CREDIT TO: khadz.
—All crossovers are canon.

Newton’s 3rd law:

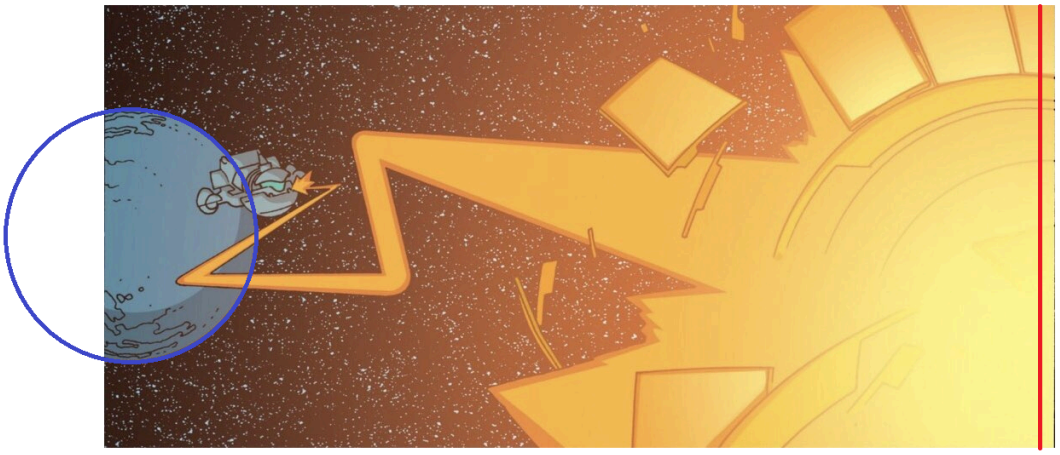
•In simple terms, Newton’s 3rd law postulates that if object A exerts a force on object B, object B exerts a force (equal in magnitude but opposite in direction) on object A. **Action = Reaction. ~** Therefore, all feats presented and calculated here would scale for the durability of said characters. Any character bullrushing or striking would also need to withstand the recoil of their own attack.

CoP ship destroys artificial satellite calc:


THE ROGNARR ARE VICIOUS, WE NEED TO BE CAREFUL. WHEN THE VILTRUMITES DISCOVERED THIS RACE OF MONSTERS, THEY SENT A FEW TEAMS HERE TO TRY AND DESTROY THEM-- TO DISASTROUS RESULTS. THESE THINGS ARE INDESTRUCTIBLE.
FINALLY, I CAME UP WITH THE IDEA OF USING A SOLAR DISK TO BLOCK THEIR SUN-- FREEZING THEM. IF THESE THINGS THAW OUT WHILE WE'RE HERE-- WE'RE IN TROUBLE.
WITH ALL THIS ICE-- HOW ARE WE GOING TO FIND THEM?
YOU'RE RIGHT.
NOLAN TO BRIDGE. WE'RE GOING TO NEED TO PREPARE A TEAM TO TRANSPORT THESE THINGS TO THE CARGO HOLD BEFORE THEY COMPLETELY THAW OUT. THE ONLY WAY WE'RE GOING TO FIND THEM IS BY REMOVING THE SOLAR DISK.
WE CAN HANDLE THAT ON OUR OWN, THANK YOU VERY MUCH.
DOWNLOAD, FIRE AT WILL.


NO!!
WHAT? WHAT IS IT?
MORONS!
THIS ICE WILL BE MELTED IN A MATTER OF MINUTES... WE NEEDED TO MOVE THE DISK--NOT COMPLETELY DESTROY IT!
WE'VE GOT TO WORK FAST!
THERE! WE NEED TO GET THAT ONE UP TO THE SHIP BEFORE IT COMPLETELY THAWS OUT!
WE'RE ONLY GOING TO GET ONE SHOT AT THIS!
C'MON!
KRAKK!
I'M TAKING THIS ONE TO THE SHIP! SEE IF YOU CAN FIND MORE. ONCE THEY THAW COMPLETELY--WE'RE FINISHED!
THE ROGNARR ARE TOO STRONG TO TRANSPORT.

•Assuming the Rognarr Planet is at least Earth-sized (which is fair to say the least, as the gravity on their planet is far stronger than on Earth):

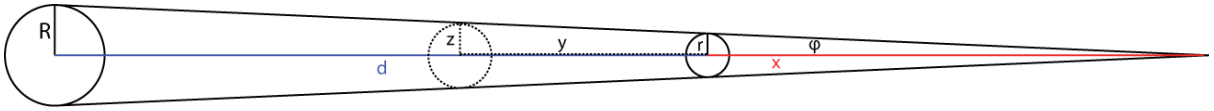


* Generic Planet = 298 / 12742 Kilometers
* Cutoff Panel = 523

12742 * 523/(298 * 2 * tan(70deg/2)) = 15968.5781455 kilometers

•The distance between Planet & Solar disk is 15968.5781455km.

Now, for obstruction:



•*R is the radius of the Sun/Star, r is the radius of the Planet, and d is the Planet to Sun distance. We need to find z (the size/radius of the object which will block all the light) and y the distance that object is from the Planet (which we have already). In order to do this, we also need to determine x which is the distance at which the umbra becomes a point. We can take advantage of the properties of similar triangles to write:*

$R/(d+x) = r/x.$

Therefore:

$x = rd/(R - r).$

•Substituting in the radius of the Sun, the Planet to Sun distance at perihelion and the radius of the Planet (using Earth), we get:

x = 6371×149600000/(696340-6371).

x = 1381368.72816km.

•In order to obstruct all sunlight from the planet, the object needs to have a radius of:

z = (6371(y+1381368.72816))/1381368.72816 = (6371(15968.5781455+1381368.72816))/1381368.72816.

z = 6444.64855544km (radius of the Solar Disk).

Volume of sphere = $4/3\pi r^3$ = $4/3\times\pi\times6444.64855544^3$ = 1.12e+12km^3 (volume of the Solar Disk).

Solar panels are almost entirely made of Silicon, so we will use that.

Density of Silicon = 2330000000000 kg/km^3.

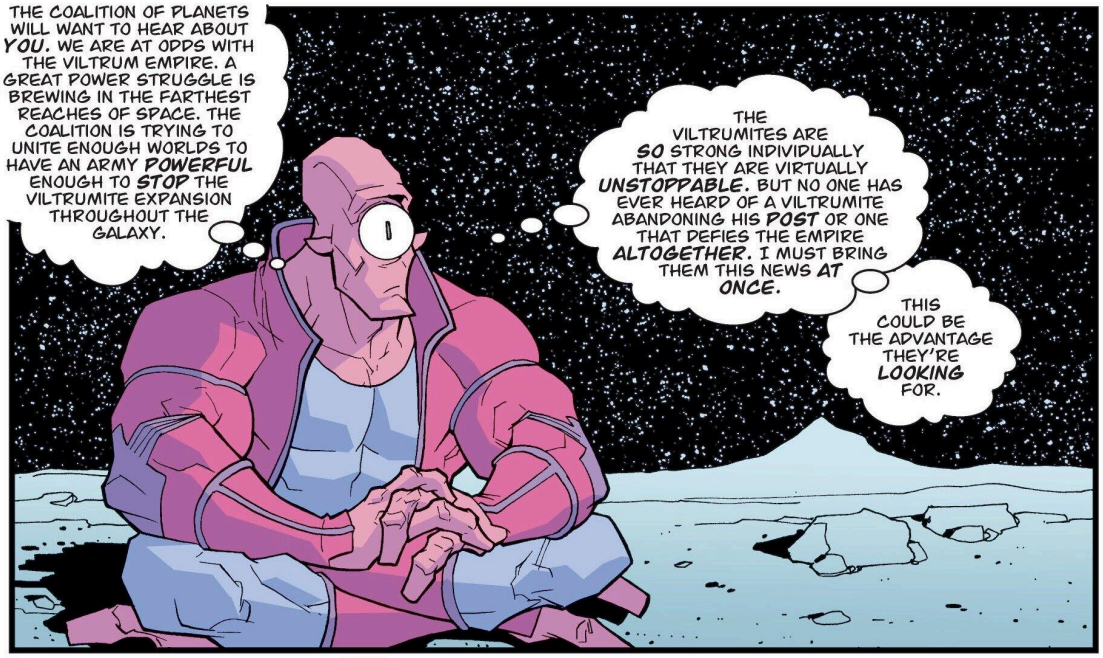
Mass: *ρV = 2330000000000×1.12e+12 = 2.6096e+24kg.*

GBE formula [GBE applies to any object, aritifical or not, with a massive size] — *$3GM^2/5r$:*

= 3×6.6742867e-11×$2.6096e+24^2$/(5×6444648.55544) = ***4.2316014e+31J//10.114 Zettatons of TNT.***

Final Tally, assuming 3 Viltrumites did equal work: AP - 10.114/3 = 3.37 Zettatons of TNT (Small Planet Level) FOR EACH.

•As clearly established, in-universe, Viltrumites are "virtually unstoppable", even individually. It's also said that, to combat the viltrumite empire, the whole of the CoP has to unite with other planets and their armies to even stand a chance. A single Viltrumite possibly joining their side was seen as massive and could be a turning point:



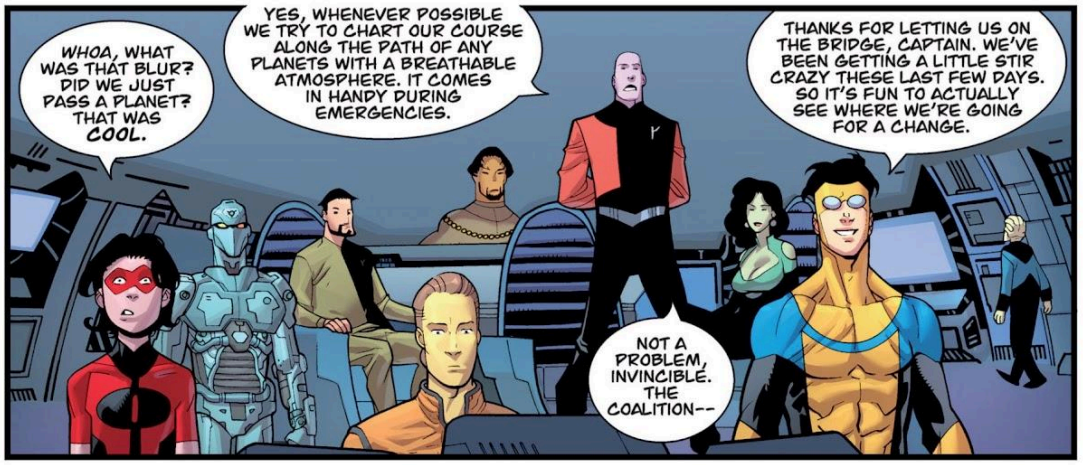
•This means that no weapon of the CoP can put down a single Viltrumite; this is further reaffirmed when Omni-Man and Allen had to collect specific weaknesses and beings strong enough to do anything to Viltrumites, i.e. Klaxus plants, Rognarrs, Battle Beast, the perfected Scourge virus, etc. It takes place in the same issue itself. Thaedus had a SPECIAL list of things that could harm Viltrumites, and sent the duo on a secret mission to retrieve such things:



Random travel ships that the CoP have should NOT have any weapons powerful enough to harm Viltrumites in any way.

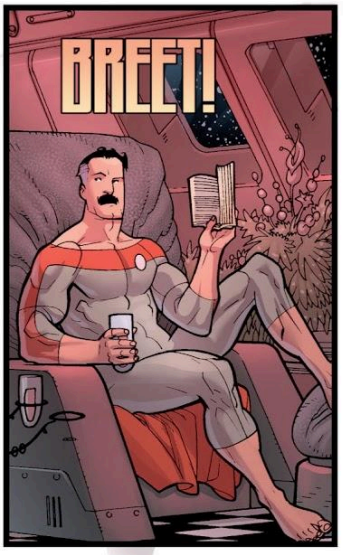
•Also to be noted; Conquest destroys the same ship which withstood the recoil of the blast coming out of it:




WHOA, WHAT WAS THAT BLUR? DID WE JUST PASS A PLANET? THAT WAS COOL.
YES, WHENEVER POSSIBLE WE TRY TO CHART OUR COURSE ALONG THE PATH OF ANY PLANETS WITH A BREATHABLE ATMOSPHERE. IT COMES IN HANDY DURING EMERGENCIES.
THANKS FOR LETTING US ON THE BRIDGE, CAPTAIN. WE'VE BEEN GETTING A LITTLE STIR CRAZY THESE LAST FEW DAYS. SO IT'S FUN TO ACTUALLY SEE WHERE WE'RE GOING FOR A CHANGE.
NOT A PROBLEM, INVINCIBLE. THE COALITION--


WHAT IS IT? WHY HAVE WE GONE TO RED ALERT?
BREET! BREET!
WE ARE DETECTING AN OBJECT THAT IS ON A DIRECT COLLISION COURSE WITH THE SHIP. OUR SPEED WAS ADJUSTED AND THE OBJECT COMPENSATED TO MAINTAIN COURSE.
CURRENTLY TRYING TO GET A READING ON IT, SIR.

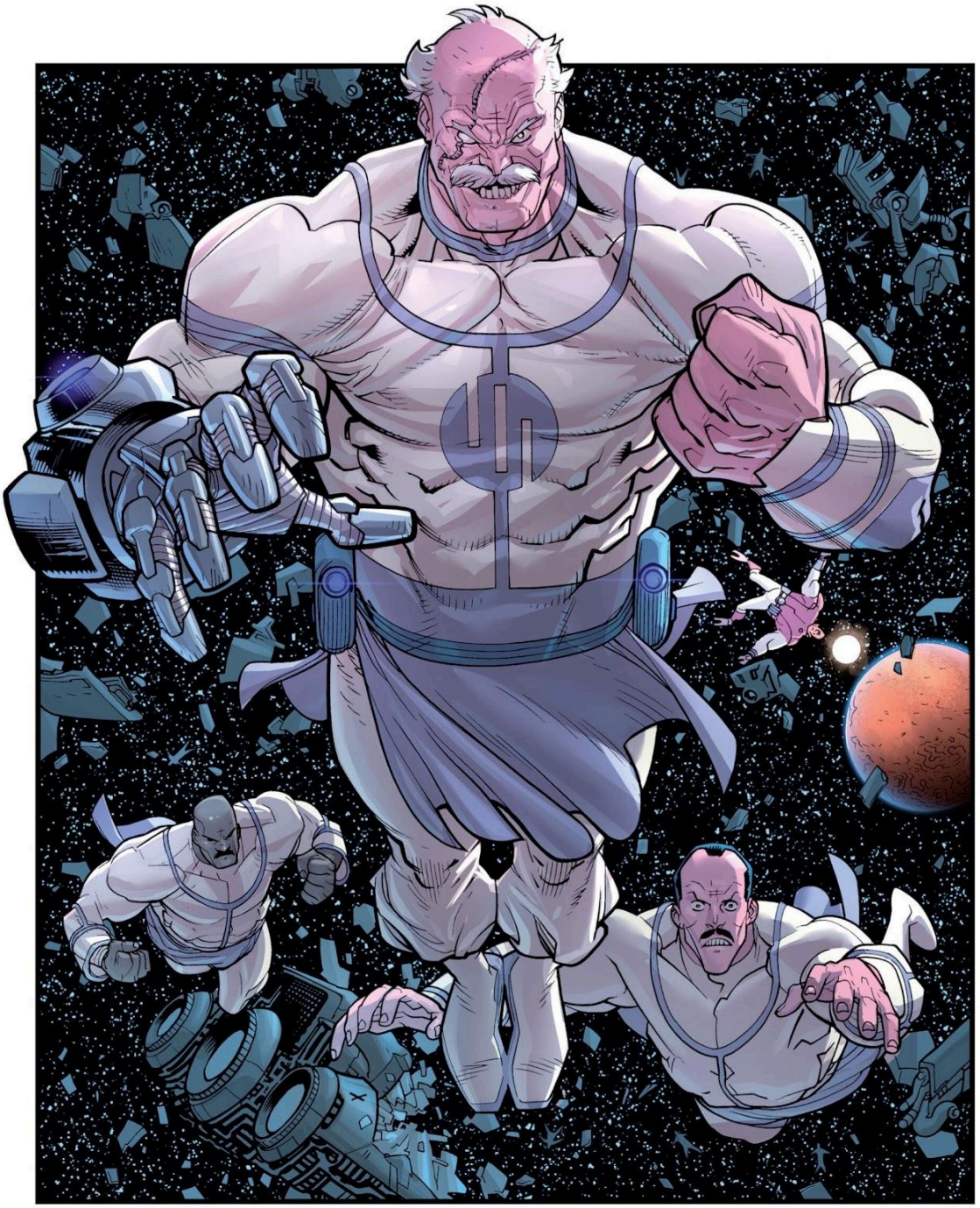

BREET!

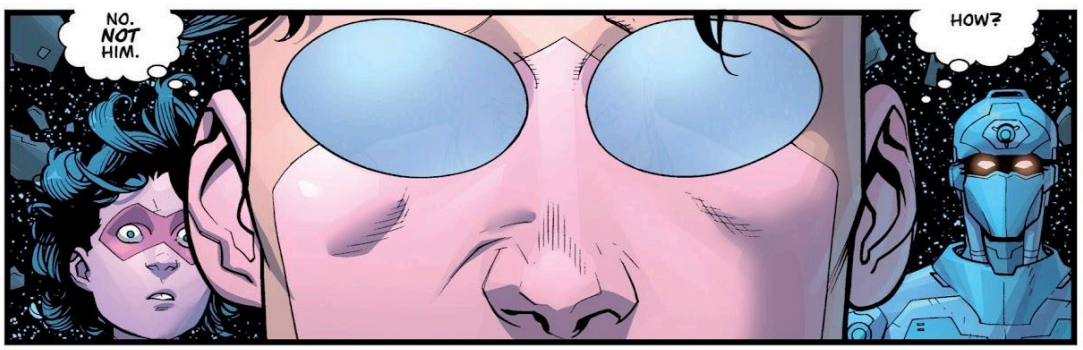

BREET!


IT'S MOVING IN FAR TOO FAST. WE CAN'T GET A CLEAR READING ON IT.
BRACE FOR IMPACT IN THREE, TWO--




WHAT JUST HAPPENED?!
ARE WE MOVING FASTER? WHAT'S GOING ON?
IN THE EVENT OF IRREPARABLE DAMAGE TO THE SHIP, THE BRIDGE AUTOMATICALLY DETACHES AND RETURNS TO BASE.
WHATEVER THAT WAS--- IT'S DESTROYED THE REST OF THE SHIP.
MY DAD IS BACK THERE!
POINT ME TO THE NEAREST AIRLOCK---OR I'M MAKING MY OWN EXIT. UNDERSTAND?!
WHAT WAS IT?
JUST STAY ALERT--LOOK FOR DAD AND ALLEN.




NO. NOT HIM.
HOW?

*It’s the exact same ship and captain/crew.

Invincible no-sells a super-nuke calc:


WE DON'T NEED THE WHOLE WORLD--THE ENTIRE COMMUNICATIONS INFRASTRUCTURE OF THIS PLANET WILL BE ENOUGH.
WE'RE GOING TO LAUNCH ONE OF YOUR MISSILES INTO SPACE--TO DETONATE IN THE SUN. THE RESULTING SOLAR FLARE WILL BE THE LARGEST IN RECORDED HISTORY.
ALL SATELLITE BASED FORMS OF COMMUNICATION WILL BE OFFLINE--INDEFINITELY.


OR RATHER--THEY WILL BE UNTIL WE BRING THEM BACK ONLINE--UNDER OUR CONTROL.
ENTIRE NATIONS WILL HAVE TO PAY US FOR THE RIGHT TO CONVERSE. THOSE WHO OPPOSE US CAN BE MANIPULATED INTO WAR.
WE WON'T "RULE" THE WORLD... BUT WE WILL CONTROL IT.


THIS IS PROBABLY GOING TO HURT.



•Inverse square law states that the intensity of a source is inversely proportional to square of the distance away from the source, i.e. a source gets weaker in intensity on a body the further the body gets away from it.

Yield : 9.56 petatons.

Distance Invincible was from the nuke : Around 0.5m.

Surface Area of the explosion at point in which it hits Invincible: $4\pi r^2 = 4\times\pi\times0.5^2 =$ 3.14159265359m².

Intensity: Yield/Area = 9.56/3.14159265359 = 3.04304251192 Petatons/m².

Body surface area: $\sqrt{(height\times weight/3600)}$ = 2m².

Cross-sectional area ≈ Body surface area/2 = 1m².

Total yield energy taken by character = Intensity×Cross-sectional area = ***3.04304251192 Petatons of TNT (Multi-Continental level).***

FOR FORCE:

P: 2I/c.

•P is pressure in Pascals//N/m².
•I is intensity. = 3.04304251192 Petatons/m² = 1.273208982e+25J/m².
•c is the speed of light. = 299792458m/s.

= (2×1.273208982e+25)/299792458 = 8.493936e+16Pa.

Force: PA = 8.493936e+16×1 = *8.493936e+16N//**8.66 trillion tons of force**.*

Amazon Omni-Man tanks an orbital laser calc:

•Scene.







•Pine: 15px | 45m.
•Diameter: 1800px | 5400m.
•Height: 42px | 126m.
Cylinder Volume: Area×Height = (π×2700²)×126 = 2885678516.03m³ (2885678516028369cm³).
Energy of rock fragmentation: 8J/cm³.
Energy = 2885678516028369×8 = *2.3085428e+16J//**5.52 Megatons of TNT (Small City level).***

The beam continuously went on for 3 seconds to make as much damage as it did in the calc above, Omni-Man was exposed to the beam for 19 seconds until it was turned off, so…

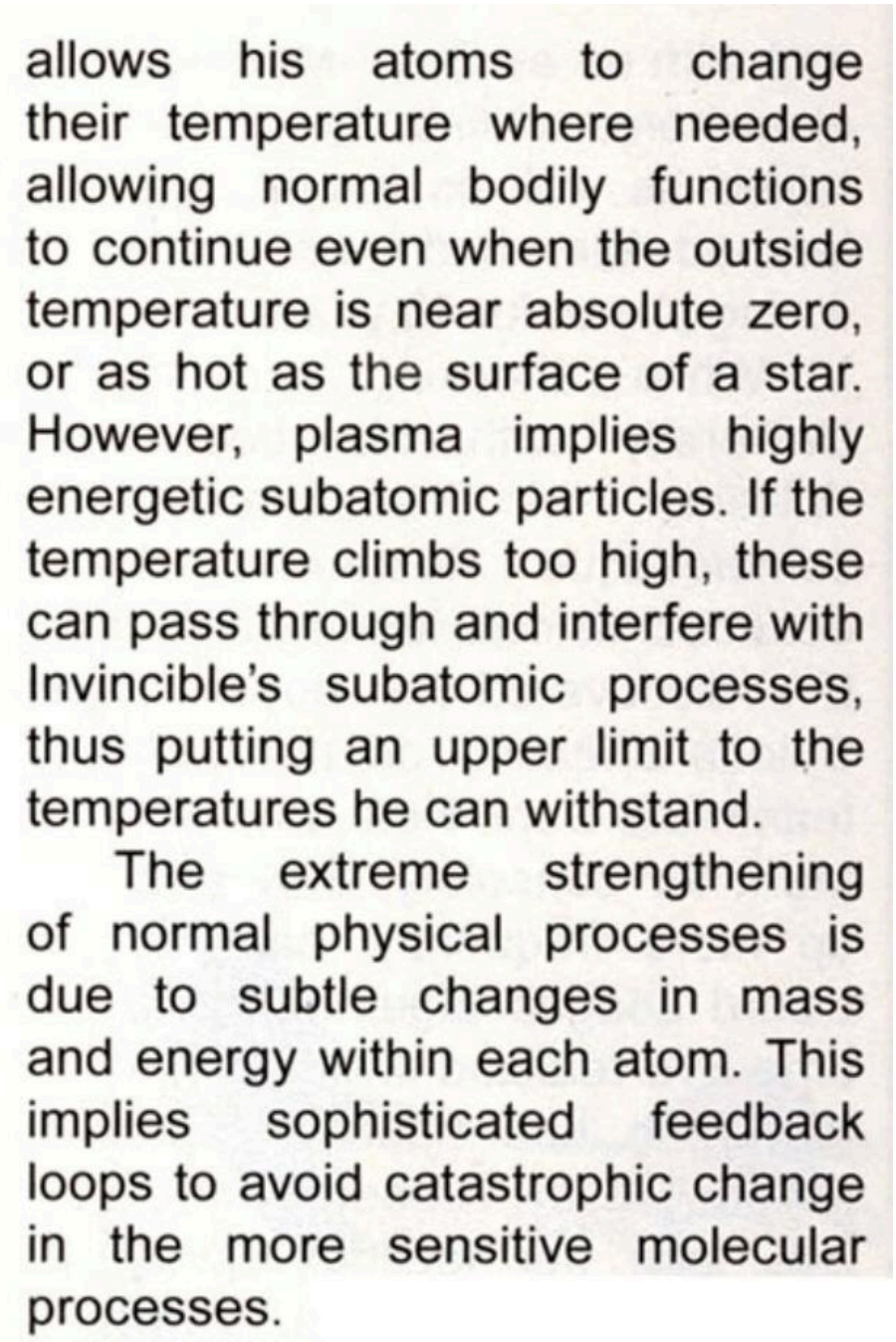
(5.5/3)×19 = ***34.83 Megatons of TNT (City level).***

•Omni-Man later no-diffs and no-sells the beam, effortlessly overpowering it.

•Result above is only for the DC of the beam, the AP should be much higher considering it's a concentrated beam which dug him deep into the Earth, as we see the hole it made. The beam also cost $400 billion, so it wouldn't make sense as to why the yield would be lower than a lot of nukes that were manufactured much cheaper.

Viltrumite Weaknesses:

Heat:



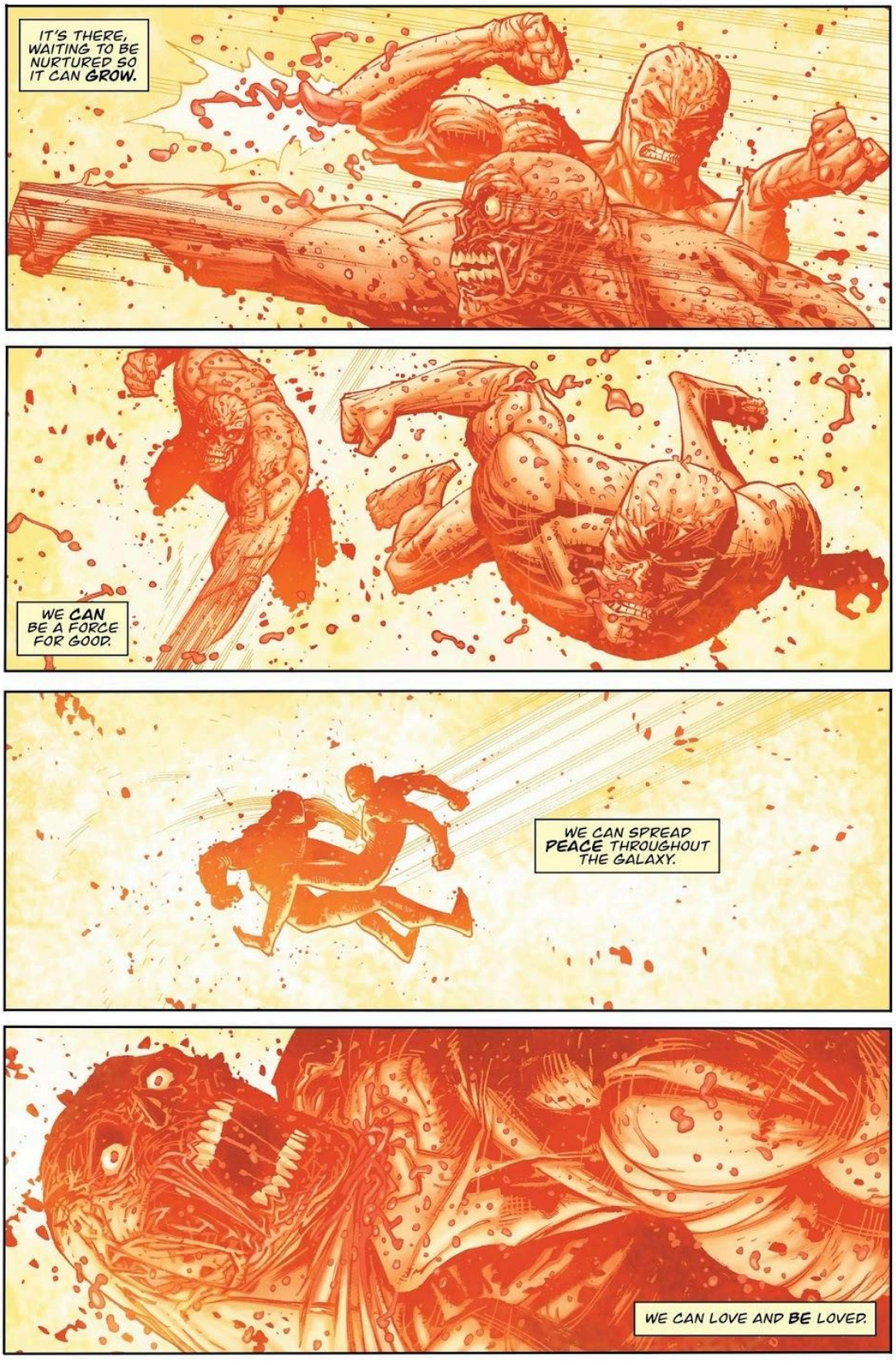
allows his atoms to change their temperature where needed, allowing normal bodily functions to continue even when the outside temperature is near absolute zero, or as hot as the surface of a star. However, plasma implies highly energetic subatomic particles. If the temperature climbs too high, these can pass through and interfere with Invincible's subatomic processes, thus putting an upper limit to the temperatures he can withstand.

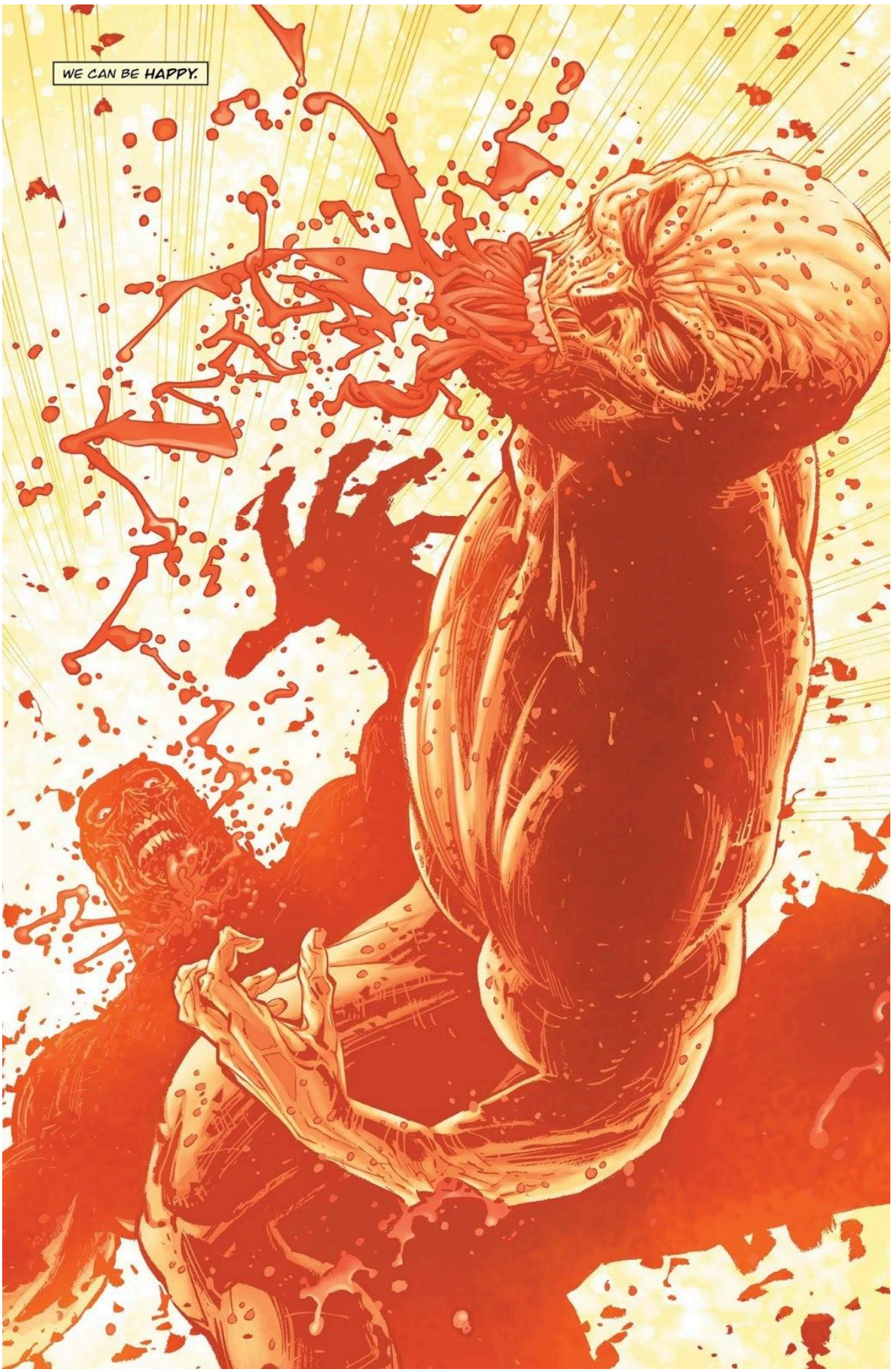
The extreme strengthening of normal physical processes is due to subtle changes in mass and energy within each atom. This implies sophisticated feedback loops to avoid catastrophic change in the more sensitive molecular processes.

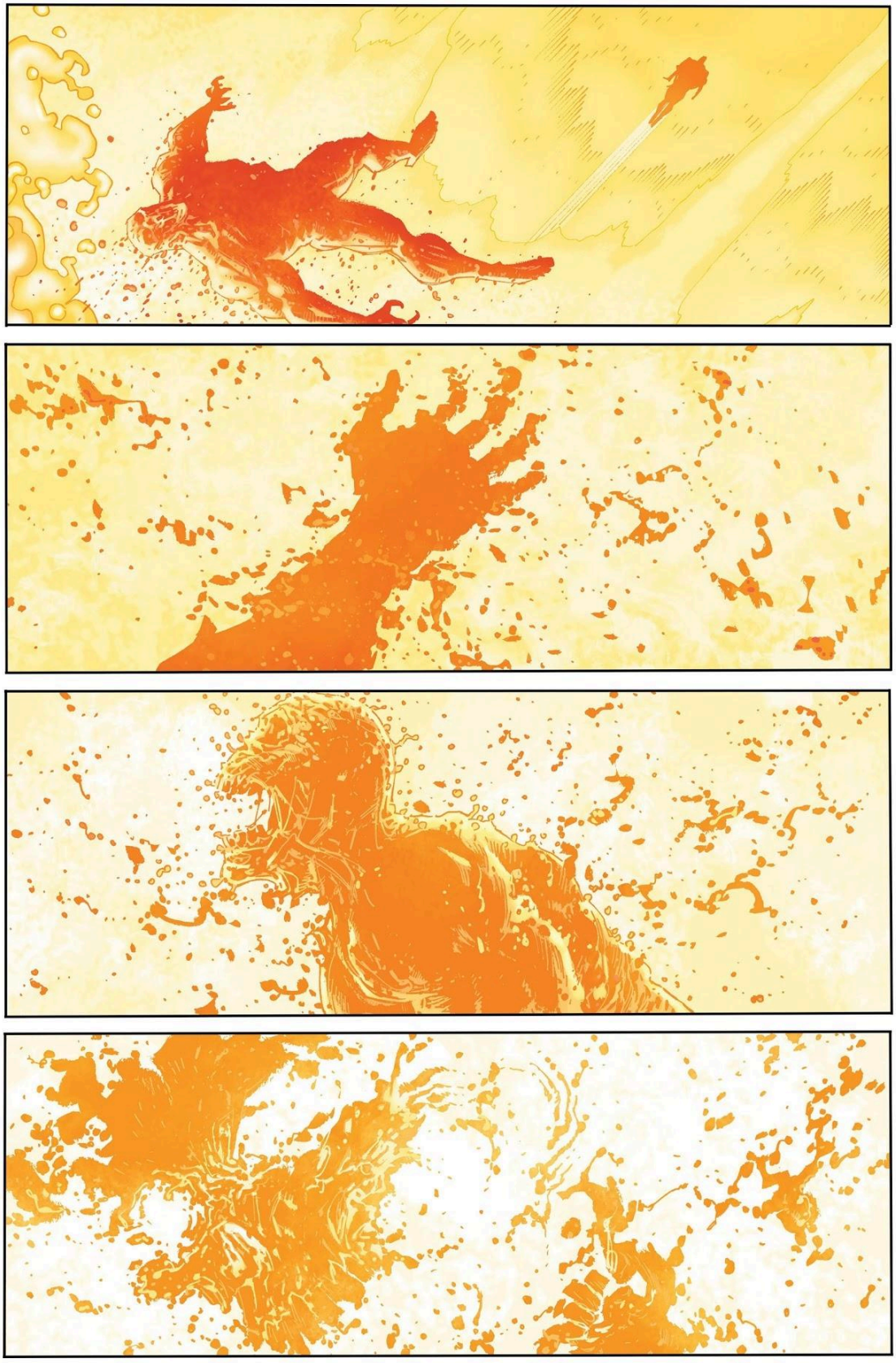
•Viltrumites have a specific weakness to prolonged exposures to extreme temperatures, due to plasma making their smart atoms too energetic, hence normal bodily functions, subatomic processes and biological feedback loops are interfered with.

•We see Thragg and Invincible extremely burnt up from the Sun, due to prolonged exposure (an entire issue showing their fight on the corona, surface and inside of the Sun):



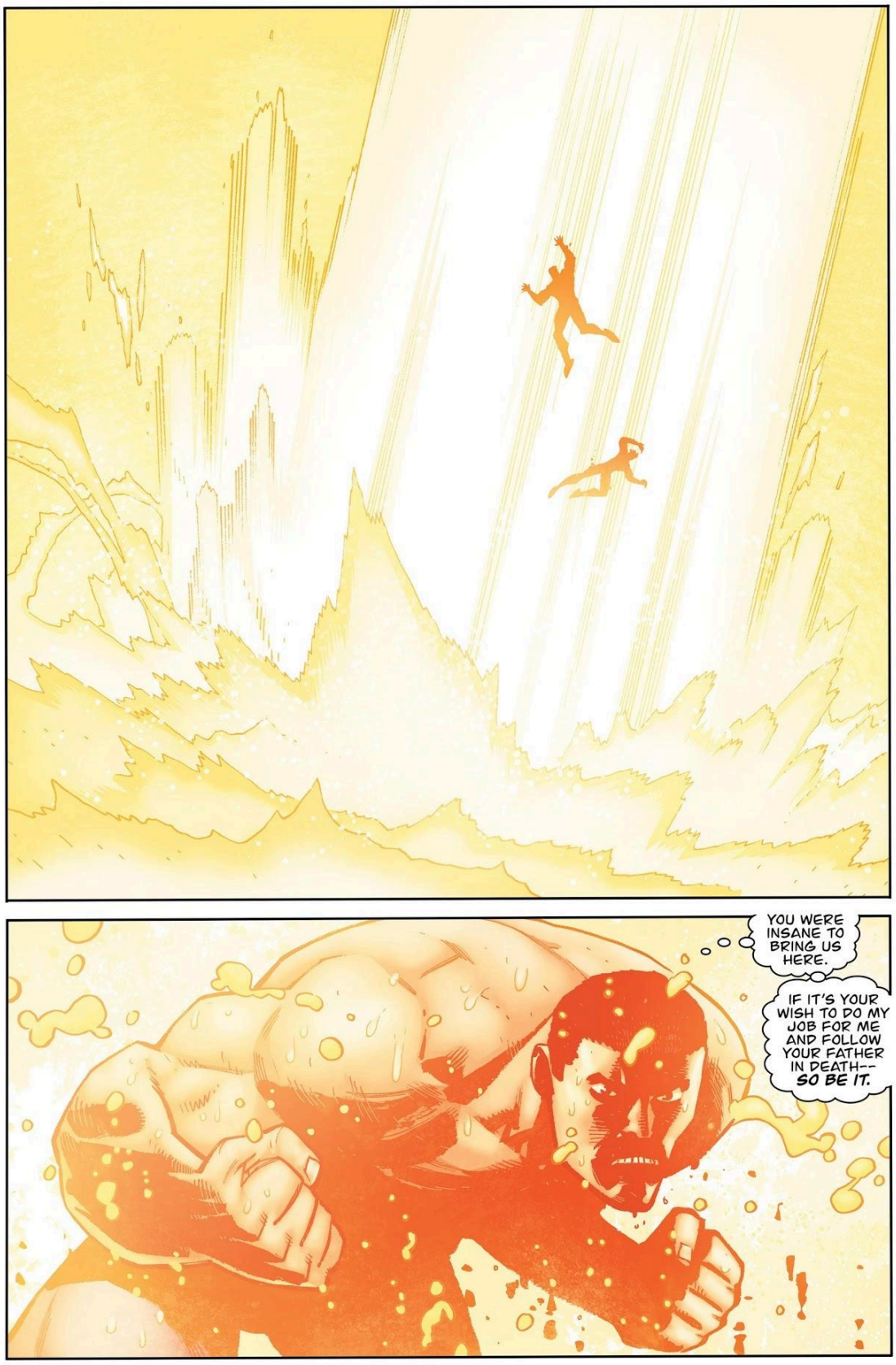

IT'S THERE, WAITING TO BE NURTURED SO IT CAN GROW.
WE CAN BE A FORCE FOR GOOD.
WE CAN SPREAD PEACE THROUGHOUT THE GALAXY.
WE CAN LOVE AND BE LOVED.


WE CAN BE HAPPY.

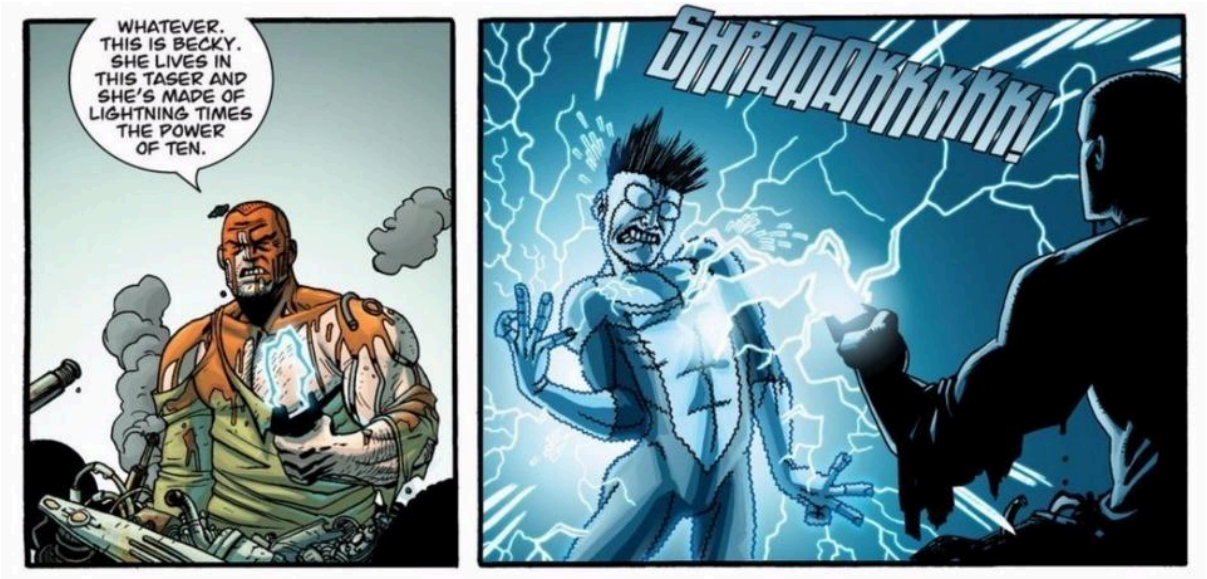


—In short-burst exposures, Viltrumites can no-sell temperatures hotter than the Sun:

•Invincible and Thragg no-sell solar flares, which are comparable/relative to the temperature at the Sun's core:


YOU WERE INSANE TO BRING US HERE.
IF IT'S YOUR WISH TO DO MY JOB FOR ME AND FOLLOW YOUR FATHER IN DEATH-- SO BE IT.

•Invincible no-sells a taser 10 times more powerful than lightning (lightning alone is 5 times hotter than the Sun):





•As aforementioned, Invincible can no-sell a super-nuke which detonates at several Petatons of TNT:



Yield : 9.56 petatons//3.9999e+25J.

Energy radiated (E): σϵAT⁴ —> T = ∜(E/σϵA) = ***122413152°C (using this calculator)~Around 8 times hotter than the Sun's core.***

Specific sound-wave frequencies:

•Viltrumites aren't simply vulnerable to loud sounds. Their weakness is that of a specific frequency/pitch of sound which disrupts the equilibrium in their inner ear; this is far different to loudness/amplitude/acoustic pressure:

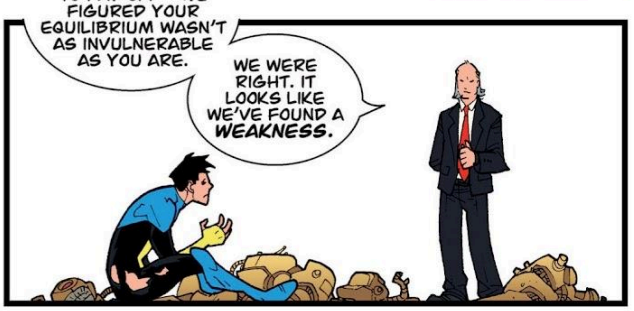

ARRRRGH!
REBOOTING. WHITE ROOM SUBTERFUGE RESTORED IN 3... 2... 1...


IT DOESN'T HAVE TO BE THIS WAY, MARK. THE ONLY THING I ASK IS THAT YOU BE REASONABLE, THINK THIS OVER.
GIVE ME A CHANCE TO CONVINCE YOU THAT I'M RIGHT. EVERYTHING I'VE DONE FOR YOU-- YOUR FAMILY, ALL THE TIME WE'VE WORKED TOGETHER...
I THINK YOU AT LEAST OWE ME THAT MUCH.

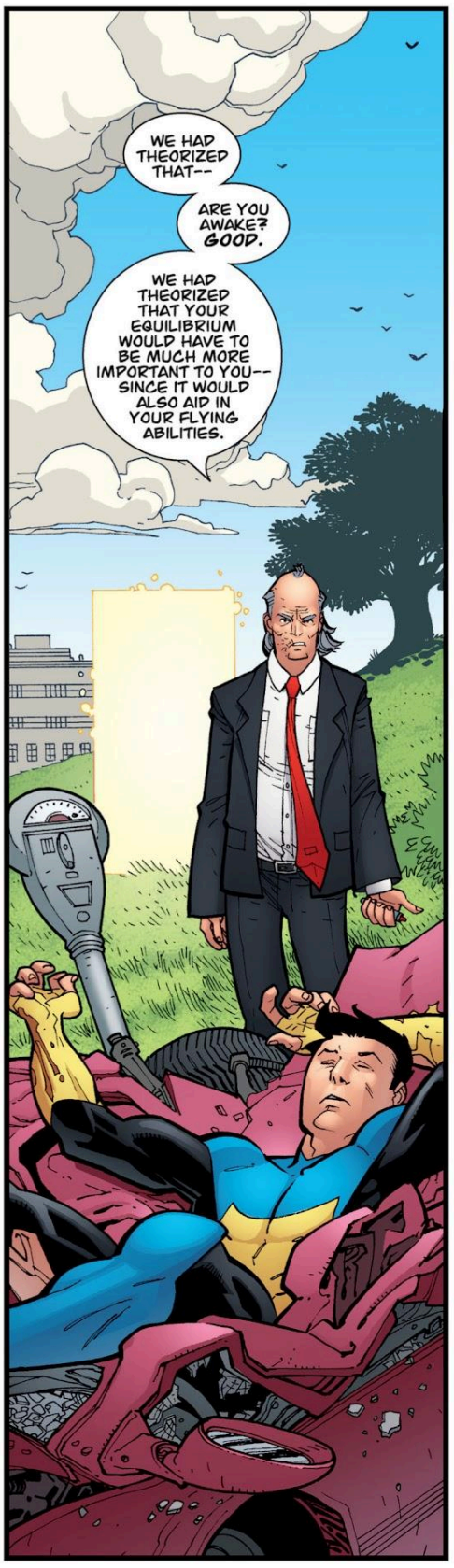

WHAT DID--


WHAT DID YOU DO TO ME?


WHEN WE FOUND YOU-- AFTER YOUR FATHER HAD LEFT YOU FOR DEAD, AFTER HE HAD THREATENED TO TAKE OVER THE WORLD-- DO YOU REALLY THINK WE'D TRUST YOU SO BLINDLY?
THE COMMUNICATOR WE IMBEDDED IN YOUR EAR ISN'T ALONE IN THERE.


WE GAMBLED, AND IT SEEMED TO PAY OFF--WE FIGURED YOUR EQUILIBRIUM WASN'T AS INVULNERABLE AS YOU ARE.
WE WERE RIGHT. IT LOOKS LIKE WE'VE FOUND A WEAKNESS.

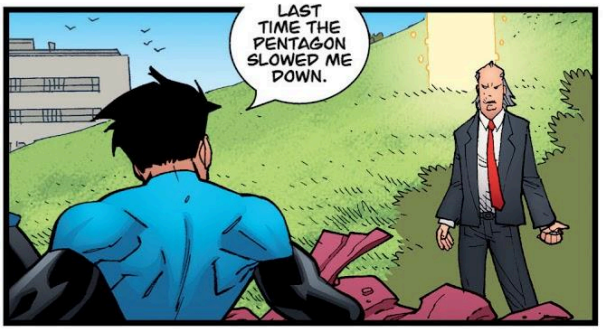

YOU PUT A WEAPON IN ME?
AFTER WHAT YOUR FATHER HAD JUST TRIED TO DO? YES. OF COURSE WE DID.
YOU PUT A WEAPON IN ME!!
YEAAGGH!!
MARK, YOU NEED TO CALM DOWN. AND BEFORE YOU GET THE URGE TO CRUSH MY HAND--DESTROYING THIS TRANSMITTER, JUST KNOW, IF IT'S DAMAGED, THE PULSE IN YOUR EAR GOES INTO A PERMANENT LOOP.
IT COULD KILL YOU.
WHAT DO YOU--THINK THE RANGE IS ON THAT THING?
RANGE? WHAT DO YOU--?
VOOSH!!

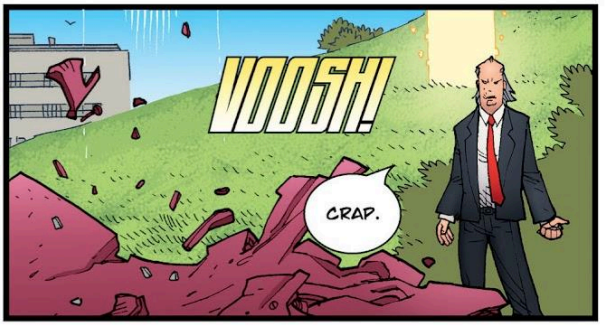

WE HAD THEORIZED THAT--
ARE YOU AWAKE? GOOD.
WE HAD THEORIZED THAT YOUR EQUILIBRIUM WOULD HAVE TO BE MUCH MORE IMPORTANT TO YOU--SINCE IT WOULD ALSO AID IN YOUR FLYING ABILITIES.


IN THEORY, YOU WOULD BE MUCH MORE SUSCEPTIBLE TO THIS FORM OF ATTACK THAN A NORMAL HUMAN WOULD.
THAT SEEMS TO BE THE CASE.


UNGH.


OH, AND TO ANSWER YOUR QUESTION, THE RANGE ISN'T ANYTHING GREAT--BUT IT'S ENOUGH.


LAST TIME THE PENTAGON SLOWED ME DOWN.


VOOSH!
CRAP.

•Robot later stops Cecil's transmission (in Invincible's earpiece) by finding and blocking the specific frequency:



•Robot states that this frequency is inaudible:



•The frequency is high:


WHILE I'VE BEEN ABLE TO INCREASE THE STRENGTH OF THIS SUIT, I KNEW IT WOULD BE ***IMPOSSIBLE*** TO CONSTRUCT ARMOR YOU COULDN'T DESTROY.
I FASHIONED THIS ARMOR FROM A VOLCANIC TEMPERED TITANIUM ALLOY I CREATED, WHICH I BELIEVE TO NOW BE THE STRONGEST METAL ON EARTH. BUT I KNEW THAT WOULDN'T BE ENOUGH...
SO I FASHIONED ALL THE PANELS TO THE EXACT ANGLES NEEDED TO PRODUCE A HIGH-PITCHED TONE UPON IMPACT THAT CAN BE DEADLY TO VILTRUMITES.
IF YOU HIT ME HARD ENOUGH -- IT COULD KILL YOU.

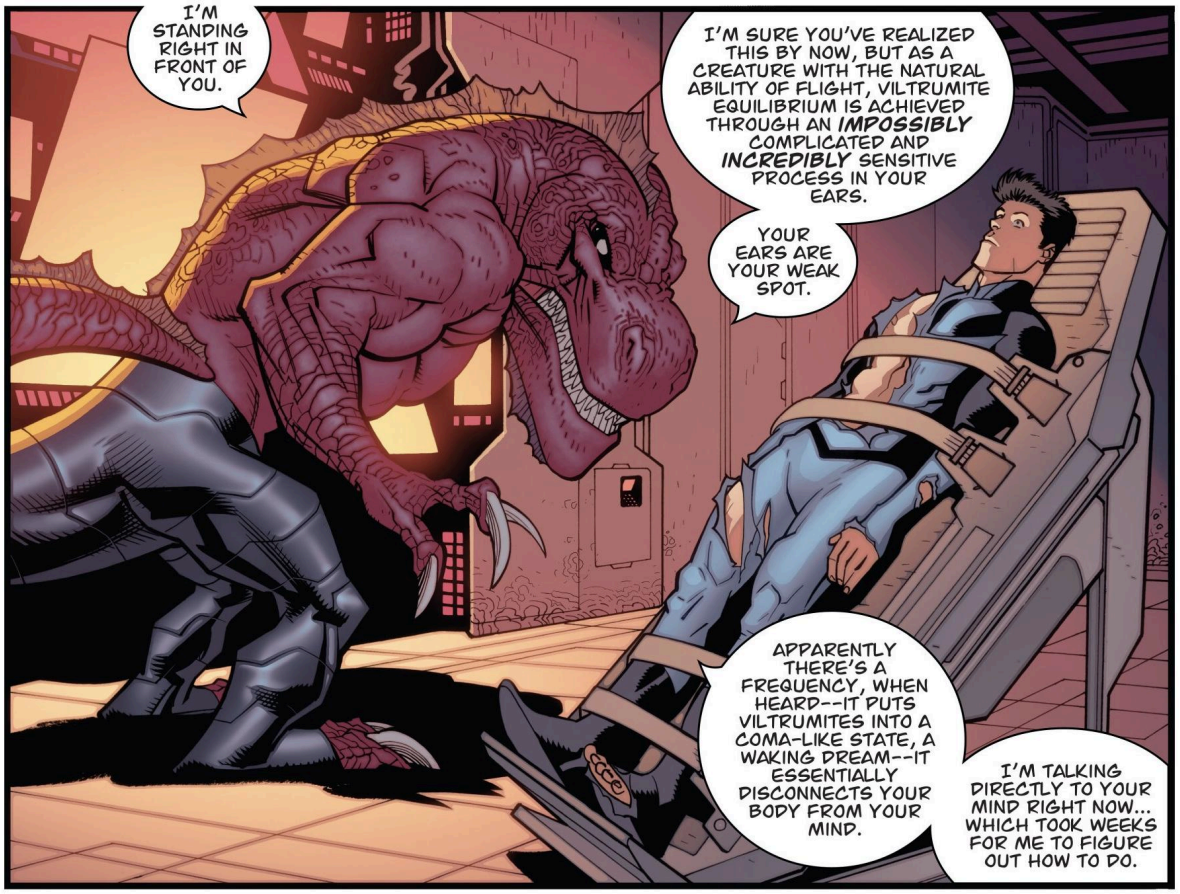
TWOMMM!


OKAY, SEE FOR YOURSELF IF YOU DON'T BELIEVE ME.


=NNNGG.=


WHY ARE YOU DOING THIS, REX?!
WHY?!

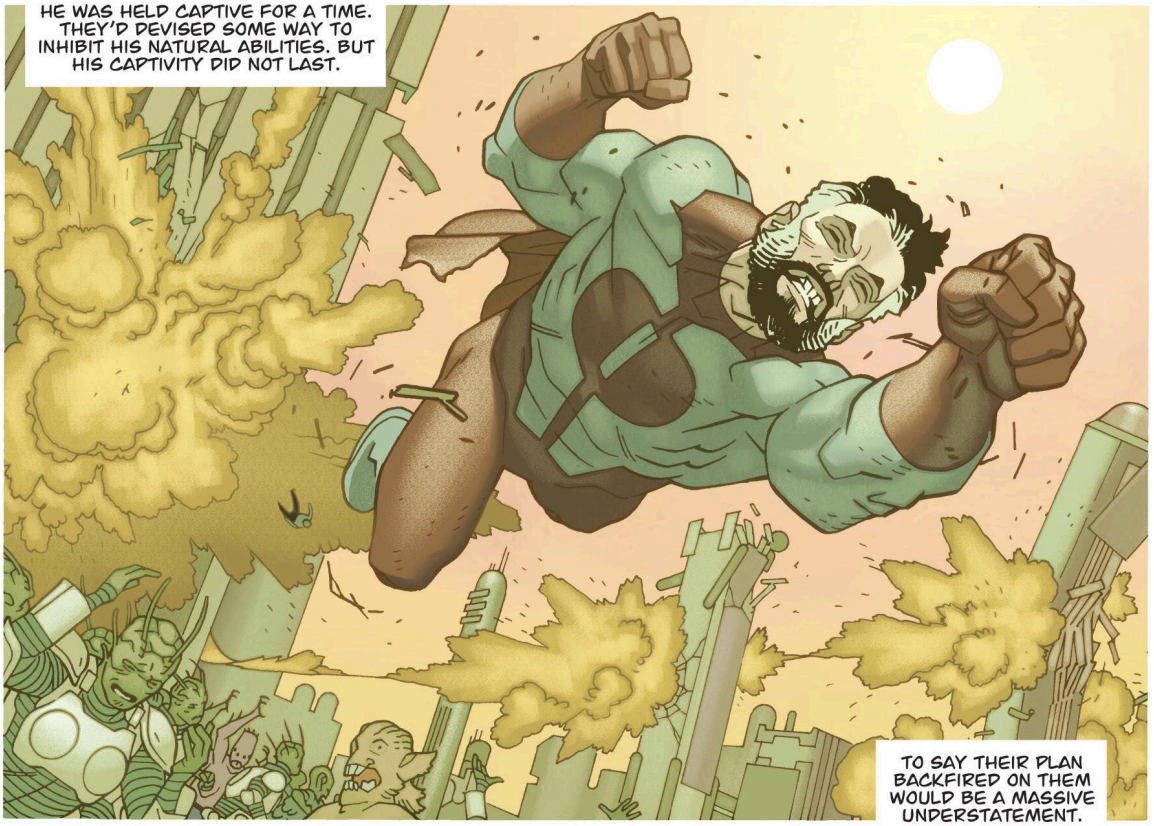
•Another frequency can even simply paralyse them, rather than physically hurt them:



•The flaxans, who seemingly utilised the inner-ear weakness, depowered Omni-Man entirely:


HUH?


NO, ACTUALLY IN THE TIME IT TOOK US TO LEAVE THE BATTLE SITE IN SAUDI ARABIA AND SAVE THOSE PEOPLE AT THE MALL THEY DEVISED A WAY TO TRACK US, AND BUILT A DEVICE TO DAMPEN OUR POWERS.
SO, AS SOON AS THEY PUT THAT THING ON MY HEAD, I WAS POWERLESS... THAT'S HOW THEY PULLED ME IN THE PORTAL SO EASILY.

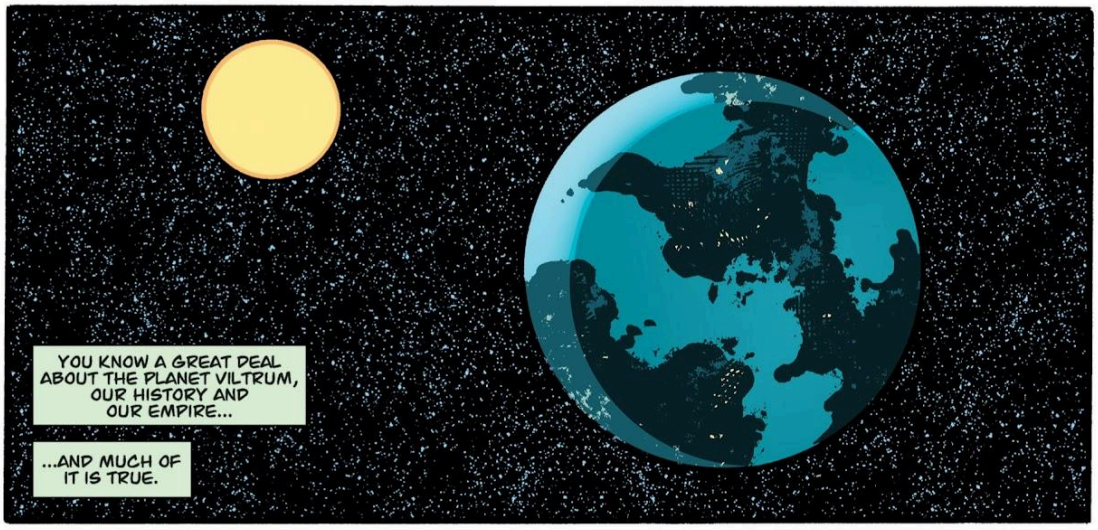


•Kirkman confirms the Viltrumite equilibrium weakness isn't any more heightened to them than it is any usual bipedal species:

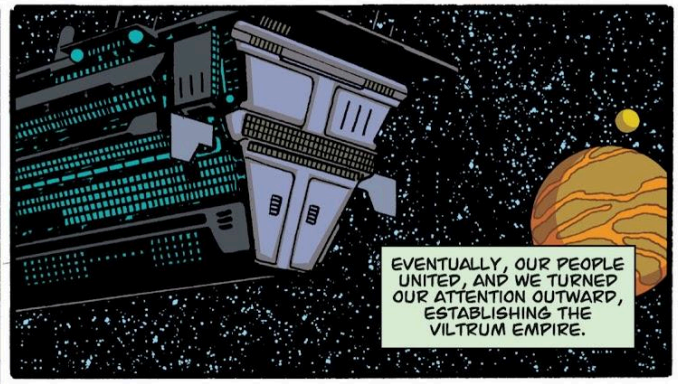
> 4. The equilibrium. This is the real reason we write you today. not a single person has mentioned this most beautiful of weaknesses that all Viltrumites share. Cecil utilized this weakness in issue 50 and it was only because of Robot's genius that Invincible escaped. The true beauty of this weakness is that the more powerful the viltrumite, the
>
> weaker his equilibrium is!
>
> Anyway, we're sorry for our rant, we really enjoy the book and look forward to more of the same slapping around and such.
>
> Sincerely, Moses and Abram Goren.
>
> **Robert, got two cents on the equilibrium?**
>
> ***That is a weakness, not more heightened than any other race--it's just a weakness that applies to most organisms (bipedal at least) and it also applies to Viltrumites. I don't believe I ever said their weakness increases with their strength, did I? DID I?!***

Scourge virus:

- ***The scourge virus is unique to Viltrumite DNA; it killed nearly the entire population of Viltrum - the ones who survived it were left with permanent scarring (and before that, with severely depleted physical stats for a short while), i.e. Conquest.***

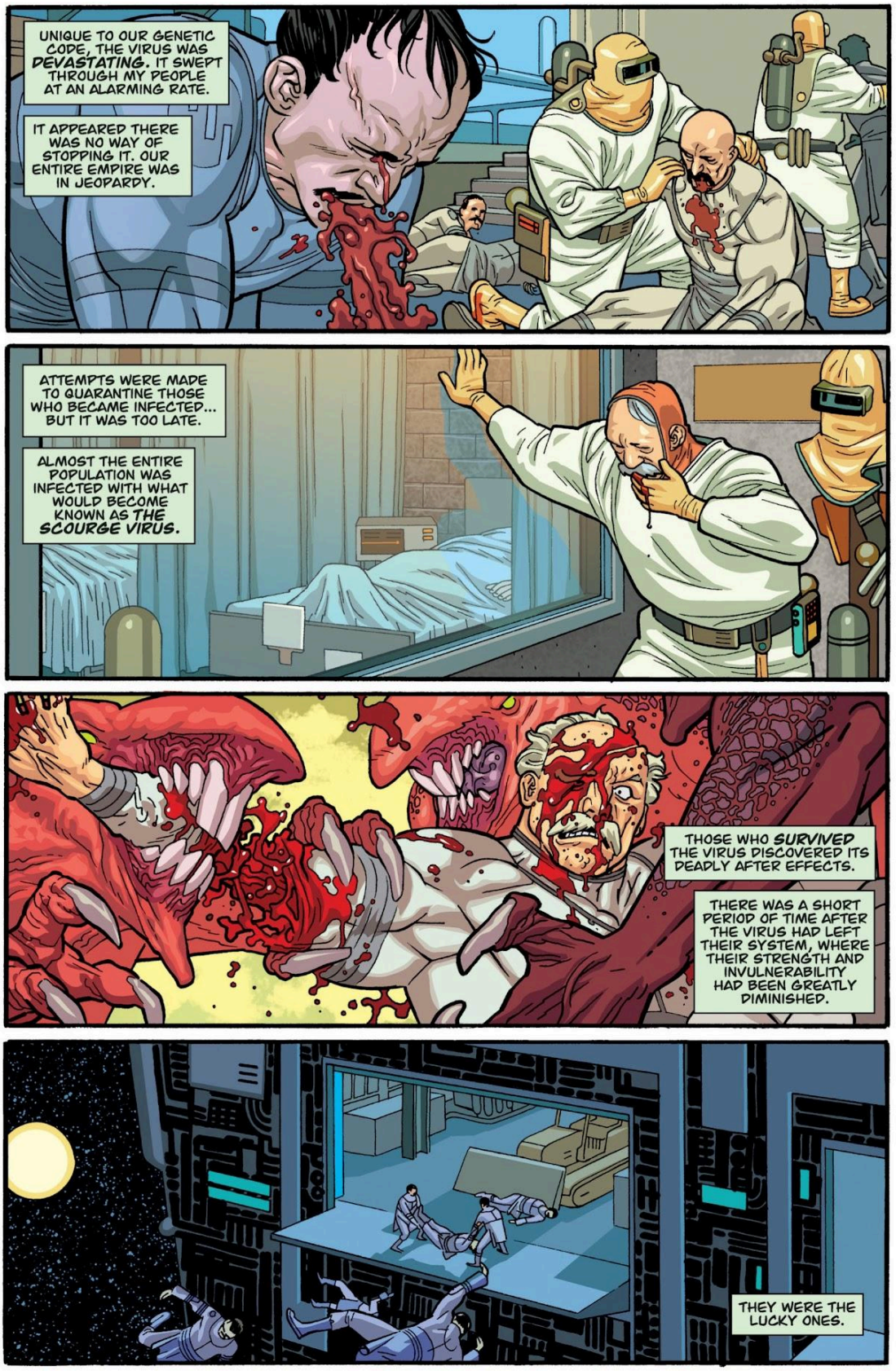

YOU KNOW A GREAT DEAL ABOUT THE PLANET VILTRUM, OUR HISTORY AND OUR EMPIRE...
...AND MUCH OF IT IS TRUE.

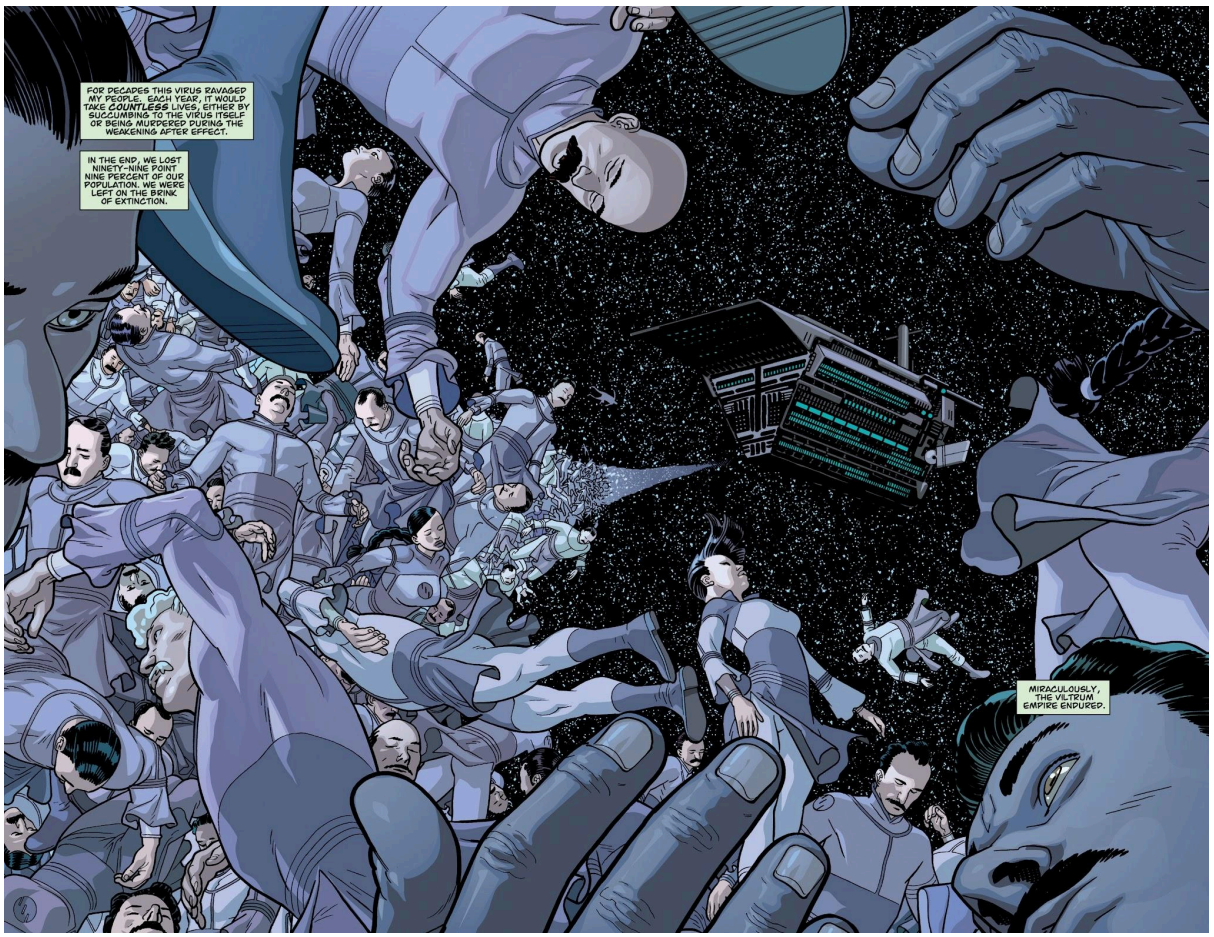

WE WERE A VIOLENT RACE WHO VALUED STRENGTH ABOVE ALL ELSE.
TO RID OURSELVES OF ANY WEAKNESS WE SLAUGHTERED EACH OTHER UNTIL WE WERE BRED INTO THE VILTRUMITES YOU KNOW TODAY.


EVENTUALLY, OUR PEOPLE UNITED, AND WE TURNED OUR ATTENTION OUTWARD, ESTABLISHING THE VILTRUM EMPIRE.


AN EMPIRE THAT CONTINUED TO EXPAND AT AN ASTOUNDING RATE FOR NEARLY ONE-THOUSAND YEARS.


UNTIL OUR ENEMIES MADE A WEAPON CAPABLE OF HURTING US.
THEY MADE A VIRUS.


UNIQUE TO OUR GENETIC CODE, THE VIRUS WAS DEVASTATING. IT SWEPT THROUGH MY PEOPLE AT AN ALARMING RATE.
IT APPEARED THERE WAS NO WAY OF STOPPING IT. OUR ENTIRE EMPIRE WAS IN JEOPARDY.
ATTEMPTS WERE MADE TO QUARANTINE THOSE WHO BECAME INFECTED... BUT IT WAS TOO LATE.
ALMOST THE ENTIRE POPULATION WAS INFECTED WITH WHAT WOULD BECOME KNOWN AS THE SCOURGE VIRUS.
THOSE WHO SURVIVED THE VIRUS DISCOVERED ITS DEADLY AFTER EFFECTS.
THERE WAS A SHORT PERIOD OF TIME AFTER THE VIRUS HAD LEFT THEIR SYSTEM, WHERE THEIR STRENGTH AND INVULNERABILITY HAD BEEN GREATLY DIMINISHED.
THEY WERE THE LUCKY ONES.


FOR DECADES THIS VIRUS RAVAGED MY PEOPLE. EACH YEAR, IT WOULD TAKE COUNTLESS LIVES, EITHER BY SUCCUMBING TO THE VIRUS ITSELF OR BEING MURDERED DURING THE WEAKENING AFTER EFFECT.
IN THE END, WE LOST NINETY-NINE POINT NINE PERCENT OF OUR POPULATION. WE WERE LEFT ON THE BRINK OF EXTINCTION.
MIRACULOUSLY, THE VILTRUM EMPIRE ENDURED.


OUR LEADERS SPREAD REPORTS OF OUR EXPANDING EMPIRE THINNING OUR RANKS. NEW PLANS WERE DEVISED ALLOWING AS FEW AS ONE VILTRUMITE TO CONQUER ALIEN PLANETS ON THEIR OWN.
MY MISSION ON EARTH WAS ONE SUCH PLAN.


OUR STRANGLEHOLD ON THE GALAXY CONTINUED BASED ON THE NOW EMPTY THREAT OF OUR EMPIRE'S STRENGTH.
CROSS-BREEDING WITH CONQUERED RACES, SOMETHING THAT HAD LONG BEEN FORBIDDEN, WAS NOW ENCOURAGED. IT CONTINUED WITH MIXED RESULTS.


UNTIL EARTH, UNTIL MY SON. I NEVER TOLD HIM OUR MAIN REASON FOR CONQUERING EARTH... WHAT MADE IT SO IMPORTANT.
HUMAN DNA IS ALMOST ONE-HUNDRED PERCENT COMPATIBLE WITH VILTRUMITES. EARTH IS TO BECOME A BREEDING CAMP.

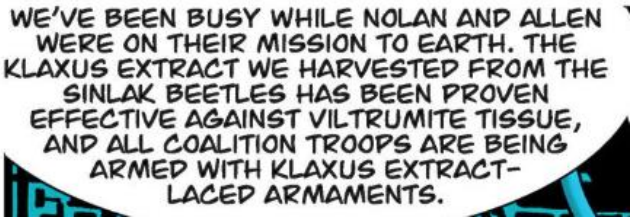

THE RESULTS OF THE SCOURGE VIRUS WERE HIDDEN, BUT NEVER FORGOTTEN.
OUR PLANET, CUT OFF FROM ANY OUTSIDE RACES, NOW STANDS AS A TRIBUTE TO OUR FALLEN BRETHREN. A REMINDER OF WHAT WE'VE SACRIFICED TO CONTINUE OUR QUEST FOR INTER-PLANETARY DOMINATION.

•Dinosaurus cloned Invincible during the time he was weakened with the virus, and managed to bisect this clone casually - Invincible, during the time he was infected, was massively weakened in both physical strength and durability:



Klaxus Plant:


THE KLAXUS PLANT IS POISONOUS TO VILTRUMITES. IT CAN'T KILL US--BUT IT WOULD MAKE US PRETTY EASY TO DEFEAT IN AN OTHERWISE EVENLY MATCHED FIGHT.
THE PROBLEM IS THE PLANT IS IMPOSSIBLE TO KEEP FROM GROWING. IT NEEDS VERY LITTLE WATER OR SUNLIGHT AND GROWS AT AN INSANELY RAPID RATE.
SO... WE INFESTED THIS PLANET WITH THESE SINLAK BEETLES, WHICH EAT THE PLANT FASTER THAN IT CAN GROW--AND ARE IMPOSSIBLE TO EXTERMINATE.



Other weaknesses:

•The infinity ray.
•Rognarr/Ragnar.
•Space sharks.
•Geldarian technology.
•Other unnamed, previously extinct animals on different planets.
•Allen the Alien/Battle Beast/other Viltrumites.
