"You can keep your dollars – we've got the dysprosium"

The strategic power of materials is rising, and China holds the upstream advantage

*by Dr Warwick Powell**

Warwick Powell. (Picture substack.com)

Chinese diplomats must feel like Daedalus at times. Daedalus was Icarus' father, who warned his son that if he flew too close to the sun, his wings would melt and he'd fall to the ground. Consumed with hubris, Icarus ignored Daedalus' warnings.

For years, China warned Washington that weaponizing the global technology supply chain would have serious consequences. Quietly, consistently, and with remarkable restraint, Beijing issued statements, offered backchannel admonitions, and gently signalled that Washington's escalation would not go unanswered.

But Washington didn't listen. Perhaps it couldn't. The problem is not that the signs weren't there, but because hubris and a racialised worldview rendered U.S. policymakers deaf to non-Western strategic reasoning and the subtle language of *diplomatise*. When Beijing spoke in the calm and coded language of diplomacy, without resort to hyperbole, it was interpreted not as resolve, but as retreat. As usual, restraint was mistaken for weakness.

Now, as the U.S. faces a crippling shortfall in the materials that undergird its defense-industrial base, that misreading has turned into strategic liability. China's response to semiconductor sanctions is not reactive. It is systemic. And it begins upstream, with the raw materials the United States cannot easily replace.

Washington has spent the past six years intensifying export controls, blacklists and sanctions to cut off China's access to high-end semiconductors. But while the U.S. focused downstream, where chips are etched and tested, China accelerated its own downstream capability while it consolidated its grip on the upstream: the rare earth elements that make the entire system function.

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The Bayan Obo mine, located in the Inner Mongolia Autonomous Region of the People's Republic of China. No other mine in the world extracts as many rare metals. Up to 6,000 people work in this open-pit mine, at a maximum depth of 1,000 metres. (Picture Wu Changqing/VCG)

Chief among them? *Dysprosium* (Dy) and *terbium* (Tb), which are critical to the production of high-performance magnets used in electric vehicles, wind turbines, and precision-guided weapons. And there's irony here: dysprosium comes from the Greek *dysprositos,* meaning "hard to get". It's a name the Pentagon is now learning all too well.

China doesn't just mine these elements. It dominates their refinement and processing, controlling more than 85% of the global capacity. The United States, by contrast, still lacks the ability to separate and purify most rare earths at scale. What this means is that without Chinese exports, or Chinese-approved supply chains abroad, key American industries will grind to a halt. And this

(Picture zvg)

includes key parts of the U.S. defence contractor sector, which as American consultants *Govini demonstrated in various reports,*[1] is heavily reliant on Chinese raw materials and components suppliers.

Despite strenuous efforts to reduce exposure, the dependence is deep and wide making it almost impossible to disentangle in any short space of time without leaving the defence sector critically constrained.

China's warnings were never flamboyant. It didn't respond to U.S. escalation with threats. It spoke of "win-win cooperation", emphasised stability, and framed itself as a defender of global supply chain integrity. But this wasn't deference; it was statecraft. There was always room for the U.S. to change course, to quietly move down a less adversarial path.

Washington, shaped by its own political culture, misread this completely. A culture obsessed with immediate performance and media optics assumed that silence or restrained language and modest actions meant paralysis and weakness. It assumed that diplomacy meant dependence, a view that continues to distort Washington's assessment of the cards in the present round of trade wars. Washington also assumes that China's rise was still, somehow, contingent on U.S. indulgence.

Moreover, Washington continued to provide high tech armaments to Taipei and set up medium range missiles on the Philippines. The Pentagon is increasingly shrill in its pronouncements about China. Leading administration figures like Vice President *JD Vance* and Secretary of Defence *Pete Hegseth,* not to mention dyed-in-the-wool ideological hawk Secretary of State *Marco Rubio,* have declared China to be America's adversary. The U.S. has been building up military threats within a metaphoric stone's throw from the Chinese mainland oblivious to the possibility that such moves would eventually provoke reactions.

But China didn't need to match Washington's tone, and in fact didn't need to match Washington symmetrically. It only needed to bide its time and build – and eventually consolidate – leverage where it mattered. The focus was on the material: what could be found in the ground; what could be done in the processing plants; and how efficiently it could develop and deploy the physics and chemistry of magnetic fields and metallurgical separation.

Now, with the turn of a policy lever, it can render entire U.S. sectors inoperable. If you keep deploying missiles pointed at us, we will cripple your missiles manufacturing capability.

Dysprosium isn't just rare. It is essential. Without it, high-strength permanent magnets used in missile guidance systems, advanced radar, fighter jets and air defence interceptors begin to fail. These magnets must operate at high temperatures with extreme precision, and dysprosium is what stabilises them. Put plainly, without dysprosium, the U.S. military's precision capabilities degrade. Patriot systems, F-35s, hypersonic interceptors all depend on components that can no longer be manufactured at scale without Chinese supply.

Dysprosium and terbium are not luxury inputs. They are foundational to U.S. air defense systems, missile guidance platforms and directed-energy technologies. These sectors can't be built overnight. There are no easy substitutes. In a real conflict scenario, absence of these elements would mean impaired targeting, degraded radar performance, and gaps in layered air defence.

China doesn't need to fire a shot to neutralize these systems. It simply needs to pause exports.

The American administration can print dollars so long as Congress passes appropriations and lifts the debt ceiling. But Washington cannot print dysprosium.

It also cannot print time, which is what the U.S. doesn't have enough of as it scrambles to rebuild rare earth refining capabilities that were offshored decades ago.

Defense contractors, clean energy developers, electronics makers and EV manufacturers now face the harsh reality that their supply chains are strategically compromised. They didn't have to be but Washington's belligerence, hubris and deafness has consequences. Where there is an action there is an equal and opposite reaction, as they say.

Now, the U.S. government must find the means and accelerate the search for substitutes or domestic facilities. But they won't arrive fast enough to match China's control, or its ability to selectively supply those it chooses to empower. The sorts of capabilities we are talking about aren't only expensive (I'm sure the money will be found) but time consuming. It could take well over a decade to get up and running, by which time the world – and the technologies – will have evolved and changed radically.

Developing a self-sufficient rare earths supply chain – from mine to magnet – is not a two-year industrial sprint. It's a decade-long structural overhaul. Even with unlimited funding, rebuilding the capacity to mine, separate, refine and fabricate high-performance rare earth materials inside the U.S. or among reliable allies will take at least 7–10 years. And that assumes political will, regulatory clearance and technological breakthroughs align. That's a tall order and the west does not have a good track record in timely delivery of mega engineering projects.

Meanwhile, America's strategic stockpiles are finite. As the Ukraine war drags on, and Israel consumes U.S. military technologies and munitions, demands on the defense-industrial base will only increase. This mounting pressure is not matched by new supply capacity. Without access to Chinese rare earths, and the infrastructure to process them, the U.S. risks hollowing out its defense readiness from the inside.

Washington may still imagine it holds escalation dominance. But in material terms, it's China that can tighten the grip without firing a shot, not just by limiting exports, but by accelerating global partnerships that reroute resources away from U.S. access entirely.

And so, China accelerates its capacity deployment abroad. Chinese firms, backed by state financing, are embedding upstream operations in Africa, Latin America and Southeast Asia. These aren't just resource deals, they are geopolitical compacts focused on empowering the global south as part of a wider network of indivisible security into which China is enmeshed. And every new refinery built outside U.S. influence reinforces a world where the material basis of power no longer flows through Washington.

Make no mistake, this isn't happening because China wants confrontation. It happened because China was left with no choice. Beijing warned, waited and only acted when it became evident that Washington's containment strategy was permanent. And now, China's response is not loud, but it is lethal, delivered through material control not missile tests.

This is not just a trade war. It is a civilizational correction. It speaks to an upstream reckoning where materiality trumps IOUs. It marks the end of the illusion that the United States could dominate global technology and impose its will through "dollar diplomacy" while remaining dependent on others for the raw materials of modernity.

Trade is mutually beneficial for the basic reason that participants need each other. But when one party seeks to disadvantage another while reaping the benefits itself, at some point this asymmetry cannot be sustained.

In this process of progressive American-led intensification, China has turned its patience into position. It has shown that while empires create spectacles, civilisations build structure grounded in material foundations.

To those on Capitol Hill who believed that America's currency supremacy was enough, that semiconductors would always bend to U.S. law, and that minerals were just commodities to be bought, China has sent a message. This time, the message cannot be mistaken or misinterpreted, even if Marco Rubio doesn't trust China's official translations:

You can keep your dollars. We've got the dysprosium.

Source: https://warwickpowell.substack.com/p/memo-to-capitol-hill-you-can-keep, 31 May 2025.
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[1] *https://www.govini.com/insights/from-rock-to-rocket-critical-minerals-and-the-trade-war-for-national-security*