

High Caliber Men

Captain Nathan Ashcroft knocked on the door of Dr. Sam Yata's office, which overlooked the gleaming lab facility, abuzz with the hisses and hums of various experiments. The amber door registered a *clink-clink-clink* which, while not as satisfying as traditional wood, still alerted the lab director of his presence. The doctor permitted him entry, gesturing openly with his right arm. Nathan found his office appointed similarly, with sleek glass furnishings kept in warm brown hues reminiscent of a bygone era. Nathan found he liked the doctor's taste. He strode after Dr. Yata to a grand desk that in the small office of a less esteemed gentleman would have been stifling. They gripped hands firmly, sharing formal introductions, before Nathan lowered his tall frame to his chair.

"Captain Ashcroft? A pleasure to meet you, sir." Dr. Yata smiled, his teeth showing long, late, coffee-fueled hours dedicated to his work.

"Nathan will suffice, Dr. Yata."

"Then I'll insist you call me Sam."

Behind the desk was a clear glass case, the only fixture in the room that escaped the earth tone theme. It displayed an unsheathed katana with an embellished hilt woven in black and gold. His report indicated Dr. Yata was only a naturalized citizen. Nathan sat gazing at the curved blade, wondering if he had brought the sword with him when he immigrated.

“That’s a beautiful piece. Someone must have spent many hours at the fire hardening that one.” Sam turned back to examine the sword. “Are you a collector, Sam?”

“Common misconception, Nathan. Fire softens-you strengthen with the hammer.” The director busied himself with a tabletop brewing station. “But I’m not so much a collector as an aficionado. Despite my work, I am still a bit absorbed in the past. My wife does not want weapons in the home,” he gestured to the case while filling a mug, “which is why I keep it here. I believe she hopes my work is more on the defensive, than the offensive side.

“But I am being rude. Nathan, would you care for a drink? Coffee? Tea? I’m afraid we don’t keep anything stronger in the facility.”

“Just a glass of water. No ice.” Sam turned his back to pour a glass from a cooler near the corner. Nathan sighed, unsure whether this made the job easier or harder. Yet anyone who did not perform would be replaced. He passed his hand across his decorations. Sam returned with a tall glass for Nathan and settled his own mug of coffee near a set of unlabeled jars that might have held jam. Odd, Nathan noted, given the food shortages. Nathan gulped water and Sam took a sip of bitter black coffee.

“Shall we discuss business then?” Nathan offered. Sam took the mug from his lips and lowered the blinds via controls on the desk’s surface. The sting of harsh fluorescent lighting softened to the office lamplight. With the room sealed against intruding eyes, Sam began.

“I’ve cleared my schedule for the rest of the afternoon. The engineers know not to disturb me so we can take as long as we need.”

“Thank you, Sam. Shall we start with the new rifles?”

“Certainly.”

Sam pressed his thumb to the top right drawer of his desk which released to his touch with a light puff. He withdrew a rifle, which he handed to Nathan, keeping the muzzle pointed towards the ceiling. He busied himself clicking more controls on the table top. A glass panel swung at the hinge, sweeping across the floor with a low mechanized hum audible only if the ear searched for it. The opening revealed another panel, this one metallic. A paper target lowered from the ceiling and Nathan had to laugh- with such limited resources, paper was a rare sight.

“You may test the gun if you’d like. The wall is reinforced.” Sam produced five rounds and safety glasses for Nathan. “I trust you know how to use it better than I.” Nathan popped out the magazine and handed the gun back to Sam while he loaded the bullets. He took back the rifle, pressed it to his face, and lined himself up with the target.

Magazine on. Bolt released. Safety off.

Nathan remained perfectly still as he squeezed the small trigger. After the hammer connected and the bullet flew, he maintained his practiced stance and held the trigger with his sights aligned. Before him, the target was whole but for a 5.56 mm bore at dead center. He fired the remaining shots in a tight cluster each with a resonating clang as they pummeled the metal panel. Nathan removed the magazine and pressed the safety on. He marveled at once how familiar even an innovative weapon could be, and how the light weight would open new opportunities in the battlefield.

“It’s quite light. About three pounds?” He bounced the gun in his hands, keeping close to contact.

Sam nodded, “3.3 pounds, a little less than half the weight of the current standard, as I’m told. Lighter for the soldiers, but the real difference will be in-”

“Fuel costs,” the men agreed.

“Excellent,” Nathan continued. “It handles quite well.”

“Aerated metal alloy processing. With less material, we have to make do. Every country does.” Nathan nodded, any hint of a smile had fallen from his face. “Both in the tools and the transport. India especially.

Sam lifted his arms towards the gun that Nathan was now inspecting. “This was the final lab design. The full shipment of 380 rifles are guarded at the loading bay. You had colleagues go directly there?”

“Yes.” Nathan thought back to his arrival. With his level of clearance, a quick flash of his badge was enough to gain entry to the facility- no logging in, no records kept. The three lieutenants that accompanied him split ways at that point towards their destination. Nathan had closed deals like this at facilities across the country.

“Shall we move on to the more interesting technology of this arrangement?”

Sam gave a slight bow of assent. Nathan returned the rifle to Sam who stowed it in its drawer. The men sat once more.

“A bit of background, I believe will help here Nathan. My specialty is in rheology, or fluid flow. Fluid dynamics as a field exploded 20 years ago when mathematicians advanced solutions to the Navier-Stokes equation. We’re now able to more precisely manipulate fluid flow with this knowledge. I wonder, Nathan, if you ever played with cornstarch and water when you were young.”

Nathan raised an eyebrow, unsure of this odd turn in arms dealing conversation. Childhood was a fog beyond the Resource Famine and political tensions. “It’s a liquid until you hit it?” Nathan ventured based on distant memories.

“Exactly. Shear forces on the liquid cause it to thicken, sometimes to the point that it’s apparently solid.” Nathan nodded to show that he followed the explanation. “These are rheopectic materials, and are quite rare. The reverse of this, shear-thinning, is a more common material property, and one that I managed to take advantage of.”

Sam lifted the box of jam jars on his desk and placed a flat palm on the glass underneath. A light display projected on the plane between them. Sam typed on his desk and the green lights flickered into new positions, showing a series of stacked graphs. He stood and repositioned himself on the desk’s edge, to Nathan’s right.

“One familiar instance of a thixotropic material-”

Nathan cocked his head in confusion. “Ah, a shear-thinning material,” and Nathan nodded, “is quicksand, so often portrayed in the movies- keep still and you’re fine, struggle and you’ll sink helplessly as the sand gets thinner and thinner. Other examples are fluids like paint, and blood.”

Sam drew a pale thumb along his stubbly jawline, his lips parted. Puffed bags beneath his eyes were a biological record of sleepless nights. His mouth shut. Sam leaned closer to Nathan, resting his elbow on his knee.

“What I’ve developed is a sort of sonar device to be deployed on the field. My vision for the weapon would be a select group would carry them, like the heavies in a platoon. Not every soldier- that won’t be necessary.”

Sam pushed his hand through the lights gesturing to the graphs. A mechanical whir above their heads indicated the start of the air conditioning. Cool water coated Nathan's throat as he drained his glass.

"These show the effects of the device on subject blood pressure at a variety of distances," Sam dragged his hand horizontally, "and for indirect and direct hits," his hand motioned vertically. The graphs showed a generally curving decrease in a scatter of points. "As you can see, the blood pressure is significantly lowered. These lower graphs show similarities in effect based on sex and age. The correlation between low blood pressure and blood flow rate."

Nathan straightened in his chair, pulling down on his officer's jacket and folding his hands in his lap. He tapped a booted foot against the tile floor in dull thuds. His eyes flashed around the screen connecting more than just the dots before him.

"Only a few soldiers would be equipped with these devices? It's not intended as a standard weapon?"

"No, sir."

"So the vision is that one soldier carries this device, heavily armored, up front and fires it at enemy troops. Their blood pressure plummets since their blood is thin. They become disoriented. They're weakened, and even with a minor wound," Nathan paused, "they'll bleed out."

"That is the idea, yes."

"Not something I'd want outside our own hands." Nathan leaned back in his chair and looked from the graphs to Sam's face with a touch of sadness. His intelligence was remarkable, and

dedication clear. Nathan breathed. “There’s a reason you were requested for the project. This is promising, I’d say brilliant.”

“Thank you, Nathan.”

“How heavy is the device?”

“About 8 pounds. Above my personal target, but sufficiently light if we anticipate shorter battles.”

“Indeed.” Nathan waved at the graphs before him. “These subjects of yours-”

“Were unaware of the device, and unaware of the full meaning of their physicals, although I suspect most people know when their blood pressure is being measured. But it is a routine enough test.”

“You made all of the devices yourself? Start to finish?”

“Yes, all 12. They should be down at the loading bay as well.”

Nathan truly was impressed by this man. His job would be more difficult than usual, after all. He shuffled in his seat and grabbed his water glass. Sam motioned to return to his seat but Nathan interrupted, asking for a second glass of water, which he obliged.

In the time his back was turned, Nathan tipped a vial of concentrated coagulant in the remains of Sam’s coffee. It was a bitter irony given the device he had developed, but Sam Yata would die of a serious blood clot, brought on by the stresses of the director position. Inevitable, unavoidable in his line of work. By the time Sam faced him again, Nathan was typing on a small tablet, transferring the money from the deal in separate amounts to the lab and to Dr. Yata’s account. He hoped his wife would use it well.

“I’ve just transferred the funds to both the lab and your personal account. You’ll find the amounts as agreed upon.”

“Excellent. Thank you, Nathan.”

Nathan simply nodded in response. Dr. Yata had returned to drinking his coffee, without a trace worry of what was to come. He looked up from his mug to gaze at Nathan. Nathan grasped his glass, staring at the water, unsure of whether it was condensation or sweat building up under his hand. He took a sip, but found it difficult to swallow. He coughed bitterly. Rheopectic, thicker under stress.

“On behalf of the U.S. Army, your service to country is commendable.” Nathan swallowed. “Personally, it has been an honor to work with you Dr. Yata.”

“Sam, Nathan.”

Nathan’s lips approached a smile but did not reach it. He rose from his chair and shook Dr. Yata’s hand once more. His steps carried him across the room and to the door too slowly. He left Dr. Yata’s office weary of the call of duty.

As the glass door shifted to a close, Dr. Sam Yata realized a fiendish craving for his many varieties of jam. He removed the lids of the three jars- blueberry, cherry and apricot- and took a fast spoonful from each in turn. Blue, red, orange, blue, red, orange, unsure of which antidote would save him. He ate with his eyes fixed on his coffee mug like an unknown terror, but his body felt normal. No choking. No burning. No seizing. Sam leaned back in his chair, closed his eyes, and sighed. It was only as he finished the jams and the better part of a half hour that Dr. Yata was fully satisfied he would live to work another day.

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