

The Earthman's Burden

Special Abilities

Secret Research

*can be applied to one
technology overleaf*

Advanced Von Neumann Engines

You have the ability to research Advanced Von Neumann Engines. Prerequisites:

Drone Networking, Nanofactories

With Advanced Von Neumann Engines: any of your fleets in orbit about any world which have not otherwise acted this turn may initiate or assist with construction actions, providing one die per two fleets (rounding down). If a fleet would be put at risk (or given the choice you choose to put a fleet at risk), simply resolve an Attack action as if two of your own fleets had opened fire on you (with all applicable modifiers, save outnumbering). Note that fleet dice are not affected by Nanofactories, which have already been taken into account.

**Advanced
V. N. Engines**

*fleets can construct
more fleets*

The A.I. Singularity

You have the ability to research two further AI technologies. Prerequisites:

Advanced AI, Abstraction Circuits

If you have both these technologies and you have at least one unit on any world, you may at the start of each turn roll once. On a 5+, move one step along the Eschaton track towards the Singularity. This roll may be affected by your AI counters and those of other players, just like any other roll.

Paradox Circuits

*progress along the
eschaton track ...*

The Eschaton

*... to win by bringing
about the singularity*

Terraform Venus

You can research Terraform Venus.

As long as any player with the technology has at least one development on Venus, no players should roll for acid rain.

If you lose all of your developments on Venus, you retain the technology but it has no effect. If you already have the technology and gain a development on Venus, it immediately takes effect without needing to research it again.

Terraform Venus

*acid rain does not
affect you*

Mass Drivers

You can research these two technologies.
If you have both:

On worlds associated with a single planet (e.g. Jupiter's moons or the Earth and its moon) you may group together units that are taking the same action, so long as the action is **Construction** or **Research**. Has no effect on **Nanotechnology**, but you may now get more dice with **Nanofactories** due to rounding.

Fleets constructed in this way may be placed in orbit on any of the worlds that participated in the action.

**Warm
Superconductors**

*prerequisite for
mass drivers*

Mass Drivers

*moons and planet
can act together*

Secret Strait of Saturn

You *must* research **Exotic Matter** before revealing this ability, using the 'Secret Research' space on the back of this card.

When you reveal this ability:

1. Place this card next to the "to Saturn" trajectory such that the "to Aurora" trajectory is reachable from there.
2. Place in orbit on Aurora as many fleets as you have on Titan.
3. Roll four dice. For **each 7+**, claim one development on Aurora. Take a +2 bonus for each development you have on Titan.



Ear of the United Nations

You may reveal this ability at any time, even after announcing an action and before resolving it.

For the rest of the game thereafter:

- Do not count UN units at all during the military actions phase of your turn, neither for outnumbering nor for returning fire, unless you are attacking the United Nations itself
- You have a +1 bonus when attempting **Overthrow** or **Espionage** against the United Nations, in addition to any other bonuses and penalties

Blink Drive

You can research Blink Drive. Prerequisites:
Fusion Engines, Refraction Fields

Blink Drive grants access to the 'mycelial network' trajectory. You can move from any orbit or trajectory into it, and fleets which begin the movement phase in the mycelial network must move to the orbit of any world except Aurora, or to the "to Aurora" trajectory. Fleets cannot move in or out of the mycelial network by means of **Orion Engines, Fusion Engines, Solar Sails or Refraction Fields.**



mycelial
network

Blink Drive

*get anywhere
in two hops*

No Special Ability

This card does not confer any special ability. You may not reveal it (flip it over) during the game.

Since this card will spend the whole game face-down, you can say what you like about its contents and no-one can stop you. You may even research the Secret Research technology on the back, though it does not grant any benefits and is not transferable to another special ability card nor redeemable for any other technology. But you can't allow another player to copy it as an extraordinary action, unless he has seen the face of the card through espionage.

If you take the secret research, and a neighbouring enemy (or ally) successfully performs espionage on you and demands to know the nature of the research, only then will you reveal this card, and to that player only.

No Special Ability – James Webb Space Telescope

This card does not confer any special ability, so let's learn about the JWST, which was launched from Earth on Christmas Day 2021, twenty times over budget and after 14 years of delays.

The JWST is there to photograph very faint, distant and redshifted objects, so it works in infrared, and the optical sensors are required to be kept at -267°C (6 Kelvins) to avoid picking up the heat of the equipment as noise on the image. A conventional cooling system would produce too much vibration, so the JWST uses acoustic cooling: a tone is played in a tube, and thermal conductors inside are moved in synchronisation such that the warm end is at high pressure and the cold end is at low pressure.

Still functioning long after the originally expected lifespan, it's anyone's guess as to when it will eventually be decommissioned.

No Special Ability – Bussard ramjet

This card does not confer any special ability, so let's learn about Bussard ramjet engines instead.

The vacuum of space is not quite empty, but contains trace amounts of dust and gases, primarily hydrogen. A Bussard ramjet uses powerful magnetic fields to scoop up the hydrogen in front of it and force it into a thermonuclear reactor, producing helium as an exhaust but more importantly providing reasonable thrust with scant source material. In this way, it becomes viable to travel all over the solar system (and perhaps beyond) without requiring massive amounts of fuel and much faster than previously possible.

No doubt the researchers who invented it did not anticipate the ensuing interplanetary power struggle we see today.

No Special Ability – space elevator

This card does not confer any special ability.

A space elevator is a superstructure comprising of a satellite in geostationary orbit, with a cable hanging down to the Earth. Rather than being pushed up by the material underneath it like a conventional building, the cable is pulled upwards by centrifugal force from the satellite. To achieve the tensile strength required, new materials are being developed using carbon covalent bonds.

The advantage of a space elevator over a space fountain is one of safety: in the event of cable failure the consequences for a space elevator would be fairly ordinary (and in space) whereas the failure of a space fountain would result in the release of a tremendous amount of stored energy, throwing the cable into the ground like an astronomical whip and potentially wiping out entire cities.

No Special Ability – space fountain

This card does not confer any special ability.

A space fountain is a cluster of vacuum tubes hundreds of miles long extending from the ground up into space. A constant stream of particles is accelerated from the ground into the up tubes via non-contact means such as electromagnetism, and decelerated as it approaches the top, thus transferring its momentum into the structure and keeping the structure aloft. The same particles are then redirected downwards via the down tubes, applying more upwards force to the structure, and are sent back to the ground where they are recycled and continue around the loop.

Unlike a space elevator, a space fountain does not depend on the development of dubiously strong carbon threads and can be built using conventional materials.