

# HYDRATE MINERS

\* 1 \*

“So what do you think?” Conner asked the walls around him.

The semi-intelligent computers operating the harness-ship *Star Hawk* processed the words and converted them to vibrations that were delivered directly behind the massive head of the Manta upon which the ship rested.

*Star Runner* took his time replying and Conner waited patiently. The great alien sentient dwarfed the human-made harness of hydrate pods, shuttle, and living space that made up Conner’s contribution to the partnership.

Roughly the shape of a football ... North American, not European ... the Manta’s three energy fins were rounded from front to back, sticking out dozens of meters from the manta’s roughly cylindrical body. Between the fins lay the man-made harness that comprised the harness-ship *Star Hawk*.

Considerably smaller than traditional harness-ships, *Star Hawk* contained a mere two rows of three, hydrate spheres, each snuggled close to *Star Runner*’s body between two fins. The spheres were considerably smaller than those major cargo haulers carried, and the hydrate was extra food for *Star Runner* instead of cargo for sale. The hydrate gave the massive Cloud inhabitant considerable speed and endurance over other Manta/Human partnerships.

*Runner* was not as fast in FTL as others of his kind who had not partnered with a human, and with full hydrate pods in his harness he would certainly lose a fifteen or twenty light year sprint. But on any longer run he could outpace *any* other partnered or non-partnered Manta they had ever met as well as the largest Lobo pack.

“Dump the cargo crates.” Came the bass rumble that the ship’s systems used as *Runner*’s voice.

Conner waited to see if *Runner* would add anything more than said. “We’ve already accepted payment.”

The Manta was quicker this time. The huge sentient vibrated the nodule behind his head and just below the control pod of the ship harness ... and the ship’s systems translated the vibrations and converted them to human standard through the speakers. “Return the payment to the financial system and let them transfer it back to the payee.”

“We could contact the authorities.” Conner suggested.

“I would rather rush a well fed and rested lobo pack with empty food spheres.” Came the dry answer.

Runner was not fond of human bureaucracy, always complaining about the length of time he had to wait for Conner to return before he could run the star lanes, racing those of his kind who he could prod into racing him to the next star.

Occasionally they would cross paths with the carnivorous lobo who fed on manta and other life forms that inhabited the Kuiper Belts and Oort Clouds around most stars. There were other carnivores, but only a large lobo pack could threaten a well-fed manta.

With the partnership that humans provided, manta could carry enough hydrate food to outpace even the swiftest lobo without worrying about exhaustion. Even if the human ship harness didn't carry enough hydrate food-fuel, or was so large that the manta was sluggishly slow, human weapons could deter even the tough-skinned lobo from feeding on the manta carrying the ship harness.

Not for the first or last time did Conner wonder at the reward for manta who carried the largest ship harnesses between the stars with human-habitable planets. Most of the mantas who had partnered with humans were not that fast between the stars. Maybe Runner was just an exceptionally energetic member of his species.

Or, most likely, the one scientist who had studied the manta species and Cloud life in general the longest was right and it was just a personality trait. Kind of like the difference in humans between a person who ran a marathon every week and a couch potato.

Maybe manta who carried the largest ship harnesses were simply content to plod along at only a few hundreds of times the normal speed of light, depending on human weapons to protect them from danger.

Whatever the reason, mankind was content to travel between the stars at a mere light year an hour in the smallest harness-ships with the largest cargo and passenger liners taking as long as a day for the same distance.

Runner was not happy if he had to run the stars at much less than twice what other partnered manta considered racing. He would not hesitate to drain his hydrate food tanks on a dash to his next known food comet, whether he could find a racing partner or not.

Conner had long ago been inured to the fact that the manta could picture a sphere of space several hundreds of light years in diameter in their massive minds.

Every star, every star *system*, and every major body within it as well as every major body in between all those stars was part of each manta's mental picture. The smaller bodies, those humans called dwarf planets, comets, and asteroids were only known if a specific manta came within a few hundreds of millions of kilometers from that body as they traveled the stars.

So he didn't worry when they were light years from the nearest star's heliopause clouds with empty hydrate tanks and pursuing lobo.

Well ... not *too* much anyway.

Many of Runner's food stops were in the vast reaches of space *between* the spheres of space defined by the Kuiper belts and Oort clouds around the universe's stars.

But between those isolated, rogue comets drifting light years from another of their kind, Conner's alien companion ran circles around each of the plodders of his kind they passed in their travels. In an effort to get them to '*pick it up slowpoke*', as he taunted them, Runner would jump back and forth around the slower manta and its larger harness-ship.

They would pace it sometimes for minutes at a time before Runner would dash off with his deep laugh reverberating through *Star Hawk*.

Conner usually had a brief radio contact with the ship while his manta friend tried to get his victim to run faster. It was not always a friendly contact. They had reported the one time they'd been fired on, despite the fact that Runner and *Star Hawk* were outside the thousand-klick close-approach buffer set by law, but nothing had come of the incident.

"I hate to just dump the crates." Conner muttered and felt the vibrations as the ship's systems translated and repeated his words. "And we've already spent half of what we got to deliver them replacing the ammo we had to use on that last lobo pack. If we return our fee we'll have to dip into our emergency reserves and we're getting a little low there."

The speakers gave the low rumble that signified an unhappy, non-verbal grumble from the huge spaceborne sentient that the harness-ship *Star Hawk* was strapped to.

"And we're going to have to fill our tanks if you're going to keep baiting the largest lobo packs you can find into chasing us." He added and the unhappy rumble grew stronger.

Finally, Runner relented. "OK! We'll deliver the crates and tag them as enduring accelerations near the upper limit of their listed parameters."

"Good idea." Conner said. They hadn't reached any of the accelerations that would warrant that tagging of their cargo when they'd escaped from the latest lobo challenge Runner had made. But they had come close.

The required inspection fee for filing the acceleration damage inspection papers would have to be paid up front. The ADI fee might even be reimbursed by their insurance when they showed the vid of the lobo pack that had '*ambushed*' them and forced them to take evasive measures severe enough to warrant the inspection. The sensor data would show a lower level of accelerations than cautioned on the packing slip, but close enough to show their *concern* for the supposedly fragile cargo.

Added to their evidence for their well-intentioned inspection request would be Runner's telling of the story of the

lobo *ambush* to any and all manta they crossed paths with as they raced toward their destination.

Runner was an experienced storyteller among his kind and would relish his chance to convince his fellow manta that the ambush had been real and not the result of Runner's instinctive taunting of the pack as soon as he'd detected them.

With minds like super computers, the mantas were limited only by their lack of a means of manipulation of their environment. The only flexibly mobile portions of their bodies were their telescoping feeding trunk and tail.

All they could do was eat while engaging each other in mental challenges that would baffle the human mind, and tell each other stories that lasted for years as they raced each other from star to star between meals. Their only excitement came when they would dash into a pack of lobo, slapping them with power discharges from their tails as they lured the lobo into chasing them.

Till they met humanity in the coldest regions at the limit of the gravitational influence around the star humans called Sol the manta had not imagined life existing so close to the fire at the center of the cloud shell they inhabited. It had been over a hundred years since that first meeting and eighty-four since Conner's grandfather had made a partnership with the sentient manta named Star Runner.

At the medically extended active life of a hundred twenty, his grandfather still ran the shop the old man had retired to after the death of his only son and daughter-in-law, Conner's parents. Conner's grandfather sold personal security programs for both hand-held and implanted datcoms as well as serving as a mail drop for FTL mail.

"Foodstone to port!" Runner exclaimed into Conner's reverie.

He felt the change in orientation as Runner sent energy through his three fins and *twisted* his body in space as he accelerated toward the hydrate-bearing comet in the distance. The less-than smooth change in direction told Conner that this was a new addition to Runner's navigational memory.

Conner turned to the sensor panels as he tapped icons on the main screen to aim a tight-beam scan. It took several moments for the semi-intelligent shipmind to gather enough information to give a reading and he quickly identified the blip on the hydrate line of the spectrum as it appeared in the relevant screen.

The reading was strong for its distance and he knew that it would provide more than enough to fill all six tanks as well as Runner's considerable gullet when they found the comet.

With full tanks and belly, Runner would be able to make the rest of the distance to Centauri in one day if he didn't spot another lobo pack to distract him. Then one more day in system to deliver their cargo and take on the cargo Grampa had waiting

for them, then get back out of the crowded Centauri system and make the short four light year dash to Ohlson Station.

The sensor readings grew more refined as they came closer and he saw that his initial estimate was off. The comet they approached was *huge* ... at least several tens of kilometers. It would provide a feeding stop that Runner's evolutionary model of a mind would always be able to find from anywhere in space.

The manta brain, a three-part knot of neurons each as large as a killer whale, could navigate the entire volume of space that they had roamed in their life. From *any* position they found themselves they could point in the exact direction to any place they had ever been and know exactly how long it would take them to get there.

Seeing the sensor blip grow and a targeting ring begin to blink within the bridge's clear-hull view screen, he moved from the control console to the VR pod to do his part in the feeding process.

Runner lived up to his name as he dashed through space to the hydrate comet. Within minutes the huge, rock-skinned denizen of the frozen clouds around stars was greedily gobbling muddy hydrate, his mobile feeding trunk sweeping over the nearest patch of hydrate as he drifted in space above the rogue comet sucking ice and rock into his meters-wide maw. While his friend fed, Conner used the VR pod to work the robot arms that moved hoses over the icy hydrate patches he could reach from where Runner was feeding.

Conner tapped instructions into his VR panel and the hoses worked their inner rings of sphincters to squeeze the hydrate through their length toward the filters. Filtered hydrate filled the empty tanks fastened to Runner's harness while more solid material was crushed and inspected before being sent in a different direction. Every once in a while a ping would announce a useful bit of the debris being filtered out of the hydrate and Conner would make sure the object was retained for further inspection.

Nuggets of certain materials within the debris were filtered by magnets and other methods of separation and diverted to special bins. The least useful debris was expelled to form a cloud of crushed stone that drifted slowly downward in the micro gravity of the small body drifting through space.

He worked the robot arms through each open patch of hydrate, then asked Runner to shift position so he could get to the next open patch.

Working together, Runner fed on hydrate while Conner filled the six tanks that provided the massive manta with a *backpack* full of food.

As he continued working, Conner was pleased when his sensors identified a carbon knot that contained more than enough to fill his diamond coater's supply bins.

Now he could strike purified carbon off his shopping list and that would more than make up for the ammo he'd used when Runner got bored with plodding along at human pace and teased a lobo pack of considerable size.

Runner had used four tanks of hydrate to finally elude that most recent pack, his guttural laugh resonating through the ship for three days while they dashed between the stars on their mad flight from the hungry predators.

Conner was just as thrilled with the chase, till the headaches started again on the third day.

Runner had apologized ... not having to remind Conner that it was the worst symptoms of the first stages of the brain cancer that repeated exposure to manta speech caused.

When racing between the stars, and especially when luring lobo to chase them, manta broadcast their voices through space in *all* the telepathic frequencies that they used over vast distances and in a much *louder* volume. This constant barrage of the mantas' mental frequencies had the unfortunate side effect of causing brain tumors in humans after lengthy exposure.

It was one of the reasons his grandfather had had to retire.

The tumors were easily removed, but repeated removal resulted in damage to adjoining tissue. Most 'Manta Crew' retired after their second or third tumor removal with only a few remaining on duty till a fourth tumor developed. On union ships, no human was allowed to stay on as harness-ship crew after three tumors as early-stage dementia is usually an unavoidable, eventual consequence after then.

The last time Conner had been examined, the doctors had expressed confusion at the development of his first tumor. He was told that he had manifested a new type of smaller, denser tumor that seemed to have no obvious ill effects. Besides being smaller and in a different location than normal, and despite causing the usual headaches, his tumor was diagnosed as benign.

He was told that if he developed a second tumor, then they would both be removed, but operating on just the one would be counterproductive.

Ever since the first doctor's report Runner had been on him to mate and produce another human family member for him to train ... just in case Conner was forced to retire to the family shop on Ohlson Station despite the medical report.

They had come to a compromising understanding that Conner felt was just unlikely enough to agree to.

Conner bagged the valuable portion of the sifted debris by graded sizes, keeping the best nuggets back and filling the bins surrounding the hydrate tanks with full bags of the rest. He was finished filling the six tanks and stowing bags of ore and was sleeping while sensor drones explored the interior of the comet when Runner finally backed off from his feeding.

Through the vibrations coming to him through his physical contact with the habitat section of the harness ship

Runner knew his human was in the coma his race called sleep. Not wanting to disturb the human, he simply settled back and sent his own mental vibrations into the dirty snowball he hovered next to in vast emptiness of space over two hundred light years from the human homestar.

Humans were great at making things to do things they couldn't otherwise do, but in Runner's opinion their sensor abilities were limited. If one of the pair of mobile sensors Conner had sent out to inspect the comet came close to something of interest it would alert the human. But Runner was able to probe deeper into the mass of the comet than the small automatic probes. He could pick out more interesting places for the mobile probes to inspect.

He sent a code into the ship through his vibrating nodules and one of the probes changed direction and inspected the hole in the ice he'd noticed at the edge of a particularly large body of stone.

\* 2 \*

*"Come ON lazy, wake UP!"*

Conner roused from his sleep and demanded. "What! What's so important?"

There was a pause and then Runner's ship voice said. "I did not say anything."

"Yes you did!" Conner insisted. "You were yelling loud enough to wake the dead."

There was another pause, then Runner said. "Now that you are awake, the sensor probes have uncovered an interesting object that you may want to see."

"OK, OK, but you didn't have to yell so loud." Conner muttered as he rubbed his eyes then dressed and made his way to the control room.

Sliding into the control chair and strapping himself in, he scanned the screens in front of him. "What? Oh ... that."

"Yes." Runner replied. "What do you intend to do?"

"Why, harvest a few larvae, of course." Conner said with a smile as he scanned the sensor readings. The hole was too regular to be natural and gave off the faint radiation signatures of the growing cloudlife within. "Give me a few minutes to get in my suit and then you can stun the hive."

Conner quickly got dressed and made his way to the airlock. He checked all his suit's functions, verified contact with the link to Runner and cycled the lock.

Outside he used his suit propulsion to enter the cavern that held the hawk's hive.

A smaller version of the three-finned manta the non-sentient hawks were one of many of the creatures that inhabited the outer reaches of the stars. Of the known non-sentient cloudlife, only the condor and eagle species were larger than the hawk.

The slower condors were usually used for cargo transport with the eagle and hawk species of harness-ship carrying passenger modules. The rapidly expanding Solar Navy fleet used *all* the non-sentient species of cloudlife in one form or another since no manta would carry a warship.

When Conner's treasure of hawk larvae went on the auction blocks, fully a third of them would probably end up as the core of a military vessel with tech-based augmentation.

As fast as the fastest manta or eagle, a fully-grown hawk was big enough to carry a single hydrate tube, a human habitat, and a cargo module ... or any variation thereof. Hawkships made excellent short haul transports or mobile homes for small families ... or the equivalent to a corporate jet.

Military hybrids carried a crew of twenty plus a marine contingent of six riding three armored jeeps.

Conner made his way through the tube the mother hawk had bored into the comet and peered into the dark with his helmet light. The adult hawk lived mostly on the same hydrate ices that manta ate, but like most cloudlife, in larval form would eat rock to get the minerals to be able to morph into their adult form.

A human vacuum suit with its arms and legs sticking out would look like a piece of candy to a nest of hungry hawk larvae. His light beam showed him the still forms of larvae that Runner had stunned with a concentrated energy wave from the same nodes forward and above his neural knots that he used to talk to his human companion.

Conner quickly stuffed several of the larvae into the huge carry sack he'd brought and dragged the sack behind him back out of the tunnel. He emptied the sack of larvae into a storage bin that he packed the rest of the way with hydrate. The lack of rocky minerals in the food he gave them would keep the larvae from hatching before he could get them to Ohlson Station.

Towing his empty storage sack behind, he returned to the tunnel to the hive's birthing nest. Making several trips he filled eight cargo bins with four larvae in each before Runner's voice came over his radio. "Momma's here. Better get back inside."

The mother hawk would not bother Runner, but a human in a vacuum suit looked too much like many of the predators that fed on hawk larvae. He would not last two minutes if the hawk mother *saw* him and mistook him for one of the beetle species of cloudlife that inhabited the shells of comet material around stars.

He hurriedly secured the last storage bin and rushed back to the airlock. He was inside the ship proper and shedding his helmet when he felt the jolt that was the hawk mother letting Runner know she was not happy.

Runner obliged her by moving around the comet to another patch of hydrate. Conner could feel Runner nibbling at the patch as he shed his suit and put it in the rack to be cleaned and serviced by the ship's bots.



There was another jolt as the hawk mother slammed her tail against Runner's flank and a bass rumble came from the speakers. "I think she knows we took some of her kids."

"She's got plenty more." Conner said as he strapped into the control seat. "But let's get out of here, anyway."

Runner backed away from the hawk mother, letting her glory in her victory over the enormous creature she didn't have a real chance against. He turned and oriented himself toward his target and Conner was thrown back in his seat as Runner poured energy into the organs that lined his three fin wings.

The process had been copied by human technology and inertial energy propulsion replaced thrust supplied by ejecting matter. Even the shuttle resting behind *Star Hawk's* habitat section copied the shape of the dominant forms of Cloudlife. Some experimented with other configurations, but the most efficient always contained three, equally spaced fins from front to rear.

The energy built up along the length of Runner's fins and spread in an ovoid bubble around the space creature ... and Runner began to race faster and faster toward the double stars humans called Centauri A and B.

Within seconds there was a different surge of energy that coursed through the immense, sentient creature and the ship harness that he carried ... then another surge ... then another and another ... faster and faster till there was no perceptible space between them.

Each surge sent them in a shot through several light minutes of space in an instant ... and there were hundreds of such jumps each minute. Runner was quickly in the zone as he raced through space.

*"Wheeeee! Look at me everybody! I am Star Runner! See me RUN!"*

The shock of the voice staggered Conner and he yelled. "Hold it down dammit. You about blew my head off!"

There was a shudder in the smooth flow of the hundreds of micro FTL jumps per minute then silence for a few moments as the smooth run resumed. *"You heard me?"*

"Yeah." Conner rubbed his temples. "I wouldn't be surprised if you blasted out some of the speakers, too. Wow!"

He rubbed at his temples for a moment more, then his eyebrows creased. "Wait. That's the second time you've asked me if I heard you yell so hard my head split. What's going on?"

*"Is this better?"* Runner's voice sounded somewhat different, but still recognizable.

"Yea, lots better. Maybe I need to check out the ship's systems. There might be a glitch in the volume control."

"No."

Runner's voice came from the speakers and Conner shifted his head. He recognized something odd, but couldn't pinpoint what it was. "What is it then?"

*"I was using the child-talk voice."* Came the answer, then Conner realized the voice had not come through the ship's speakers. *"It is the way we speak to the youngest of our children till their brains grow strong enough to hear more complicated speech."*

"Uh, isn't that still telepathic? I mean whatever it is that you do that human scientists call telepathy?" Conner asked, knowing the answer already.

"Yes." Runner replied.

"Wha..." Conner started, then said. "The tumors!"

"That would be the only hypothesis that I can imagine." Runner said through the speakers, then into his mind. *"Is there any pain?"*

Conner started at the thought, then realized that the pain was gone. "No. No pain at all. There is a kind of echo at the end, though."

*"Ah ... How is this?"*

"Huh!" Conner exclaimed aloud. "It's gone. It's clear as a bell now."

They experimented all through the day as Runner raced toward the Centauri system. At one point they halted their run and Conner donned his suit. Runner moved away in stages and finally returned after moving away over a million kilometers with no noticeable change in Runner's voice in his head.

"There is a dropoff that is almost exactly the same as that of a child of my race." Runner explained through the ship's speakers. "If it remains the same, we can remain in contact at distances of twelve to fifteen million kilometers, the usual distance newborn children roam when testing the patience of their mother."

"I can not as yet determine if *your* mindvoice will grow stronger the same way as it would in one of my kind. Your range may or may not increase." Runner said, then added in his mind. *"Your brain, after all, is as large as it will ever be."*

Conner was surprised to realize that this was not something that he'd ever learned about the manta before.

He was then further shocked when Runner added in his mind. *"If I go into my fertile stage in another decade or two before your health precludes further exposure, you may be able to talk with my cubs as much as I."*

"Your fertile stage?" Conner blurted. "I thought you were male?"

"Yes, I am." The speakers replied, then in his head. *"But the harness of food that your family has maintained over the years has allowed me to run hard and fast for long enough that my maternal hormones have been stimulated."*

*"I have collected many samples of genetic material from other males of my kind and have already assembled the proper sequences to impregnate my womb when it forms."* Runner said, then finished smugly. *"I have planned six pregnancies with three cubs in each."*

In the brief silence that followed, Conner thought. *“Why haven’t any young been born to manta with human companions before?”*

*“Ah ... you learn to speak as well as hear.”* Runner thought to him. *“That is good. It is further proof that your kind are not the lower-level intelligence that many of my kind say.”*

*“There was some debate when we first encountered your kind.”* Runner said in his mind. *“The translations devised by the first of our people to make contact seemed too primitive to many of my kind to prove your sentience. Many still hold that view.”*

“But not all, obviously.” Conner spoke aloud.

Following his lead, Runner spoke through the ship’s systems. “Yes, or your grandfather’s efforts at conversing with me would have been in vain.”

Conner remembered the history of that time from the stories he’d heard as a child. His grandfather had been part of a ship of fools who’d pushed their ion-powered ship past its limits in the outer reaches of the solar system looking for new species of Cloudlife.

They had had considerable success till they’d had an interesting interaction with a newly hatched swarm of mosquitoes. The resulting displays of expended energy had drawn the interest of a wild manta.

Runner investigated the mysterious human artifact and its living occupants cautiously while the occupants tried to repair the equipment they’d prepared for just such a meeting. It was a full day before they contacted Runner and nearly a week before they completed the most vital repairs and headed back toward the inner system with Star Runner following and studying the humans as closely as they studied him.

His grandfather could never explain why the manta who called himself Star Runner had suggested the partnership during one of the many space-walks he’d performed to replace sensor boxes and antenna the newly hatched mosquitoes had mistaken for food. Thomas had accepted the offer and Runner had helped them find several patches of cloudlife on their way back sunward.

Even after splitting the profits from their treasure-hunting venture with the rest of the crew, Thomas had been able to purchase a basic life support harness and make another trip out to the Oort cloud. It was only a year later that *Star Hawk* assumed the shape she had held for Runner’s entire decades long friendship with the Greyhawk family.

Pieces-parts had been replaced over the years to the point that there were fewer original parts than replaced, but the size and shape was generally the same.

The rest of the day flew by quickly on their resumed run to Centauri and Runner slowed to meet human laws ... just barely.

Runner was the manta equivalent to the old surface vehicles where a driver would go just *nine* miles over the posted

limit because that wasn't *really* speeding. At least he only did it outside the normally busy lanes ... and where he thought he could get away with it.

They slowed to what Runner complained was hard to maintain and Conner pacified him as usual as they made their way into the heart of the Centauri system. They arrived at Centaur Station on one of a cluster of dwarf worlds and moonlets floating within a gravitationally stable point between the two stars

Mankind swarmed dozens of the hundreds of various sized bodies scattered over a space containing hundreds of millions of cubic kilometers. The millions of humans who lived and worked here harvested the life of the cluster of worlds as well as the waste of billions of years of life evolved from the outer cloudlife.

Different from cloudlife only in that it was smaller in general size and more robust, the cloudlife of the Centauri Rifts had evolved to their higher gravity realm of frozen dwarf planets. The ones adapted to the larger worlds of the Rift had retained their three-finned shape but with a diverse spread of adaptive changes. Some were reduced to undulating across the surface of the larger bodies on twin runners while others retained their inertial fields in ranges from just enough to elude predators to traveling between the worlds of the Rift.

These were harvested for use in and around heavy gravity planets where other cloudlife found it impossible to go. With no tech assistance, there were several examples of Rift species capable of carrying a pair of mobile homes a kilometer above earth's sea level.

Commerce in Rift life forms made the Centauri Rift as large a human presence as there was outside of the home system's Earth/Moon orbit.

When they finally reached their destination, Runner stayed in orbit while Conner took the shuttle down to the mars-sized planet and delivered their cargo. He reported the possible damage due to the lobo chase as he filled out forms and made financial transactions.

The inspection activation took more paper signing and financial transactions then he repeated the process when he collected the cargo that Thomas had secured. Finished he checked the cargo boards and accepted a cargo of sparrow larvae and dragonfly eggs for special delivery to Earth before suiting up to take the jeep back up to Runner.

He checked the additional cargo as it was loaded in the shuttle's rear cargo compartment, the sparrow larvae in eight separate sleep crates and the twelve crates of a hundred dragonfly eggs each.

*Star Hawk's* shuttle, *Sparrowhawk*, was a human tech and Rift sparrow hybrid and had been in the family for forty years. He ... she ... whatever ... they still didn't know ... ate Runner poop mixed with Oort Mold. He checked the last

sparrow crate, OKed the loading, then inspected the dragonfly crates.

With eggs the size and shape of an American football, trained dragonflies were Earth's favorite form of Rift life. Capable of being acclimated to Earth's atmosphere and gravity if exposed well before hatching, dragonflies are fitted with a harness at birth that is replaced regularly as the dragonfly grows. The shape of the harness forces the dragonfly body to take the frame's shape over the two years it takes to grow to maturity.

Eventually, the tame dragonfly will carry an enclosed car body or an open frame. Earth-adapted dragonflies can carry a standard load of approximately two metric tons as high as two kilometers above sea level. One specimen was recorded at three kilometers carrying a single man and camera-wielding witness wearing only atmosphere suits and riding with only a rope harness and belts.

After accepting the cargo he secured the hatch and lifted the shuttle away from the landing pad. On the way up to Runner he patted the console. *Sparrowhawk* was one of the older models to first use man-tech fin enhancement to increase her load capacity. Even though they didn't know if the family's Rift Sparrow was male or female ... or like Runner and could be either ... the family had always called her a she.

He docked *Sparrowhawk* at the rear of the habitat module, engaged the locking frame, secured the airlock hatch, and connected *Sparrowhawk's* feeding tube before shutting down the internal systems.

He made his way to the control room and was strapping himself into the captain's chair when Rift Traffic Control told him he had a five-minute window cleared to follow the traffic lanes outbound from the Rift.

Runner wove his way through the few manta ships and the swarms of Condor, Eagle, Hawk, Falcon, Wasp, and Hornet-ships that wove in and out of the growing number of the newer all-tech ships. The smaller denizens of space didn't have great FTL power, but could dash about inside a radius of a few light years on jumps of several light seconds each.

They were best used inside a single star system or move about near stations, asteroids, and moon with inertial propulsion. Their numbers were thick inside the systems of man and between them swarmed the dozens of species of Rift-based shuttles and new all-tech ships and shuttles.

When he was far enough out of the heaviest traffic, Runner put on speed and was quickly isolated enough to run fast.

*"Wheeeee! Out of the way slowpokes! Star Runner coming through!"* He crowed in Conner's mind.

Conner shook his head. "Is *this* all you guys say to each other when you run?" He said aloud.

"Pretty much." Runner replied through the speakers. "There's usually a lot of taunting and teasing, even a few bets

now and then, but most of the time we just laugh and play navigation games ... and race each other.”

“What would a manta have to bet with?” Conner laughed.

“Food coordinates, of course.” Runner replied smugly. “The best ones with the tastiest crunchiest nuggets mixed in.”

The manta and most of their less evolved relatives native to the clouds of matter around stars lived on hydrates but needed some rare minerals as well. Their bodies weren’t made of flexible rock, but you couldn’t tell that from a brief sensor scan. Even their waste had commercial value to humans, making an almost perfect base for station and ship soils for growing human food.

Then there were the rare crystals of considerable size that occasionally passed through a manta’s gullet.

Runner had supplied his humans with four in the seventy plus years he’d been partnered with the Greyhawk family. Created in the manta’s complex stomach, the crystal gemstones were the equivalent of a human kidney stone but had a side benefit that was unique.

A manta gemstone, or mantastone, was also useful in the new FTL systems that humans had recently developed. Using cloudlife the size of a wasp or hornet as a core, a single one-meter mantastone crystal could power a five-thousand metric ton starship at a light year an hour. A ship and mantastone the same size with a hawk core would travel at three times that speed.

It was mainly on the word of the manta that condors, eagles, hawks, wasps, and hornets were considered non-sentient. This allowed humans the moral rationale they needed to cage those species for use in rapid transport in several models.

Cloudlife had never reproduced in captivity, but very few specimens had ever died of natural causes, so findings like the one Conner and Runner had just made only added to the number available for new ships.

A century after the discovery of Cloudlife there were tens of thousands of cloudlife, hybrid, and tech-only ships plying the starlanes between the half dozen habitable worlds and the same number of other star systems of special interest to the human species for one reason or another. Some were commercially important while a couple were only good as halfway points to distant habitable worlds.

Most of the ships in human space used Cloudlife as their FTL generating core and mantastone control crystals to increase each animal’s endurance and jump range. Instead of being limited to a single star system, wasp and hornet ships with human tech enhancement can now join condor, eagle, falcon, and hawk harness-ships in traveling the shorter starlanes within an acceptable time frame.

In the last ten years the all-human FTL ships had started to appear in growing numbers. Nearly all of these were military ships or yachts owned by the wealthiest humans. But hybrids

were the most prevalent style for the mass of commercial and business ships with the more populous species capable of being upwardly enhanced using human tech.

The result had been an exodus of humnaity seeking cloud life in all its various forms. The search had turned the Centauri Rift into the first real human star colony and the financial powerhouse that had a virtual monopoly in Rift style transportation.

This made the finding of non-sentient Cloud life forms in larval form the equivalent of winning a lottery. Conner's smile grew as he imagined what his grandfather would say when he found out about the hawk larvae.

Thirty-two hawk larvae would be more than enough to save one back and get it fitted with a training harness and three basic ship modules. In a couple of years Thomas Greyhawk would be able to return to space as only exposure to manta caused the dementia tumors.

As Runner entered the outskirts of the human homestar Conner could *hear* him as he said hello to all those manta he encountered in their three or four hundred-million kilometer *adult* conversational range. Runner boasted to those he shot by how fast he could run as he raced sunward.

Saturn shot by in the distance, too far for Conner to see the rings clearly, but he could *hear* the mental greetings clearly and was surprised when several of Runner's closest friends spoke to *him* as well.

"Hello cub" from most and "Welcome to sentience" from one curmudgeon that Runner said was as old as human life on earth.

Runner finally slowed to single 1000km jumps-per-second as they approached the Earth-Moon L2 point. The location was a favorite of manta-carried ships because the Lagrangian point kept the moon between itself and the frequency-saturated noise of the bubble made up of the space inside the geosynchronous orbit of earth.

There was plenty of leakage, but the volume was reduced to a level that manta felt more comfortable with.

Then they stopped and through the glassteel window in the control room Conner could see Ohlson Station a few short kilometers away. Behind the station and its asteroid base he could see the floating mass of the moon's 'dark' side ... in full sunlight.

Not for the first, or last time, Conner wondered at the tendencies of mankind. The *far* side of the moon couldn't be seen from Earth ... therefore it was *dark*.

*"We are home."* Runner stated in his mind.

Conner smiled as he continued looking through the clear-hull view screen. Wrapped around the one kilometer rock Runner had pushed into place as a favor to the crew of the ship he had discovered so long ago, the station lay on the edge of the cluster of similar objects at the gravitationally stable L2 point.

The Lagrangian point lay opposite the moon from the earth and contained such stations as Galileo Station, the home of the largest physically connected telescope ever created by mankind. It was unmanned so as not to induce vibrations. The staff and maintenance crews lived on the several surrounding stations that made up the L2 Cluster.

Phoenix Station, where the Solar Navy ruled, had mobile capacity and could double as a super carrier slash supply ship slash dry-dock in case of emergency. It orbited the Badger Shipyards, the five-kilometer rock that built most of the Navy ships for the first and second fleet, both harness-ship hybrids and all-tech ships copying the Cloudlife design.

Several other smaller commercial and research stations made the cluster a fairly crowded area, to the annoyance of the early settlers on the far side's several surface bases. The pristine view they had come for was blocked by the second wave of settlers hiding from the glare of the homeworld.

Conner made his way back to *Sparrowhawk* and lifted out of *Star Hawk* dock to head for the Ohlson Station docks.

*"I am going for a run, cub. Let me know if you need me sooner than we planned."*

*"OK, Runner."* Conner replied as he flew the shuttle the last few kilometers to the station.

\* 3 \*

Conner made his way through the tunnels and passageways of Ohlson Station, nodding to some and greeting others with handshakes and a few moments of verbal catching up. Taking his time passing out small packages and talking with a few, having a quick shot of some offered drink with one, and briefly going into a back room for a private conversation with another, it took him nearly three hours to make it to his grandfather's shop.

The old man looked up with a practiced business smile that turned into a full-toothed smile that included his eyes. "Conner! What a surprise! How's Runner? You should have sent a comm and I would have met you at the dock."

"Runner's fine and sends his greetings and an invite to visit before we run the starlanes." Conner replied. "I knew what time I would be getting in and wanted to speak with some others the only chance I would have. Runner and I are only here long enough to unload cargo and load supplies, then we're going over to the Badger Shipyards."

Thomas raised a single eyebrow and said. "The Badger Shipyards? What did you find that would pay for a trip to the shipyards?"

"A nest of hawk larvae." Conner smiled. "We brought enough larvae back with us to save one for a Hawkship of our own and buy the basic harness-ship with human tech enhancements."



“There’ll be enough left over to get a couple of lander hydrate tanks mounted on the rear of *Star Runner* and a second deck on the living space.” He added breathlessly.

“Runner is sure that he can carry the extra weight and still be faster than any other man-thing he has ever met. The extra living space will make room for a greenhouse and another pair of cabins or cargo closets and the hydrate landers will allow us to personally deliver hydrate planetside.”

“Excellent!” Thomas exclaimed. “But from the look on your face there’s still more.”

“Oh, little stuff.” He said with a wave of a hand. “We found a big enough carbon knot to fill the storage bins on the diamond coater and a dozen cargo bales.” Conner continued. “We won’t have to buy carbon for four or five years at least.”

“As soon as the additions are tested, we’re going to go back to the hawk nest and collect any wasps or hornets that occupy the empty nest.”

Thomas waited patiently, knowing the best was yet to come.

“Oh.” Conner smiled broadly. “Runner says he is about to expel another mantastone and he says it’s a big one. We’re talking about keeping it and installing a booster pack to *Star Runner*.”

He didn’t tell his grandfather about losing out on a promise to Runner and possibly being a daddy in a few years even though he’d never met a woman yet that he thought he might be able to tolerate for weeks and months isolated onboard *Star Hawk*.

He wondered if Runner had already known about the hawk’s nest before getting him to agree to the conditions of the promise.

“That’s wonderful!” Thomas exclaimed, then looked toward the shop door.

Conner stood back as a patron came into the shop with a pair of packages for the mail. Conner stood patiently as his grandfather and the man talked while Thomas inspected the contents of the package, waving sensor wands over every square centimeter, then weighed, tagged and sealed the two boxes. After placing them behind him, he and the patron verified the financial transaction to pay for the delivery of the two packages.

When the man left, Thomas turned to Conner and said. “Well, if you’re in such a hurry then let’s get your cargo unloaded and the mail crates loaded. There’s the normal fly-by drop-pod for earth and crates for Mars, Ceres, and Triton ... then you’re on your own again till next month when the regular package for Yggdrasil is ready.”

Conner nodded as he followed his grandfather to the storefront. Thomas closed and locked the door behind them and they walked the street of the mall to the elevators.

“I’ve got a cargo for Earth that I need to deliver.” Conner said as they walked. “I’ll take *Sparrowhawk* and make

sure you get credit for the unused drop pod. I should be back about the same time Badger is finished.

*"We're on the way to the dock."* Conner said in his mind.

*"I am still here."* Runner replied. *"I have been discussing maternal subjects with Lobo Taunter. He informs me that I must make another hard run of at least two hundred light years, gorge on hydrate, then make another two hundred light year run. If I do not feel my womb begin to form within a few days I am to repeat the run-gorge-run process again. The foodstone where you found the hawk larvae would be a good run."*

*"Lobo Taunter says that I should only have to do this three or four times at the most, but knowing my habits one should be enough. Within a year I should be able to initiate my first pregnancy."*

Conner stumbled as he laughed aloud. Thomas looked at him with a raised eyebrow. "You OK son?"

"Fine grampa." He was hesitant to tell even his closest relative and best human friend about his new discovery of telepathic communication with his manta companion. But Thomas had been Runner's companion decades before Conner was ever imagined.

He finally decided that it would be premature to reveal all of what he and Runner had discussed, saying instead. "Have you ever wondered where manta come from?"

"You mean, where is the manta stork?" Thomas laughed.

At Conner's "yea", Thomas continued. "I once saw a pair of little manta with another one at a star a couple thousand light years out past Yggdrasil."

Conner was surprised to hear his grandfather had been so far out. Since there weren't any navigational records for the interior of the star systems out that way, he couldn't ask questions and verify the validity of the answers he might receive.

"They were a long way off and moved to the other side of the hydrate body Runner was feeding from." Thomas continued. "Runner ignored my questions so I just let it go."

He glanced sideways at his grandson. "Why do you ask?"

"Oh ... just a conversation Runner and I recently had." He replied.

"Ha!" Thomas guffawed. "Loboshit! Runner's been looking for a date has he?"

"Welllll." Conner smiled. "Actually ... it appears Runner is not always a he."

Thomas' eyebrows slammed together as he spun and focused on his grandson. "Say what?"

Conner sighed deeply as he prepared to tell his grandfather what their manta friend had told him. "It seems all the manta are male ... until they're female. They can initiate a sex change by running real hard and fast for extended periods."

“Sounds like a survival technique.” Thomas mused, stroking his chin. “Having to run for their life over extended periods triggers a reproductive response.”

Conner nodded in agreement as they resumed walking. “They impregnate themselves using DNA they’ve collected over the years. I get the impression that they use more than one genetic donor.”

“So what brought up this topic?” Thomas asked.

Conner found it impossible to keep the secret. “Runner wants to have a baby ... well actually ... three babies ... six different times.”

Thomas stopped to stare at Conner in shock. Then he shook his head and chuckled. As they continued to the dock where Runner waited, he said. “How long is this supposed to take?”

Conner shrugged. “We didn’t get that far into the topic, but I don’t think raising just one litter or whatever you’d call it, is something that will take a short time.”

“Longer than you’ll be able to serve aboard *Star Hawk*?” Thomas wondered. “You still haven’t produced an heir and you’ve already got your first tumor.”

“We don’t even know if Runner will want to stay in his ... her ... whatever ... harness when he’s pregnant, much less with a pack of kids around. I may not even *need* an heir.”

*“I do not intend to abandon you or your family.”* Runner’s voice sounded in his head. *“Not after it has taken so long to properly train you. Our agreement still holds even though I agreed to use the profits from the hawk larvae for a ship for Thomas instead of to go toward our agreement. You did, after all, make that promise before our own.”*

When Conner snorted, Thomas looked at him suspiciously.

“What?” Conner asked innocently.

“There’s something else, too, isn’t there?” Thomas asked as they came to the lift to the cargo warehouse.

Conner hesitated for only a moment, then blurted. “I can talk to Runner telepathically.”

When his grandfather simply looked at him waiting for him to explain, Conner continued. “It’s the tumors. They’re some sort of linking organ. You remember what the doctors said about mine?”

At Thomas’ nod of assent, he continued. “They wouldn’t operate because my tumor is different than normal and is benign. I guess its some sort of evolutionary thing caused by exposure to manta speech.”

“All the tumors before were cancerous but mine is just different enough to be benign. Its more compact and more closely connected to the neurons around it than normal, and it’s also in a different location than most other tumors.”

He shrugged. “I guess that’s why I can hear Runner. He can hear me, too.”

“How far away?”

“We tested it on the way to the Centauri Rift. Runner says the distance is the same as the range of a newborn baby manta ... about twelve to fifteen million clicks.”

“So you can talk to him now?”

“Yea.” Conner replied as they passed into the docking corridors. “He’s moving toward the cargo dock right now to meet us. He says to tell you hello.”

\* 4 \*

After delivering the cargo and mail dirtside in *Sparrowhawk*, and docking with *Star Hawk*, Conner settled into his command chair as Runner wove his way through the heavy traffic around the human homeworld. He drank from a mug of fresh orange juice as Runner broke geo-sync orbit then slowly made his way out past the orbit of the moon and the station clusters at the L3, L4, and L5 points. When traffic to and from those population centers thinned enough for him to put on speed by switching from inertial power to the thousand-K mini-jumps that inner system traffic control required.

They continued their mail run out to Ceres then increased their speed as limits increased till they made their last mail drop at Triton Station. Within moments they were out of the regulated traffic lanes and Runner fed energy to his fins.

*“Wheeeeeee! Star Runner is the fastest! Anybody think they’re faster ...I dare you to PROVE IT!!!”*

Conner was surprised when two wild Manta joined the race when they passed the Kuiper belt, but *Star Hawk’s* tanks were full and Runner did not seem to be hampered by the extra weight of their new mobile tanks and the additional deck on the living quarters.

Conner watched the console with interest while Runner and his two fellow racers dashed between the stars. He worried when Runner held a pace that he had never run before, keeping up with the two wild manta who teased and prodded him to run faster.

By evening their speed had not fallen by even a fraction from the fastest Runner had ever carried the *Star Hawk* harness ship. He made a late meal and was able to get nearly a full night’s sleep in before they neared their target star.

*“That was fun!”* Runner exclaimed as he led the other two manta to the hydrate comet where they’d found the hawk larvae. *“Wait till I eat and we can race back! This time we’ll RUN HARDER!”*

Conner smiled as both wild mantas teased his companion mercilessly as they gorged on the hydrate at the comet he and Runner had found earlier.

They both claimed to be holding back for Runner’s sake ... which prompted Runner to feed faster as he claimed that he would show the two slowpokes who was faster.

Conner quickly suited up and made his way to the nest where he had found the hawk larvae and found, not a wasp or hornet nest making use of the hollow space, but a mosquito swarm feeding on the hawk larvae's waste.

"Jackpot!" He exclaimed, stuffing the mosquito larvae into his collection bag. Giving the bag a shot of his bottled air to stun them, he was able to fill and stow several bags and get back inside before Runner shouted at his two escorts and the three raced off back toward the human homestar.

Conner was amazed when the return race was completed in three hours less than the record run they'd just made out to the new find.

Runner was so giddy that Conner could almost imagine his friend turning female right before his eyes. Conner opened the valve to the feeding tube and left Runner resting in the shadow of Ohlson Station and chugging from the full hydrate tanks he had carried as he ran the race of his life.

Conner was glad that he had stocked the pantry so extensively when he added the second deck and greenhouse. If he had to take off on some extended birthing trek, he had wanted to be prepared. He was now good for a decade or more if he had to.

The chance to study the birth of a manta made him ready to give that time.

He sold the mosquito larvae for a considerable profit to a family friend who would train them for use in the asteroid belt. The larvae would be trained to carry taxis and passenger and cargo vans between the smaller stations and isolated family habitats scattered throughout the asteroid belt.

Mosquitoes were predominately rock eaters and there was no shortage of fuel-food in the dust and debris around human habitation. Mosquitoes also had the added benefit of being great trash eaters. Even in death after their fast ten-year life span, the inside of their bodies could be hollowed out from their neural knots and propulsion fins and hooked into human tech to create hybrid zombie-ships for in-system use.

In cramped habitat pods not much bigger than escape pods, Zombie Riders rode their mounts between the stations and asteroid homesteads delivering mail and both legitimate and illegitimate cargo in their endless circuit of human habitations. Like the bikers of earth when surface vehicles dominated the transport medium Zombie Riders gathered in packs containing mosquitoes, moths, locust, and even the occasional open-seat ladybug that only held two riders in environment suits.

Also called mayfly riders because their mounts are the shortest living of the many species found in the clouds around stars, it is only mayflies that have successfully been *zombied* without a mantastone as a power enhancer.

After purchasing additional luxury parts and supplies the sale of the mosquito larvae made possible Conner went back to the Badger Shipyards and had a pair of mosquito cages added to

*Star Hawk*. The four mosquito larvae he kept were paired off and given manta waste to grow on in their simulated hawk nest. They would quickly morph into their mature form and Conner would fit them with their training harnesses.

The harnesses would allow the mosquitoes full movement to reach every square inch of Runner's body while the anal scoop where the tether attached would collect mosquito poop to enrich the trays of Oort Mold stacked in the framework below the hydrate tanks. Oort Mold was the primary filtering medium in *Star Hawk*'s life support system and having his own mosquitoes would slash another regular cost in her upkeep.

The mosquitoes that Conner nourished to maturity would eventually be tethered to Runner and would serve as Runner's personal 'cleaning crew'. Let out of their cages while Runner fed, the mosquitoes would spend their lives eating the dead *skin* from Runner's stony body ... and Manta poop ... and *Star Hawk*'s waste ... while delivering food for their Oort Mold.

Conner was checking the legs to the second deck addition when Runner yelled in his mind. "*I'm BORED! I want to RUN!*"

*"I'm outside inspecting the new structures."* Conner projected in the way he had learned.

*"Hurry inside!"* Runner replied excitedly. *"I really need to run!"*

Conner couldn't move too fast, because he was down inside the legs that braced the extra weight of the second deck against the rock-hard *skin* of his enormous friend. Wider and longer than the first deck it still left several meters between the fins on either side, even sticking out over the entire airlock and corridor forward of *Sparrowhawk*'s dock.

He retracted his tether at the slowest speed it would pull and floated up to the hatch in the bottom of the upper deck where it overhung the lower deck. In seconds he was inside.

*"I'm inside, Runner."* Conner immediately grabbed at the bracing bar running around the small airlock as Runner lurched clumsily.

*"Sorry! Sorry! Ohhhh ... I feel weird."*

When the green light came on over the opposing doors, Conner pulled his helmet off and punched the emergency control code into the airlock panel. "Come on, come on, come on." He paced inside the airlock.

A fraction of a second later the hatch slid to the side and he dashed inside the main ship. He was still testing the new hookups to the ship's intercom and hoped it was up to par.

*"Star Hawk Alert Code Epsilon-Tango-Zero-Four-Two."* The ship lurched again as he hoped the new connections were sound and the ship's systems initiated the transmission of a pre-recorded general alert for rapid egress from local space.

"Easy Runner ... take it easy. Focus and look out for traffic."

*"I gotta go!"*

“You will my friend ... you will ... just don’t run into anybody on the way out.” As he ran through the passageway to the lower deck control room, Conner talked loudly so the vibrating translator beneath the control room would add emphasis to his words.

He dashed into the control room and threw himself into the captain’s chair. Fastening the restraint straps one handed while he rapidly brought the panel to full power he saw shapes flashing by as Runner lurched through the cluster of objects in the Earth-Moon L2 point on inertial drive alone. Conner was sure they barely missed at least two harness ships, one of them with Solar Navy colors, before they got to open space and Runner engaged his FTL field.

In only a few minutes Runner was outside of the main traffic lanes and Conner could only see a couple of contacts on his monitors anywhere close to their trajectory.

He was not surprised when those two contacts swerved to intercept.

*“You can’t outrun ME! I’m STAR RUNNER!”*

Conner recognized the scans of the two manta that had raced with Runner on their recent two hundred light year and back, dash. They moved to come alongside Runner, then Conner saw a third blip as another manta came in to the flying formation.

Escorting Runner outboard of their path, the three made a uniform bracket of energy with Runner at its core. Coming in closer than Conner ever imagined they could, the energy fields of all three combined with Runner’s fin energy to jack up the strength of the combined bundle till they raced through space at a speed that his data systems were having trouble accurately documenting.

He had never heard of the act being done before.

And the speed they were moving was greater than his ship’s systems could accurately estimate. The last credible reading he’d gotten surpassed a light year per minute. He could actually see several stars in view through his control room clear screen window moving as his eyes *saw* the thousands of jumps as a continual line.

Conner could feel the voices of the talking mantas just out of his perception that manifested as a dull ache behind his eyes. Theirs was not the baby talk that Conner had seemed to now be able to share, but adult manta speech.

He finally managed to tone the almost-heard mindtalk down to where it didn’t intrude on his senses and returned to his ship’s duties. He scanned space as they flew, but passively so as not to interfere with the display that surrounded him and Runner.

They were headed in a direction that held ... nothing. They were headed in a direction from Sol where no ship had found life as far as humans had explored. And it didn’t look like Runner and his three-part escort was going to slow down anytime soon.

After a while Conner grew bored himself and decided to do an inspection of the new systems and the supplies that it looked like he might need now instead of a vague *soon*. He spent the next several hours counting crates and barrels and checking tie-down straps, then another hour going through the access tubes to the hydrate tanks and Oort Mold rack's inspecting systems and cleaning panels.

He went back to the control room for a while ... then decided to get some sleep.

Shortly after his second morning at a speed Conner could hardly believe, Runner pleaded. "*HUNGRY!*"

Without thinking, Conner went to set up the swing arm to give Runner a hydrate straw while he flew through space. The system had allowed Runner to bait several lobo packs a year that would have torn him to pieces if they could have caught him.

Conner was moving the feed tube with the toggle stick when a shout pierced his mind.

*"NO CUB! DO NOT FEED HER!"*

Conner stumbled as he reflexively pushed away from the feeding tube control yoke. "Wha ...?"

*"Do not feed her. She must run harder and feeding would cause her to slow down."*

*"Hungry! PLEASE Conner!"*

Conner was torn. The distress in his friend's mind-voice caused him pain.

*"The health of her children depends on you not feeding her, cub."* The voice seemed familiar, then he remembered the curmudgeon that had welcomed him to sentience.

*"Please Conner. I'm so hungry."*

Conner squeezed his eyes closed and thought with as much love as he could imagine. "*Run my friend. Run for your children. Run HARD for your children!*" By the end he was mentally screaming encouragement.

*"I WILL! I'll run REAL hard for you my third human cub!"*

And she did.

Three days later the other three manta peeled off and disappeared into the black of space. Runner flew on for another day before she ... he ... seemed to go into a spasm that shook him ... her ... from head to tail.

Runner pulsed several times in the direction they had been traveling, then turned and raced in another direction. After several hours Conner saw a blip on his screen. Another few moments brought them to a hydrate comet of considerable size.

*"You did well, cub."* Came the voice of the elder manta that had contributed to the racing, mating ring. "*The mating race was one of the longest and fastest in my memory and that stretches back a considerable distance. The children will be among the strongest of our kind to race between the stars."*



In his monitors Conner could see the other two male escorts arriving behind them. *"They went looking for food for them all after the long mating race."* He thought to himself.

*"Precisely."* Came the voice of the elder manta. *"You have learned quickly, cub. Does your cranial knot cause you pain when you talk like a sentient?"*

Conner was amazed at the sincere tone of the ancient manta. *"No, there is no more pain. What happens now?"* He felt compelled to speak with his mind only, if only to impress this seemingly important member of the manta species.

*"She will feed and nurture the womb that our race has initiated within her body. In the time span you know of as two years her newborn larvae will be expelled and they will seek out the nourishment nipple that will form at the anterior slope of her fins. They will remain at that nipple for another two years before they morph into their pre-adult form and begin to explore away from their mother's side."*

*"They will stay within voice distance from her for another couple dozen years or more before they begin to venture further away from her side more and more."* The elder manta explained in his mind. *"Eventually, in a few human decades, the young will cease returning to their mother's side and she will revert back to her male form."*

Conner was amazed. He had learned more in the past couple of days about the reproductive habits of the manta species than the whole of mankind knew before. Reproduction was one of the dozens of secrets that the manta had made no excuse about keeping from humanity.

And here ... in a few short days ... he had learned things only imagined before.

He did wonder, though, if he would be allowed to reveal what he had learned.

\* 5 \*

Conner sent probes out to the areas of the hydrate comet not harboring one of the four voracious mantas and found a bonanza to beat all the others he had found in the same time period as the revelations on manta procreation.

The life forms that lived at the extreme distances from stars came in an uncountable variety. The pre-biotic forms that are thought by many to be the origin of earth life are the plankton of the cloud life found on and around the frozen bodies of the Kuiper belt and Oort cloud. This abundant food source feeds thousands of different herbivores ... who are then food for thousands of graduating levels of predators and scavengers.

Some of the rarest of these that were known to mankind included specimens that had unique properties in addition to their use as beasts of labor. Some concentrated specific rare

metals in their skin, while others rid themselves of concentrated metals with shed skin.

Others had internal organs with contents that could be found no where else in the universe. It was the study of these organs in operation that allowed humanity to duplicate both the inertial and FTL drives of Cloud life.

Conner could not believe his eyes as he looked into the oddly-shaped crater in the ice and stone of the rogue comet between the stars. The crater was nearly a kilometer wide and evenly cut into the rock and ice. At the bottom of the hole rested the focus of his intense gaze.

He had had plenty of time in his score and a half of life to study the biology and botany of the many forms of cloudlife. There were no examples of what he now saw in any records kept by mankind.

The creature, and that was what it was, looked like a giant, horned worm. Glancing at the probe's visual feed, he saw that the creature was approximately three times the length of a manta. Where the fins lay on most cloudlife that could fly at faster than light speeds, this creature had three long ridges of spaced horns that were of a uniform size.

The diameter of the monster from horn line to horn line was as wide as fin tip to fin tip on a manta, while the core body was much thicker and at least three times as long. It was hard to tell for sure without reference points.

There were the same number of horns as there were spines in a manta fin, and they were correspondingly further apart. The monster rested on two of the lines of horns, using them like a couple dozen legs holding the curved body above the surface in the miniscule gravity.

*"What in the hell?"* He thought to himself.

"That is one of the Great Ones." Runner's voice came through the ship's speakers.

"You're back!" Conner exclaimed, then. "Are you a girl yet? Your voice sounds the same."

"It is an ongoing process and will proceed at the same rate as my young ... and why would my voice change?"

"Never mind." Conner laughed, then looked at the immense form in the view screen linked to the probe's cameras. "So ... what's a great one?"

*"They are the oldest of the old."* The elder who had named himself *Starwind Rider* said in his mind. *"They were young when your world's star was first forming."*

"Looks like a dragon ... or an oversized sea snake." Conner mumbled, then louder. "*Star Hawk*, Activate Code Delta-Epsilon-Two-Seven-Nine. Label the new file, *Star Hawk New Species Discovery Three* and secure a date stamp. Copy all files from the current deployment of probes zero-zero-one, zero-zero-two, and zero-zero-three to the new file and imprint the current Earth Standard date stamp for all three probes into the security overlay.

His mind went to the two new species his grandfather had found in the first decades of his partnership with Runner as he continued. "Record all data input from probes *Lewis*, *Clark* and *Sacagawea* for a second copy to be sent to Wiki-space."

He thought of all the names given to each new species and the habit of most people to name each new species after themselves or a sponsor. One of the two new species discovered by his grandfather on a trip to the Centauri Rift was named the Greyhawk Scorpion. He wasn't about to add another species with the family name. "Label as prospective new species and apply for the species name *Star Dragon*. End verbal input."

He scanned the form shown in the screen and noticed the readings in another of his console's screens. Looking at the data stream more closely his eyebrows rose at the spectral graph.

Tapping at the control console for the probe scanning the galactic northern pole of the rogue icy dwarf planet, he brought *Clark* in closer to the motionless form.

There in the depression where the great beast had been feeding on rock and ice, Conner saw several glittering shapes. The graph on the data feed from the probe's sensors jumped as the beam concentrated on the nearest of the glittering shapes.

"*Is that what I think it is?*" He wondered in a loud mental voice.

"Yes." Runner replied in kind. "*The great ones roam the spaces between the stars. They do not run like my kind and when they get tired they find a remote food source and stay for centuries at a time.*"

"*Judging from the feeding pit this one has dug,*" Runner continued, "*I would say that she has been here several hundred years ... maybe as much as a thousand.*"

"*That's not a crater?*" Conner mentally asked as he looked at the monitor feed from both the *Lewis* and *Sacagawea* monitors that showed similar craters at other locations on the surface of the worldlet. There were several of them ... but none of the others contained the crystal conglomerates.

"*No ... it is a feeding pit.*" Came the response into his reverie as he studied the monitors. "*And the objects your probe has identified are, in fact, similar to the objects humans call mantastones.*"

"*I count the same number of spheres in the occupied crater as there are craters on this worldlet.*" Conner projected his musings. "*I wonder why she carries them with her to each new pit?*"

Conner looked at the screen again and his mind whirled. The crystals in the view screen were two and three times the size of the biggest mantastone on record ... and if there was one for every crater the probes had identified, then there were seventeen of them scattered around the coiled body of the star dragon.

"*Is it asleep?*"

"Yes." Came the answer from his manta friend. "*She is not likely to awaken for much less than three or four good tail*

*slaps. But I would not want to be within a couple of light minutes of here if someone were to be foolish enough to do that ... or the equivalent."*

*"A human in a jeep or better yet, a suit, would not cause the least notice."* Runner added, knowing Conner's interest, then added. *"If the person doing so was careful to not make physical contact with the Great One, I think most of the spheres can be safely collected."*

Conner increased the magnification to get a better picture and saw that the spheres were not solid. Instead, they looked like mottled spheres that contained a mass of smaller crystals encased in some sort of loosely packed crystal fibers.

His fingers flew across his console and *Clark* moved even closer to compensate for the limits of the magnification limits of its internal cameras in the low levels of available light. *Clark* moved close enough for more specialized instruments to get better spectral readings and he was pleased as he read the results.

"Have I got time to gather a few of those before you get antsy to run again?" Conner said aloud.

"Plenty of time." Runner answered smoothly in her deep ship-voice.

Conner suited up and took the jeep to the edge of the feeding pit. It was slow work despite the small gravity of the rogue comet floating light years from the nearest star. Each of the dragonstones was at least two meters in diameter with the majority measuring between three and three-and-a-half meters.

They didn't weigh much in the low gravity ... but they still had mass.

He broke several fist-sized nodules from the first aggregate he collected and put them and the crystal fibers in specimen analyzers along with samples of skin flakes and dragon poop scattered about the feeding pit. While the samples were being analyzed he made several more trips, collecting dragonstone aggregates, dragon skin, and dragon poop and stuffing samples in cargo bags and securing the bags in and around the harness frame.

While he worked ... the manta talked in frequencies that his new abilities couldn't reach.

\* \* \*

*"You have done well Star Runner."* Starwind Rider said. *"The changes you projected in the domestication of your pet line have proven successful."*

*"Thank you mother."* Star Runner said. *"The solution was in the frequency modulation of the alteration process combined with the earlier exposure age of the human. The shift in target location for the link node was also critical ... as I suspected."*

*"I have already taken steps to ensure the implementation of additional changes to improve the process in the next generation of the Greyhawk line."* Star Runner added. *"I have*

*been encouraging my current breeding male to use donor eggs with the new artificial wombs his scientists have perfected to provide himself with an heir."*

*"His only excuse not to was the cost ... that is why I suggested this finding of treasure."* She emitted sincere gratification towards the other in their conversation. *"Thank you All-Mother for providing it for our project of exploring the wondrous life forms of the hot worlds. This treasure to my human will allow me to research the growing human larvae at the same time my own larvae form."*

*"Will this change the timing of your other experiment?"*

Replied the rumbling mind-voice of the being Conner had named a Star Dragon.

*"No All-mother."* Star Runner replied with respect to the most ancient of her kind. *"I have used the information from the human research to reconfigure my womb. My first three children will be capable of traveling inside the atmosphere of the human home world and withstand the increased gravity like our evolutionary cousins from the Centauri Rift. The children's internal bracing will be rearranged so that two spines will act as landing legs when resting on the surface. This will have the side effect of giving them a more two dimensional orientation that might effect the children's multi-dimensional perception, but the degree can't be determined without additional data."*

*"If the first generation of my daughter's children does not meet the standards we have postulated,"* Starwind Rider informed the most ancient of their species, *"we will reformulate and make continued improvements in the design over following generations."*

*"You still think the humans can be properly trained in only another generation or two?"* The Star Dragon known as All-Mother asked her two descendents. *"You will not need to do any more deeper physiological alterations than the speaking node?"*

*"No All-Mother."* Star Runner replied respectfully. *"Due to their level of sentience, I think it would be immoral to make any additional changes without asking for volunteers ... and to do so would reveal the unasked-for changes. The species is too militant to allow that until more can be learned about how they might react to being unknowingly altered."*

Her mind-voice took on a wondering tone. *"And I am not sure which one of us is training which. I find the interaction with my human since his speaking node matured somehow more stimulating than I have had with some of my own kind."*

*"I myself have noticed an increase in my urges to converse with the human."* Starwind Rider interjected. *"This particular individual of the species reminds me of a newborn I once saved from a persistently tormented old lobo."*

Star Runner had the grace to emit embarrassment, then she said. *"I am sure that within another pair of human generations we will know enough to be able to begin a more*

*intensive exploration of other inner worlds. It should not take too long to find a species that is not so far advanced toward sentience that we can morally make more severe changes to their genetic makeup to alter them to better serve our needs."*

*"I begin to wonder." Starwind Rider mused. "Will we even need to alter another species? These humans seem perfectly suited to serve our needs."*

The four mantas and the millennia older being Conner named a star dragon turned their attention to the human collecting aggregates of dragonstones.

They listened to his open mind as he pondered the ways the fist-sized crystals could be used in conjunction with human tech and how he would now be able to easily afford to raise the three children he'd let Runner talk him into having via artificial wombs.

Not once did he wonder why he had agreed to three instead of just one.

... to be continued