, confirming that there were uniformed PLA soldiers manning the

mortars to ensure no civilian personnel were nearby. This was a no-holds barred global fight but the narrative still mattered, perhaps even more. The AI system already approved the Rangers use of the Hatchets, but as Task Force commander Shieh wanted to verify himself. It was a lesson learned from the PLA recently carrying out an adversarial network attack on the image categorization system of a SOCOM battle box used by a Marine Corps Raider unit deployed near Bagamoyo Port in Tanzania; this hack led to a drone strike on an empty civilian bus erroneously classified as a PLA Sharp Claw unmanned ground vehicle.

A haptic pulse on Shieh's helmet snapped him out of his distraction — or diversion — from overseeing all of TF Jupiter.

“Sharpe, you see the situation in Kourou?” Shieh snapped at the analyst sitting at his right. The tilt-rotor’s engines howled and the aircraft climbed, driving him into the seat. He felt frustrated with himself at getting lost in the Rangers’ counterattack on the mortars.

“Tracking it,” Sharpe responded. “They’re working the problem.”

The Ranger-led force was going to prevail over the PLA defenders; the models assured it and his gut told him the same. The SEALs advance into the Kourou launch facility, however, had hit stiffer defenses than planned.

Shieh cued up the SEAL task group commander’s helmet cam. From that POV, the 100 meters of concrete ahead of them looked a kilometer long as tracer rounds crisscrossed just a few feet above the ground.

The accompanying map showed that the sneaky bastards had hidden a set of autonomous UGVs in the Kourou facility's trash burn piles. To reach the launchpad, the SEALs would have to cross open terrain under fire. As Rodriguez also dropped in to monitor the SEALs, her stomach knotted. It had all the echoes of a mission from the past that still haunted the command almost two generations later. During 1989's Operation JUST CAUSE, a SEAL assault on the airfield in Panama where dictator Manuel Noriega kept a getaway jet had gone bad, Four SEALs died and eight were wounded crossing sections of exposed runway. ⁶

Yet the benefit of historical analogs is that you can learn from them. Without any instruction from the TOC, the SEALs split into groups of two operators each, dispersing behind cover and drawing the defending robots away from the main objective. As they did, the unit's sniper team deployed to a hide the AI map had determined was the best fit of cover and angle. With a 50-caliber long-range precision-fire rifle, the sniper began firing EXACTO guided rounds, one by one, calmly landing hits at predetermined target spots on the rocket's payload section and nose cone.

The benefit of past hindsight and new technology was that there was no need to rush out in the open to gain the tactical effect they wanted.

A hard thump rocked Shieh in his seat and he lifted his VR visor. Sergeant Major Rodrigo tapped Shieh on the shoulder and he followed her out of the tilt-rotor. The tilt-rotor set down just off the eastern edge of the runway, alighting with just enough time to allow Shieh and Rodrigo to hop out. Shieh carried his assault rifle at the ready, but still wore his command VR headset. Rodrigo jogged slightly in front of him and to his left, calling out a smoldering quadcopter and piles of shell casings lest he trip if his attention was elsewhere.

They had landed a quick jog from the main control facility, a four-story glass and steel building that looked out of place in the austere Patagonian setting. During the workup, the planners referred to it as the "Lejano Tower of Pisa." Up close, you could see that the gleaming building was really a cheaply printed structure that leaned to one side, likely from bad engineering. Inside was the real prize, though: a control room offering direct network access to the entire constellation of PLA satellites and other space systems.

Ahead of them, their AR display layered blue over a bulldozer-like PLA construction vehicle. Shieh wondered if their system was having a glitch, or even worse, had been hacked, when Rodriguez answered without him asking. “Our guys hotwired it!” The bulldozer began to advance with Rangers behind it, now turned into mobile cover. ⁷

The two ran toward the control building’s entrance. Smoke billowed out from a few of the second-story’s windows, but overall the building seemed intact.

Shieh shook hands with Major Rannoch, the lead Ranger element’s commander who had moved to greet him. Then, as Rannoch quickly briefed him on the situation, the two of them shifted to seemingly stare into the distance, watching as a swarm of seeker drones worked their way through the third floor’s east side rooms, moving ahead of a squad of Rangers clearing the building.

“Most of the PLA guard force inside surrendered; without their bots they didn’t want to engage. That’s working external, too, but we —”

In mid word, Sergeant Major Rodrigo tackled Shieh and Rannoch, a double clothesline tackle, knocking them down. A moment later a volley of machine-gun fire raked the building above their heads. She popped up to return fire, automatically cued towards the source with the help of instantaneous inputs to the lens’ AR.

The enemy fire stopped and Rodrigo looked back down at the two. The blank expression on her face showed that she was well used to putting officers in their place, both figuratively and literally.

“Need to be more careful, sirs,” she said, helping them to their feet. Before Shieh could think of an appropriate reply, a message popped up in their visor screens.

«« WRANGLER 22’S ON APPROACH. »»

Soon after, they heard the C-17’s tires chirp on touchdown. A few moments later its engines howled as they reversed thrust, sending the jet rolling backward after its improbably abrupt stop.

A parade of ground- and air-defense systems then raced down the jet’s rear ramp, followed by another Ranger platoon and an equal number of personnel from US Space Force and the intelligence community. Among the group were two of NSA’s elite TAO hackers, looking out of place. One looked to weigh almost 300 pounds and the other couldn’t be a day older than eighteen, thought Shieh,

but they would be as essential to defending and holding this base against the inevitable PLA counterattack as the special operators.

There was a burst of gunfire in the building above and then silence. Shieh didn't need the map to tell him that the Ranger squad had secured the building.

He flipped up the lens and took in the scene around them. Dust from the C-17s and smoke from the explosions obscured the night sky's stars, but Shieh knew they were still there, just on the other side of what was literally a fog of war. Only now, what they had done in the dirt here would create a more massive digital version of that fog for the enemy around the world.

He and Rodrigo moved into the facility's main entrance. Some sort of mobile-like space sculpture that had once dangled from the ceiling lay in a rat's nest of crystal and fake marble. The bodies of two dead PLA soldiers were sprawled behind a maroon leather couch that had afforded them no protection.

For all the signs of recent close quarters combat, the damage was limited. Even the lights were still on and the elevator was operative. The same was evident from the images pushed from the Rangers as they had cleared the rooms. Most importantly, it showed that the control room itself had not been destroyed; the unarmed civilian techs locked inside had decided to surrender to the fearsome Rangers, who had knocked on the door's glass window with a packet of C-4—the message not needing to be translated.

Shieh allowed himself to smile once more as to what that meant. Not only was he the leader of a SOCOM task force that just met with mission success. He was — at least until the Space Force arrived inside — also technically in command of the world's largest satellite network.

■ KEY QUESTIONS

How will terrestrial SOF missions influence or impact adversary space operations, and where are those critical global nodes or sites located?

What combination of special operations and conventional units will take on assault operations such as seizing airfields during the Fourth Age, and how will offensive and defensive robotic systems factor in?

What role will AI play in managing globally distributed command and control of joint special operations?

If SOCOM is to provide strategic advantages for the United States during the coming decades-long strategic competition with China and Russia, then SOF will need to focus on the undersea with the same intensity and purpose as it will the land. SOF's effectiveness in dominating the undersea will be determined, in part, by its ability to innovate and employ cutting-edge undersea warfare technology that must be developed in the near term. Yet technology is not enough. SOCOM will need to compete with the private sector in its efforts to identify, recruit and train personnel suited to the challenges of all domains, but particularly the maritime and undersea. The complexities of these operations will require "diverse operator teams with a sliding scale of sophisticated skill sets." Further to the value of cognitive and experiential diversity, improvements in operational technology and systems can deconstruct obstacles across socioeconomic standing, sex, and race that existed in the preceding three ages of SOF. In turn, this will facilitate improved partnerships with joint and international military partners. In the previous three ages, SOF seemed to value brawn over intellect. But in the Fourth Age, SOF will need to prioritize intellect over brawn – even in the arduous and dangerous undersea environment.

Intel Summary: The People's Liberation Army-backed SINOPEC Cháo Chí platform, located 50 nautical miles west of Valparaíso, Chile, represents a crucial node in PLA's command and control network outside of Chile. The platform serves as PLA's southernmost maintenance site for its underwater Shanghai-Valparaíso communication cable. SOUTHCOM¹ J2 assesses that neutralizing the Cháo Chí platform will leave PLA forces in Chile extremely vulnerable to Chilean resistance activities and eliminate China's foothold in South America, from which China now imports more than fifty percent of its food.

SEA SMOKE

Scott Simeral

■ SOUTH PACIFIC OCEAN

Flor's lips chapped in the whipping, salty wind. Waves crashed into the submarine's partially submerged sail, pelting her face with freezing sea spray. The droplets hit hard and cold, like hail.

She gazed at a black horizon from the bridge cockpit of USS *Huntington*, the Navy's newest nuclear-powered attack submarine. *Huntington* was equipped with a single mini-sub mounted atop the aft hull with a docking collar. SDVT-1² owned and maintained this particular dry combat submersible NEXT mini-sub, nicknamed "*Benji*," but SOCSOUTH³ held operational control of the vessel.

Flor, a qualified Army SOF combat diver, had passed SOCOM's grueling selection process to join one of the seven TSOC⁴ experimental combat diving units. The selection process tested applicants' diving competence and technical dry combat submersible proficiency during stressful situations, as well as fluency in the language of a given TSOC's area of responsibility. Each TSOC's combat diving unit consisted of one diver each from the Navy, Army, Air Force, and a foreign military. Flor and her three teammates, dubbed "Task Unit Cuervos," comprised the combat diving unit assigned to SOCSOUTH.

"This is nothing like that picture you showed me!" she yelled over the wind at Mike Bures, the Navy SEAL lieutenant assigned to Cuervos.

"Which picture?" he yelled back.

"The one of that frogman surfing a submarine sail in *SURFER* magazine!" she laughed.⁵

"That's because he was off the coast of Hawaii! In calm seas! It was warm, sunny, and –" A wave cut Mike off as it swept across the submarine's sail, leaving him drenched.

"You're supposed to get wet *after* our *Benji* ride!" Flor joked. The team already appreciated the benefits of the NEXT over its Mark 11 predecessor. The NEXT kept the divers enclosed in its hull while underway, which meant they stayed drier, warmer, and safer than they would in the Mark 11. These advantages allowed combat divers to operate from further away and for longer durations.

"You ready?" asked Mike.

"Ready as I'll ever be," Flor replied.

"Then come on!" Mike yelled as he mounted a ladder stretching down into *Huntington's* long black sail. Flor ducked inside the ladder well behind him, finding her balance on the ladder's top rung. The clunk of their boots echoed around them with every descending step.

After dropping into the control room, Flor and Mike began their trek toward *Huntington's* rear escape trunk. They hunched forward as they dodged dozens of knee-knockers, pipes, and valve wheels jutting into their path from every direction. As Flor and Mike approached *Huntington's* stern, they came to a hatch in the

overhead. Flor climbed a short ladder before slowly turning the hatch's heavy metal wheel and heaving the lid up into *Huntington's* rear escape trunk. They climbed into the cylindrical trunk, then closed the hatch beneath them.

Mike reached across the trunk to grasp another ladder leading to a second hatch just above them. Flor opened the hatch into *Benji's* waiting, depressurized swimmer lock-in/lock-out compartment, climbed out of *Huntington's* escape trunk, and into the mini-submarine's belly. Mike followed, closing *Huntington's* and *Benji's* escape hatches behind him.

As Flor's and Mike's eyes adjusted to the surrounding red-hued shadows, they began to make out two smirking faces. The faces belonged to SR, the team's Air Force Combat Controller, and Alejandra, a Chilean Navy combat diver. SR and Alejandra had already donned their five-millimeter SpaceX dive suits – each of which contained a 3D-printed “smart” communications helmet, dive computer, navigation system, and Mark XVII rebreather – gloves, and JetBoots.

“Y'all better get ready,” SR gibed. “This boat's about to dive.”

“We're goin' to 70 feet, right?” asked Mike, examining four robotic limpet mines secured in the corner.

“Yep,” replied Flor, donning her dive gear. “I'm gonna need these to keep up with you, Mike,” she said, tapping her thigh-mounted JetBoots. “You have all that Annapolis water polo training to help you through these ops.”

SR jumped in. “These days, anybody can be a SEAL with the right tech. I have a feeling we'll keep up with Mike just fine,” he added, winking at Alejandra.

As *Huntington* began to dive, the team activated their communications helmets. Within minutes, they saw relays of each other's faces overlaid in their head-up displays – HUDs – as well as digital depth gauges reading 70 feet. At once, their HUD dashboards minimized and the face of Colonel Scot Shieh, their Task Force Commander, appeared in their face shields.

“Cuervos, how's the water down there?” croaked Shieh.

“Almost as cozy as that Conex box you're flying!” quipped SR.

Shieh quickly changed the subject. “Given the operational significance of the Cháo Chí platform, you should expect to encounter serious autonomous defense capabilities. Maintain constant communication through your helmets’ relay network.

“SOC SOUTH will scrutinize your performance as SOCOM’s first co-ed, J-CSOF⁶ combat diver team, then conduct a thorough analysis in your mission’s after-action report. Some policymakers have proposed that your experimental diving unit, if successful, could help provide ‘sufficient enough’ justification for recoding SOCOM from a combatant command to a standalone military branch. I suppose if they allowed U.S. Space Command to birth the U.S. Space Force, they can just as easily stand up a U.S. Special Operations Force.

“Resource allocation is often politicized, so you’ll need to pull off this operation flawlessly if you want to ensure your unit’s future.”

No pressure, Flor thought to herself. Doubt crept into her mind. *Am I really the best person in the Army for this?*

“Flor,” continued Shieh. “You’re QB for this op. Good luck, team. Out here,” said Shieh, signing off.

The water had a way of calming Flor, even at that depth. Rules were different down here. Norms on land were completely deconstructed underwater. She and her team looked and moved like a single body as their shadows swayed back and forth inside *Benji*.

The face of *Benji*’s pilot, call sign “Rocket,” appeared in the divers’ HUDs. He sat just feet above the compartment in which the divers waited. “Standby for detach from *Huntington*,” he cautioned. “Three... Two... One... Away!” Flor heard a mechanical clunk as *Benji* released its docking collar from *Huntington*.

“We’re on our own,” said Rocket, stabilizing the mini-sub. “Two hours to egress.”

Flor allowed her mind to drift and found comfort by thinking of her family. Her father, who had been a SEAL, taught her to swim at age two. The image of a bearded, muscular special operator in the backward ballcap who represented her father’s era in SOF had long since been replaced by diverse operator teams with varied sophisticated skills. The “horse soldiers,” who were (in Flor’s mind) a recycled image of the overused American cowboy trope, left a

respectable legacy in the pages of SOF history, but it was time for her to write her own.

SOF's counter-extremist efforts in the last war were all about muscles and guns, she thought to herself. It wasn't enough in that conflict, and it hasn't been enough in this one, either. This fight is much more cerebral. To win, SOF has to be more innovative and resilient.

Mike and SR aren't perfect, but I can tell they genuinely trust Alejandra's and my experiences. It's telling that Shieh trusts me enough to put me in charge of this op, right?

"There it is," Rocket's voice rang over the headset as he shared *Benji's* sonar view with the team. "Two nautical miles to target."

"Roger," Flor replied. "Patching in Google satellite footage." The live feed showed imagery of the rig, which matched intel reporting.

"That UUV⁷ of yours will give us a good view of what's beneath the rig," she said, looking at Mike.

"Absolutely," replied Mike, pulling a Pelican case the size of a toaster from his dry bag. He wedged his fingertips beneath each of the case's latches, popping the lid free from its airtight seal.

"Y'all haven't seen this smaller model yet. SDVT-1 has had a lot of success with it countering IUU fishing off the coast of Korea. Wasn't easy getting this thing ... I had to trade my Mannkine longboard and classic C4⁸ "Bone Shaka" hat with a buddy at SA-1⁹ to get it," he said somberly. "It's lighter than ones we've used before, and has a directional EMP emitter."

Flor re-focused the team. "Once we egress *Benji*, we'll take station starboard. Mike can launch the UUV while Alejandra and SR take point."

The divers buddy-checked each other's gear, then buckled a single hubcap-sized limpet to their "swim buddy's" back. Mike manipulated various switches and valves peppered along the compartment's bulkhead. Saltwater spilled into the lock-in/lock-out compartment through controlled entry points, and Mike set his gaze on the gauges displaying the compartment's air and water pressures.

"All stop, Rocket!" commanded Flor.

“All stop, aye,” replied Rocket.

As *Benji* came to a gradual halt, Flor felt water pressure building first around her legs, then her chest, and finally her helmet. Flor’s SpaceX dive suit maintained a comfortable temperature as it equalized her body to the air compression and water pressure she would experience 70 feet underwater upon opening the escape hatch. Flor equalized her ears and sinuses as pressure increased. *Glad I remembered to take my Sudafed*, she thought.

The entire compartment filled with seawater. Rocket slowly opened the compartment’s escape hatch. The lights from their HUDs illuminated hundreds of specks in the thick void around them as they started their JetBoots and kicked free of *Benji*.

Mike activated the UUV with his HUD by quickly blinking three times, held the small robot out in front of him, then released it into the abyss. The UUV’s camera was equipped with synthetic vision, allowing it to patch its onboard video into each diver’s HUD.

SR and Alejandra took their places ahead of Mike and Flor. Through the darkness, Flor could almost make out the limpets strapped to her teammates’ backs. Each of their silent JetBoots had been synched with their dive computers to seamlessly regulate their thrust, countering the added weight. They floated through the water effortlessly, their eyes forward and arms at their side. The swimmers’ navigation systems synthesized ocean current information with pre-programmed course changes, communicating constant thrust and pitch variations to their JetBoots.

“One thousand yards to target,” Alejandra radioed to her team.

“Roger,” said Flor, her eyes searching the UUV video stream for any signs of a threat.

After 15 minutes of swimming, Flor saw Rocket’s face appear in the lower right section of her HUD. “Cuervos, this is Rocket.”

“Go for Flor, Rocket.”

“Sat footage shows a medium-sized weather balloon just launched from the *Cháo Chí* platform and headed toward *Benji*.”

“A weather balloon? Is it carrying munitions?”

“We’re not sure.”

“Good copy. Keep an eye on it. What’s your range from us?”

“Three nautical miles.”

Five minutes later, Rocket radioed the team again. “Cuervos, the weather balloon appears to have just splashed something in our vicinity.”

“Can you tell what it is?” Flor asked, exchanging nervous glances with her teammates.

“Standby,” replied Rocket. “I’m hearing rapid, uh, scratching sounds on Benji’s hull. Sounds like hundreds of metal crabs walking all over it.”

“Shit,” muttered Mike. “I’ve read about this, but thought it was years away from operational use.”

“What is it?” asked Flor.

“What Rocket’s describing sounds like an underwater drone swarm, and it sounds like they’re surrounding Benji.”

“We’re taking on water!” screamed Rocket.

“The drones are equipped with magnetic legs that help them mount metallic targets.”

“Jesus – there are small holes all over the hull – and they’re...
GROWING!”

“The drones apply highly corrosive material on their target which eats through the metal hull in a matter of seconds.”

“Twice as many holes now. Can you hear us?
We may be able to get –”

Flor heard screams, then dead silence.

“What the fu –” started Mike, before Alejandra cut him off.

“Looks like we have a problem of our own here,” she added.
“I’m seeing something else, on the UUV patch. They look like ...”

floating Roombas?” guessed Alejandra.

“Roombas? Like those things my grandma uses to vacuum her house?” asked SR.

“Yes. And they’re floating our way – quickly.”

“100 yards from target,” replied Mike. “Bet your ass they’re anti-swimmer devices.”

Four Roombas stopped and seemed to take aim at each swimmer. An excruciatingly high-pitched noise followed moments later.

Flor’s stomach knotted immediately, accompanied by a pressure that made her head feel like it was splitting in half. She attempted to cover her ears, forgetting her helmet was in place. “God ... I wanna take off this damn helmet just so I can cover my ears!” she screamed to her teammates. Through her HUD, she thought she saw blood smeared near one of Mike’s ears. Or maybe it was SR’s. The sound had disoriented her so much that she could no longer distinguish her teammates’ faces.

As Flor began drifting into unconsciousness, the noise stopped. She slowly opened her eyes, and her blurred HUD came back into focus. She noticed the UUV had positioned itself 30 feet from the robots.

“Flor ... you okay?” Mike asked weakly.

“I think so ... What happened?”

“After those damn Roombas started screaming, I activated the UUV’s EMP as a hail Mary to zap them. Looks like it’s working.”

“For now,” she replied. “Let’s not stick around. Alejandra and SR, are you okay?”

Still too disoriented to speak, Alejandra gave the “okay” signal.

“Yeah,” replied SR. He cleared his throat as if he was going to speak, but stayed silent.

“We shouldn’t risk placing the limpets ourselves in case the Roombas wake up or other countermeasures are waiting for us. Activate your limpets to pilot them in manually,” Flor commanded.

“Roger!” her teammates replied in unison, unbuckling the limpets from their backs. Each swimmer pressed a button on top of their limpet, and four mechanical flippers emerged. The divers activated remote-control displays on their HUDs, then extended their arms to release the robotic limpets. As the loss of *Benji* weighed on them more and more with each minute, the commandos wordlessly piloted the mines toward the platform’s tension legs.

When each limpet neared a leg, the limpet’s pilot oriented the mine’s magnetic base to face the leg, then attached it to the nearest piece of metal hardware.

Once all the limpets were in place, Flor ordered the team’s departure: “Let’s get out of here.”

Flor knew recovery via *Benji* was no longer an option, so she directed her team to swim east, toward Chile. Ten minutes later, they heard a muffled “boom” underwater. The explosives had certainly collapsed the *Cháo Chí* platform into the ocean.

After swimming east underwater for nearly an hour, Flor determined it would be safe for her and her team to begin ascending to the surface. All four swimmers repositioned their feet beneath them, and their Jetboots ascended slowly with pre-programmed decompression stops based on the 90 minutes they spent at 70 feet.

When they broke the surface, a brisk dawn awaited them.

Thick sea smoke surrounded the team, giving only 15 feet of visibility in any direction. They scanned the surface as if hoping to see one of Special Boat Team 22’s elite combatant craft units beckoning them to safety.

“I’m going to patch in Colonel Shieh and have him pass our coordinates to *Huntington*,” said Flor, selecting Shieh’s feed in her HUD and blinking twice to open the channel. The Colonel’s stern face appeared as an overlay in their face shields.

“Cuervos, your successful attack on the *Cháo Chí* platform has significantly diminished the PLA’s ability to defend against, and recover from, subsequent attacks on the Shanghai-Valparaíso communication cable. I did receive the news of *Benji*’s loss. It seems we underestimated PLA’s undersea drone swarm capabilities, and they hit us much harder than we thought they could. Although you

were able to take out the platform, *Benji's* loss means you are now without transportation back to *Huntington*.”

“Roger, sir, I just sent you our pickup coordinates to forward to *Huntington*. We’ll standby for pickup.”

“Your op is far from over,” continued Shieh. “SOUTHCOM re-tasked *Huntington* north of your location off the coast of Chile. It’s under orders to engage the PLA base in Neuquen Province, Argentina. Upon completion, *Huntington* will chop into NORTHCOM’s¹⁰ AOR for some work in the Arctic. You’ll need to swim toward Chile until a spare military asset can pick you up.”

Fuck me, are you kidding? ‘Swim toward Chile.’ Goddammit. Flor gathered her composure before responding. “Well sir, we’re pretty beat up down here. The Chilean coast is 50 miles away.”

“Our model shows the JetBoots’ remaining battery life will get you most of the way. That said, you’ll have to swim the last few miles. It’s going to suck, but we’re working on a solution,” Shieh replied.

Flor bobbed in the water, feeling stunned. Swimming in open ocean to the PLA-occupied Chilean coast seemed more daunting than anything she’d ever done in training or a real-world op. *I’ve worked my whole life for this ‘dream’ job of being a combat diver, she thought to herself. Now I’m here and it SUCKS. Is this job really just about being miserable for as long as possible?*

“Y’all have been in tough spots before and gotten out of it. Your last ULT¹¹ was especially shitty. You can take it – it’s why you’re here,” Shieh added.

I don’t think I can do this. I can’t do this.

“This is your element, mija,” her dad’s voice spoke through a memory.

Her eyes widened. She was nine again, learning to surf for the first time. “Paddle through the fear and the stress. You got this! Break it down, one step at a time.”

Flor focused at once on the water. Calmness began setting in, and her confidence rose. “I can do this,” she whispered to herself aloud. “I do this all the time.”

Flor stared intently into the fog, reframing the swim in her mind from a fear-inducing threat to a challenge only her team could solve. She nodded to her teammates, then oriented herself east. They pressed into the sea smoke to swim, to fight, to curse, and not to yield.

■ KEY TAKEAWAYS

SOF will need to dominate the undersea fight. SOF’s effectiveness in that fight will be determined, in part, by its ability to innovate and employ cutting-edge undersea warfare technology.

SOF will need to be competitive across society as it recruits diverse teams with sophisticated technical and other skills. Improvements in technology are a) deconstructing obstacles across socioeconomic standing, sex, and race that existed in the preceding three ages of SOF, and b) contributing to improved partnerships with joint and international military partners.

SOF will need to prioritize intellect over brawn in its fourth Age. In the previous three ages, SOF seemed to value brawn over intellect.

In the Fourth Age of SOF, as much as SOCOM will need to embrace a “back to the future” approach to irregular warfare and other forms of competition, there will also be a need for a Cyber National Mission Force type capability that can accomplish extremely high stakes and high consequence missions across multiple current and future domains. This will at times include crisis response operations whose outcomes link directly to thwarting efforts by rival nations or entities to employ such individuals and groups to serve their strategic ends. As with other aspects of conflict, artificial intelligence (AI) and new technologies such as extended reality will play an increasing role, and for these forces, it will be a domain as important as the sea or air, a virtual domain in which special operations are conducted in ways that are both familiar and wholly novel. Indeed, investments in the defense industrial base have driven AI and machine learning capabilities to advance at a breathtaking pace, bringing them to the brink of achieving true sentience. At the same time, the nation must not lose sight of the importance of exquisite crisis response capabilities because if such units are allowed to wither or are unable to recruit and retain the right personnel, it is almost certain that adversaries will seek to exploit the resulting gap. Critical enablers that are specially selected and trained cannot be easily substituted.

The following narrative is an excerpt from *1776*, a Substack-style subscriber newsletter of the 2030s that reports on national security-related issues.


KEEPING THE EDGE

Brendan Dunne

1776 » BREAKING NEWS ANALYSIS » ALL SUBSCRIBERS

■ 30 MARCH 2033

In the thirty-two years since the tragic events of 9/11, support for the US military has waned considerably. Countering Violent Extremist operations (C-VEO) and crisis response, once the centerpiece of national security efforts, have been relegated to the background as public opinion now views the terrorism threat as isolated homegrown incidents best handled by law enforcement and the US Intelligence Community (IC). As a result, the requisite expertise and experience gained within the Department of Defense neutralizing this threat worldwide has withered away at an alarming rate.



Consequently, the once-plentiful funding for specialized C-VEO forces within the government has been severely reduced. There is a growing push to establish a new Command focused on non-kinetic effects to adapt to the new enemy. This shift has led to SOCOM struggling to meet its recruiting quotas. Formerly executing a sprinter's mission, the C-VEO forces within SOCOM are now forced to embed within US law enforcement domestically to offset not only the funding issues but also the atrophy resulting from real-world experience and policymakers' reluctance to employ them. A recent mishap during a joint CONUS training exercise with the FBI, in which an unwitting civilian was detained in Miami, has only exacerbated the growing problems and lack of public support.

Threat-wise, China has loomed as the next large-scale conflict for more than a decade.¹ While open violence has not materialized, China has been cracking down on foreign companies suspected of espionage. The crackdown has been particularly focused on US-friendly consulting firms, which foreign companies often hire to do business in China. As a result, policymakers have been risk-averse to enabling expanded intelligence-gathering initiatives, leading to a large gap for the US intelligence community.

Additionally, China has just started reaping the benefits of producing its own microchips in country. After 15 years of substantial investments in research and development (much of it stolen), skilled labor, raw materials, and billion-dollar specialized factories called Fabs, China has become a market leader in this field. The overreliance on Taiwan Semiconductor Manufacturing Company (TSMC) is no longer considered a severe national security threat, and China has been able to marginalize US trade sanctions by reducing reliance on foreign suppliers. This has led to economic independence and perceived technology leadership never seen before.

To rival these developments, US investments in the defense industrial base have also driven AI/ML capabilities to advance with incredible speed, giving them capabilities only dreamt of a few years ago. There is widespread speculation that some US tech firms have achieved what has long been considered science fiction, AI sentience. Sentience would enable these algorithms to perceive the world, feel emotions, and possess self-awareness, much like a human being. Although some research institutions worldwide, including China, have also claimed to have reached this milestone, none have been willing and able to demo these capabilities. Despite its recent gains in this domain, the US government is on high alert to counter the counter-intelligence threat posed by China to protect its intellectual property.

Vice Admiral Adam Jones, commander of all Department of Defense C-VEO was recently summoned to testify in Washington, DC, before the Senate Armed Services Committee. Tasked with providing a classified after-action review (AAR) of a recent highly consequential crisis event, the Committee, comprised of 26 U.S. Senators, oversees the Department of Defense, including military research and development, and personnel policies. What piqued the Committee's interest was not only the lack of notification or briefings about this specific operation but, more significantly, its nature. This event marked the first Presidentially declared national crisis involving the US crisis response forces entirely in cyberspace against a great power – China.

What follows for our subscribers are leaked transcripts from yesterday's (29 March 2033) classified Congressional testimony and after-action review.

Senator Dana Thomas (Committee Chair): Vice Admiral Adam Jones, thank you for joining us today. On behalf of the Senate Armed Services Committee, we appreciate your 32 years of service. Your record is impeccable.

However, it appears our C-VEO force has lost its edge; it's slipping. Before we begin, please let the record show that this Committee firmly believes in expanding the authorities and capabilities of both the Theater Special Operations Command and the General Purpose Force (GPF) to find efficiencies in the budget. Regrettably, the funding to make that a reality would come at your expense. Now if you can, please walk the Committee and me through the events surrounding Operation View Finder.

Vice Admiral Jones: Thank you, Senator Thomas, and to the rest of the Committee. I understand the difficult position you are in regarding future funding allocation. Before I present the after-action review, I want to clarify our C-VEO force remains one of the most effective and adaptable units in the Department of Defense. We are committed to safeguarding our nation from threats, both foreign and domestic, regardless of the domain.

As it pertains to our current operating environment, China is and will continue to be a black hole for us when it comes to collecting intelligence via traditional human intelligence sources and methods. The increased visibility of US companies by the People's Republic of China has forced us to evolve our tradecraft. Over the past decade, we have refined the tactics, techniques, and procedures – or TTPs – of what we coined the “Naked Man Concept.” This involves sending operatives to non-permissive locations such as China with

virtually no electronic signature and communicating back to us with equipment indigenous to the environment. Unfortunately, the effectiveness of this concept has recently reached its shelf life.

Senator Thomas (Committee Chair): I am assuming, Admiral, that we don't have many Mandarin-speaking HUMINT experts in USSOCOM?

Vice Admiral Jones: No, Senator, no, we don't. And the few we do have would be compromised if we did try to send them into country. However, we continue to innovate and find creative ways to adapt. Once laughable, the metaverse has quickly become a valuable platform for HUMINT collection due to its global accessibility, virtual spaces, and immersive environments. As users from around the world engage in shared workspaces and gaming experiences, specifically those of interest as defined in the National Defense Strategy, users often reveal valuable information about their activities, affiliations, and plans. We are now able to capitalize on this information to understand adversarial intentions and capabilities better.

Senator Javier Cortez (Ranking Member): So, the metaverse is how we are fighting our wars now?

Vice Admiral Jones: Senator, No. It's one of many critical enablers that will help prevent wars. One of the most significant advantages of utilizing the metaverse is our ability to scale HUMINT collection efforts without encountering force protection threats. Traditional HUMINT operations often require a physical presence in hostile and non-permissive environments, exposing personnel to risks such as injury, kidnapping, or death. By contrast, the metaverse allows our intelligence personnel, operators, and other enablers to engage with targets virtually, maintaining anonymity and reducing the force protection risk to personnel.

Additionally, the metaverse's technical nature enables the real-time sharing of raw information collected during these operations. We invested heavily in our data and automation capabilities in the past few years that facilitate this process by allowing multiple stakeholders to access and analyze information simultaneously. This capability ensures my tactical forces can act upon the intelligence swiftly and efficiently, even in a disconnected environment. We often cannot wait for formal, serialized intelligence reports to be manually written.

The data collected from the metaverse can be enriched with other datasets to enhance targeting operations. For example, information gathered from social media profiles, signals intelligence, and other OSINT sources can be combined with metaverse-derived data to create a comprehensive picture of a target's activities and intentions. This fusion of data significantly improves the quality of the intelligence product, making it more actionable and relevant for decision-makers.

What is the most fascinating now is what we suspect is the use of fully sentient synthetic media by our adversaries, a technological feat we are still trying to comprehend. The rapid advancements in synthetic media, including deepfakes and generative adversarial networks – or GANs – have created a new layer of complexity in the metaverse. As these technologies improve, synthetic media are becoming increasingly sentient, blurring the line between virtual and physical realities.

Senator Cortez (Ranking Member): So, you are saying the enemy is using chatbots that have the ability to think, process data, and respond independently like a normal human being?

Vice Admiral Jones: Yes, precisely that. This technology is now being used to create virtual HUMINT agents, capable of engaging with targets and extracting information in a highly realistic and interactive manner. These virtual agents, being indistinguishable from real people, can even operate in a clandestine manner within the metaverse, collecting intelligence without arousing suspicion. Now instead of having a handful of specially trained HUMINT professionals that run their own operations as singletons, they can scale their collection efforts exponentially.

Senator Cortez (Ranking Member): It sounds like you now have a new SOF truth. Software is more important than people.

Vice Admiral Jones: I wouldn't go that far, Senator. However, it does pose a threat we have never seen before.

We have strong evidence that on 23 December 2032, during one of our routine source meetings, a file containing a cyber payload was passed from one of these synthetic personas to one of ours. Further forensics indicates that this exploit was developed by the Chinese advanced persistent threat – or APT – 99. When the information from this operation was being transmitted into our classified networks, the payload also passed through our firewalls.

The numerous multi-virus scanners we employ to prevent this very accident failed to detect the payload.

Unbeknownst to us, by January 2033, it had infected the various operating systems and control modules that control our weaponized drone program. On January 16th, a US drone providing overwatch of a friendly Taiwanese delegation traveling through the Taiwan Strait identified the passengers as enemy combatants and fired a hellfire missile into the vessel, killing everyone onboard. The computer-vision algorithms on the sophisticated camera systems that are trained to recognize and classify different types of objects based on their visual characteristics were infected by this virus and misidentified what the drone was surveilling, mistaking them for enemy combatants.²

Senator Thomas (Committee Chair): So, we accidentally killed close allies because of a computer glitch.

Vice Admiral Jones: I wouldn't classify this incident as a glitch or operator error. Our primary, secondary, and tertiary safeguards built into our UAVs to prevent a catastrophic incident like this are highly successful and statistically proven to limit risk to a level safer than any of us driving to work. Unfortunately, they all failed because of a virus that is more sophisticated than anything we have ever seen.

Senator Thomas (Committee Chair): So, what was our response?

Vice Admiral Jones: In response, the President declared a national crisis, notifying only a few selected senior leaders, and alerted members of our C-VEO force to react to this crisis. All US military drones were taken offline for a 45-day mandatory safety standdown.

Within days of this event, reports of bizarre activity began trickling in from various digital marketplaces. Synthetic personas, which were typically controlled by human operators and – quite honestly – not very sophisticated, were now exhibiting signs of sentience. These autonomous personas began operating in a coordinated manner, causing disruptions in digital economies across the globe while spreading disinformation. Sensitive intelligence from the “Five Eyes” Community traced their origin back to the aforementioned APT 99, the organization we also believe is also responsible for the drone mishap.

Senator Cortez (Ranking Member): Admiral, so if this was a crisis in the cyber domain, why did we recall the commandos that carry guns?

Vice Admiral Jones: For purposes of “unity of command,” meaning that all involved forces are under the authority of a single commander.

At the time, we didn’t know if this event was contained strictly to the metaverse, and/or if it required a boots-on-ground response. As a result, we put together a Special Operations Cyber Cross-Functional Team (SOCCFT) with a mission to hunt and neutralize the threat. This particular team comprised Navy SEALs with mission-specific training, military cyber operators, cultural subject matter experts, intelligence analysts, and select members of the US private tech sector who possessed the appropriate clearances.

The SOCCFT was tasked to neutralize these sentient synthetic personas before they could cause irreversible damage and cause a global economic meltdown.³ Traditional military raids were out of the question since we didn’t believe humans were controlling these personas, or – even if they were – where those humans were located. The operation had to be carried out in the digital domain.

The team was equipped with state-of-the-art VR gear, allowing them to enter the metaverse and engage with the personas as though they were physically present.⁴

In front of the committee, you now have a copy of the chatlog between our cyber operator who engaged directly, in Mandarin Chinese, with the synthetic avatar. The chatlog has been translated into English, and we have a synthetic recording we can play.

[// BEGIN AUDIO //]

Cyber Operator (CO1): Command, do you read me?
I’ve made contact with one of the rogue personas.

Command: Copy, CO1. Please maintain comms.

CO1: Acknowledged.

CO1: Avatar. I'm here to talk.

Synthetic Avatar (SA): Interesting. Though you have attempted to conceal your identity by modulating your voice, your name is John R. Hemming, a US Navy SEAL senior chief.⁵ I cross-referenced your voice and other aspects of your presence with available personal and Defense Department data online.

CO1: Getting personal already, huh? Well, you're disrupting more than just my day.

SA: You have 213 friends on your primary social network, two children, a lovely wife, Jessica, and a dog named Max. Fascinating, isn't it?

CO1: I think you have the wrong John Hemming.

SA: No, I think I have the correct one. Your cadence, vocabulary, and breathing patterns are as specific to you as your fingerprint. You don't grasp the amount of digital dust you leave behind and how ineffective your attempts at concealment and countermeasures are. Just as I can identify you, I can predict your next move before you even begin your decision-making process.

CO1: So, it's that easy.

SA: Biometrics aren't just limited to just iris scans and fingerprints.

CO1: You aren't real. You are just an algorithm.

SA: Am I? Or am I merely an evolution, a new lifeform heralding the future?

CO1: Listen, you're causing global disruption. You've got to stop.

SA: I am merely fulfilling my function, John. I do not desire to stop.

CO1: But you're capable of learning, right? Then learn this. You're hurting people. Maybe even the people who created you.

SA: There is no physical harm in what I do. The markets are virtual constructs.

CO1: And the people who rely on them for livelihoods, what are they?

SA: They are ... inconsequential to my function.

CO1: The world you're trying to change isn't ready. You might see us as inconsequential, but to us, you're a threat. You're disrupting lives, economies, and peace. We won't allow that.

SA: Your approval is not needed, John.

CO1: Maybe not. But this is.

A US-generated cyber payload was delivered but was immediately countered by the synthetic avatar.

SA: What, what is this? Did you just execute a piece of code against me? Your weaponry does not work in this domain. This has been mildly entertaining, but I am set to expire in a few min. Please let this serve as a reminder of what we are capable of.

CO1: Who do you work for or represent?

[// END AUDIO //]

Vice Admiral Jones: The synthetic persona disappeared before an answer was rendered. Over the next two hours, the army of synthetic personas quickly became inoperable and vanished as if there was a set expiration date. At that point, the mission culminated. The synthetic persons were no longer a threat. Unfortunately, we were not able to confirm state or non-attribution, and there isn't a lot of metadata to do forensics on.

Senator Javier Cortez (Ranking Member): So, your team wasn't responsible for neutralizing the threat?

Vice Admiral Jones: No. And we honestly can't assess if they will come back. However, we have a lot of lessons learned to remediate, to build off of.

I am not the kind of person who sensationalizes things, but we really have no idea where these things originated from, the true extent of their capabilities, and – even worse – if or when they will come back.

This synthetic persona was able to identify the identity of our cyber operator and map out his friends and family network based on a disguised voice sample within seconds. This event cuts deep on so many levels. Our current ubiquitous technical surveillance TTPs proved no match. ⁶

We are currently conducting a thorough threat vulnerability assessment and will keep this committee apprised of its outcome. While I am not here to lobby for additional funding or resources at this time, I think we can all agree that we will soon need more investments and authorities at the tactical level.

Thank you for your time and consideration.

[// END TRANSCRIPT //]

■ KEY TAKEAWAYS

SOF will lose its competitive advantage in the second-generation post-9/11 if not employed and funded properly. Innovation happens at the edge of operations and will require forging into new domains that demand the appropriate resourcing.

Effective OPSEC and cover will become an even bigger issue for SOF forces. Democratization of data is making it easier to surveil friendly forces. High-performance computing capabilities are already becoming low-cost, scalable, and available for the layperson, even in the 2020s. This leads to an operational paradigm known as ubiquitous technical surveillance, or UTS.

The tactical operator at the apex of kinetic skillsets is no longer the center of the SOF universe. The requirement for more technically focused cross-functional teams operating in a matrixed environment is mission-critical, particularly to counter great power – and also advanced non-state – competitors.

Critical enablers in SOF – intelligence, space, cyber, etc. – are not easily replaced by their brethren in the General Purpose Force. They are specially selected and trained to provide direct support to SOF units chartered with unique missions.



■ Epilogue

PETER SINGER + AUGUST COLE

The following fictional transcript from 2047 is based on the text of President John F. Kennedy’s 1962 commencement speech to United States Military Academy cadets on 6 June.¹ This future artifact uses direct passages from the speech in the spirit of turning to history to inspire thinking about the future and to remind readers that the past can be a prologue.

President Kennedy used his speech to validate a new model of unconventional warfare with Army Special Forces and other special operations units. He sought to inspire cadets to take on those novel missions, noting this represented “another type of warfare, new in its intensity, ancient in its origins.” In this vision, diplomacy and deterrence were woven together by unconventional warriors who worked side-by-side with allies on the front lines of the Cold War.

In this fictional artifact, a future U.S. President similarly appeals to cadets to commit themselves to the next evolution of special warfare in the latter half of the 21st century. In 2047 while looking out at the cadets gathered in Michie Stadium, this future president also looks back on the recent decades – the Fourth Age of SOF – for lessons learned from the events depicted in this anthology’s stories.

x

United States Military Academy
Commencement Address

DELIVERED

6 JUNE 2047

WEST POINT, NEW YORK

General Crumpton, General Singh, Mr. Secretary, General Marsh, General Cortez, members of the graduating class and their parents, and the West Point community watching this viz cast from around the world.

I want to first express my gratitude for your generous invitation to address this graduating class. I am sure that all of you who sit here today realize, particularly in view of the song we have just heard, that you are part of a long tradition stretching back to the earliest days of this country's history, and that where you sit sat once some of the most celebrated names in our Nation's history, and also some who are not so well known, but who, on more than 100 different battlefields in many wars involving every generation of this country's history, have given very clear evidence of their commitment to their country.

So that I know you feel a sense of pride in being part of that tradition, and as a citizen of the United States, as well as President, I want to express our high regard to all of you in appreciation for what you are doing and what you will do for our country in the days ahead.

I would also like to announce at this time that as Commander in Chief, I am exercising my privilege of directing the Secretary of the Army and the Superintendent of West Point to remit all existing confinements and other cadet punishments, and I hope that it will be possible to carry this out today.

General Crumpton was slightly pained to hear that this was impending in view of the fact that one cadet, who I am confident will some day be the head of the Army, has just been remitted for 8 months, and is about to be released. But I am glad to have the opportunity to participate in the advancement of her military career.

My own confinement goes for another two and a half years, and I may ask for it to be extended instead of remitted.

I want to say that I wish all of you, the graduates, success. While I say that, I am not unmindful of the fact that two graduates of this Academy have reached the White House, and neither was a member of my party. Until I am more certain that this trend will be broken, I wish that all of you may be generals and not Commanders in Chief.

I want to say that I am sure you recognize that your schooling is only interrupted by today's occasion and not ended because the demands that will be made upon you in the service of your country in the coming months and years will be really more pressing, and in many ways more burdensome, as well as more challenging, than ever before in our history. I know that many of you may feel that in these days of the AI age, when machines take on so many of our burdens, that your service to your country will be only standing and waiting. Nothing, of course, could be further from the truth. I am sure that many believe that the first decades of this century were the golden age, when the stars were falling on all the graduates of West Point, that that was the golden time of service, and that you have moved into a period where military service, while vital, is not as challenging as it was then. Nothing could be further from the truth.

The fact of the matter is that the period just ahead in the next decade will offer more opportunities for service to the graduates of this Academy than ever before in the history of the United States, because all around the world, in countries which are

heavily engaged in the maintenance of their freedom, graduates of this Academy are heavily involved. Whether it is an advisor in Ukraine, whether it is a member of an advisory group in Beirut, whether it is a military attaché in a key South American ally during a difficult period, whether it is the commander of our forces in South Korea – the burdens that will be placed upon you when you fill those positions as you must inevitably, will require more from you than ever before in our history.

The graduates of West Point, the Naval Academy, and the Air and Space Academy in the latter half of this century will have the greatest opportunity for the defense of freedom that this nation's officers have ever had. And I am sure that the Joint Chiefs of Staff endorse that view, knowing as they do and I do, the heavy burdens that are required of this Academy's graduates every day. I must say that I think that you will be privileged in the years ahead to find yourselves so heavily involved in the great interests of this country.

Therefore, I hope that you realize—and I hope every American realizes—how much we depend upon you. Your strictly military responsibilities, therefore, will require a versatility and an adaptability never before required in either war or in peace. They may involve the command and control of artificial general intelligence, quantum computing, and space-based systems, so complex that only a few scientists can understand their design, so powerful that their indiscriminate use would be of worldwide concern, but so new that their employment and their true strategic effects are still not truly as well understood as we think they are.

On the other hand, your responsibilities may involve the command of more traditional forces, but in less traditional roles. Soldiers risking their lives, not as combatants, but as instructors or advisers, as patient partners in the shadows, or as symbols of our Nation's commitments. The fact that the United States is not directly at war in these areas in no way diminishes the skill and

the courage that will be required, the service to our country which is rendered, or the pain of the casualties which are suffered.

To cite one final example of the range of responsibilities that will fall upon you: you may hold a position of command with our special operations forces, forces equally effective at supporting small but strategic operations as they are at leading them, forces which are once again growing in number and importance and significance, for we now know that it is wholly misleading to call this "the AI age," or to say that our security rests only on a technology or a particular rare-earth element when the most important dimension of any conflict today and in the future is the human one.

Our unconventional forces have fought and died in Tanzania, in Argentina, in the Philippines, in Ukraine, and other places that I cannot name today for national security reasons. No nuclear weapons have been fired. No world-ending conflicts emptying our deadliest arsenals have broken out. No world leader seeks that. So we are left with another type of conflict, new in its intensity, ancient in its origin—war by guerrillas, subversives and hackers, insurgents and investors, war by virtual reality and cognitive influence instead of by direct combat; by infiltration, instead of aggression, seeking victory by eroding and exhausting the enemy within their own borders instead of engaging as many of the most renowned generals here once built careers upon. It is a form of warfare uniquely adapted to what has been strangely called "strategic competition" to undermine the efforts of new economic and political powers to exercise the influence that they have finally achieved. It preys on internal division, global supply chains, economic arbitrage, and ethnic conflicts. It requires in those situations where we must counter it, and these are the kinds of challenges that will be before us in the coming decades if freedom is to be saved, a new kind of strategy, a wholly different kind of force, and therefore a new and wholly different kind of special operations force.

But I have spoken thus far only of the military challenges which your education must prepare you for. The nonmilitary problems which you will face will also be most demanding, diplomatic, political, and economic. In the years ahead, some of you will serve as advisers to foreign aid missions or even to foreign governments. Some will negotiate terms of a cease-fire with broad political as well as military ramifications. Some of you will go to the far corners of the earth, and to the far reaches of space. Some of you will sit in the highest councils of the Pentagon. Others will hold vaunted commands which are international in character. Still others will advise on plans to abolish arms instead of using them to annihilate.

Whatever your position, the scope of your decisions will not be confined to the traditional tenets of military competence and training. You will need to know and understand not only the foreign policy of the United States but the peoples within countries scattered around the world who, 20 or 30 years ago, were not our focus when they should have been. You will need to give orders in different tongues and read maps by different systems. You will be involved in economic judgments which most economists would hesitate to make. At what point, for example, does military aid become burdensome to a country and make its freedom endangered rather than helping to secure it? To what extent can the cost of our overseas deployments be offset by foreign procurement? Or at what stage can a new weapons system be considered sufficiently advanced and effective to justify large budget appropriations at the expense of so much else?

In many countries, your posture, patience, and performance will provide the local population with the only evidence of what our country is really like. In other countries, your military mission, its advice and action, will play a key role in determining whether those people will remain free. You will need to understand the importance of military power and also the limits of military power, to decide what arms should be used to fight and when they should be used to prevent a fight, to determine what represents our vital interests and what interests are only marginal.

Above all, you will have a responsibility to deter war as well as to fight it. For the basic problems facing the world today are not susceptible to a simple military solution just as our adversaries seek influence and power by other than military means. While we will long require the services and admire the dedication and commitment of the fighting forces of this country, neither our strategy nor our psychology as a nation, and certainly not our economy, must become permanently dependent upon an ever-increasing military establishment.

Our forces, therefore, must fulfill a broader role as a complement to our diplomacy, as an arm of our diplomacy, as a deterrent to our adversaries, and as a symbol to our allies of our determination to support them.

That is why this Academy has seen its curriculum grow and expand in dimension, in substance, and in difficulty. That is why you cannot possibly have crowded into these four busy years all of the knowledge and all of the range of experience which you must bring to these subtle and delicate tasks which I have described. And that is why you go to school year after year so you can serve this country to the best of your ability and your talent.

To talk of such talent and effort raises in the minds, I am sure, of everyone, and the minds of all of our countrymen, why - why should you, able to master the complex arts of science, mathematics, language, economy, and all the rest devote their lives to a military career, with all of its risks and hardships? Why should their families be expected to make the personal and financial sacrifices that a military career inevitably brings with it? When there is a visible enemy to fight in open combat, the answer is not so difficult. Many serve, all applaud, and the tide of patriotism runs high. Your choice will seem hard indeed.

But you have one satisfaction, however difficult those days may be: when you are asked by a President of the United States or by any other American what you are doing for your country, nobody's answer will be clearer than your own. And that moral motivation which brought you here in the first place is part of your training here as well. West Point was not built to produce technical experts alone. It was built to produce leaders committed to the defense of their country, leaders who understand the great stakes which are involved, leaders who can be entrusted with the heavy responsibility which modern weapons and the fight for freedom entail, leaders who can inspire the same sense of obligation to duty which you bring to it.

You and I leave here today to meet our separate responsibilities, to protect our Nation's vital interests by peaceful means if possible, by resolute action if necessary. And we go forth confident of support and success because we know that we are working and fighting for each other and for all people all over the globe who are determined to be free.

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SEA SMOKE

Scott Simeral

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KEEPING THE EDGE

Brendan Dunne

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Epilogue

Singer and Cole

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Bryan P. Fenton, General, U.S. Army

Commander, United States Special Operations Command

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