

for EABA™ v2

greg

if you can think it, you can make it...

 BTRC

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# grep™

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*We developed a three-terminal device, termed the transcriptor, that uses bacteriophage serine integrases to control the flow of RNA polymerase along DNA. We realize permanent AND, NAND, OR, XOR, NOR, and XNOR gates actuated across common control signal ranges and sequential logic supporting autonomous cell-cell communication of DNA encoding distinct logic gate states. The single-layer logic architecture developed here enables engineering of amplifying logic gates to control transcription rates within and across organisms.*

*from **Genetic Logic Gates** (Science 03-28-2013)*

## BEGINNINGS

The alien ship crash landed in Red Square on the last night of March 2018 with the slow majesty of a descending soap bubble. A hundred meters long, it crumpled without a sound in the cold winter night, a full ten meters of its stern collapsing under its weight. No one on Earth saw it coming, except for the few guards who caught a glimpse of its light-absorbing bulk in the seconds before impact. Most of Moscow did not even know of it until the next morning. Of course, all the major nations had their own assets in place and knew *something* was up, even if they did not know *what* it was. Morning broke to the sight of an armed cordon around the alien hulk, with numerous news crews paying exorbitant bribes to film from the windows of nearby buildings (the rooftops were the exclusive province of missile crews and snipers).



The ship emitted no radiation or radio signals, but the hull nonetheless appeared to ripple and shift in subtle ways.

Armed with hazmat suits, air tanks and hand-held sensors, the first 'first contact' team in human history made its way towards what a hatch that was barely above the level of the pavement (the fact that humanity's first contact was handled by Russians did *not* go unnoted by Russia at the time, nor by everyone else later on). The eyes of history upon him, the scientist-cosmonaut-colonel in charge stepped towards the hatch, tripped and fell through the ship. Not into the ship. *Through* the ship. The hatch was no more substantial than a piece of paper. The rippling of the hull, thought to be remnants of a stealth field of some sort, was actually the paper-thin hull shifting in the morning breeze. It was as though the touch catalyzed a reaction. The alien ship began to dissolve into nothingness, starting at the hatch and spreading in every direction. Alarmed, the contact team took no concern for their own safety and ran into the ship. Cameras running, they ran down corridors, ran through ephemeral bulkheads, filming, seeking something, *anything* solid enough to recover. Crumpling structural beams like paper and wadding them into sample jars, only to see them disappear into nothingness. Even the engine room was nearly an illusion, massive alien machinery that had form but negligible substance. The most haunting image though, was the ship's bridge. Stations for dozens of beings, but only one was occupied. The most watched video of all time was the alien, dressed in what any sentient species would call a ceremonial uniform, hands on the arms of the command chair, dignified even in death, dissolving into motes of dust that flashed briefly before vanishing altogether.

In three hundred sixty-seven seconds it was over. The ship was gone as though it had never been there in the first place.

*It was April Fool's Day.*





It was presented as the greatest April Fool's joke of all time. Countless theories were proposed, television specials devoted to debunking it, magicians recreating small versions of it and so on. But at the highest levels of government, people were worried. No real evidence remained, no samples of anything collected turned out to be anything but normal air. But the sample containers used were found to be porous at a molecular level. The *unused* sample containers were not.

Something *had* been in there. *And now it was loose.*

**June 2020:** The first reports of something strange going on came out of Africa a little more than two years later. The civil wars in Africa had long been along tribal levels more or less independent of the colonial boundaries set by Europeans, and the ways and means of warfare always had an overtone of superstition to them. Charms and curses, potions and talismans were given as much credence by some as bullets and bombs. So, when word that the rebel faction in the Ugandan civil war was winning victories because they had shamans on their side was given the same credibility as these stories usually are. But a French television report is what got people's attention. In what appeared to be some very clever sleight-of-hand, a so-called shaman was shown to reach into barrels of toxic industrial waste and simply pull out weapons. Knives, grenades, bullets, even pistols. It was assumed that the items were simply hidden in the sludge in a way that the journalist could not find them, even though he risked all manner of maladies by plunging his own arm up to the shoulder in the hazardous waste to see if there was anything in there but liquid.

By various back channels, a few of the rounds of ammunition and a sample of the sludge brought home by this journalist made their way to DARPA labs in the United States. Under a battery of sophisticated tests, the bullets were shown to be made of an alloy that no one in their right mind would use. The casings, bullet and propellant were made completely of materials that could be extracted from the sludge. Under an electron microscope, the structure of the alloys looked more organic than crystalline, not machined nor worked by tools. And all the tolerances were off. The cartridge, while perfectly functional, would work in no known firearm except the one the shaman 'created'. And every aspect of the cartridge had now-inert but identical remnants of some sort of artificial structure in it.

*Nanotech.* It was said in hushed tones, explained in simplistic detail to generals and presidents and prime ministers. There was no smoking gun to connect Red Square and Uganda, but no one doubted the link. And if it had made it from Moscow to Uganda, then it was *everywhere*.

By the time the analysis and briefings were done, the first reports had started to surface elsewhere. From Rome, water had been turned to wine. In Colorado, a prisoner in a Supermax facility shot a guard with a gun made from what looked like melted cement and a piece of his steel sink. In Antwerp, a flood of untraceable diamonds had landed on the market. *And that was just the beginning.* Those familiar with the term 'technological singularity' quit their jobs, packed their bags and headed for the hills.

*Post-scarcity had arrived.* Some wit named the phenomenon 'Grep' from the Linux utility `global/regular/expression/print`, and the name stuck. It was 3D printing literally at will. It was not necessarily easy, but with practice anyone could do it. There were limits and hazards, but they had yet to be discovered.

The disaster unfolded in slow motion, from the least developed and most repressive parts of the world, to the most free and developed. During the interval while the Internet still worked and was mostly uncensored, videos, how-to guides and training manuals surfaced, were downloaded and passed around. At first, it was just a party trick. Put the terminals from a battery charger in a pot of vinegar, dump in a handful of shredded aluminum foil, stick your hands in it and concentrate and generate a tiny aluminum ingot. Of course, there were also home recipes for synthesizing THC jellybeans and other interesting compounds. *Lots of people poisoned themselves trying these out.*

Because when people advanced from simple party tricks to advanced ones, things turned ugly. The chemical processes to create 'get you drunk' ethanol are quite close to those for making 'coma, blindness and death' methanol, and quite a few people failed the 'hold my beer and watch me make another one' test. There were people out there making diamonds and designer drugs from scratch, but they were the naturally gifted ones, with some affinity for grep that most everyone else lacked. Despite warnings, their online videos gave many people the impression that *anyone* could do what they did. Most people failed utterly when trying something that complex, and some lacked the sense to test their work before applying (or consuming) it.

In other parts of the world grep was more than just a trick to impress your friends or turn a quick profit. Gun control became impossible when anyone with a pile of scrap metal, some organic garbage and an electrical outlet could in a day or two, grow a perfectly workable assault rifle. And those with a little more practice or daring or anger made car bombs, rocket launchers and nerve gas. And even if your nerve gas was inefficient and filled with contaminants, it was still *nerve gas*.

The governments of the world cracked down swiftly, sometimes brutally, but ineffectively. Anyone with wits and raw materials could make anything and everything they needed to survive just by wanting it bad enough. *Food, shelter, clothing, weapons.* And for some people, flawless copies of paper currency turned out to be ridiculously easy to make, right down to the holograms, watermarks and embedded security strips. The global stock and commodity markets shut down after the frenzied sell-off began...and never reopened.

Those at the top of the supply chain no longer had leverage over those they supplied, taxes were impossible to collect, people no longer trusted paper money and electronic transfers became problematic when networks started failing. The final tipping point was when someone with a lot of anger and a lot of talent spent a month in the Chernobyl exclusion zone and came out with a working atomic bomb. No one ever figured out who it was or what they were trying to say when they set it off in downtown Kiev, but it catalyzed the extremists on every side of the issue. Governments became ultra-controlling to stop the revolution, and the people rose up to rebel against being controlled.

Both sides won. *And lost.* When the slightly radioactive dust settled and the skies cleared, most of Earth's one billion people were free. Of course, there used to be *seven* billion. But this freedom was the freedom of anarchy. With no government to keep order, law was a matter of local custom, and which local group could enforce it or give themselves immunity to it and get away with it. Governments, such as remained, were in relatively small enclaves, tiny fractions of their former nations, using tech and industry to maintain firm control over the areas they still held, but not having the numbers to regain control over the masses.

It was 2021. That was ten years ago.

*Welcome to the New World disOrder.*

## WHAT IT'S ABOUT

**Grep** is apparently the third **EABA** supplement built around the idea of some sort of nanotech in its past or present. Maybe even the fourth if the ancient disaster in **Ythrek** was nanotech. **NeoTerra** was a singularity event that had nanotech as part of it and **Age of Ruin** was a world where humanity survived but only *after* nanotech had consumed the technological trappings of civilization. *So then, what is **Grep** about?*



**Grep** is about freedom. *Terrible, terrible freedom.* A person with one skill (grepping) can be self-sufficient and extremely mobile. If you can make clothing, food, shelter and modern weapons and armor out of raw materials that are just lying around, you can make your way in life *anywhere*. If you do not like the people where you are, you can easily pack up and do what you do somewhere else. And with six billion people's worth of living space on Earth currently unoccupied, you *can* find someplace to your liking, or even better, find people who think the same way you do and believe what you do and make a home for you and 'your people' that no one can take away from you. Politically, it is all things to all people. Which means people like it for the benefits it offers to their beliefs, but simultaneously dislike it for the ways it benefits their ideological opposites. *Grep gives people the power to make the world a better place for everyone, or for the selfish to merely make it better for themselves.*

The old governments of Earth still exist in very limited form over very limited areas. If you have sufficient force and are willing to use it, the group always defeats the individual. But the scope of things like the 'United States' is much bigger in claim than in reality. A lot of the old ways are simply unworkable. No nation on Earth can tell its people "you must accept this piece of paper money as having intrinsic value". *Diamonds are just rearranged coal.* Rubies and sapphires are just aluminum and oxygen with trace contaminants that give them color.

Taxes, money and payments have to take different forms. Many skills are still useful, so there are exchanges of labor and exchanges of goods. If you specialize in being able to nanofab a particular thing, you can do it faster and better, and someone else might be willing to trade you the product of their skill for yours.

Now that **grep** has been figured out, no one is malnourished, **grep**-based medicine can regrow limbs or organs, and techs considered the realm of science fiction are difficult, but possible. Quantum communication networks, fusion power and super-strong materials are now part of humanity's toolbox. The scars of the Dark Days *are* still there, but for most of humanity the world is a better place. *They just wish the road there had not been so rocky.*

**Grep** also gives you the freedom to be yourself. Even if that 'self' is something very different. Remember, properly configured nanotech can reconfigure *any* matter into something else. Even *living* matter. Improperly configured nanotech can do it as well, but this is not something most people have the leisure to do more than once.

**Grep** gives you the freedom to excel or fail, to be *someone* special or *something* awful, and the only way someone will be there to catch you if you fall is if you made the one thing you *cannot* make with nanotech...*friends.*

And there is more to **Grep** than that. *Why* did that alien ship land on Earth? Was this its original destination, and if so, why? What happened to it? These were all things that governments were thinking about and to some extent still are, and players should be as well, for it is almost certainly important.

## Coming up...

The next chapter gives a little more history of what happened in the years between 2018 and 2031, to give players a feel for the world and give them ideas of the sort of adventurer they want to have. After that will be the rules for making adventurers.