forward a proposal for a Very High Speed Transit System (VHST), in which trains would travel through tunnels at speeds up to 22,500 km/h. By evacuating most of the air from the tunnels, friction is dramatically reduced, allowing travel at a speed an order of magnitude faster than that of the supersonic aircraft Concorde, while consuming far less energy.

From the abstract of the RAND report:

"VHST's tubecraft ride on, and are driven by, electromagnetic (EM) waves. In accelerating, it employs the energy of the surrounding EM field; in decelerating, it returns most of this energy to the system. Tunnel systems would be shared by oil, water, and gas pipelines; channels for laser and microwave waveguides; electric power lines including superconducting ones; and freight systems. Environmental and economic benefits are substantial, and the technology for building and operating the system exists."

Salter envisioned the train accelerating at a comfortable 0.5 *g*, reaching maximum speed, and then slowing as it approaches its destination. His calculation for a Los Angeles–New York trip? Only 21 minutes. With stops in Amarillo, Texas and Chicago, Illinois? A total of 37 minutes. At extremely high speed, any curve in the route would have to have an extremely large turn radius to avoid throwing the passengers around.

Shifting to magnetically levitated electrified rail (of various speeds) represents an improvement in the *characteristic quality* of energy: electricity rather than combustion, generated with nuclear power rather than chemical fuels.

Now the dream is being realized. A very modest, but successful test of a superconducting maglev technology in a vacuum was reported by *GizmoChina* Jan. 19. The test line in Datong, Shanxi province, China has a full-sized passenger capsule travelling at speeds up to 50 km/h for a distance of 210 meters in a partially evacuated tunnel.

The project aims to eventually carry passengers and cargo at 1,000 km/h or faster, in a near-vacuum tunnel, making it the fastest ground-based transport technology in the world. The test runs were conducted by defense contractor China Aerospace Science and Industry Corporation (CASIC), which built and operates the facility.

CASIC reported that critical components, including superconducting magnets, high-power electric systems, AI safety controls, wireless communication devices, and sensors all worked as planned during the tests, paving the way for future experiments at higher speeds.

Major Oil Pipeline Under Construction in Niger, West Africa

A $6 billion, 2,000 km pipeline will soon begin delivering oil from the Agadem deposit in the east of landlocked Niger to the port in Sèmè, Benin.

"It is Niger's biggest investment since Independence," said one government official. With the pipeline in place, oil production can be dramatically increased. The World Bank estimates oil exports to grow, from providing 19% of Niger's tax revenue, to 50%. The pipeline is opposed by climate campaigners hostile to Africa's development.

In partnership with the China National Petroleum Corporation, construction began in 2011, only a decade after Niger became an oil producer. Delayed by COVID, 600 km of the pipeline have been laid so far, with 700 soldiers in charge of providing security.

China Demonstrates Its Vertical Landing Rocket

China's Academy of Sciences, working with the affiliated space company CAS Space, successfully landed a reusable rocket April 6, using a vertical landing. The feat was accomplished both on land, and also, impressively, on a ship at sea, to a precision of 10 m. The rocket was a prototype only 2.1 m tall, which flew up to 1 km in altitude, and then proceeded to gently let itself down. It is now likely that the first official mission for scientific experimentation using this design will take place later this year. The technology can now also be applied to other, larger rockets. The U.S. company, SpaceX, achieved the world's first successful vertical landing with its Falcon 9 on Dec. 21, 2015.

In a March 30 interview with *Global Times*, Lian Jie, a senior engineer with the Academy of Sciences, described why this breakthrough is so significant. Asked how China's landing technology differs from SpaceX, Lian said:

"Ours is based on the domestic technology, both software and hardware, and we are exploring technology thresholds such as the variable thrust management, precision positioning and the stabilizing technology on our own."

China's Long March 9 rocket is currently on track to become the world's largest rocket ever built in terms of payload size—tied with SpaceX's still-in-development Starship rocket. Mission controllers aborted Starship's first uncrewed test flight April 20, 4 minutes after liftoff. The Long March 9 is planned to be in service by the late 2020s or 2030, with a payload of 150,000 kg to low Earth orbit, and 54,000 kg to trans-lunar injection. To compare, the Saturn V could launch about 118,000 kg to low Earth orbit and about 43,500 kg to the Moon.

A video of the landing is available on the *Global Times* website.