

## INSPIRATION

My dream was born in Istanbul.

It was an appropriate place because the city bridges worlds. East and West, Christianity and Islam, ancient and modern, meet in its streets. Civilizations layer the city. Peeling Islamic calligraphy in the Hagia Sophia mosque exposes Byzantine Christian paintings, and the crumbling city walls record history like epic tree rings. Istanbul, like the rest of Turkey, teeters between two visions of political order. Europe and a rich Islamic past both beckon.

The past and future seem equally alive in Istanbul. The weight of history surrounds you, but the city is a place of boundless possibility.

It is a city in which to reflect, sense one's place in the story of human civilization, and imagine entirely new futures.

On March 10, 2014 I was in Istanbul researching the Syrian civil war when the United Nations Relief and Works Agency (UNRWA) released a staggering photograph.<sup>5</sup> A haggard crowd of thousands vanishes into the glare of white light, surrounded on either side by crumbling buildings, buckled concrete, and exposed rebar. It looks like Stalingrad.

The place is Yarmouk, a Palestinian refugee camp in the suburbs of Damascus, and one of the first cities in Syria to experience the Assad regime's "surrender or starve" tactics. These

Syrians wait in line for a rare food delivery after three months of siege.

Their faces show a mix of despair and iron resolution. Some crane their necks to see above the crowd, wondering if their turn will ever come. A man in a black jacket stares at the ground, shoulders slumped, perhaps too ashamed to look up. Farther back, a slouching man stares into the camera, one hand upturned, lips parted as if he wishes to say something. He might be making a silent plea to the photographer, or an accusation.

The photo went viral. It appeared on the cover of an Amnesty International report about sieges in Syria. Activists displayed it in Times Square in New York.

Skeptics claimed the photo was a forgery. It was not. The world simply could not believe that such atrocities still occurred in the 21<sup>st</sup> century.

The Syrian civil war began with a peaceful uprising that the world has largely forgotten. Inspired by protests in other Arab countries, Syrians took to the streets to demand dignity, a better life, and freedom from corrupt authoritarian rule. The regime met these protestors with bullets, paramilitary brutality, torture, and permanent “disappearances.”

After months of state violence, defectors from the Syrian army took up arms against their murderous government. The insurgency exploded in February 2012 when the regime began a month-long artillery bombardment of Homs. Every town and village seemed to stand up its own rebel group in the ensuing months. Islamists poured in from abroad.

By the time I visited Turkey a year later, civil war had engulfed Syria. We met with opposition leaders, journalists, rebel commanders, and activists. They were desperate, confused, and badly fragmented. They knew they were losing. Their political

leaders had failed them. Jihadists were outmaneuvering more moderate factions. The West declined to get involved. Every meeting had an air of desperation.

The opposition needed a miracle. Some hoped for a full-scale American intervention. Others called for an ill-defined program of American support for what remained of the Free Syrian Army. Syrians wanted the West to know that they weren't terrorists. They only wanted freedom and dignity, but now warred against a monstrous regime that tortured and raped and starved its people.

The brutality of the Syrian civil war was staggering.

We met a woman who had survived both a chemical attack and a siege. The siege was worse, she said. Watching your children starve, knowing you can do nothing.

One evening we dined with a U.S. diplomat who talked at length about the siege of Yarmouk. His team had explored every option to deliver aid, he said. Ground convoys, airdrops, even catapults. No aid could get in.

After dinner I overheard a Syrian activist named Hind venting to her friends. "The U.S. Air Force can do whatever it wants," she seethed. "America doesn't *want* to help."

I felt compelled to speak up because I happened to be a U.S. Air Force C-17 cargo pilot. I told Hind that even the U.S. Air Force wasn't invincible. Flying cargo aircraft into the middle of heavily defended airspace against the host government's will was impossible. The Syrian regime would shoot down planes unless the U.S. destroyed the entire air defense system first. That would not happen, because the U.S. feared entanglement in the Syrian war.

Hind appreciated my perspective. She could not argue with an Air Force pilot.

We continued on to our hotel, feeling frustrated and helpless.

That night I couldn't sleep.

I felt a deep personal connection to the Middle East. In addition to serving as a cargo pilot, I had spent a year learning Arabic at the Defense Language Institute and two years earning a master's degree in Jordan. My wife Wendy and I were living in Amman when the Arab Spring began, and we felt the pain of our Arab friends when the Syrian crisis escalated into civil war. I now studied at the Air Force's prestigious School of Advanced Air & Space Studies (SAASS), researching complex, multi-sided civil wars. SAASS had generously supported and funded my research trip.

I lay awake contemplating the sieges. I felt the weight of responsibility. As a Major, I had little authority. Nonetheless, finding a way to deliver badly needed cargo in a war zone was part of my job—especially as a cargo pilot and Middle East specialist. Telling Hind “no” seemed inadequate. In the 21<sup>st</sup> century, feeding a besieged city had to be possible.

I tossed and turned. My mind raced. I tried out alternatives, discarding them as fast as they emerged.

Then lightning struck.

If we couldn't fly one big airplane through Syria's air defenses, maybe we could fly a lot of little planes. I imagined an army of ants stealing a picnic lunch.

The requisite technologies were advancing rapidly. The same technology used in cell phones had ignited a revolution in small drones. Batteries stored more power and lasted longer. Computer chips, GPS receivers, and inertial sensors were smaller and lighter. Powerful, inexpensive drone autopilots had hit the market.

I envisioned several possible ways to build an air bridge into Yarmouk. Quadcopters. Fixed-wing drones. Balloons. Airships. Cheap gliders launched from cargo planes over Jordan or Turkey.

An effort like this would need a team, but I was plugged into all

the right networks: air mobility pilots, logisticians, Middle East specialists, U.S. embassies in the region, the Air Force's professional strategist community, the defense innovation sector, Syrian activists, humanitarian organizations.

We would need to do a ton of research. Flight ranges of drones. Energy density of batteries. Distances to besieged areas from neighboring countries. Besieged population sizes, required calorie counts, and the mass of daily food required. Balloon diameters for various payload sizes, using either helium or hydrogen.

My mind whirled in overdrive.

This would be unbelievably hard but it was *possible*.

Sometime after midnight, I got out a flashlight and a notebook and started working.

I didn't stop for a year and a half.

That morning we flew to Gaziantep, a city in eastern Turkey that served as a hub for aid going into Syria. Later the Islamic State in Iraq and Sham (ISIS) infiltrated the city, making it too dangerous for most Westerners. After two days in Gaziantep we traveled to Reyhanli, a stone's throw from the Syrian border, where I looked out my hotel window at idling lorries waiting to cross through congested checkpoints. Mortar fire periodically rumbled over the hills. Turkish intelligence stopped our bus, suspicious of our identities and intentions.

Our meetings with Syrians became more intense. We met a Syrian doctor named Waliid who had lost most of his family to airstrikes and President Assad's prisons; he still rushed to the sound of explosions to aid the wounded. His story left most of us in tears. We met a young married couple, Sunni and Alawite, who risked their lives to smuggle medical supplies through regime checkpoints. We visited fly-by-night aid organizations where

workers raged at the biggest aid organizations—like the UN and Red Cross—for primarily serving regime-held areas in Syria.

We confronted the war's moral complexity. We visited a hospital where wounded Syrian fighters tried to impress us with cell phone images of heads they had severed. We inadvertently found ourselves in an administrator's office with two low-ranking members of Jebhat al-Nusra, the Syrian branch of al-Qa'eda. A girl told us of watching her best friend paraded naked through her village and raped against a tank. We visited an orphanage filled with glass-eyed children who did not laugh, smile, or play. Later, we learned that regime soldiers had systematically executed the adult men in their village in front of them. We met a revolutionary who used his college tuition money to found a rebel battalion. ISIS annihilated his men and he escaped to Turkey.

We processed our emotions in different ways. Many needed to talk. We met late each night to debrief the day's events. Students shed tears and asked hard questions.

I coped by working.

Between meetings I sketched ideas and researched technical details. I filled my notebook with basic calculations, lists of potential stakeholders, and details of promising companies. I built maps in Google Earth, measured distances, and calculated glide ratios.

I talked late into each night with a colleague who ran an aid organization active in Syria. He and other Syrians I met loved the idea, which seemed to validate my hypothesis that an air bridge would add value. If we could just build the planes, he would coordinate the first airdrops inside Syria.

That was our moonshot: one package onto the roof of a Syrian hospital. That historic milestone would prove an entirely new paradigm for dealing with wartime sieges.

We called our effort the Syria Airlift Project.

My brief exposure to the Syrian war changed me.

On the long flight home to Alabama, I re-watched *Lincoln*. In the final scene, Lincoln delivers his second inaugural address:

With malice toward none, with charity for all, with firmness in the right as God gives us to see the right, let us strive on to finish the work we are in, to bind up the nation's wounds, to care for him who shall have borne the battle and for his widow and his orphan, to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

I buried my face in my jacket, pretended to sleep, and silently cried out the emotions of the past eight days.

After my return, I struggled to communicate what I had experienced. During a presentation to my military colleagues at SAASS, I broke down in tears. My peers stared with awe and incomprehension.

My quiet suburban life felt vacuous compared to the life-or-death drama unfolding in Syria.

I have since met many people who brushed with Syria.

It changed all of us.

Unlike most people who watch such horrors from afar, I was in a position to do something that might save lives.

I thought of Churchill's War Rooms.

Every thread of my life seemed to converge in this project. I flew cargo planes in the U.S. Air Force. I spoke fluent Syrian Arabic and held a degree from the University of Jordan. I had helped found an organization called the Defense Entrepreneurs Forum, which promoted disruptive innovation inside the Department of Defense. I had degrees in Astronautical Engineering, International Relations, Conflict Resolution, and Strategy. I had grown up

building robots with my dad and worked throughout high school at his hobby store. I had even learned some Turkish, thinking it might be useful in my Syria research. I was about to begin a PhD at Stanford, where I would have access to some of the best talent in the world. I had dreamed of becoming an entrepreneur, but never knew how, especially while I was still in the military.

My eclectic skill set had never gone anywhere. Demand for Arabic-speaking cargo pilots with astronautical engineering degrees was low.

Suddenly, all that mattered immensely.

# EATING GLASS



*The Inner Journey  
Through Failure and Renewal*

MARK D. JACOBSEN



CONTINUAL ASCENT

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