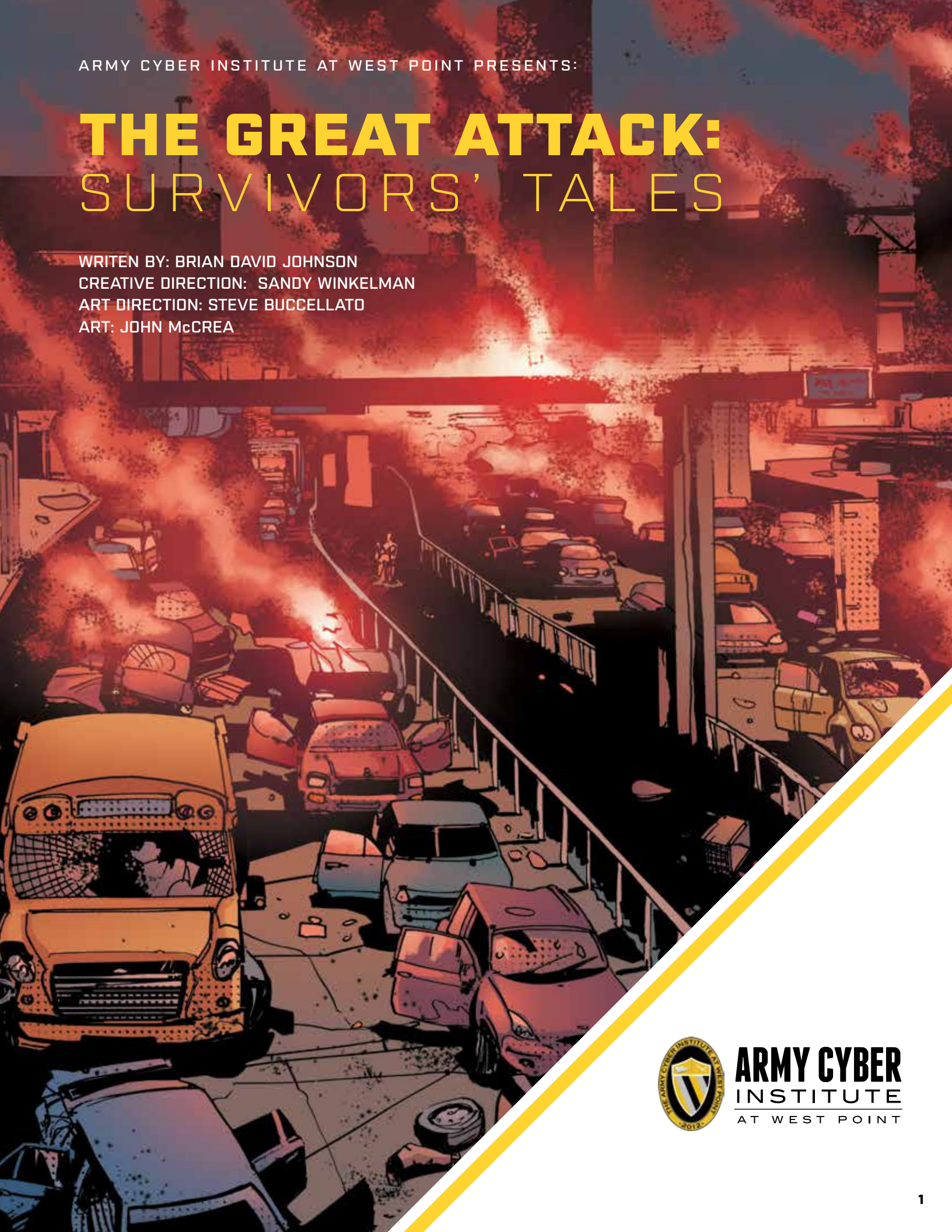


ARMY CYBER INSTITUTE AT WEST POINT PRESENTS:

THE GREAT ATTACK: SURVIVORS' TALES

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**ARMY CYBER
INSTITUTE**
AT WEST POINT

BUILDING A BETTER, STRONGER AND MORE SECURE FUTURE FOR OUR ARMED FORCES

WEAPONS OF MASS DESTRUCTION (WMDs) – a term that has not been in our news cycle for several decades. What are they? There are a variety of definitions for what makes a weapon capable of mass destruction, but let's take the United Nations definition: "Weapons of mass destruction (WMDs) constitute a class of weaponry with the potential to, in a single moment, kill millions of civilians, jeopardize the natural environment, and fundamentally alter the world and the lives of future generations through their catastrophic effects".

Routinely, we consider these as weapons with either a nuclear, radiological, chemical or biological payload. Most will think back to World War II and the detonation of Fat Man and Little Boy over Hiroshima and Nagasaki – these WMD attacks had three devastating phases: first was the shock and awe effect of the weapon; second was the initial horrific death toll and later the casualties from second and third order effects (like power and water outages); third was the generational devastation to the Earth, to people, and to society. The scale and scope of the use of a WMD exceeds the immediate 'blast radius', both in space and time.

EMERGING DISRUPTIVE TECHNOLOGIES (EDTs) – an umbrella term for several disparate technologies that are both emerging – from the laboratory stage to initial adoption by the masses – and disruptive – changing forever humanity's culture, texture, and capability. Historically, EDTs would include the movable type printing press, the steam engine, and (more recently) cellphones, and social media. All EDTs pose significant challenges to existing policy, law, and societal norms – and some pose similar challenges to doctrine for non-proliferation and deterrence. Predicting which technologies would be EDTs, is itself a challenge; ask 100 different organizations what technologies belong in this category, and you would get 100 different answers. Comparing responses from the U.S. military, the U.S. Intelligence Community, and NATO, there tend to be some similarities.

Looking at the intersection of these two big concepts was a research effort undertaken in 2022. Here we explored how future EDTs might enhance the lethality and/or effectiveness of WMDs in 2040, or be themselves considered WMDs. While the in-depth report is located at https://digitalcommons.usmalibrary.org/aci_rp/49/, we also decided to illustrate some of these ideas using a science fiction prototype, in comic form. Our story does not shy away from a dystopian vision of tomorrow. Exploring these dark regions inspires us to build a better, stronger, and more secure future for our Armed Forces.

This is the story of the Great Attack – where various EDTs (sometimes working together and sometimes singularly) were paired with traditional kinetic weapons to create WMD-like effects. Adversaries staying away from 'traditional' WMD payloads, like nuclear or biological weapons, kept them under the radar and below the line of being immediately recognizable as a WMD attack on the United States. Yet, these WMD-like EDTs still created the three devastating phases (not with a singular bomb drop but in a series of actions designed to bring a country to its knees). They shattered our way of life and proved that our homeland is no longer a sanctuary space.

COL. NATALIE VANATTA
ACADEMY PROFESSOR
U.S. ARMY CYBER INSTITUTE

THE GREAT ATTACK: SURVIVORS' TALES

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THE GREAT ATTACK

SURVIVORS' TALES

MUCH OF THE FOOTAGE AND DATA HAS BEEN LOST FROM THE GREAT ATTACK. THIS PROJECT IS MEANT TO RECAPTURE THAT HISTORY AND TELL THE SURVIVORS' TALES ON THIS 20TH ANNIVERSARY OF THE ATTACK.



JO GOMEZ

DANIEL LEWIS



MICA LINDSAY



MADELINE SUTTER



EL AND FRANK HA



PAUL STARK



KATYA PIKE



ABE HERTZ



BEN ALLEN



CINDY LEE



MEI FANG

IN 2027 I WAS A YOUNG PHD STUDENT STUDYING THE GEOPOLITICS OF WORLD WAR II.



I HAD A SUMMER FELLOWSHIP AT THE ATLAS MUSEUM AND LIBRARY. IT WAS HOUSED IN A DECOMMISSIONED BALLISTIC MISSILE SILO IN A REMOTE LOCATION. THAT REMOTE SILO SAVED MY LIFE...

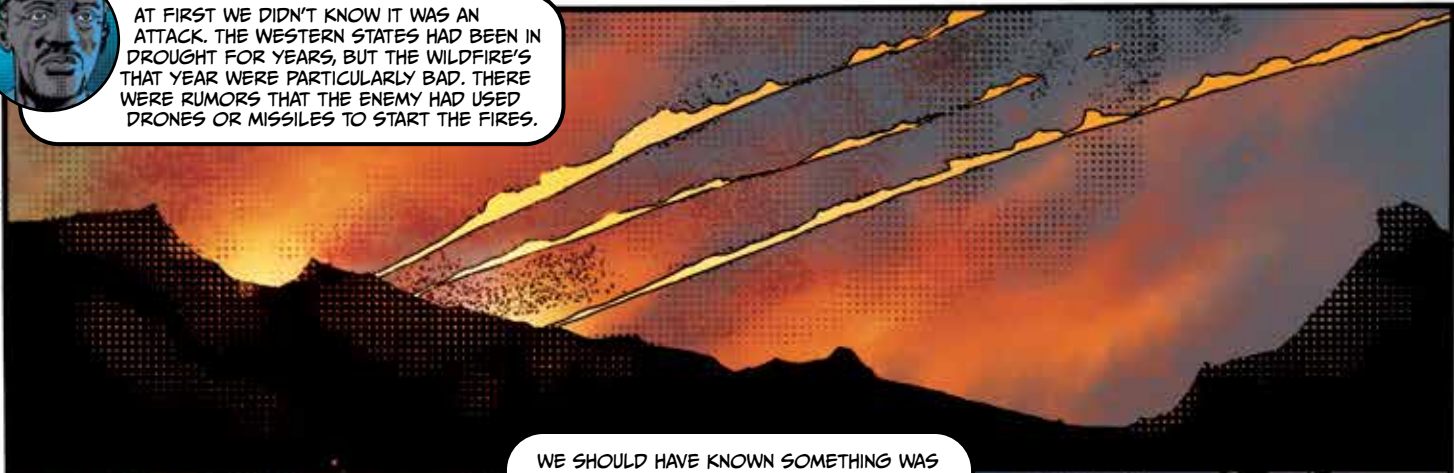
IT WAS A HOT SUMMER. THE WAR HAD BEEN GOING ON FOR ALMOST TWO YEARS, BUT ASIDE FROM A STRAY HYPERSONIC MISSILE THAT BROKE THROUGH, THE CONFLICT HADN'T COME TO NORTH AMERICA.



AT THE TIME, EVERYONE HAD BEEN SAYING THAT A "BIG ATTACK" WAS COMING. WE WERE ON EDGE FOR SURE, BUT WE WERE NOT PREPARED FOR WHAT DID COME...



AT FIRST WE DIDN'T KNOW IT WAS AN ATTACK. THE WESTERN STATES HAD BEEN IN DROUGHT FOR YEARS, BUT THE WILDFIRE'S THAT YEAR WERE PARTICULARLY BAD. THERE WERE RUMORS THAT THE ENEMY HAD USED DRONES OR MISSILES TO START THE FIRES.



WE SHOULD HAVE KNOWN SOMETHING WAS WRONG WHEN THE FIREFIGHTING DRONES STARTED GOING TO THE WRONG LOCATIONS.



THE NEXT SERIES OF ATTACKS HAPPENED ALL AT ONCE... THE NIGHT OF AUGUST 5TH THEY CORRUPTED THE CODE IN THE BATTERY CHARGING STATIONS, OVERHEATING THEM, SETTING THEM ON FIRE.



NO ONE COULD PUT OUT THE FIRES. THE FIRST RESPONDERS WERE EITHER OUT WEST, OR THEIR BATTERIES HAD BURNED TOO. THE SUBURBS BURNED...

MASSES OF HOMELESS FAMILIES GATHERED IN STADIUM SHELTERS. PEOPLE STARTED TO PANIC. NO ONE KNEW WHAT WAS GOING ON.



AND, AT THE SAME TIME, THEY ATTACKED THE HOSPITALS...



ANY DEVICE CONNECTED TO A HOSPITAL NETWORK WAS BRICKED - INSTANTLY USELESS. THE ONES THAT DID WORK JUST KEEP ALARMING.



THE MEDICAL FREEZERS AND REFRIGERATORS WERE HACKED. OUR BLOOD SUPPLIES AND MEDICINES WERE RUINED.



WHEN WORD GOT OUT THAT MULTIPLE HOSPITALS HAD GONE OFFLINE AND WERE NO LONGER FUNCTIONING, THE PUBLIC STARTED DEMANDING ANSWERS.



PEOPLE'S PERSONAL MEDICAL DEVICES AND IMPLANTS STARTED TO FAIL.

THOSE THAT DIDN'T DIE STRAIGHT AWAY WERE LEFT TO WONDER WHAT TO DO WITH THIS THING IN THEIR BODY.



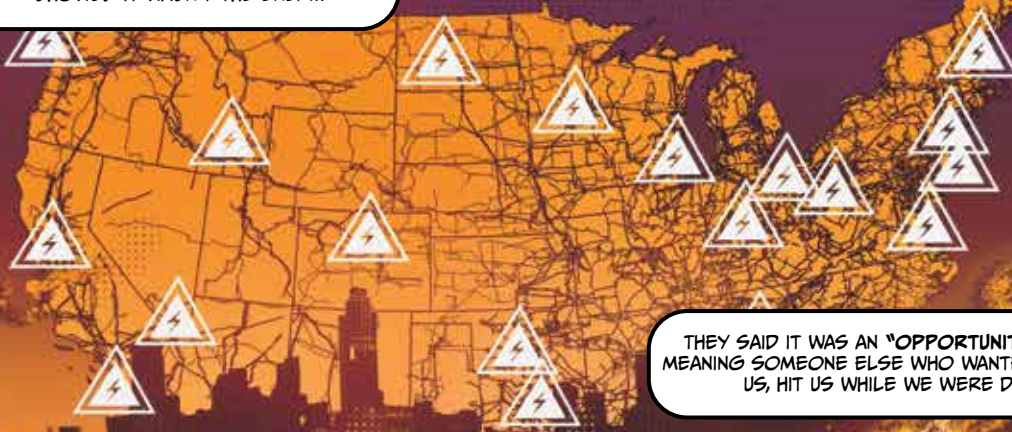
IT'S AS EASY AS THAT!



FAKE VIDEOS CAME OUT, SHOWING PEOPLE WHO WERE REALLY SCARED HOW TO GET THE IMPLANTS OUT.



AT NOON ON AUGUST 6TH THE POWER GRIDS STARTED TO FAIL. EARLY EVIDENCE SHOWED IT WASN'T THE ENEMY.



THEY SAID IT WAS AN "OPPORTUNITY ATTACK" MEANING SOMEONE ELSE WHO WANTED TO ATTACK US, HIT US WHILE WE WERE DOWN.

THEN THE SMART BUILDINGS WERE HACKED.

THEY JACKED UP THE POWER DEMAND FROM BUILDINGS IN THE CITIES. IT WAS TOO MUCH. THE POWER COMPANIES JUST COULDN'T TAKE IT. THE ENTIRE SYSTEM FAILED.



FOR DAYS IT WAS LIKE THE ENTIRE COUNTRY WAS ON FIRE.




NEXT, OUR FIRST RESPONDER SYSTEMS FAILED. WE COULDN'T GET TO ALL THE PEOPLE.



NOTHING WAS WORKING. THE CALL CENTERS WERE FLOODED OR COMPLETELY DARK.



I DON'T THINK SHE'S BREATHING MOM!



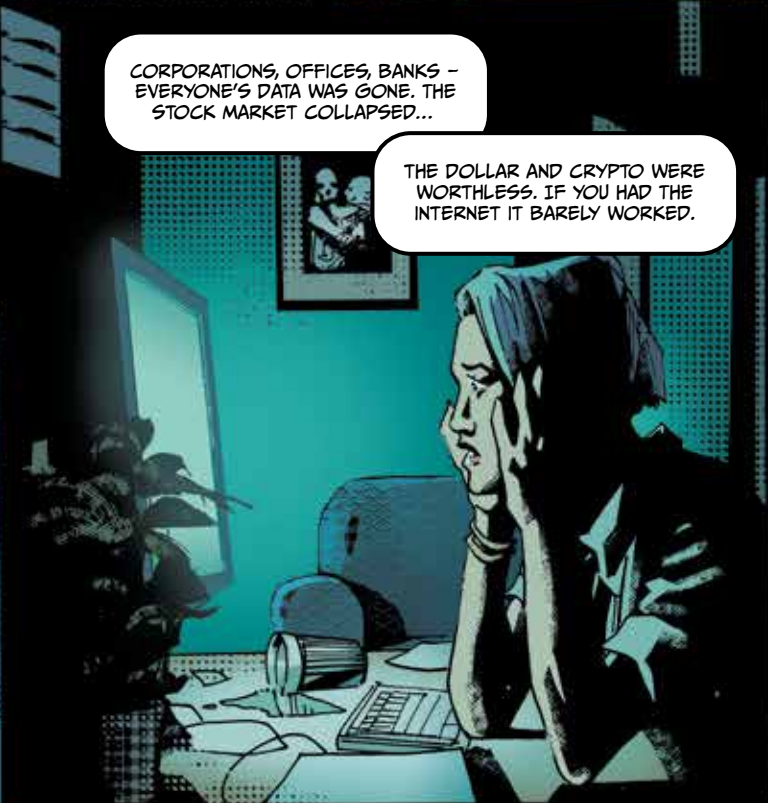
WHERE ARE THEY? I'VE BEEN CALLING FOR HOURS!



THEN THEY TOOK OUR DATA.




CORPORATIONS, OFFICES, BANKS - EVERYONE'S DATA WAS GONE. THE STOCK MARKET COLLAPSED...



THE DOLLAR AND CRYPTO WERE WORTHLESS. IF YOU HAD THE INTERNET IT BARELY WORKED.

IT WAS JUST GONE. ALL OUR FILES!




THE REALLY SCARY THING WAS HOW LONG IT WENT ON. IT WAS WEEKS... AND PEOPLE JUST KEPT DYING.

THERE WAS NO WAY OF FIXING IT OR FIGHTING BACK.



YOU HAVE TO UNDERSTAND WHAT IT WAS LIKE. FOR WEEKS THERE WAS NO POWER. NO TRANSPORTATION. NO LOGISTICS. NO FOOD. PEOPLE BEGAN HORDING.




NEIGHBORS TURNED ON NEIGHBORS. NO ONE COULD BE TRUSTED.

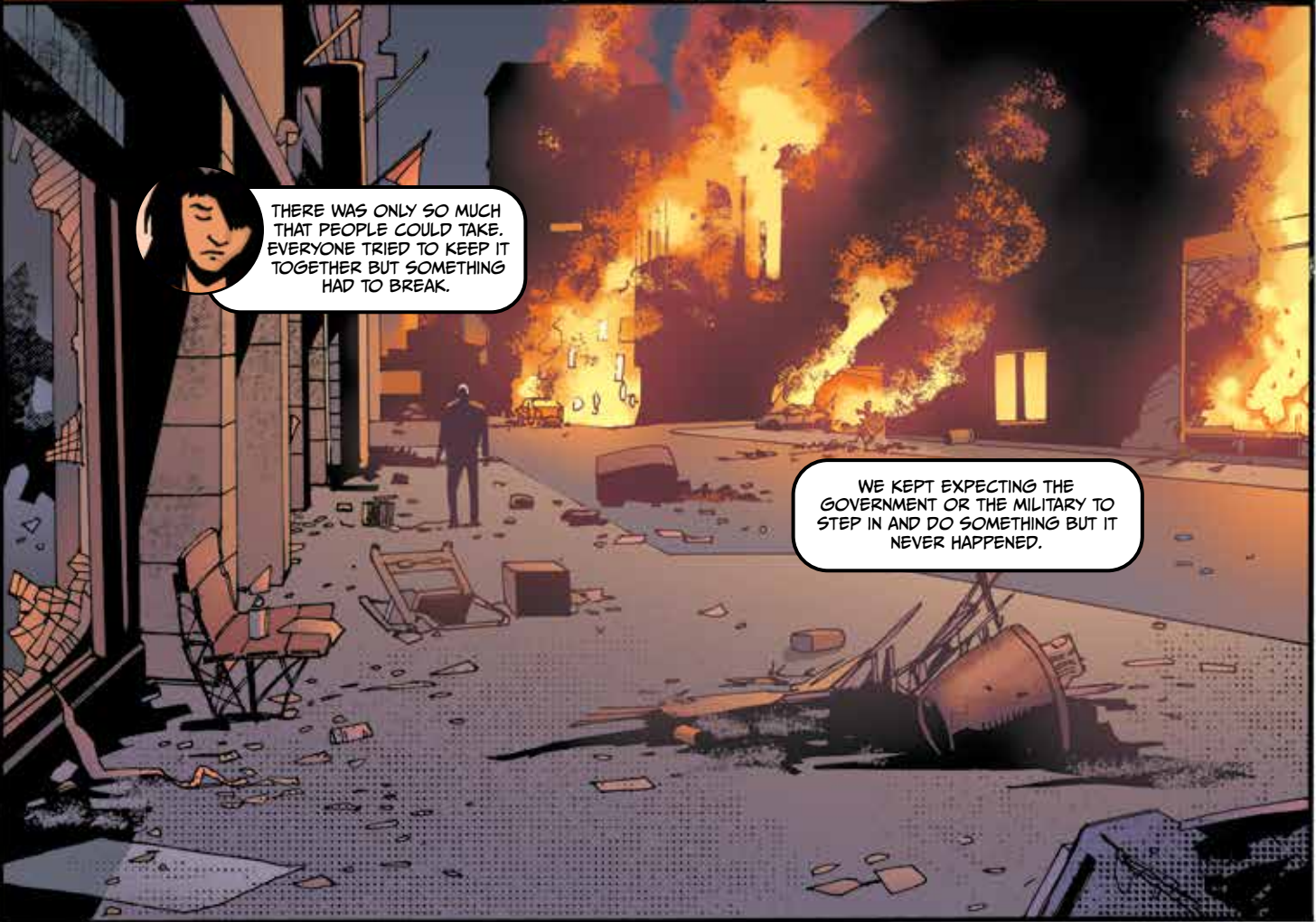


NOTHING WAS MOVING IN OR OUT OF THE PORTS. I MEAN, WE COULDN'T GET ANYTHING! WE COULDN'T PAY FOR ANYTHING.

WE GAVE UP.



THERE WAS ONLY SO MUCH THAT PEOPLE COULD TAKE. EVERYONE TRIED TO KEEP IT TOGETHER BUT SOMETHING HAD TO BREAK.



WE KEPT EXPECTING THE GOVERNMENT OR THE MILITARY TO STEP IN AND DO SOMETHING BUT IT NEVER HAPPENED.



THINGS GOT WORSE...I SAW MY FIRST BIG RIOT WHEN I WAS DOWNTOWN...



THE CROWD CAME AT US. THERE WAS NOTHING WE COULD DO.



A LOT OF PEOPLE DIED. THE REALLY YOUNG AND THE REALLY OLD. THE FUNERAL HOMES COULD NOT HANDLE THE DEAD.



THE BODIES BEGAN TO PILE UP AND THEN THE INFECTIONS STARTED. THE SMELL WAS HORRIBLE.



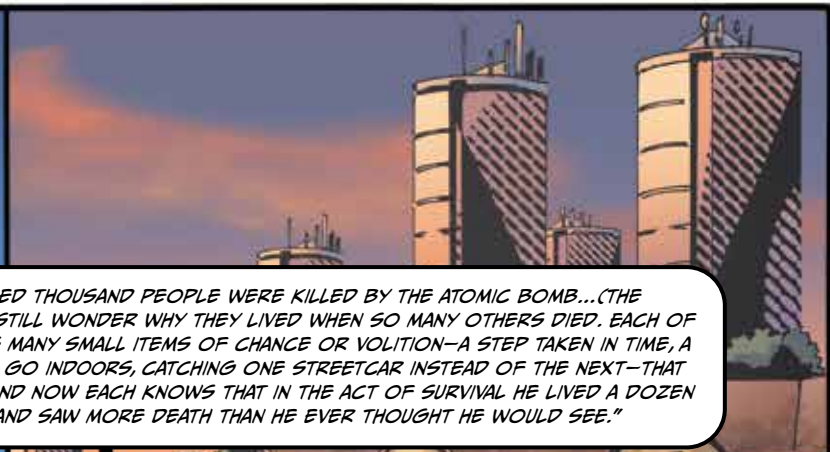
NO ONE'S REALLY GOTTEN OVER IT. EVERYONE LOST SOMEONE. YOU DON'T GET OVER THAT.



WE LOST EVERYTHING. OUR WAY OF LIFE WAS GONE.



EVERYDAY MY THOUGHTS GO BACK TO JOHN HERSEY'S 1946 NEW YORKER ESSAY, HIROSHIMA THAT I STUDIED ALL THOSE YEARS AGO WHEN I WAS A YOUNG PHD STUDENT...



"A HUNDRED THOUSAND PEOPLE WERE KILLED BY THE ATOMIC BOMB... (THE SURVIVORS)... STILL WONDER WHY THEY LIVED WHEN SO MANY OTHERS DIED. EACH OF THEM COUNTS MANY SMALL ITEMS OF CHANCE OR VOLITION—A STEP TAKEN IN TIME, A DECISION TO GO INDOORS, CATCHING ONE STREETCAR INSTEAD OF THE NEXT—THAT SPARED HIM. AND NOW EACH KNOWS THAT IN THE ACT OF SURVIVAL HE LIVED A DOZEN LIVES AND SAW MORE DEATH THAN HE EVER THOUGHT HE WOULD SEE."



WE WILL NEVER GO BACK TO THE WAY THINGS WERE BEFORE. SO MANY OF US LOST FAMILY THAT WE DON'T WANT TO GO BACK. WE DON'T WANT TO RAISE KIDS IN A WORLD LIKE THAT.

WE JUST DON'T TRUST TECHNOLOGY ANYMORE.



WITH THE DATA GONE AND OUR INFRASTRUCTURE DESTROYED... THE WAY WE USED TO LIVE AND WORK HAD TO CHANGE.



WITH THE INTERNATIONAL RECOVERY FUNDS WE REBUILT, BUT IN OUR OWN WAY.

LIFE GOES ON.

WE WILL NEVER FORGET THE GREAT ATTACK AND THE PEOPLE WE LOST. BUT WE MUST ALSO NEVER FORGET WHAT WE ARE STRONG AND WE WILL CARRY ON.

“ We are... on the cusp of a change in the fundamental character of war... how wars are fought, where wars are fought and with what weapons, technologies, organizations and doctrines – in short, the ways and means of war – is undergoing a fundamental, profound and significant change.

In total, in that summer of 1944, 58,000 Americans were killed in action, in the air, at sea and on the land in five theaters of war in only eight weeks. That’s the human cost of Great Power War – the butcher’s bill...

It will be your generation that will carry the burden and shoulder the responsibility to maintain peace and contain and prevent the outbreak of Great Power War. ”

**GEN MARK MILLEY
CHAIRMAN JOINT CHIEFS OF STAFF
2022 COMMENCEMENT SPEECH
UNITED STATES MILITARY ACADEMY**

AFTERWORD

The horrific spectacle of instantaneous destruction, mass death, and chaotic disruption (ranging from millennia of contamination to nuclear winter) place 'traditional' WMDs in their own weapons category. By pairing or combining multiple EDTs (such as robotics, AI and autonomous systems, quantum, and hypersonics), state and non-state actors can achieve the speed, scale, and destruction of WMDs without crossing the nuclear threshold. While unlikely to replicate the full scope of WMD effects in a single attack, novel pairings of EDTs will succeed in achieving both immediate shock-and-awe and long-term degradation of the target's strategic resources. Importantly, under current policy and legal frameworks, these technologies are largely not regulated to prevent these pairings – which often are also relatively inexpensive and easy to procure and implement (compared to a nuclear or biological program).

As we consider this future, it should beg the question – If this is just one possible, potential future, what might other mass EDT attacks look like? What combinations of technologies would you weaponize to achieve your objectives? What might our adversaries pick?

Our Achilles heel are the immensely complex (and only getting more complex) systems that underpin our civil societies. These systems will only get more complex but also more vulnerable to nefarious EDT use. We need to understand that the initial shock and destruction of combined EDT attacks will be accompanied by more pervasive and insidious efforts to achieve the long-term degradation of our strategic resources and capabilities. In turn, reducing our will and capacity to fight – through loss of resources, loss of critical infrastructure, or loss of societal structures and civil support systems.

The primary targets of these destructive efforts will be the complex and interdependent systems undergirding nations and the international rules-based order. What should be our playbook for stabilizing these systems and measuring/understanding their resiliency?

The greatest threat posed by WMD-like EDTs is their imperceptibility and dual-use nature. Through the creative, deliberate, and patient use of EDTs in varying combinations to attack, destabilize, and persistently undermine critical systems, political will, and social cohesion, opponents might achieve the strategic effects of a WMD without their target's population even being aware they were the victims of an attack. Because these attacks are designed to remain "under the radar", they will present themselves as criminal attacks, glitches in the system, or may remain hidden completely until their effects cannot be reversed. Even if exposed as an attack by an adversary, responses by the U.S. Government may be slower or reduced in effect as these WMD-like EDTs might not reach the criteria for an "in-kind" WMD response.

As more EDTs are invented and more people adopt them into their lives, how do we prepare for such an attack? How do we identify an attack or an EDT which could be weaponized? If you look at our story, these attacks appeared to be explainable as natural disasters, product malfunctions, or infrastructure failures.

If we are saying that some EDTs have potential for WMD-like effects and most EDTs are developed in private sector, what steps and what conversations need to occur on national resiliency and security in concert with the private sector?



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