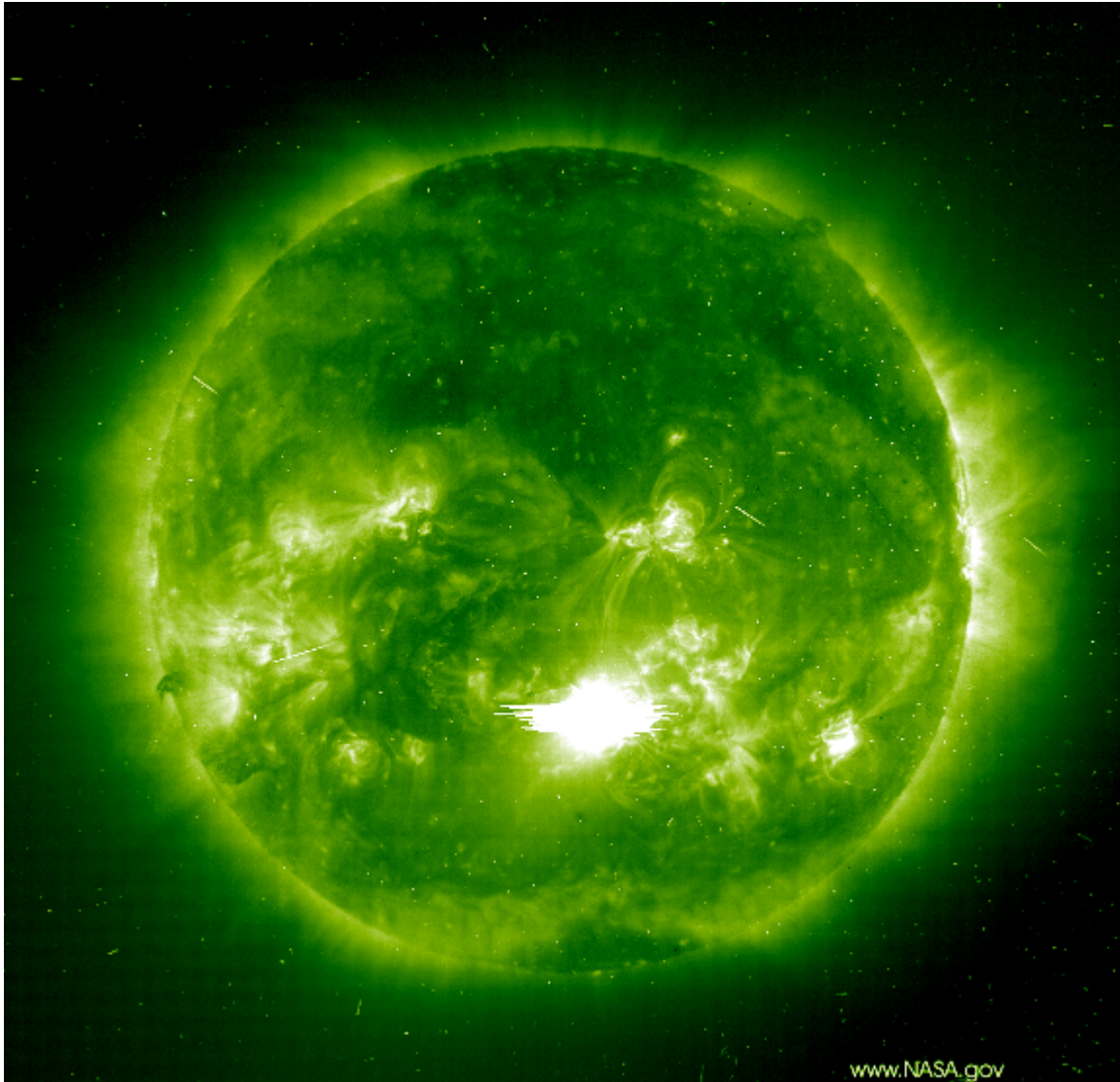


THE SNROTE READER

A player-supported gaming newsletter for RTG's ""Supernova: Rise of the Galaxy""



Issue: Number Four
Earth Date: January 27, 2006

InterStellar News Agency

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News Section

Another Home World FALLS to Massive Alien Invasion --- Is YOUR Home World next?

**** GROUND COMBAT REPORT ****

----- CENSORED -----

**** Table of Organization & Equipment: INVADING ARMY ****

1 Combat Engineer
1 EW
2 Guerrilla
5 Imperial Army Air Force
5 Imperial Army Armor
3 Imperial Army Heavy Air Defense
5 Imperial Army Heavy Armor
5 Imperial Army Heavy Infantry
5 Imperial Army Infantry
10 Imperial Army Mechanized Infantry
7 Imperial Guards Air Force
4 Imperial Guards Armor
5 Imperial Guards Heavy Armor
2 Imperial Guards Heavy Infantry
4 Imperial Guards Infantry
2 Imperial Guards Security
2 Imperial Guards Special Forces
1 Imperial Guards Strategic Bomber
2 Imperial Marines Air Force
3 Imperial Marines Armor
4 Imperial Marines Heavy Infantry
2 Imperial Marines Raiders
2 Imperial Marines Special Forces
1 Intelligence
2 Medical
8 NBC
4 Space Defense
2 Transport

Air Defense [5100] Anti-Aircraft Artillery

Air Support [3900] Helicopter

Air To Air [110500] Advanced Jet Fighter, Jet Fighter

Ammunition [500] Truck

Armor [569400] Armored Car, Ferret Excavator Tank, Heavy Tank, Light Tank

Artillery [1600] Longbow, M82 Mortar
 Biological Weapons [8100] Harmful Biological Munitions
 Broken Terrain [1300] Ferret Excavator Tank
 Camouflage [1100] Sneak Suit
 Chemical Defense [1200] Mk I Chemical Weapons Defenses
 Chemical Weapons [35100] Blister Agents Chemical Munitions, Irritant Agents
 Chemical Munitions

 Close Combat [530400] Ablative Armor, Battle Armor, Battle Dress, Battleaxe,
 Chainsaw, Club, Combat Environment Suit, Dagger, Flak Jacket, M75 High Explosive
 Grenade, Spear, Sword

 Engineering [3500] Barbed Wire, HE Mine, High Explosive Demolition Charge
 Heavy Weapons [8900] Recoilless Rifle
 Intelligence [14300] Laser Communications Gear, Smoke Projector
 Medical [3600] Mk II Field Hospital
 Nuclear Weapons [19980] Nuclear Bomb, Shockwave Bomb, Thunderclap Bomb
 Open Terrain [231000] Armored Car, Heavy Tank, Light Tank, Truck
 Security [1100] Dartgun
 Small Arms [347800] Carbine, Combat Needler, Harpoon Gun, Heavy Needler, Needler
 Semiautomatic Pistol, Shotgun

 Subterranean [8250] Ferret Excavator Tank
 Transport [1000] Truck

** Table of Organization & Equipment: Home Guard # 1 **

3 Combat Engineer
 3 Fortress
 3 Imperial Guards Air Force
 1 Imperial Guards Armor
 3 Imperial Guards Artillery
 3 Imperial Guards Heavy Air Defense
 1 Imperial Guards Heavy Armor
 1 Imperial Guards Heavy Artillery
 4 Imperial Guards Heavy Infantry
 8 Imperial Guards Infantry
 2 Imperial Guards Security
 1 Imperial Marines Raiders
 2 Intelligence
 2 Medical
 3 Transport

Air Defense [5700] Anti-Aircraft Artillery

Air Support [900] Helicopter

Air To Air [23400] Advanced Jet Fighter, Jet Fighter

Ammunition [750] Truck

Armor [5600] Armored Car, Light Tank

Artillery [22500] Longbow, M110 Mortar, M82 Mortar

Camouflage [300] Sneak Suit

Chemical Weapons [2400] Irritant Agents Chemical Munitions

Close Combat [115000] Ablative Armor, Battleaxe, Chainsaw, Club, Combat Environment Suit, Dagger, Flak Jacket, M75 High Explosive Grenade, M85 HE Grenade M95 HE Grenade, Spear, Sword

Engineering [16200] Barbed Wire, High Explosive Demolition Charge

Heavy Weapons [11400] Recoilless Rifle

Intelligence [1600] Smoke Projector

Medical [16800] Mk I Field Hospital, Mk II Field Hospital

Nuclear Weapons [800] Nuclear Bomb

Open Terrain [2000] Armored Car, Light Tank, Truck

Security [4200] Dartgun

Small Arms [81000] Carbine, Gas Cannon, Harpoon Gun, Heavy Machinegun, Hydrojet Cannon, Laser Pistol, Laser Rifle, Needler, Semiautomatic Pistol, Shotgun

Transport [1500] Truck

**** Tactical Rating Modifiers ****

Air Defense	Air Support	Air to Air	Ammunition	Amphibious	Antitank	Aquatic
-2	+4	+4	-2	+0	+0	+0
Armor	Artillery	Biodefense	Bioweapons	Broken Terrain	Camouflage	Chemdefense
+10	-6	+0	+10	+10	+3	+10
Chemweapons	Close Combat	EW	Engineering	Environmental	ESP	Heavy Weapons
+10	+1	+0	-5	+0	+0	-2
Intel	Medical	Nuc Defense	Nuc Weapons	Open Terrain	Orbital	Bmb Security
+8	-5	+0	+10	+10	+0	-4
Small Arms	Space Defense	Special Wpns	Subterranean	Telekinesis	Telepathics	Transport
+4	+0	+0	+10	+0	+0	-2

Cont. Next Page

Unmodified odds: 8.7

Total tactical combat odds shifts: 7.6

Attacking divisions counted as if they were 1 divisions each for casualty purposes

Defending divisions counted as if they were 6.5 divisions each for casualty purposes

Ground combat results

Attacker losses: < 1 Combat Engineer, 5 Imperial Army Heavy Armor, 5 Imperial Army Heavy Infantry, 4 Imperial Army Infantry, 7 Imperial Army Mechanized Infantry, 3 Imperial Guards Air Force, 4 Imperial Guards Infantry, 2 Imperial Marines, Heavy Infantry, 2 NBC >

Defender losses: <all divisions>



Image courteous of <http://pcmedia.gamespy.com>

Business

Rumor Mill

The latest species censor data places humans at the top, constituting 35% of all known empires.

Alien Natives are starting to fight back....

Star Bars are undergoing a severe remodel to accommodate the increasing number of large species being introduced into the market. Serving sizes have also increased dramatically at most locations.

Whom you think have returned, are actually gone.

Only build 1 Linear Accelerator per system!!!

A large cooperative trading colony is underway to allow trade in a busy section of the Core. Their goal is to build a large space station to protect the trading colony. The location will be announced within the year and will provide access to all non-hostile races.

ICE-3 = Home World Iron Yield of 4600 from 110



Lifestyles

What's in a system's name?

By Paul Hughes

Agneti: Female Christian name

Berwyn: The **Berwyn range** (Y Berwyn / Mynydd Y Berwyn in Welsh) is an isolated and sparsely-populated area of moorland located in the north-east of Wales, United Kingdom, roughly bounded by Llangollen in the north-east, Corwen in the north-west, Bala in the south-west, and Oswestry in the south-east. The area is wild, remote (by British standards) and covered in a layer of heather about one metre thick.

Dame: An old word for the players pieces in draughts (checkers). More commonly associated with names, is the female equivalent to Sir for a British knighthood. Female "knights" are referred to as "dames" in the UK

Damoclese: Variant spelling of Damocles. **Damocles** is a figure featured in a single moral anecdote which was a late addition to classical Greek culture.

Damocles it seems was an excessively flattering courtier in the court of Dionysius II of Syracuse, a 4th Century BC tyrant of Syracuse, Italy. He enthused that, as a great man of power and authority, Dionysius was truly fortunate. Dionysius offered to switch places with him for a day, so he could taste first hand that fortune. In the evening a banquet was held, where Damocles very much enjoyed being waited upon like a king. Only at the end of the meal did he look up and notice a sharpened sword hanging by a single piece of horsehair directly above the throne. Immediately, he lost all taste for the fine foods and beautiful things and asked leave of the tyrant, saying he no longer wanted to be so fortunate.

The **Sword of Damocles** is a frequently used allusion to this tale, epitomizing the insecurity of those with great power due to the possibility of that power being taken away suddenly, or, more generally, any feeling of impending doom.

Cutlass: A **cutlass** is a short thick sword with a curved blade sharpened on the convex side, or a gross sabre. Best known as the sailor's weapon of choice, likely because it was also robust enough to hack through heavy ropes, canvas and wood. It is also short enough to use in relatively close quarters, such as in the rigging or below decks. Another advantage to the cutlass was its simplicity of use. The cutlass required less training than the rapier or court sword, and was more effective as an infantry weapon than the sabre. The cutlass is the sword most usually portrayed in films about pirates.

It was also used on land, particularly by cavalymen such as the Mamelukes, since its curved blade made it useful for slashing and slicing combat. The typical European sabre resembles a longer, thinner cutlass.

Laura: Latin female name; Laurel-Crowned or Laurel tree or sweet bay tree.



Moshna: Location in Russia

Morgoth: **Morgoth Bauglir** (*Morgoth* means "The Dark Enemy", *Bauglir* is "The Constrainer"), originally named **Melkor** ("He Who Arises in Might"), is a fictional character of Middle-earth, created by J. R. R. Tolkien. At the creation of Tolkien's world, he was the most powerful of the Ainur (demigods). He contended with Eru (the Creator) in the Music of the Ainur, increasingly attempting to alter the music to his own design, but only ended up perverting its harmony. Melkor was the first to bear the title *the Dark Lord* in Middle Earth and is the principal antagonist in the book *The Silmarillion*. Morgoth drew about him an army of Balrogs and other assorted demons, who were Maiar whom he managed to trick or corrupt, and made war on Middle-earth and the Children of Ilúvatar, but was defeated by the Valar and was overthrown. He was first taken away in chains, and later cast out of the circles of Arda.

Morgoth: German death metal band that was formed in 1985. Originally the name "Exterminator" was used and then briefly "Minas Morgul". In 1987 the band settled on Morgoth. On their later albums they incorporated more and more industrial influences. After two EPs and three albums the band broke up in 1997.



Image courtesy of www.tartareanddesire.com/bands/morgoth.html

Beor: In the fiction of J. R. R. Tolkien, the **House of Bëor** was the oldest of the Three Houses of Men that had allied with the Elves in the First Age. **Bëor the Old**, originally named Balan and later given the title *the Old*, was leader of the **House of Bëor**, the first men to travel into Beleriand. He met Finrod Felagund, who guided them to settle in Estolad, east of Doriath. Bëor took service with Finrod in Nargothrond. His name *Bëor* meant *vassal* in the Bëorian tongue. He got his title, *the Old*, because he died at 93 years of age, of which 44 were spent serving Finrod.

Swiftsure: The *Swiftsure* was a 74-gun ship of the line of the Royal Navy, built in Deptford from 1787 to 1787 under plans by engineer Wells. She was captured by the French ships *Indivisible* and *Dix-Août* in the Mediterranean on the 24 June 1801. She fought on the French side at the Battle of Trafalgar, where she was re-captured by the English, on the 21 October 1805. She was recommissioned in the Royal Navy as *HMS Irresistible*, since another English *Swiftsure* (1804 at Bucklers Hard) was a 74-gun 3rd rate ship of the line) had been built since, and was used as a prison. She was scrapped in Chatham in 1816.

Vishnu: A form of God, in Hinduism to whom many Hindus pray. For Vaishnavas, He is the Ultimate Reality or God, as is Shiva for Shaivites. In Trimurti belief, He is the second aspect of God in the Trimurti (also called the Hindu Trinity), along with Brahma and Shiva. Known as the *Preserver*, He is most famously identified with His avatars, or incarnations of God, most especially Krishna and Rama. Additionally, another important name for Vishnu is Narayana.



Tibet: (Oolder spelling **Thibet**) is a region in Central Asia and the home of the Tibetan people. With an average elevation of 4,900 m (16,000 ft), it is often called the 'Roof of the World'. All or most of historic Tibet (depending on definition) is currently a part of the People's Republic of China (PRC).

Tsetsenevick: Russian period name, male.

Urien: Father of Owain mab Urien (later known as Ywain), was a historical king of Rheged in northern England and southern Scotland during the 6th century. He became the **King Urien of Gore** of Arthurian legend. Little of Urien's history is known for sure, but it seems that Urien fought against the rulers of the Angle kingdom Bernicia. Early on the relationship between

Rheged and its neighboring British kingdoms was erratic, but Urien joined with other northern princes and defeated the rising Angles in several battles. His victories are celebrated in the Book of Taliesin, the supposed author of which served as his bard. According to early Welsh writings he was assassinated at the command of his ally Morcant who was jealous of his success. He had four sons, named Owain, Riwallawn, Run and Pascen, the eldest of which succeeded him.

Interview with an Empire:



NEW SPARTA

Journalist [Everlasting Spawn]: Wow...and I thought Gjorhaan ran a tight ship. This place is immaculate, and much brighter. Colder, too, temperature wise. Your furnishings are very impressive, especially the banner. Hey, is this a statue of pure gold? The likeness is amazing. Yup. It feels like gold, alright....

Bellator Rex: [glares, standing atop an ornate dais, clad in black power armor, hands on his hips adorned with a power sword and an advanced machinegun weapon]

Journalist: [kneeling] My apologies. [Standing] I'm sorry, plants are really bad at formalities.

Bellator Rex: I am the current Bellator Rex (Warrior King) of New Sparta. An independent empire affiliated with WHAPO and a fairly frequent visitor to the boards, where I am known as Lord Uriel (Fire of God).

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Journalist: I take it that large banner behind you is your imperial emblem?

Bellator Rex: Yes. *An Ancient Spartan Warrior Framed by a Field of Stars.*

Journalist: Spartans?

Bellator Rex: New Spartans. Our records are not complete, but we know we are descended from humans of Old Terra. There is an immense gap in our history from the early 21st century (Old Terran calendar) to the point where our most recent ancestors inhabited this system. Late in the 968th Millenium of the 5th Imperium, Fleet Command dispatched a human task force formed on the battleships New Sparta, Bellator Rex, Lord Uriel and other combat support vessels to this system.

Journalist: What kind of other vessels?

Bellator Rex: That's classified. Our mission was to defeat a then unknown alien force enslaving the inhabitants of the 3rd and 4th orbits. Our ancestors quickly gained an initial naval victory over a insect type foe and landed marines to liberate the native (non-human) citizens of the 3rd orbit and moved on to engage remaining enemy naval forces. We are not sure of the details, but we now know the enemy, our fleet, and the 4th orbit were destroyed in this engagement. The explosion of the 4th orbit shifted our planet away from the sun, causing the extinction of most native species when the planet became a frozen wasteland, leaving only the ground forces and the alien alive. Thus, began The Long War.

Journalist: Ah, that explains the large portrait in the hallway of a spear being plunged into the chest of a large insectoid thing with claws....and the massive HVAC system.

Bellator Rex: Over time, the war and this planet reduced our ancestors to early Iron Age technology. We survive due to our genetic enhancements. The Spartan is a representation of our society and a reference to our Terran heritage. The stars represent our history as well as our future. The 5th Imperium is long dead (we believe) but our ancient foe remains.

Journalist: Care to disclose who this foe might be?

Bellator Rex: They are a terrible foe, beyond the abilities of most space faring races to combat. We reserve their fate for ourselves alone.

Journalist: Do you guys still hate the Athenians?

Bellator Rex: Do weeds need water?

Journalist: Ah, I see. [backs away slightly] Just how do you perceive the other empires?

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Bellator Rex: Our outlook toward other empires is fairly straight forward. We are actively engaged in the search for our ancient foe with the intent of eradicating the entire species. Aside from that, all options are on the table.

Journalist: What about your open membership in WHAPO?

Bellator Rex: WHAPO is nothing like a recognizable political body. It is an organization that clearly states that it wants to be involved in a war. I have some limited contact with other empires and I assure you we do not desire to make the universe "Spartan." Joining WHAPO can be viewed as seeing others in the universe that share similar views and agreeing with them, with no other form of commitment.

Journalist: What's the best thing that has happened for the New Spartans:

Bellator Rex: We were very alone in the universe for most of New Sparta's history, when we joined Crossroads we finally had a chance to learn and share with others. We learned of Genetic Engineering and have improved our species in several respects. Previous leaders of New Sparta would have had some difficulty understanding your advanced technology.

Journalist: The worst thing?

Bellator Rex: Where to begin.... As of turn 1, or turn 0 if you prefer, everything has been a learning experience. Production, exploration, research; you name it has been a pain in some form or other. If we had to point out one issue, it would also be joining Crossroads. The group wasn't the bad part; we just realized that our scientists had been researching some fairly useless items. They were shot.

Journalist: With the very weapons they wasted their energies on, by chance?

Bellator Rex: No, if that had been the case we would have bludgeoned them to death with various "this might be interesting" items. In our culture, we honour our opponents by meeting them on the field so that they may see us, and know their fate is at hand. It is far preferable for a Spartan to be killed by sword than shot. We denied them honour and buried them on this planet.

Journalist: Being buried is dishonourable?

Bellator Rex: It is our intent to return the ashes of our people to Old Terra, our ancient home, to a holy place called Arlington. Burying them here, forever removes them our people.

Journalist: What advice might you have for new players?

Bellator Rex: When speaking with the Oracle, make sure you understand his answer before you hang up. Additionally, spread sheets. It's now my quest to find the ultimate spread sheet, or understand how Phasdragon's work so I can make small changes.

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Journalist: What is one single change you would like to see?

Bellator Rex: Aside from a complete naval document that will help the ultimate infantry race understand those shiny things in orbit? Hard to tell. I think the new ANZ's have helped New Sparta chart a new course in all aspects. I'd like to see the rest of the ship components fully disclosed as well. And yes, we recall we were once vehemently opposed to the idea. We were wrong.

Journalist: It takes a big Spartan...err Big *New* Spartan to admit that. Our own Admiral made the same mistake. Closing thoughts?

Bellator Rex: We believe Fury of Gjorhaan to be a race with a strong close combat capability. Nothing to base that on other interstellar communications, but we would like the chance to simply match our Spartan finest against theirs. If they were destroyed, we would be saddened, for we feel no other race can match us in close combat quarters.

Journalist: Well, from what we hear, take a number. The only thing Gjorhaan probably forgot to put on the emblem was a big target on his back. Well that's all I have for now.

Bellator Rex: Good. Be sure to witness the barracks on your way to port. You'll find them...breathtaking. And watch your step. Lots of ice.

[Much to our surprise, our leafy journalist returned, in tact, raving mad about the largest army he had ever seen.....]



Opinion

ASK PETE

Each week, I'll submit around 5 questions to Pete that will be published in the newsletter. Feel free to continue to forward any questions to SNROTENEWS @yahoo.com to have your questions answered here! A tremendous thumb up to Pete for making this section possible!

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Question: Is there an estimate of how many citizens a population unit represents?

Pete: Not really - it might vary from an insect to a humanoid, so we left it as not determined.

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Question: Is there an estimate of how many soldiers there are per ground unit type?

Pete: Same as population. The important thing to remember about Divisions is that every Division has the same offensive firepower - even Medical units dish out firepower. So for odds purposes, it's number of Divisions for the base odds (which are later modified in all sorts of ways). Division type matters (Medical versus Armor, for instance) for TAC purposes, which can have a huge impact on the final odds.

=====

Question: I was hoping for some elaboration on the Warp Point Survey Missions document. There is mention that the difficulty of the survey mission is related to the distance between the stars. Does orbital distance have anything to do with this?

Pete: No - just distance between stars as the "hidden" factor.

=====

Question: The Installation Report suggests to build "1 per 100 population for maximum possible benefit." Which population group will receive the most benefit: a population group with 100 pop and 1 installation, or a population group with 200 pop with 2 installations? Are there any advantages to devoting a separate population group for these types of installations?

Pete: Same % benefit for both, but since one has more pop, and depending on the kind of installation in question and whatever it does, the 200 pop one would likely benefit more in the end. So....they'd both have the maximum benefit from the installation in question, whatever that is.

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Cont. Next Page

Question: Does star class and type determine the likelihood of finding life in a system? Or is star class/type information simply there for flavor?

Pete: Star class and type determined all information about the planets therein, and had an effect when the original group of warp lines were laid down. A combination of background terrain and star type modified all sorts of things about the star system. There are actually background features that cover large areas of space, encompassing multiple star systems - you don't see those, but they exist behind the scenes. For example, there might be a large gas cloud covering all stars in a wide zone of space - all of those stars would have been given gas cloud terrain features.

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Thanks again Pete!



Dear Miss Manners,

I'm a highly toxic reptilian aquatic mammal who has recently been sent to negotiate with a neutral empire (Human Hand Grasping Spear) what should I wear?

Sincerely, highly toxic reptilian aquatic mammal who has recently been sent to negotiate with a neutral empire (Human Hand Grasping Spear)

Dear Genetic Anomaly,

Does your Hive/Clan/Family really hate you that much? Or perhaps all that toxin has gone to your brain, but this is an elaborate Galactic hoax. Should you actually decide to go on this 'mission' you are most likely tarred and feathered but your close friends and then paraded around your local StarBar, much to the amusement of everyone.

So I say rise up and fight this terrible hazing by reporting the exact galactic location of these supposed neutral empires (Human Hand Grasping Spear) to me immediately. I will dispatch a team of dedicated Mannerist to deal with these individuals.

Now that being said, I'd go with that lovely feather and beaded frock you have in your closet. I think those iridescent black feathers are a perfect combination to your matte reptilian scales.

Sincerely,
Miss Manners

Featured Article

ARCHIVES: MAXIMIZING YOUR COLONIZATION EFFORTS Understanding yield, formulas and tricks

Eternus (ISNA) Last turn saw an influx of improvements for colonization. We anticipate a few articles in the upcoming newsletters that will discuss the tricks, perils and payoffs of colonization. In general, the more you colonize, the larger your industrial base will become. How do we know this? Long ago, somewhere between turn zero and turn one, I wrote a rather lengthy piece explaining the answer to this question. I will reproduce some of it in part, as a kickoff to future colonization articles.

With apologies, the following article is very long (and certainly contains much fluff) but with an influx of new players, I think it is important to underscore the efficiency of using Iron Mines etc. and maximizing yields and ICs from the outset. This is old hat for many of you, but I promise there might be a formula within the document you might find handy.

[There are many articles brewing but several players were limited in time this week, so I'm offering an older article, rarely published on the subject of colonization – Ed.]

MANY LABORS AHEAD¹

Prepared for the Admiral Helianthos Eternus and various delegations by the esteemed Captain Miku Hoya Cerrdaii, Cycle 4,103,113.

What to build? What to build?

There is an old saying in our culture: *Heppi Vesc, Stell e Hala, Spi Herj Maya*.
Translation:

Hammer ready,
Star in Sky,
Many labors ahead.²

By now you have received Captain Lotus Berthelotti's "AN INQUIRY INTO THE NATURE AND CONSEQUENCE OF RESOURCE FLOW WITHIN THE EMPIRE" (hereinafter "Resource Flow") My efforts will be to expand upon the basics presented in his work. His is merely a guide to what various items and resources are, what they are made up of and how they might be applied. This work will attempt to paint the larger picture of empirical production and present ideas on how to create an efficient industrial network

¹ Translated using the *Speakey, Hearey, Understandey!!* Software created by VesciSoft.

² From the Collections entitled Cycle and Maja, *Olestrio Hoya Regi*. Over time, such things become abbreviated - so if you visit, you might overhear one of our citizens simply say "Many labors ahead" while on their way to work.

An Overview

It is clear through “Resource Flow,” that we must have many major resources such as Steel, Electronics, Textiles, Food Concentrates, Weapons, Construction Materials and other major goods to create fleets and units capable of traversing the galaxy in search of desirable spawn sites.

Therefore, it is imperative to have a clear production goal in mind before streamlining the imperial industry.

At this point, the goal has been stated by Imperial Mandate #CYL-459200 that we should ... (Edited - B.F. - Imperial Security Advisory Committee³) ... produce.

Every empire starts with what we have labeled Raw Resource Conversion Potential (**RRCP**) **RRCP refers to producing items exclusively using converted raw resources.** There are very few installations that do anything other than convert Raw Resources into various products. “Resource Flow” was designed with RRCP in mind and labored to quantify how many raw resources are consumed per item.

Raw Resource Conversion Potential (RRCP)

Introduction to the Industrial Complex

Imagine a magical box where you can put lots of Seaweed inside, flip a switch, open the box and get a tasty Weedbar⁴ five minutes later as a result. Industrial Complexes are magical like that to a degree although I don’t recommend tasting things like Gaseous Elements, Processed Radioactives or most Synthetic Materials.

Each Industrial Complex allow you to input 250 tons of any material and convert it to its next usable form in one industrial cycle (or as some of you call “a turn”)

The Industrial Complex and Raw Resource Conversion

Example: Raw Resources weigh 1 ton each. If you put 250 tons of Raw Resources into four different industrial complexes, each complex will produce 1 lesser item/resource of your choice.

Example: Say you want to make 3,000 Iron.

Q: How many Raw Resources are needed?

A: From “Resource Flow,” we know that 10 Raw Resources are needed for 1 Iron, so the answer is 10 Raw Resources multiplied by the number of Iron we want: 30,000 Raw Resources needed to create 3,000 Iron.

Q: How many industrial complexes would be required to convert the raw resources into Iron?

³ Unedited versions are available to all members with Clearance of Eternus IX or higher.

⁴ Weedbars are a popular consumer item on our world, especially among those in early cycles.

A: We just determined that we need 30,000 Raw Resources. Raw Resources weigh 1 ton each. Each Industrial Complex can convert 250 tons - in this case - 250 raw resources at a time. Therefore to convert 30,000 Raw Resources in one turn, we would require 120 Industrial Complexes. $(30,000/250)$

Thus, to create 3,000 Iron, you need 30,000 Raw Resources and 120 Industrial Complexes available.

Avoiding Repetitive Math - Cerrdaii's Maxims

Suppose we want to simplify our needs for future reference. We now know that if we stick to RRCP methods (that is, produce Iron and Steel exclusively using raw resources and without using Iron Mills,) the following Industrial Capacity is needed to create 1,000 Steel per turn:

Which leads me to what I currently phrase the *RRCP Steel Maxim (Basic)*:

***RRCP Steel Maxim (Basic):* 1,000 Steel per turn requires 132 available Industrial Complexes and 30,000 Raw Resources.**

I have created RRCP Maxims for a few initial complex goods which I have added to the Appendix entitled "*Cerrdaii's Maxims*" (attached and incorporated herein) Using the maxims will simplify production goals and calculations for all empire's who choose to adopt a RRCP economy. As a further aid, I have added a couple of other calculations.

Most empires will want to streamline their production and produce the raw resources that will be absorbed each turn using their stripmining complexes. As many of you know from your own records, 1 stripmining complex produces 1,000 Raw Resources.

The Industrial Complex and Lesser Component Conversion

Let's take this a step further. As we know from "Resource Flow," Iron can be used to convert into Steel or as a component for Weapons.⁵ Steel is invaluable so let's convert our Iron to Steel.

Example: Suppose you want to convert your shiny new 3,000 Iron to 1,000 Steel

Q: How many Raw Resources are needed to create the Steel?

A: Trick question! Zero! You cannot create Steel DIRECTLY out of Raw Resources. Raw Resources were required to create the Iron. Now that we have Iron, we don't need to use Raw Resources any further to make more complex items.

Q: How much Iron is needed to create 1,000 Steel?

A: We know from "Resource Flow" that it takes 3 Iron to create 1 Steel. Therefore we

⁵ Lotus neglected to mention the application of Iron to weapons and he will amend for the next version.

need 3,000 Iron to create 1,000 Steel. Look! We just created 3,000 Iron...how convenient!

Q: How many industrial complexes would be required to convert the Iron into Steel?

A: Industrial Complexes convert 250 tons of one type of item into a higher form. Iron weighs 1 ton. Therefore, we need enough industrial complexes to convert 3,000 Tons of Iron into 1,000 Steel. We need 12 Industrial Complexes. (3,000/250)

Q: How many Stripmining Complexes are needed per turn to create enough Raw Resources for 1,000 Steel per turn?

A: From the Basic RRCP Steel Maxim, we know we need 30,000 Raw Resources per turn for each 1,000 Steel produced. Therefore, we need 30 Stripmining Complexes available per turn to create the Raw Resources that will eventually be absorbed by the RRCP Production of 1,000 Steel.

Thus, the ***RRCP Steel Maxim (advanced)***:

1,000 Steel per turn requires 132 available Industrial Complexes, 30 available Stripmining Complexes and 30,000 Raw Resources.

The RRCP Construction Maxims

Lastly, lets suppose an empire is colonizing, using the RRCP Economy for the new world. How many construction materials will be required to set up enough Industrial Complexes and Stripmining Complexes (ASSUMING POWER IS ALREADY AVAILABLE⁶)?

We know from our sources that a stripmining complex costs 500 construction materials each. Further, industrial complexes cost 500 construction materials each. The total number of installations needed (adding required number of stripmining complexes to required number of industrial complexes) is 162. Therefore 81,000 construction materials are needed to create the Industries to set up a production queue of 1,000 Steel per turn. I shall call this the

RRCP Steel Construction Maxim:

81,000 Construction Materials are needed to set up an RRCP queue of 1,000 Steel per turn.

I have also taken the leisure to present these maxims in the “*Cerrdaii’s Maxims*” appendix for your convenience.

⁶ Most experts agree to ship the Construction Materials needed to create the power plant AND supporting installations: making certain there are appropriate yields on the world to build the appropriate installations that can create the supply for the power plant. Example: if you plan on setting up a Coal Fired Power Plant, send out 500 Construction Materials for the Plant and 500 Construction Materials for the Coal Mine. Don’t forget you will need 2 population units. Captain Reginal Hoya Belliwai will elaborate in his upcoming work on basic colonization.

RRCP Conclusion

Using the RRCP Maxim's, one can more easily determine construction needs and resource needs per turn when facing the daunting task of streamlining production. The first question should be: What do I want to make and how much will I need. The Maxim's are currently prepared for the more crucial items available for production: this list will increase as technology advances and needs arise.

RRCP Conversion is not the end-all-be-all. RRCP is a very viable economy for a fledgling empire, however, an eye should be made toward the next line of industry - which I have called **Basic Installation Production (BIP)**. Using refineries and mills to reduce raw resource conversion reduces the amount of raw resources, stripmining complexes and industrial complexes required....recovering valuable construction materials and populace while reducing the stress on our home world's ecosystem and power usage.

BIP will be the focus of the next section.

Conversion to Basic Installation Production (BIP)

Introduction

This section will cover whether you should replace your existing infrastructure with what we term **BIP or "Basic Installation Production."** [IRON MINES ETC] Right now, everyone has many industrial complexes and stripmines. Should you replace your industrial complexes with iron mines, grain mills and crystal refineries? For the scowling rock-like beings in the back row who have threatened to pull me out of my tank of water, I will present the short answer:

MAXIMIZE EVERY YIELD ON YOUR HOMEWORLD OVER 40 USING MORE EFFICIENT INDUSTRIES (Iron Mines etc.) AND -SCRAP- A PROPORTION OF YOUR LEFTOVER INDUSTRIAL COMPLEXES. KEEP YOUR STRIPMINING COMPLEXES AND BUILD MORE WITH THE CONSTRUCTION MATERIALS YOU RECOVERED BY SCRAPPING ALL THE EXCESS INDUSTRIAL COMPLEXES.

I can hear the murmuring. I can explain my rationale. In fact, I will prove the statement and use my own empire's starting resources as an example. Keep in mind that your empire is to do with what you will, however, my job is to present what I think is the most efficient way to do things. Rock-like beings: if you need me to use pictures and big letters, let me know. Now on to the rationale....

A BIP Economy can be More Efficient than a RRCP Economy

At some point, it is more efficient to create installations that will replace raw resource conversion production. Why? In a nutshell, a "Basic installation," such as an Iron Mine or Lumber Mill, uses less power than the industries it replaced, consumes no raw resources - and yet - produces the same quantity of items as its predecessor facilities. A "BIP economy" simply refers to an economy that is using basic installations to replace

stripmining complexes and industrial complexes.⁷

The efficiency of a BIP economy is not realized (immediately) in yield, but in consumption. Industrial Complexes can be scrapped for 500 construction materials: that can be used elsewhere or for basic installations themselves. With the conversion to a BIP economy, valuable Construction Materials are recovered in most instances when converting from RRCP facilities to basic installations. Further, fewer RRCP facilities translates to more available power and populace; and less pollution in some instances.

In most home worlds, the conversion to BIP will be favorable. However, sometimes you may need to decide if you need to convert from RRCP to BIP when you conquer other worlds. Regardless: **what you spend in resources to convert to a BIP economy should not be higher than what you recover as a result. (Opilo's Maxim)**

I'll start with an example of when to utilize the BIP conversion and then follow-up with an example where conversion to BIP would be costly. The decision to convert is related to Yield, which I introduce in the next section within this article. A more detailed discussion regarding when to convert to BIP from RRCP will be covered in the next article.

BIP Production: an example using the Iron Mine

Let's use a positive example of BIP conversion, using the steel example we used in the last section covering RRCP.

Let's say we want to produce 1,000 steel like before. However, this time we went out and built 10 Iron Mines. Let's assume the Iron Yield on our homeworld is 101.⁸ As a result, the iron mine will produce 1,000 Iron per turn.⁹

Q: How many Raw Resources are needed to create 3,000 Iron now that we have 1,000 Iron available for consumption?

A: From the prior example in the RRCP section, we determined that we need 30,000 Raw Resources to create 3,000 Iron using our industrial complex. This time we already have 1,000 Iron. We need 2,000 more. It takes 10 Raw Resources to create 1 Iron, therefore 20,000 Raw Resources to create 2,000 Iron. Notice we don't need any raw resources to create the 1,000 Iron we created through the Iron Mill....I state the obvious for the large, scowling and obviously confused rock-like scowling beings in the back row.

⁷ When you see "RRCP", think of the Stripmine and Industrial Complex.

⁸ Please ignore the discussion of Yield for the time being. The concept of Yield will be thoroughly explored in the next section within this article. Side note: an iron yield of 101 is fairly low and not realistic for a homeworld iron yield.

⁹ With an iron yield of 101, 100 iron mines would indeed produce 1,000 iron per turn using the Universal yield Formula: **Production=(Number of Producing Installations) * (Yield-(Number of Producing Installations/10))** Relax, we will cover this ultimately vital piece of mathematics in detail in the next section.

Q: How many industrial complexes would be required to convert the necessary 20,000 raw resources into Iron?

A: Thanks to the iron production from the iron mine, we only need 20,000 Raw Resources this time around. Raw Resources weigh 1 ton each. Each Industrial Complex can convert 250 tons - in this case - 250 raw resources at a time. Therefore to convert 20,000 Raw Resources in one turn, we would require 80 Industrial Complexes. (20,000/250)

Thus, to create 3,000 Iron, you need the 1,000 iron from the iron mine, 20,000 Raw Resources, 80 available Industrial Complexes and 20 available Stripmining Complexes.

We still need the same amount of industrial complexes to convert the iron to steel. Thus, we only gain efficiency when replacing raw resource conversion with BIP.

The Iron Mine Example: What did we exactly save using the BIP Economy?

Q: How many Raw Resources did we save using BIP?

A: 10,000 (Used to need 30,000 - now only need 20,000)

Q: How many Industrial Complexes are available for other projects or available to scrap for construction materials?

A: 40 (Used to need 120 to convert 30,000 raw resources to Iron - now only need 80 to convert 20,000 raw resources to Iron)

Q: How many stripmining complexes are available for other projects or available to scrap for construction materials?

A: 10 (Used to need to produce 10,000 extra raw resources - 1 SM complex for each 1,000 raw resources produced)

Q: If we scrap all the installations previously used in RRCP for the 3,000 Iron, how much power is saved?

A: One power per installation. We scrapped 50 installations. That's 50 available power. Lets account for the 1 power required to run each Iron mine (10). Therefore **we saved 40 power** when converting to the Iron Mine from the RRCP facilities.

Q: If we scrap all the installations previously used in RRCP for the 3,000 Iron, how much populace is available for other projects or relocation?¹⁰

A: One population per installation. We scrapped 50 installations. That's 50 available population. Lets account for the 1 population absorbed to run each Iron mine(10). Therefore **we saved 40 population** when converting to the Iron Mine from the RRCP

¹⁰ Note: the code within the game has changed. Previously, only unemployed citizens reproduced. Now, all population units reproduce, regardless of employment status: no more "Jerry Springer population model," as so poignantly expressed by Arvan Calantir of the Interstellar Federate Republic.

facilities.

Q: If we scrap all the installations previously used in RRCP for the 3,000 Iron, how many construction materials are recovered?

A: It costs 500 Construction Materials per installation. We scrapped 50 installations. That's 25,000 recovered construction materials. Lets account for the 500 construction materials to build each Iron mine(10 times 500, for a total of 5,000). Therefore **we recovered a net 20,000 construction materials** when converting to the Iron Mine from the RRCP facilities.

Thus, with 10 Iron Mines and an iron yield of 101, you save a total of 10,000 Raw Resources and recover 40 population, 40 power and 20,000 Construction Materials.

The correlation between resources saved and recovered and the number of Basic Installations is entirely dependent upon Yield for the resource related to the basic installation. Therefore, there is a sliding scale on when conversion from RRCP to BIP should take place (More on this very shortly)

Regardless, each byproduct of the BIP economy does indeed have a direct and proportional relationship to resources saved and recovered. This leads to the Higher Component Conversion Maxim, also known as the

BIP Resource Conservation Maxim:

For every 1,000 Resources produced using BIP, a total of 10,000 Raw Resources are saved and 40 population, 40 power and 25,000 Construction Materials are recovered, presuming you scrap the 40 industrial complexes and 10 stripmining complexes previously needed.¹¹

Be careful though - yields could be so poor that it may take several turns before you realize your investment in the BIP economy - if at all in some instances. You may recover these amounts over time - however, you also may end up in a deficit of materials expended if it takes a tremendous amount of resources to create the BIP installations. Again, this only happens on low-yield worlds. This will become very clear in the next couple of sections.

Yield Dictates Conversion Efficiency

BIP conversion is preferred whenever we can recover construction materials without a decrease in overall production. The BIP Resource Conservation Maxim states that we conserve 25,000 Construction Materials when 1,000 resources are *produced* using BIP. The cost to build the BIP economy varies according to yield because yield affects BIP *production*. I will elaborate upon yield later in this article. However, it should be noted that Yield, such as Iron resource yield, will affect efficiencies when you convert from

¹¹ This maxim does not account for the cost of creating the BIP installation. The typical cost is 1 population, 1 power and 500 construction materials. Further the maxim ignores high-end industrial production ratios between complex items. The maxim is reworked with AIP...a classified subject at this time. For now, only apply this maxim when the BIP installation is replacing industrial complexes.

RRCP to BIP when dealing with iron conversion.

To be certain, there is always *long-term* efficiency when you convert your economy from RRCP to BIP if you use the Kilaz Production Method¹² However, the rate of efficiency depends on what the underlying Yield is of the resource you plan to mine as the replacement for raw resource conversion.

Poor Yield: An example using the 3,000 Iron BIP Conversion

Let's stick with our previous creation of 3,000 Iron.

This time, however, let's presume a different yield while keeping 10 Iron Mines. Let's suppose the Iron Yield is 11 instead of 101. This means that the Iron produced per turn is now only 100 per turn.¹³

Rather than carry you through step-by-step, I will test each Maxim separately in condensed form:

RRCP resources required for 3,000 Iron:

30,000 Raw Resources, 120 available Industrial Complexes and 30 available Stripmining Complexes.

BIP resources required for 3,000 Iron, having 100 Iron already immediately available for consumption (thus, 2,900 Iron needed):

29,000 Raw Resources, 116 available Industrial Complexes and 29 available Stripmining Complexes.

Cost to build 10 Iron Mines:

10 population, 10 power, 5,000 Construction Materials

Resources saved after BIP conversion to 100 Iron Mines with a yield of 5:

100 iron was produced. 1,000 Raw Resources saved. 4 Industrial Complexes and 1 Stripmining Complex, for a total of 5 installations, recovered. 2,500 Construction Materials recovered if you scrap the 5 installations. 5 power recovered and 5 population recovered if you scrap the installations.

Total resources conserved after building 10 Iron Mines with an Iron Yield of 5:

1,000 Raw Resources saved.

¹² Classified. This Method available to all those with security clearance of Eternus IX or higher.

¹³ With an iron yield of 11, 100 iron mines would indeed produce 450 iron per turn using the Universal Yield Formula: **Production=(Number of Producing Installations) * (Yield-(Number of Producing Installations/10))** Again, we will cover this ultimately vital piece of mathematics in detail in the next section.

Additional resources required to build 10 Iron Mines with an Iron Yield of 5, less the resources recovered from scrapping the RRCP facilities: Will need 2,500 Construction Materials in addition to the 2,500 recovered from the scrapped stripmining complexes and industrial complexes. Will need an additional 5 power and 5 population.

What happened? *We actually need more construction materials, population and power using the BIP economy on a low yield world.* Clearly, the very act of building Iron Mines or any basic installation will not reap immediate and efficient results under every circumstance. Yields can be so poor that converting to BIP will cost you more resources up front than recovered in the initial turn - or for that matter, several additional turns.

Does BIP on Low Yield Worlds Still Pay Off in the Long Run?

Our starting point: we save 1,000 Raw Resources per turn. That counts for something: either less stress on the environment or 10,000 Raw Resources that can be stripped for other needs. Mind you, Raw Resources are a bottomless well....they are always there. Therefore - you saved 1,000 of an infinite resource: which equates to nothing.

Which leads to the ancient, somewhat lengthy:

Durlan's Futility Maxim, or the more informally phrased: "Who cares if you save Raw Resources Maxim."

Raw Resources are infinite. Conserve industrial production and installation use by constructing more efficient facilities with favorable yields. Unless you have zero industrial potential, it means nothing to save raw resources in and of themselves; it is futile: like saving an infinite point of nothingness for a sunny day.

To be certain, there can be a *long-term* efficiency when you convert your economy from RRCP to BIP if you use the Kilaz Production Method¹⁴

BIP Conclusion

With the right yield, BIP can work wonders for conserving your most valuable and usable resources and materials. The BIP Resource Maxim recognizes the immediate payoffs in higher yield situations. However, the RRCP economy still has tremendous use in the low yield worlds. The challenge ahead is to decide when to convert from a RRCP economy to a BIP one....in order to do that, you have to understand Yield.

¹⁴ Classified at this time for all those without security clearance of Eternus IX or higher.

BONUS SECTION

Technical Note

IRF: Determining Power Needs Between the Two Economy Types

-- **Lt. Urgto Hoya Ulaye, Cycle 1,203,111**

Which economy is more efficient on low yield worlds in terms of power and population usage? It's not an overriding factor, but an important one for smaller operations.

IRF (Installation Resource Factor) is an important measurement because it measures how much power and populace is needed to produce a fixed amount of resources when comparing economy types. The higher the number, the more power and people you need to run the installation.

The IRF formula is:

$$\text{IRF} = (\# \text{ of installations required to make X output} / \text{X output})$$

Where "X output" is your production aim for that resource when deciding to use the BIP or RRCP economy for that resource.

Imagine Cerdaii's bleak world where the iron resource yield is 11. In the RRCP economy on that world, 150 installations are needed each turn to produce 3,000 Iron. The IRF would be 51 for RRCP production (150/3000).

Now let's add those 10 Iron Mines to our bleak 11 Yield Iron World. We now use 155 installations.¹⁵ The IRF is 51.7 for the BIP economy.

When comparing the two, it appears that more power and population are needed using the BIP economy for that resource. If the IRF for the BIP economy is substantially higher than the RRCP economy, it is recommended to stick with the RRCP model.

Yield

What is it?

Every geological survey reveals a tremendous amount of information, expressed in Resource Yield Ratings. These ratings indicate how efficiently a certain resource can be produced using BIP.

Yield is important because of the Universal Yield Formula. Here it is: Know it and remember it. Failure to understand this formula can result in crippling inefficiency.

$\text{Production} = (\text{Number of Producing Installations}) * (\text{Yield} - (\text{Number of Producing Installations} / 10))$

Let's use Iron and the Iron mine as an example on how to use this formula. Iron

¹⁵ The 10 Iron mines replace 4 Industrial Complexes and 1 Stripmining Complex to bring the total number of installations to 145. When you add the Iron Mines back into the installation count, there are 155 installations.

production will depend on how many Iron Mines (Producing Installation) we have as well as the resource yield for Iron present on the planet (Yield)

Thus, if we had 1,000 Iron Mines up and running, and our world had an Iron resource yield of 350, the total Iron produced per turn would be:

Annotated formula

$$X \text{ (Iron produced)} = 1,000 \text{ (Iron Mines)} * (350 \text{ (yield)} - (1,000 \text{ Iron Mines}/10))$$

Working formula

$$X = 1,000 * (350 - (1,000/10))$$

First Calculation

$$X = 1,000 * (350 - 100)$$

Second Calculation

$$X = 1,000 * 250$$

Final Calculation

$$X = 250,000$$

Thus 250,000 Iron would be produced per turn on a world with an iron resource yield of 350 using Iron Mine production (and accordingly, a BIP economy by definition.)

Effects of Industrialization Upon Yield

It is believed that a resource yield diminishes as it is used: the law of diminishing returns will prevail. It is our belief that it is impossible to run a planet completely dry of its resources. However, there will be a point at which it will be more efficient to revert to a RRCP economy.

Maximizing Yield

How many installations are required to maximize the yield in the BIP economy?

The answer is quite simply: the *Production Maximization constant*, K...or 4.999999999999.

Working with the Universal Yield Formula, we can find the Yield Maximization constant K, using the following procedure. Credit should go to Ken Engler of the Exelon Concordium for flushing out the derivative in terms of a parabola.

$$\text{Production} = (\text{Number of Producing Installations}) * (\text{Yield} - (\text{Number of Producing Installations}/10))$$

P = Production

I = Number of Producing Installations

Y = Yield

Lets find the value “I” at which Production is maximized.

Abbreviate the Universal Yield Formula

Thus: $P = I*(Y-(I/10))$

First Calculation

Multiply I to get: $P = IY - I^2/10$

Second Calculation

Express the derivative for P(x): $P(x) = Y - 2I/10$

Third Calculation

Simplify the numerator and denominator: $P(x) = Y - I/5$

Fourth Calculation

Express the equation in terms of when Production is neither becoming more efficient, nor inefficient. Imagine a parabola and a point at which the change along the curve of the parabola is flat, or at zero. Thus $P(x)=10$, or at the point when things aren’t becoming more *or* less efficient :

$$0 = Y - I/5$$

Fourth Calculation

Add “-I/5” to both sides of the equation: $I/5 = Y$

Fifth Calculation

Multiply both sides by 5: $I = 5Y$;¹⁶

Thus, you maximize your production when the number of relevant Installations are almost five times the relevant Yield. Sometimes it is better to build below 5 times your yield, especially when yields are over 400. Many local economists recommend building 4.8 times your Yield in mines for higher resource yield items.

Let’s return to our example world with an iron resource yield of 350. You could create 1,750 Iron Mines ($K*350$, where $K=4.9999$) to maximize your production of Iron. Thus, the maximum iron production possible per turn, on a world with an iron resource yield of 350, is 360,250.

Calculating the maximum yield is important because it stops you from over-producing as well. There is the potential to put too many mines on a planet where you won’t get any production. Example: presume a world with an iron yield of 100. You decide to build 1,000 Iron Mines. Production = 1,000 mines * (100 yield - 1000mines/100) ... which turns into 1,000 mines times zero! You’ve over-produced.

¹⁶ Again, credit should go to Ken Engler of the Exelon Concordium for providing a more useful and clear presentation of finding the maximum resource yield. His comments can be seen on the RTG board in the Game Questions Section, Topic: Resource Yields.

IMPORTANT SHORTCUT

This is really cool. Suppose you are calculating maximum production and you've just determined you need 1,000 mines to do it. Your maximum production will be 100,000.

This is called the Ohrtol "shortcut" method:

To calculate maximum production, simply multiply the number of installations needed for maximum production and multiply the installations needed by .10 and multiply the product against the number of installations needed:

$$P_{MAX} = I_{MAX} * (I_{MAX} * .10) \text{ or } \text{Maximum } P = I * (I * .10)$$

Very handy when crunched for time.

Installation Determination Formula

The universal yield formula is a great tool because it also gives us the

<i>Installation Determination Formula:</i> $I = P/Y + 1^{17}$

This formula is useful when you already have a set production in mind and know the yield: how many installations will you need to accomplish your desired production with the given yield?

Suppose we want to mine 1,000 Grain per turn. The geological survey tells us that there is a grain yield of 100. The formula determines how many installations we need to produce 1,000 Grain with a grain yield of 100:

$$\begin{aligned} I &= (1,000 \text{ grain desired} / 100 \text{ grain yield}) + 1 \\ I &= 10 + 1 \\ I &= 11 \end{aligned}$$

We will need 11 Grain Mills to create 1,000 Grain per turn. Lets test it out using the UYF and pretend we don't know what the resulting production will be:

$$\begin{aligned} P &= 11 \text{ mills} * (100 \text{ grain yield} - 11 \text{ mills}/10) \\ P &= 11 * (100 - 11/10) \\ P &= 11 * (98.9) = 1087.9 \end{aligned}$$

Okay, so we overproduced 87 grain...but had we used 10 grain mills, we would have

¹⁷ A simple derivation from the UYF. $P = I(Y - I/10)$. The " $I/10$ " is negligible for purposes of determining installation needs. The formula then becomes $P = IY$. We need to find I so the formula becomes: $I = P/Y$. Lets add the " $I/10$ " back in the form of an integer to approximate its value: $I = P/Y + 1$

yielded 990 Grain.¹⁸ Hey - the farmers get to eat, right? How does grain taste by the way? I've never tried it.

Now that we understand Yield, it is time to synthesize our new understanding with what we've learned about BIP.

Which Economy is Better For Your Homeworld at Start-Up?

BIP Conversion is successful if we are able to recover Construction Materials while maintaining the same amount of production. Its safe to say we all have similar stockpiles of resources. Changing the economy will not change the initial stockpiles so we will ignore them. What matters is what those stockpiles can look like at the next turn, comparing economies.

Here is an estimate of how many industries we start with (let's ignore population groups and presume that everything is one location):

35,000 Stripmining Complexes	500,000 Industrial Complexes
7 Fission Power Plants	100 Shipyards
5 Shipyard Slips	1 Astronomical Observatory
1 Imperial Army Boot Camp	1 Imperial Zoo
1 Imperial Museum	1 Science Outpost
1 Imperial Palace	10 Fuel Refineries

Let's ignore all but the RRCP facilities because most of us will decide to keep the remaining installations in one form or another.¹⁹ THE FOLLOWING EXAMPLES WILL IGNORE POPULATION AND POWER REQUIREMENTS AND PRESUME YOU HAVE INFINITE OF EACH.

Using RRCP on the First Turn

The 35,000 Stripmining Complexes generate 35 million raw resources per turn. We know from **Durlan's Futility Maxim** that Raw Resources are the bottomless well...it never hurts to have raw resource production; and therefore stripmining complexes.²⁰ Each Stripmining Complex consumed 500 construction materials. Thus, 17.5 Million construction materials are tied up in stripmining complexes.

The 500,000 Industrial Complexes convert 250 tons each - for a grand total of **125**

¹⁸ Unless you are the obviously confused rock-like scowling beings in the back row, I expect you to understand how I reached 990 grain using the UYF.

¹⁹ My Imperial Bodyguard tells me that some of you look like you could move into the zoo and scrap your palace.

²⁰ Our environmentalists remind us that too many stripmining complexes can have consequences to the ecosystem and pollution levels.

Million resources converted to something else per turn.

Presume that you decided not to build any additional industries. Presume you instruct your stripmining complexes to extract another 35,000,000 Raw Resources. You now have 70,000,000 Raw Resources you can use to convert into other things.²¹ Presume that at the end of your turn, you wanted to create as much steel as you possibly could. From “Resource Flow” we know that Steel consumes 30 Raw Resources. Presume you want to use your stockpiles of Raw Resources (I’ll round up to 54.5 Million) for a total of 124.5 Million Raw Resources. At the end of turn one, you could create a stockpile of 4,150,000 Steel from the Raw Resources (RR).²² If you converted all the Iron in your stockpiles (50,000) you could create 16,667 additional Steel.²³ That totals 4.167 Million steel just from raw resource conversion. You have also used 124.55 Million of your 125 Million IC.²⁴

With your construction materials, you can build 14,500 Stripmining Complexes (SM).²⁵ With your SM you can create 145,000 RR. You can convert the 145,000 RR into 4,833 Steel, for a grand total of 4,171,499 of steel production.

At the beginning of turn two, your stockpiles would have a little over 4.17 Million Steel, no raw resources, no iron, no construction materials and your remaining stockpiles.²⁶

Look good? Maybe, lets take a look at how much IC you have left.

You spent 124.55 million in tonnage to convert all of the raw resources and the iron. You also converted the construction materials into 14,500 SM which then converted 145,000 raw resources into steel. 124,695,000 tons were converted. You maximized RRCP and you have 305,000 unused industrial potential in terms of tonnage.²⁷ **That translates to 1,220 unused industrial complexes. Further, 610,000 construction materials are tied up in the unused industrial complexes.**

Maximize means maximize, so lets convert 20% of the left over IC into SM so we can have just enough IC left to convert the resulting RR.²⁸ We were able to recover 244,000 raw resources and create another 8,133 in steel bringing our grand total of steel up to **4,179,632.**

Maximum BIP for Steel with Yield at 400

²¹ You started with 35 million raw resources. Now add 1,000 Raw Resources * 35,000 SM’s, which comes to another 35 Million, for a total of 70 Million RR.

²² 124.5 Million RR divided by 30

²³ Start with 50,000 Iron. It takes 3 Iron for 1 Steel. 50,000/3.

²⁴ Each resource converted weighs 1 ton. The total IC capacity is 125 Million. 124.5 Million from RR were converted. 50,000 Iron were converted. For a total of 124.55 Million converted.

²⁵ 7.25 Million Construction Materials divided by 500 for each SM.

²⁶ Ignoring power consumption and fuel refinery production for example purposes.

²⁷ Maximum capacity of 125 Million for the industrial complexes, less what you used.

²⁸ I will just tell you that the ratio is 4:1....for every SM, you need 4 IC to support the expected RR

The first step in any BIP calculation involves yield. Spies inform me that Iron is plentiful in most starting empires. I will select 400 as an appropriate iron yield for this example.

To maximize the iron production, approximately 2,000 iron mines will be needed.²⁹ Each iron mine will cost 500 construction materials (CM) for a total of 1,000,000 CM. Presume you scrap 2,000 total RRCP facilities, 400 SM and 1,600 IC, to recover the materials and populace prior to building the mines.³⁰ You now have 2,000 less IC/SM in comparison with the RRCP maximum model.

2,000 iron mines will produce 400,000 Iron.³¹ Presume you maximize all of your IC potential and raw resource potential to create Steel, like you would have under RRCP. The only modification from the last calculation is that you have 2,000 less IC/SM. Therefore:

BIP maximized economy = RRCP maximized economy with Yield at 400:

- 1) There are 2,000 less IC available for production in BIP. Notably, 400 less SM. We don't care about losing the 1,600 IC so much because the only way the IC affected production was that it supported the 400 SM conversion. Therefore, 400,000 RR are lost - which if converted, would equate to 13,333 Steel.³²
- 2) BIP produced 400,000 more Iron, which translates to 133,333 more Steel.

BIP wins. By 120,000 Steel. This proves the ***BIP Resource Maxim.*** I will save you the headache and just tell you that trading the 400 SM for the iron mines resulted in a net profit of 400,000 Iron; and if worked backwards, proves the ***BIP Resource Maxim.*** This reveals a bonus formula for those that may need it: ***the Resource Gain Formula:***

$$\begin{aligned}\text{Resource gain} &= (10 * \text{RR cost}^{33}) * (\text{SM scrapped}) \\ \text{Resource gain} &= (10 * 30) * (400) = 300 * 400 = 120,000\end{aligned}$$

My interns ran the same comparisons between the BIP and RRCP economies for start-up resources at different yields with the same results. The ***BIP Resource Conservation Maxim*** was proved each time.

Please keep in mind that we presume that the yields are favorable for BIP economy in the

²⁹ Multiply the ***Production Maximization constant*** of 5 to your target yield to determine how many mines you need to maximize production. $400 * 5 = 2000$.

³⁰ This is the most effective way to recover 2,000 installation's worth of CM. If you scrap all IC, you don't have enough IC to process some SM. If you scrap all SM, you have unused IC. As indicated in footnote 28, 4 IC support 1 SM so it makes sense to tear it down that way.

³¹ UYF: $\text{Production} = 2,000 \text{ mines} (400 \text{ yield} - 2000 \text{ mines} / 10) = 2,000 * (400 - 200) = 2,000 * 200 = 400,000$

³² $400 \text{ SM} * 1,000 = 400,000 \text{ RR} / 30 = 13,333 \text{ Steel}$.

³³ The resource cost for Steel, as derived from "Resource Flow" is 30 RR.

first place. This is not an issue for your homeworld. Trust us. However, there will be times when it does matter. The only time we need to choose economies is when a new world is conquered or colonized: the next section will cover this in painful detail. But for now, we have just proved.....

Cerdaii's Homeworld Set-Up Maxim: It is more efficient to construct a BIP economy at the start of your empire.

APPENDIX

Cerrdaii's Collected Maxims RRCP Economy

Refer to the three Maxim's presented regarding Steel. I have transformed Maxim's for the most common components into this table.

Component	Qty	IC	SM	RR	CM
Steel	1,000	132	30	30,000	81,000
Const Materials	1,000	408	90	90,000	249,000
Processed Radioact	1,000	132	30	30,000	81,000
Textiles	1,000	132	30	30,000	81,000
Timber	1,000	132	30	30,000	81,000
Rare Elements	1,000	40	10	10,000	25,000
Food Concentrates	1,000	216	40	4,000	128,000
Synthetic Materials	1,000	132	30	30,000	81,000
Electronics	1,000	408	90	90,000	249,000
Weapons	1,000	132	30	30,000	81,000

Component = Component you want to build

Quantity = number of components that will be produced provided the corresponding industries are built and available

IC = Industrial Complexes needed to build Qty of Component

SM= Stripmining complexes needed to build Qty of Component

RR= Raw Resources required to build Qty of Component

CM= Construction Materials required to build required SM's and IC's. Note: this is a one-time cost and only used to calculate when you want to reconstruct a RRCP streamline from scratch.

Simply multiply your needs and materials accordingly. Example, if you want to produce 10,000 Steel per turn, make certain you have 1,320 available IC's, 300 available stripmining complexes (if you want to replenish the Raw Resource consumption,) and 300,000 Raw Resources. If you are setting up the 10,000 Steel production for the first time, you will require 810,000 Construction Materials (again assuming you want to set up some stripmines to create the needed raw resources

I will present other Components and Maxims in future correspondence or by request. If you find this Appendix helpful, please email me at:

eternusiv@yahoo.com

End of article!!!!

Entertainment Science

	Weight	Integrity	Thrust/Item
Mk I Nuclear Engine - Poor	100	100	300
Mk II Nuclear Engine - Fair	100	100	500
Mk III Nuclear Engine - Adequate	100	100	1,000
Mk IV Nuclear Engine - Good	100	100	2,000
Mk V Nuclear Engine - Superior	100	100	4,000
Mk VI Nuclear Engine - Impressive	100	100	8,000
Mk I Fusion Engine - Adequate	100	80	1,000
Mk II Fusion Engine - Good	100	80	2,000
Mk III Fusion Engine - Superior	100	80	4,000
Mk IV Fusion Engine - Impressive	100	80	8,000
Mk V Fusion Engine - Excellent	100	80	???
Mk I Antimatter Engine - Impressive	100	60	8,000
Mk II Antimatter Engine - Excellent	100	60	16,000
Mk III Antimatter Engine - Outstanding	100	60	32,000

Classified

The cost of getting bigger just got smaller.

Concerned that Cloaking Technology will suddenly start working and catch you unprepared? You need Sensor Technology fast, and don't need to re-assign your research centers. Let your scientists keep working on what matters most and come to us for your electronic needs.

We can help you expand your empire, without opening yourself up to prying snoops!

The Creator's Kingdom of Slith

Empire 4698

Coming to a system near you!

Disclaimer

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SUBMISSION GUIDELINES

"The SNROTE Reader" is now accepting materials for its bimonthly printing.

Submission EMAIL: SNROTENEWS@yahoo.com

Distribution: PDF or Word through a link in the forums and/or by direct email

Formats accepted: Any and all. No reason to reject any contributions at this juncture, the newsletter can be any size.

Photos and artwork might be cropped for formatting issues.

Authorship: Please include how you want to be credited for your work. Feel free to use, board names, empire names, character names or real names...or even anonymous.

Deadline for Submissions: The day after turns are due. The next deadline will be December 15,

Publication Times: MST Thursday night/Friday mornings.

Categories:

1) News Reports. The equivalent of the AP Press for the newsletter will be the ISNA (InterStellar News Agency) Feel free to stay within the flavor of newsprint journalism for such submissions

2) Battle Reports. You can submit with, or without commentary. I might summarize the report in two sentences as a header, or better yet, use yours

3) Rumors. One or two-sentence blurbs. Have fun with it. List a source if you wish, otherwise, it will be listed as from "interstellar noise" through subspace communication.

4) Stories: Something short preferred. If you have something more epic, we could work out a way to chop it up over a few issues.

5) Artwork/Comics: this would be awesome. Anything at all would work.

6) Articles/Game Advice: Many of you already have material. Feel free to submit it all!

7) Ask Pete: I'd prefer to contact Pete and see if he could put together a few Q&As he gets from email on this subject. I'll call him next week and see how it works out best for him.

8) Interview with an Empire: I put together a stock of questions for an empire to answer. We have room for several of these a week, so don't be shy. Feel free to write your own Q&A.

9) Classified Ads: The Newsletter will have a few regular advertisers to add some flavor to the pages. Feel free to advertise your alliances, trade associations or local pirate

10) Propaganda: This can take on any form you see fit. Classified Ads are but one example.

11) Most Wanted: Nominate your local bully with a brief description of the infraction (battle-no details needed) Heck, even nominate yourself LOL Include systems, or not. The veracity of this section is of course, suspect, but I imagine there will be some half-truths submitted. If an empire denies a claim (from either end), I will insert [DENIED by] after each such entry. Each undenied claim will carry with it a reward of fake cash [yes! in Megacredits! LOL] Cash stakes go up depending on the nature of the claim.

12) The ANZ Pile: submit 'em and I'll post 'em. If you have an entire guide you want posted, I can write up a brief review on it and simply make it an appendix to the newsletter.

13) Advice Columnist Q&A Format: Any volunteers? Silly or over-the-top personalities encouraged. We could have several.

14) Stellar Claims: Hobknobs document is the best place to make such claims but I see no reason why to exclude them from the newsletter. I'll be sure to mention the location of the Galactic Directory each time somebody submits a claim to a system.

Categories are subject to expansion/retraction as participation dictates.

The newsletter will be as good as we make it, so let's see how the first few turn out. I won't be adding much more than a fluff item, and perhaps an article every once in a while, so the bulk of the newsletter is really all up to you. So, get your beaks, tentacles, digits, globs, legs, arms, claws or whatever to grab your writing instrument of choice and get to work! Thank you in advance to those who contribute.