

# STAR TREK™

THE OFFICIAL STARSHIPS COLLECTION



ALTAMID SWARM SHIP  
SPECIAL ISSUE

MINING VESSEL

OPERATIONAL: 2263

LENGTH: 12 METERS

HULL PENETRATION

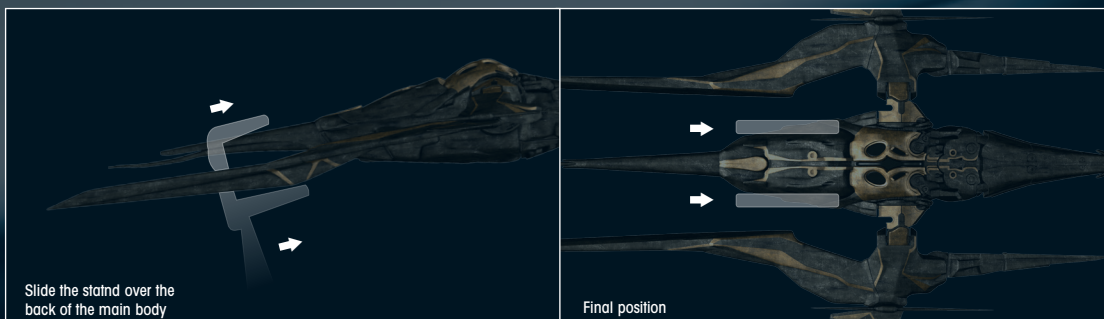
# ALTAMID SWARM SHIP

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Slide the stand over the back of the main body

Final position

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Development Director: Maggie Calmels

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# ALTAMID SWARM SHIP

## SPECIFICATION



CLASS: MINING SHIP

ORIGIN: ALTAMID

OPERATIONAL: 2263

CREW: THREE

WEAPONRY: HULL PENETRATING PINCERS







# ALTAMID SWARM SHIP

The swarm ships formed a devastating weapon that could cut a Starfleet ship to pieces.



The swarm ships were drone mining craft from the planet Altamid that were found by Starfleet Captain Balthazar Edison and used in devastating attacks on the *U.S.S. Enterprise* and on Yorktown. Each ship was a small three-man vessel that was designed to penetrate and tear through a surface, allowing its crew access to the other side. The ships were capable of operating in a planet's atmosphere and in outer space. They were extremely maneuverable and could reach high impulse speeds.

They were only designed to be operated for short periods of time and the interior was cramped. There was seating for two, with the pilot lying above on a chassis that he could tilt with his body to control the craft. His head projected into a canopy that allowed him a view of where the ship was flying.

In flight mode, wings opened on either side of the ship. When it was ready to penetrate the surface, these wings folded up, turning the ship into a streamlined dart. In this form, the ship could tear through the surface of a planet or through the hull of a starship. When it had reached its destination, twin pincers at the front folded back, creating an opening, which the crew could exit through. The ship could also be accessed through a hatch on the top above the cockpit.

The swarm ships formed a devastating weapon that 23rd century Starfleet vessels had little defense against. The individual ships passed through deflector shields without any difficulty. There were too many targets for phaser blasts to have a significant effect and they were too small and moved too fast for photon torpedoes to get a lock. At Edison's hands they ripped through the *Enterprise's* hull, cutting the nacelles off and rapidly disabling all her systems.

Hundreds of thousands of the ships were designed to operate in a swarm by flying in close formation. At first sight sensors identified the swarm as a single vessel. The flight patterns of the swarm were determined by lead ships, which communicated with the rest of the swarm through a cyberpathic link coordinating their actions. There were so many links between the ship were so intense that they jammed other communications. Ultimately, Captain Kirk destroyed the swarm fleet by disrupting these links, which resulted in the fleet exploding.

► Starfleet Captain Edison found the ships on the planet Altamid, where alien technology transformed him into Kraal.







# DESIGNING THE SWARM SHIP

The fleet of tiny ships that tore the *Enterprise* apart were designed to cut, drill and tear their way through the hull.

The swarm of ships that destroyed the *Enterprise* called for something that we hadn't seen much of in *STAR TREK*: a fleet of small fighters. Director Justin Lin wanted them to reflect the kind of weapons that are used in modern warfare such as drones and cluster bombs. The idea was that they would cut Kirk's ship to pieces, latching on to the hull to allow Kraal's troops to board the *Enterprise*, rapidly overrunning it.

The first person to start work on the design of these ships was senior concept illustrator Sean

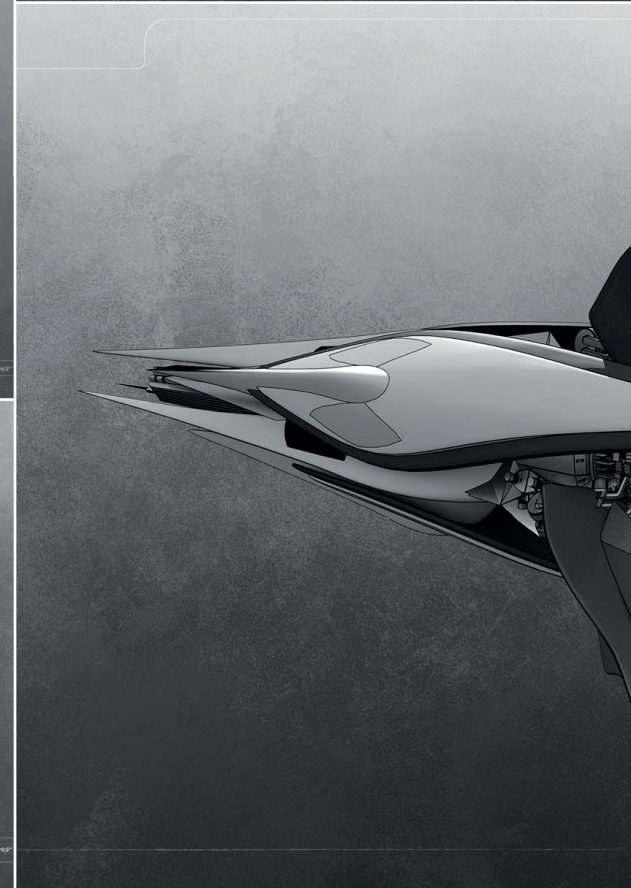
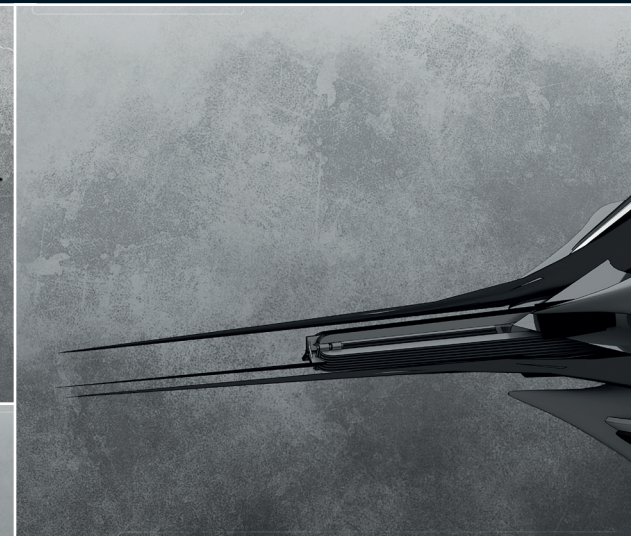
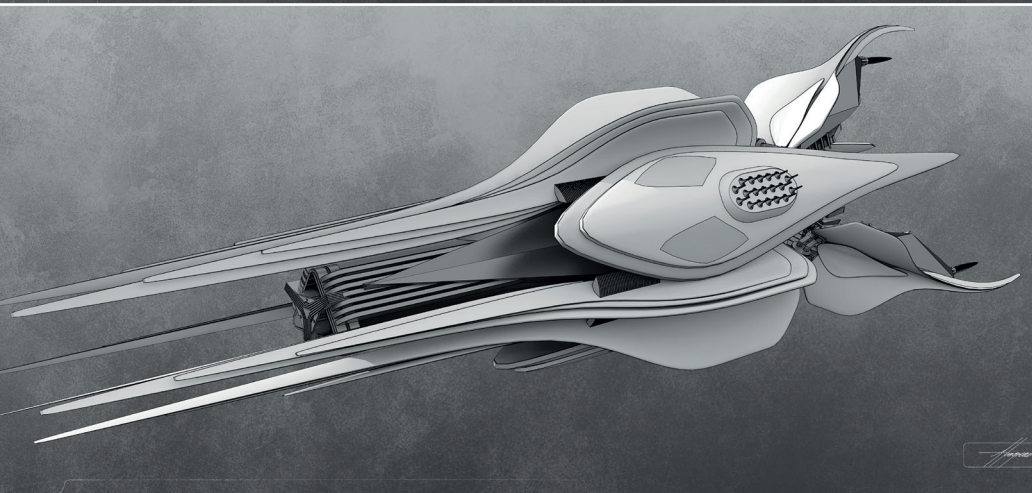
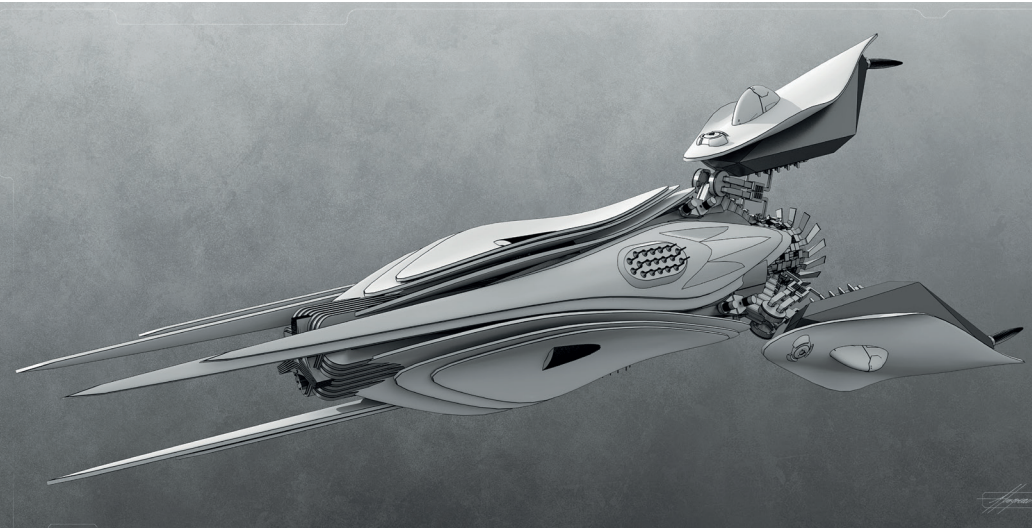
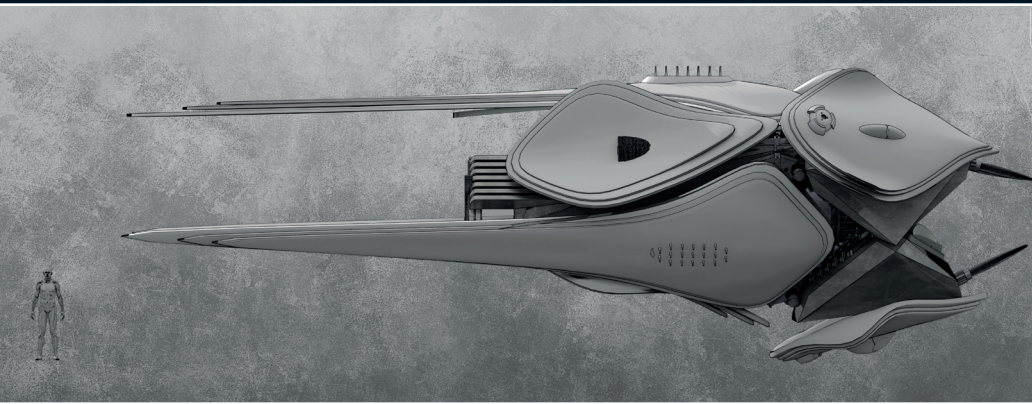
Hargreaves. "It was actually one of the first things I ever did for Tom Sanders, the production designer," Hargreaves recalls. "Tom said, 'We've got these swarm ships. When we first see them they are clustered together and look like one big ship, then they all separate.'"

Hargreaves began by thinking about what the ships would look like when they were connected to one another. "We asked, 'How do they join together? Is it like chainmail?'" All this kind of very complicated stuff. We went through a bunch of









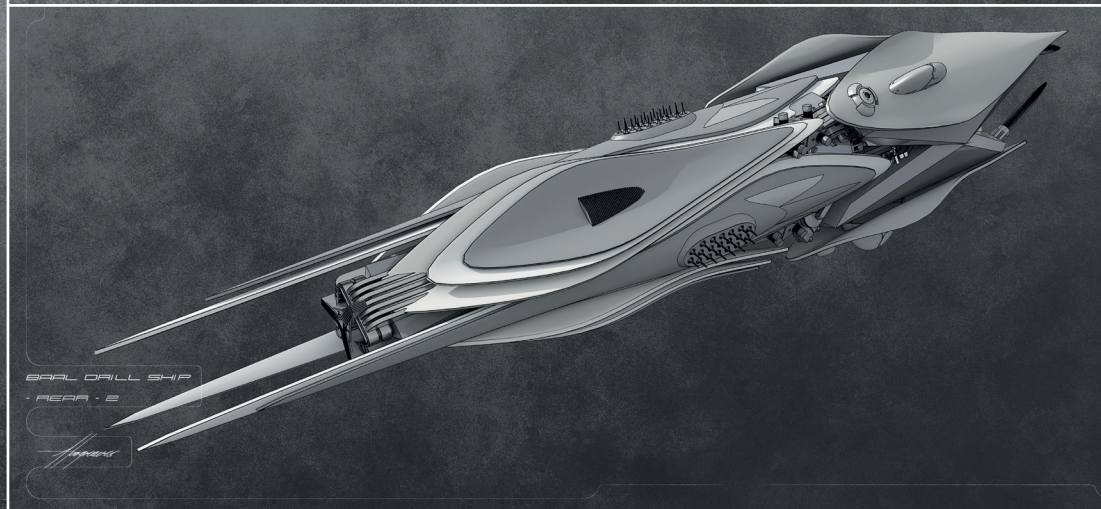
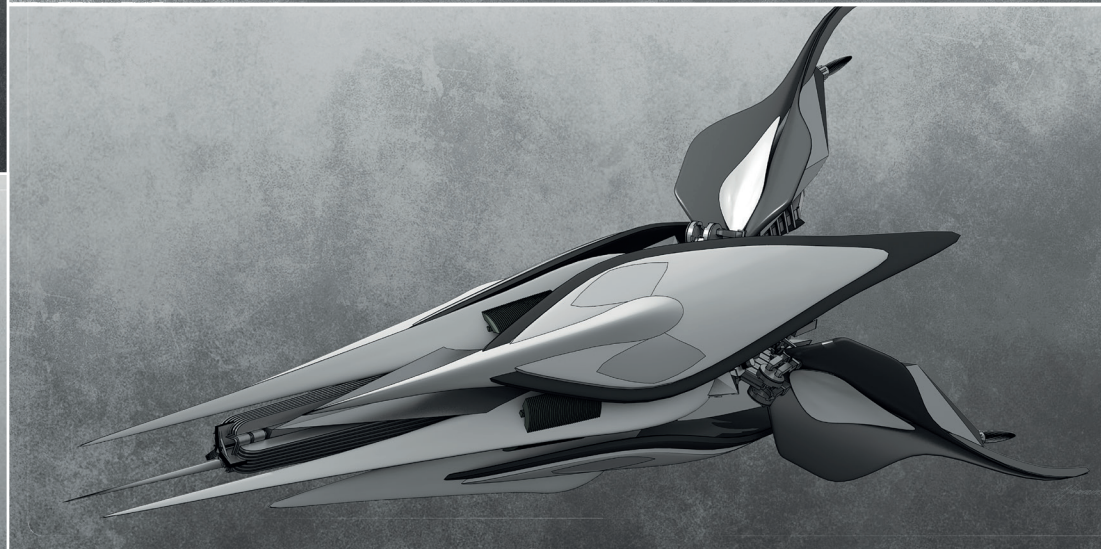
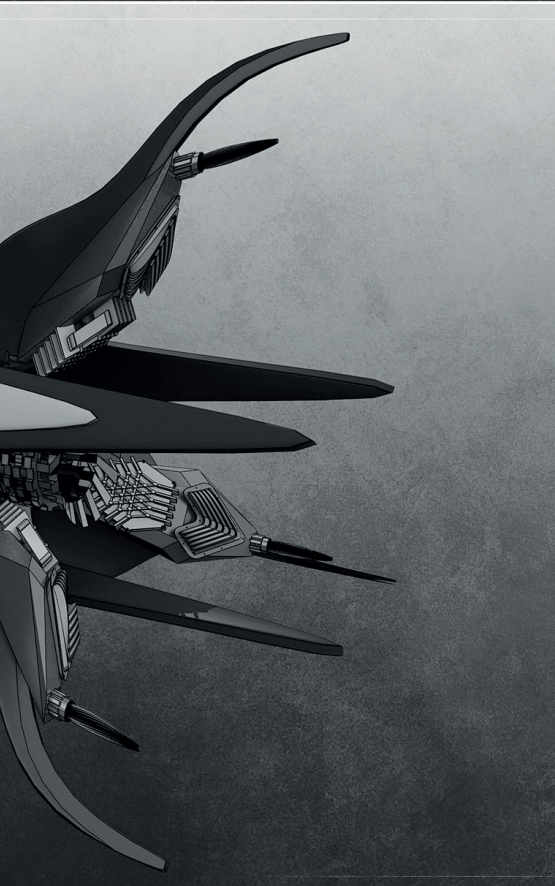
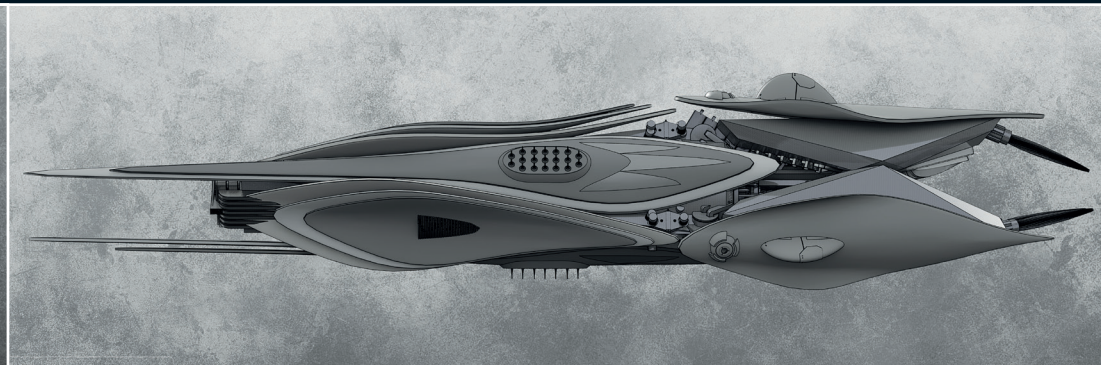
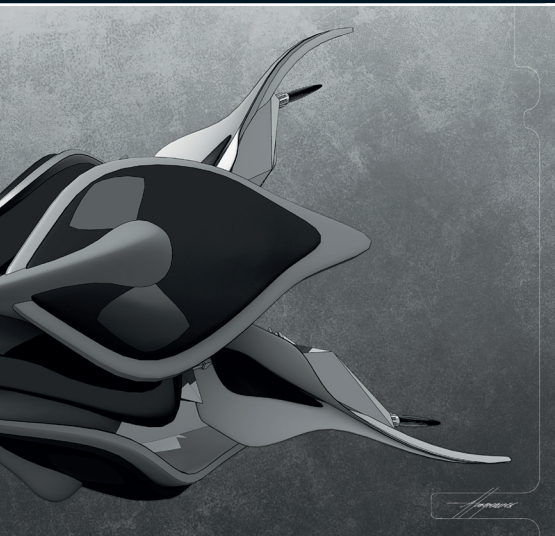
different iterations of what that shape would be. Tom had this idea what it would be a gigantic tube, almost like a huge whale shark, when it has its mouth open. It engulfs the *Enterprise* and then all hell breaks loose. That didn't happen in the film but the first thing I did was to work on what that would look like."

At this stage, the idea was that the swarm of ships would actually be physically connected to one another until they mounted their attack, although this was something that would be

abandoned later in favor of having them fly in close formation.

Hargreaves remembers that he was faced with several challenges. "There was a bunch of hurdles that we were dealing with. It was tricky because you're dealing with a lot of different tiny elements. You're dealing with them in scale and trying to make it look interesting without it looking like a big blobby blob floating around space! Also, at the time the swarm ships were black, and black on black is a problem. All you end up seeing is the





speck of the highlights moving.”

The formations that the swarm ships would use would become a major undertaking, with the visual effects house Double Negative studying the way that birds and fish swarm, before creating their own algorithms that resembled buzz saws and drill bits.

#### PRACTICAL DESIGN

Meanwhile, Hargreaves turned his attention to the design of the individual ships. He has a

background as an industrial designer so he started by asking himself how the ships could do what the script called for, regardless of what they looked like. “I knew it was going to pierce the hull and that the crew were going to enter the *Enterprise*. So I asked myself how it flew through space, how it picked up speed and then opened up the claws that penetrated the hull. Is it even a claw?”

The design Hargreaves came up with was for a small, streamlined craft with claws at the front that dug into the surface of the *Enterprise*, latching it on

▲ A selection of Sean Hargreaves’ early concepts for the swarm ships. He already had an idea of how they would work but he was looking for the best possible shape, so he was experimenting with the proportions.





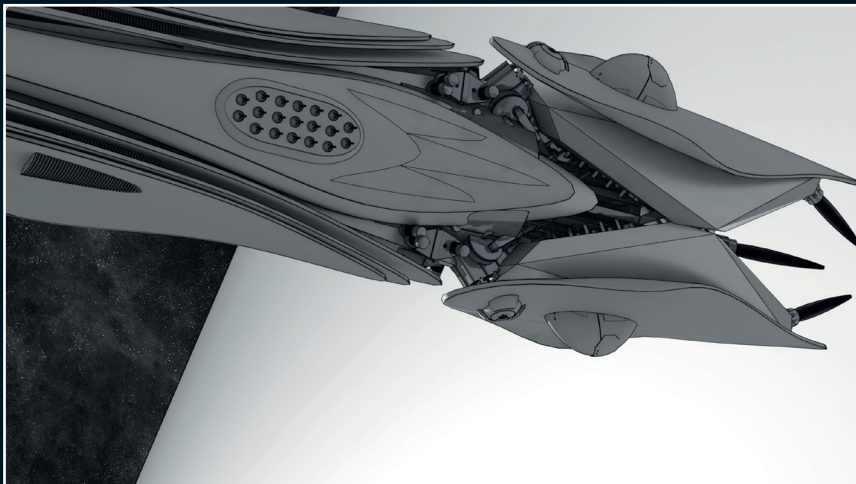
▲ Hargreaves' idea was that the front of the ship would open up to reveal a rotating drill bit that could tear through the hull.

▼ This sequence shows how the front of the ship opened up and three pincers latched on to the ship it was attacking.

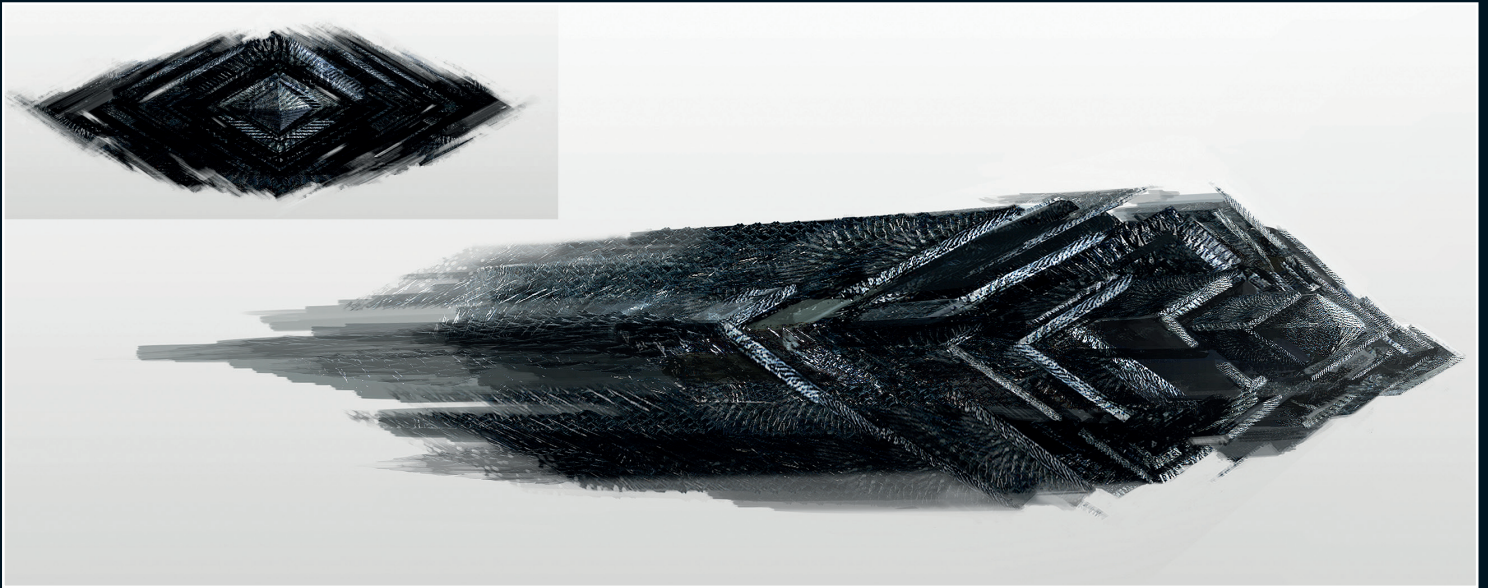
like a lamprey. The next question was how the crew would get from their ship into the *Enterprise*. "They're obviously not going to go through space," Hargreaves says, "so they have to go through the ship. I thought it would be cool if there was a drill in the front of the ship that cut through the hull and then opened up. Then they came in through the center of it "

With these elements in mind, Hargreaves gave his design several panels around the outside that would move as the ship went through its paces. "When they're flying in attack mode they have the

shields open and the claws are closed. Because the shield is open, you can see the guys inside. Once it accelerates to attack speed, the shields slide forward and close, and then the claws open for attack. There are three prongs that are like fast moving drills that latch on and then screw into the ship and then the central bit drills into the ship. I did a bunch of step sequences of how it would look. Here it is flying through space, then here it is opening up. Here are the bad guys entering the ship. It took a while to figure that stuff out and get it through the approvals."







At this point Hargreaves's drawings show that he was imagining a larger swarm ship than the final version that ended up in the film. "The scale wasn't worked out, and no one knew how many bad guys would be in there. Initially I did six guys and then it went to four. The scale went from quite long to something a lot shorter."

Once the idea of how the ship would operate had been approved, Hargreaves turned his attention to sketching out variations of the different elements, exploring different shapes and styles of movement.

"Once I got the engineering part passed I was able to come up with these shapes pretty quickly," he remembers. "If you look at them they're all variations on a theme. There's nothing that is radically different between them. It's all proportional stuff and moving parts around. Some of them were very long and very art deco like in

some of the detailing."

At this point there was still an enormous amount of design work to be done on the rest of the film, and, although Hargreaves designs were well received, there were other things that needed his attention. "Towards the end of doing those variations and handing them off, I was off to other pastures. I went onto Yorktown after that. They handed the swarm ships off to Romek Dalimata who developed the designs you saw in the film."

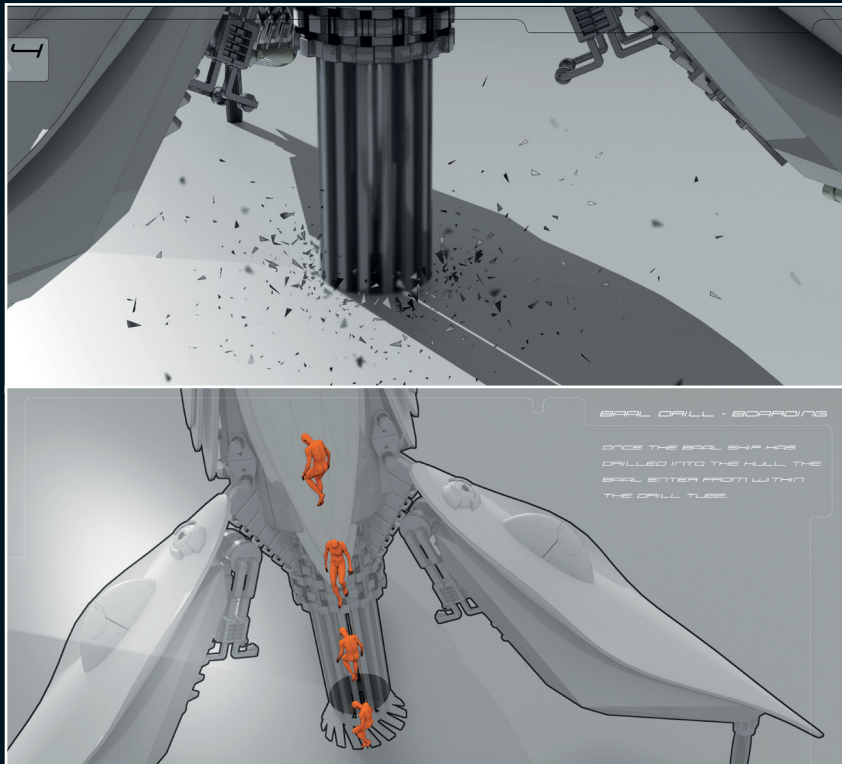
#### THE NEXT PHASE

Dalimata remembers that Hargreaves' designs were only part of what he was handed. "Certainly in the beginning there were a ton of people working on it, not just Sean. Some of the concepts I was given had notes that said they were going in the wrong direction. There were other designs that had them looking like limpet-like things that sucked

▲ From the beginning, the idea was that the Swarm Ships would fly in formation. One of production designer Tom Sanders' early ideas was that they could be mistaken for a single ship, which surrounded the *Enterprise* before breaking apart.







▼ Hargreaves' early designs were for a much larger ship than the version that ended up in the film. This drawing shows how the crew would sit behind the drill bit.

onto the side of the ship, but I guess Sean had done the ones that were most liked. I thought his concepts looked really good so I took my lead from the shapes that were on them, but I didn't actually know if that was what they wanted." Dalimata's first concepts are clearly an evolution of the ideas that Hargreaves had developed,

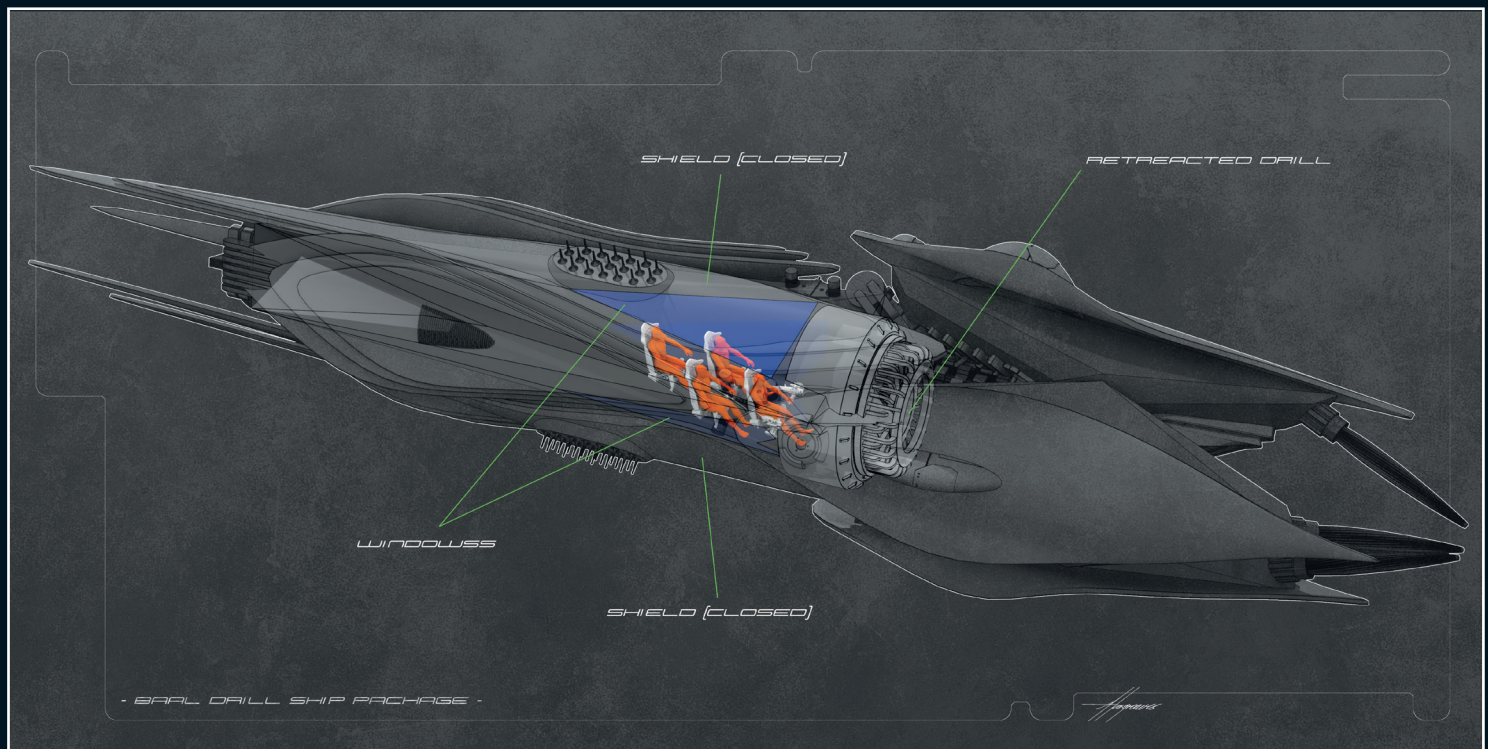
◀ Once the ship had latched on to the hull, a large drill bit would cut through the surface. The crew would then board the ship they were attacking by dropping through the center of the drill tube.

which he combined with elements from other people's designs before adding more elements of his own. "The root of my first sketch," he says, "came from what I saw in other people's designs, which, because I had missed the beginning I thought was the direction they wanted to go with."

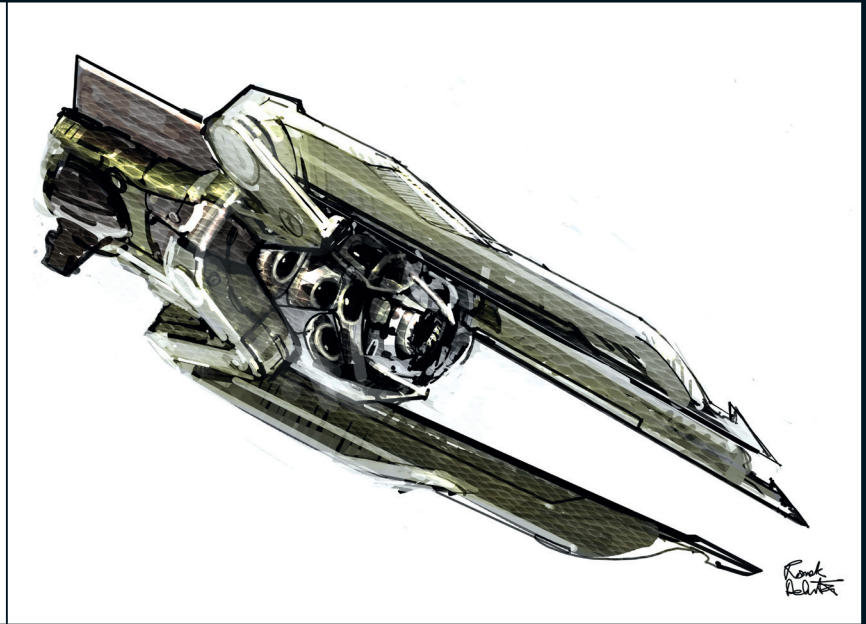
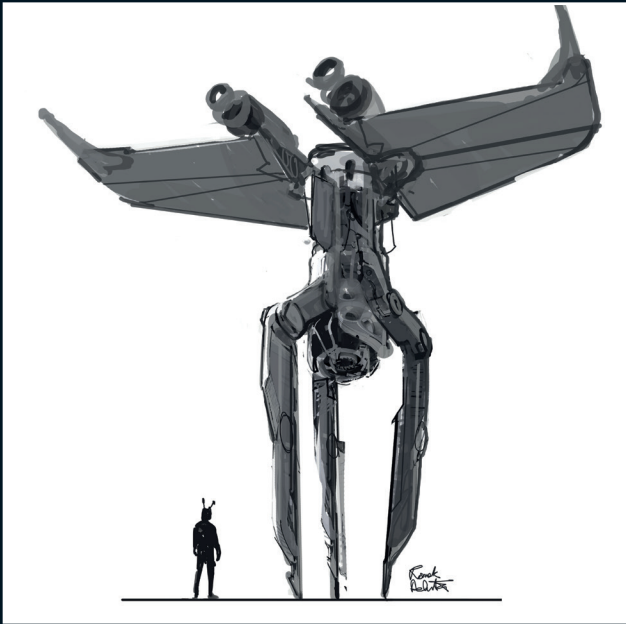
**THE SWARM EVOLVES**

This sketch shows the ship standing on three vertical prongs that are very similar to Hargreaves' claws. The drill tube in the center is still present but this version of the ship also has a pair of insect-like wings. "You've got that sweeping shape on the top, which to be honest, I think looks very like components from Jabba The Hut's sail barge in *Return of the Jedi*. I was really worried about that, but I was also basing it roughly on the shapes that were on those other models, and I thought that was the direction we were going in. At this point there was no real logic or intellect behind those particular things or purpose. I just thought, 'That's what they like.'"

Dalimata's next concept shows the ship becoming less elegant and more obviously mechanical. In it Hargreaves' petal-like panels had







been replaced with large pincer claws with heavy joints. "These things would shoot out and grab onto the ship, Dalimata explains, "then this spinning tube would come out and chop into it. It has a vicious look to it, like a scorpion. The spiky things would provide some kind of cushioning or suspension as it hit the hull of the *Enterprise* but then the flexing section of them would provide a cushioning for the impact of the rest of the vehicle."

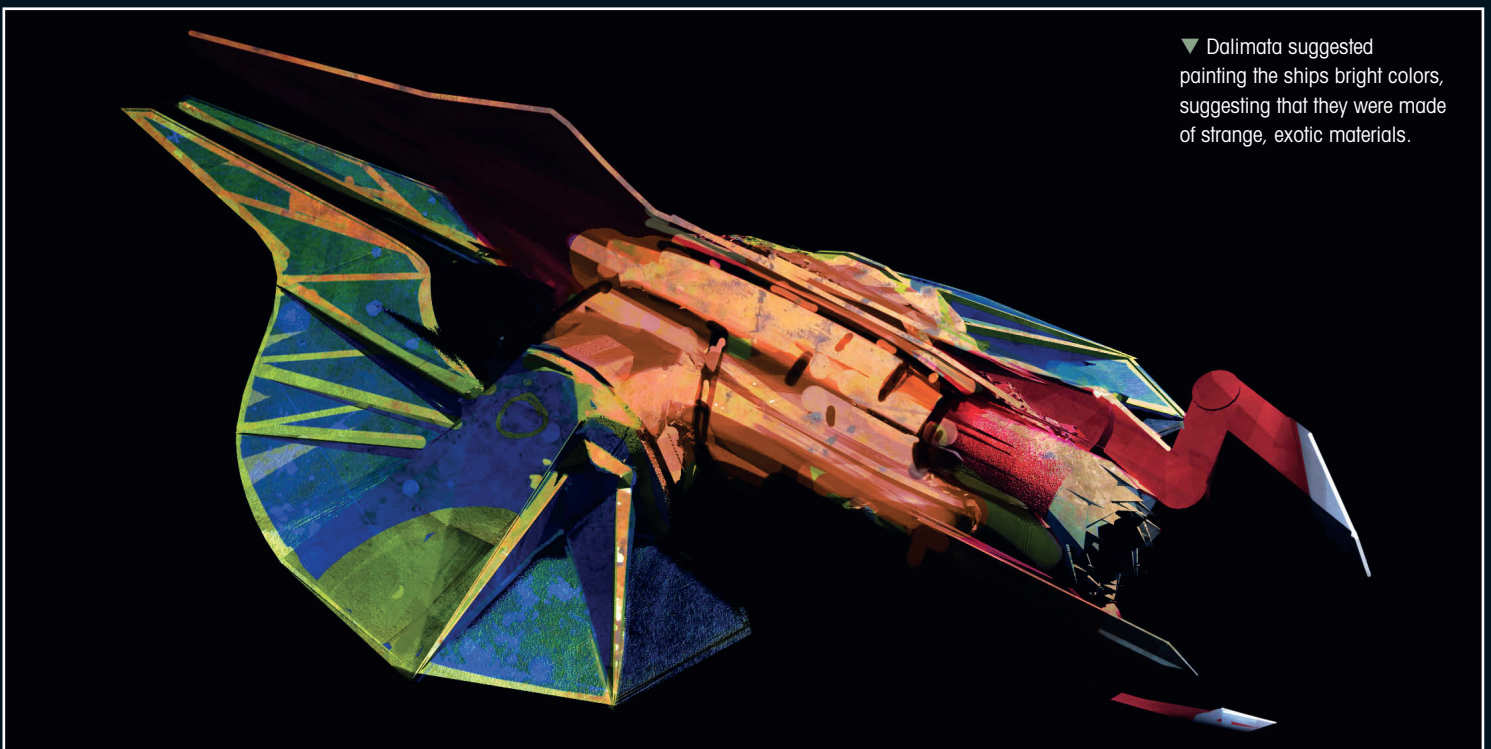
While he was working up this design, Dalimata produced a highly colored version that was a

radical departure from anything seen in *STAR TREK* before.

"There was no particular reason for it," he laughs. "I think I thought it would make them look more interesting – as if they were made out of some kind of exotic material. Tom Sanders said 'I like the warpaint kind of thing.' I was surprised by that, and it did end up getting muted, but it still made them look like some kind of insect, which was cool."

Like Hargreaves, Dalimata produced concepts showing how the swarm ships would operate

▲ The next phase of the design was handled by Romek Dalimata, who started work by taking many of the elements from Hargreaves' designs but giving them a more mechanical edge, with large, obvious hinges.



▼ Dalimata suggested painting the ships bright colors, suggesting that they were made of strange, exotic materials.





▲ Dalimata picked up the work exploring how the ships would fly in formation. The team did consider having them physically link with one another, but it was decided that they should just fly in close formation.

together in a fleet. "I was just thinking about swarms and flocking things, and if they came together into one point and penetrated at one point just how destructive that would be. If they acted together as a drill they could just tear a chunk out of the *Enterprise*."

Dalimata's early designs had elements in them that were clearly related to insects and he remembers that Sanders asked him to explore this further, and this led to him removing the drill tube in favor of something more organic. "Tom said to make them less mechanical. I remember coming up with the idea that this piece in the middle could shoot up and out like the face hugger in *Alien*. These pincers would clamp on in some way, and these skiff bits would form a seal, then that proboscis bit would shoot down through the vehicle and into the *Enterprise*. It was like an

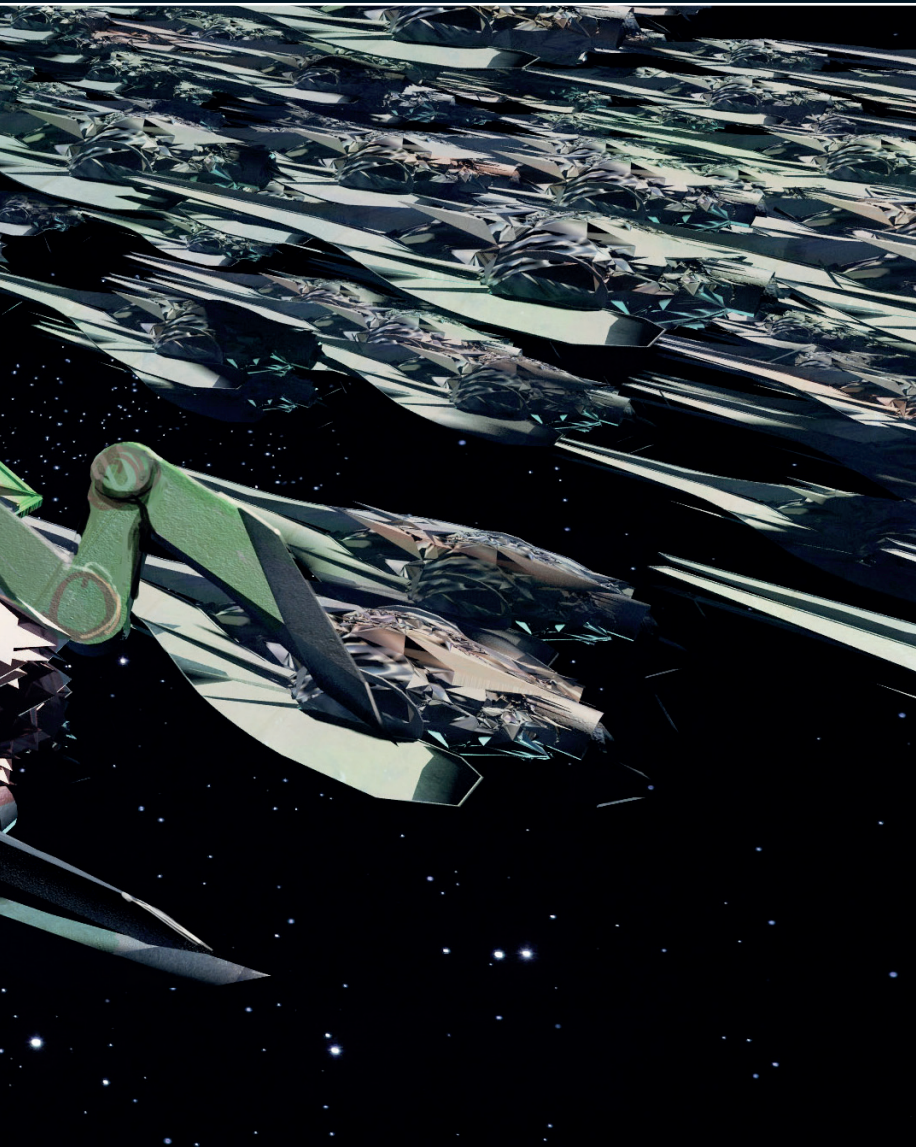
inverted wasp sting, that came out the mouth and could spew the enemy into the craft."

Dalimata's designs were for a smaller ship than Hargreaves' concepts. As he remembers it, this wasn't because he had been given any specific instructions, and he was simply being guided by what the script called for. "I had to guess at the size of it. I just thought, 'What's the action going to be?' I knew there needed to be enough room for Spock and McCoy because the script had them in there. I actually thought they would be smaller than they ended up being."

#### INSIDE THE BUG

When Dalimata thought about the internal arrangement of the ship, he had to allow for the stinger tube that was going to pierce the *Enterprise*'s hull. His solution was to move the pilot



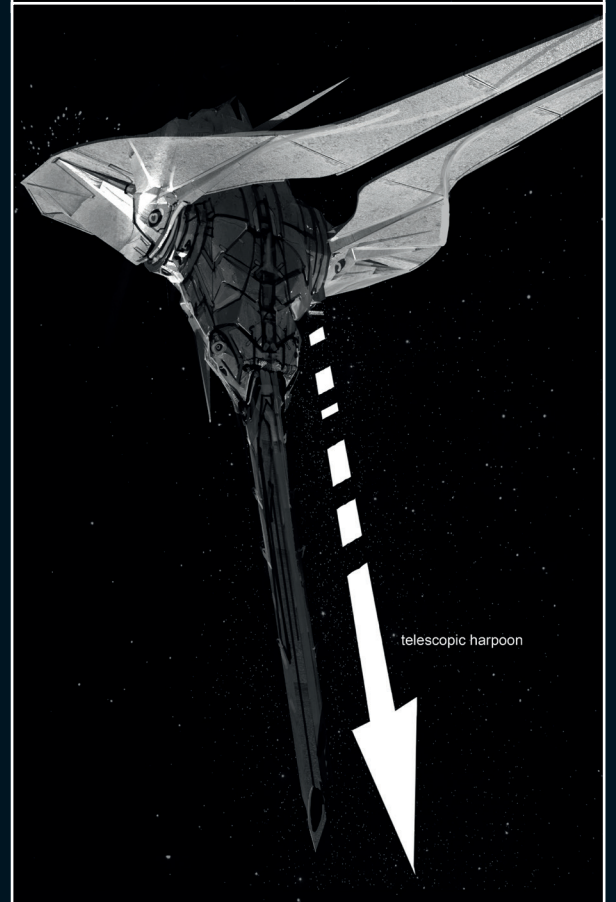


to the top of the ship, where he would be almost lying down with his legs straddling the tube.

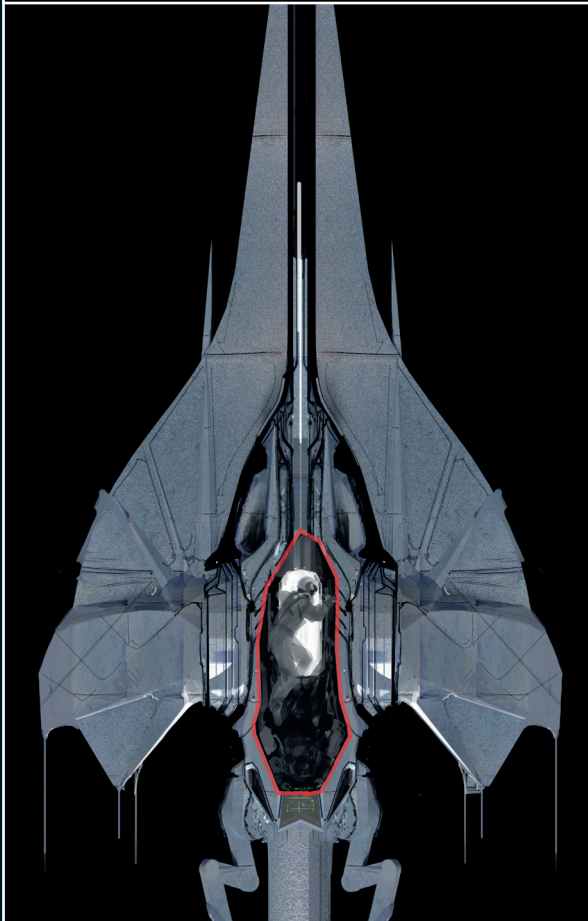
Sanders liked the more organic, buglike elements that Dalimata was introducing and encouraged him to go even further in this direction. "As soon as he saw the more organic buggy look, he told me to keep going. So I tried something else."

For the next stage, Dalimata experimented with using a piece of software called ZBrush, which is very widespread in the visual effects industry. However, he remembers he didn't get on with it, and found it extremely difficult to create smooth shapes. "The next batch of designs look really organic because I'm inexperienced with ZBrush! It's horrible software to learn. I spent a month and a half doing tutorials on it and ended up giving up on it. It was like playing with clay. It threw

► Dalimata came up with the idea that the ship would have a tube running through the middle that would be used to puncture the surface of the ship they were attacking. This 'proboscis' would shoot through the body of the ship at great speed.







◀ ▲ By this stage, the swarm ship had become a smaller vessel, and these drawings show how the pilot would fit inside by straddling the tube that would allow him to enter the ship he was attacking.

interesting things up but the fact that they look so blobby was an accident.”

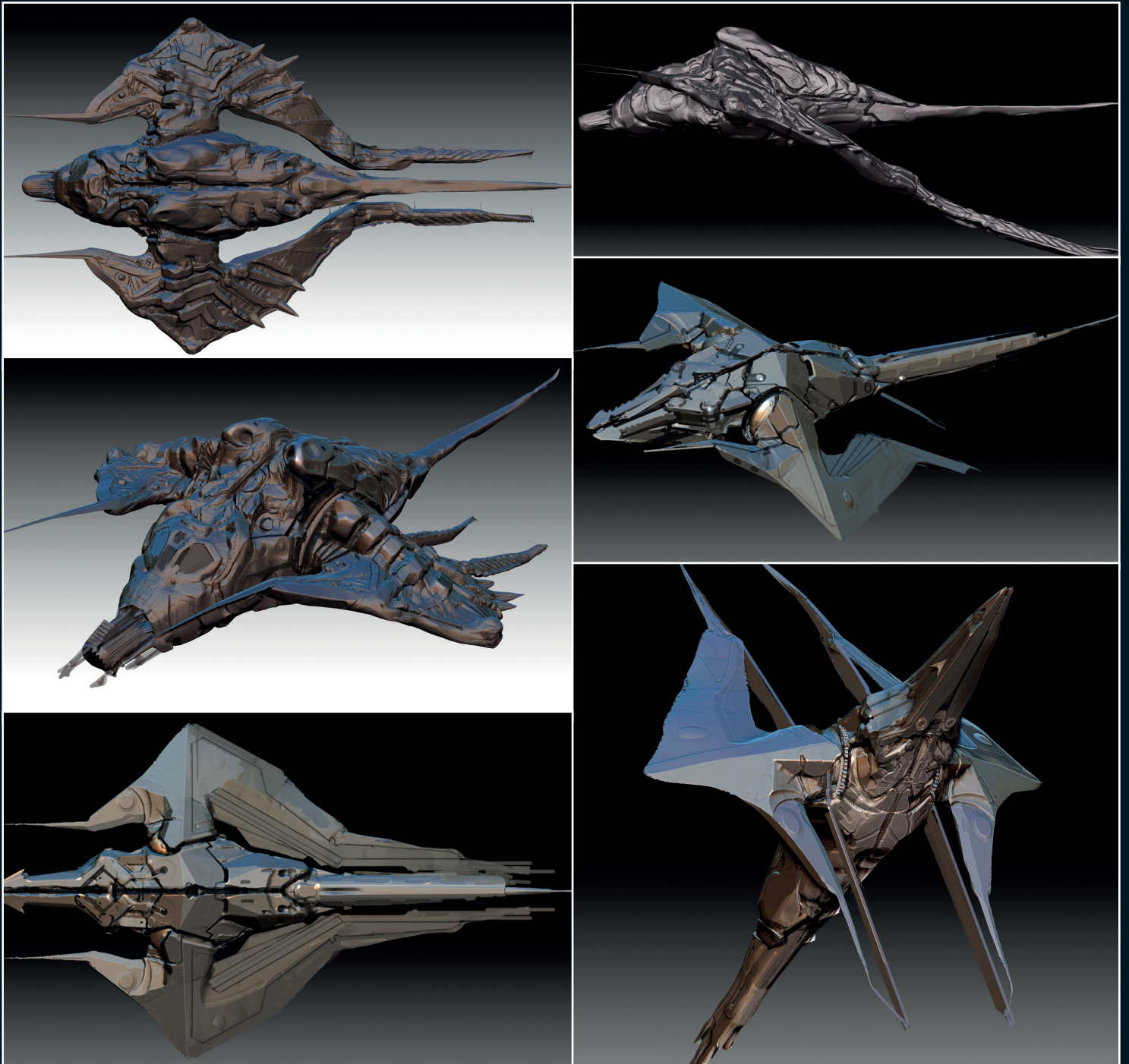
Looking at these very “lumpy” designs, Sanders felt that the ship was now becoming too organic and buglike, but he did like the overall shape that Dalimata had come up with, so the next stage was to take that and to create a smoother, more metallic version of it.

### THE JAWS OF LIFE

At this stage one of the last – and most important – pieces fell into place. Until now no-one had been entirely convinced by the method the ships would use to rip holes in the *Enterprise*'s hull. “Somebody,” Dalimata recalls, “said they should be like the jaws of life. That’s something that firefighters use. They are inverted pliers that you can use to bash through walls and then open up a space that you can walk through. The spinning thing got dropped in favor of this idea. The real things don’t look like they do in my designs but the idea is the same.”

Dalimata set to work replacing the front of the ship with twin pincers that formed an arrow head, once they had punched through the hull they





would fold back to tear a bigger hole. “I experimented a bit in 3D and I thought it would be better if they were double, or even triple hinged, so they didn’t just splay out. They would splay out and then bend back on themselves, which I thought looked really menacing. You could imagine them kind of crunching back on themselves and then crunching through the structure.”

Once these pincers had torn the hull open, Dalimata still planned to have a tube deposit the

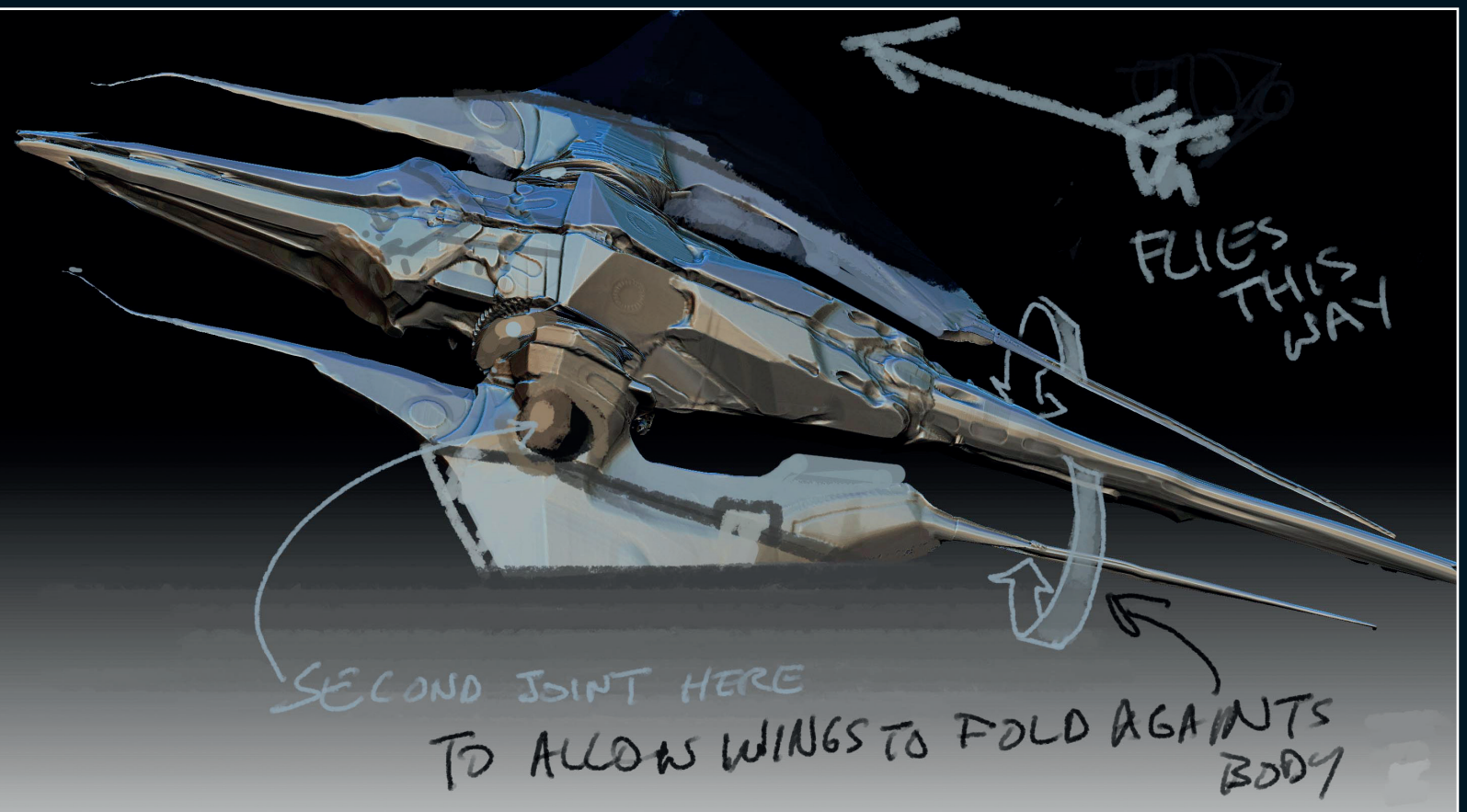
boarders on to the ship, and he still considered using the shooting ‘stinger’ to deliver the crewmen, but although this part of the design was retained it rapidly lost its function.

The final change to the design came when Justin Lin said that he wanted the swarm ships to shoot into the *Enterprise* like arrows. Sanders and Dalimata’s response was to look at the design they already had to see how it could fold up on itself to become a dart.

One final element was introduced that helped

▲ Sanders asked Dalimata to make his design more organic so he reworked it using software called ZBrush. However, Dalimata was new to the software and his designs were more ‘blobby’ than he originally intended. Sanders asked him to make the design less buglike, so on the next pass he smoothed the shapes out.





▲ The director, Justin Lin, wanted the swarm ships to look like a flight of arrows, so Dalimata redesigned them so they would fold up to become darts.

to tell the story, but that Dalimata felt took away from the menacing look of the design. “The cockpit suddenly got introduced. So I had to put a cockpit in. It was a pity I felt it looked nastier without a cockpit.” What the cockpit did do was let the audience see McCoy flying the ship, as it careered through the swarm and through the ‘streets’ of the Yorktown Station as they pursued Kraal.

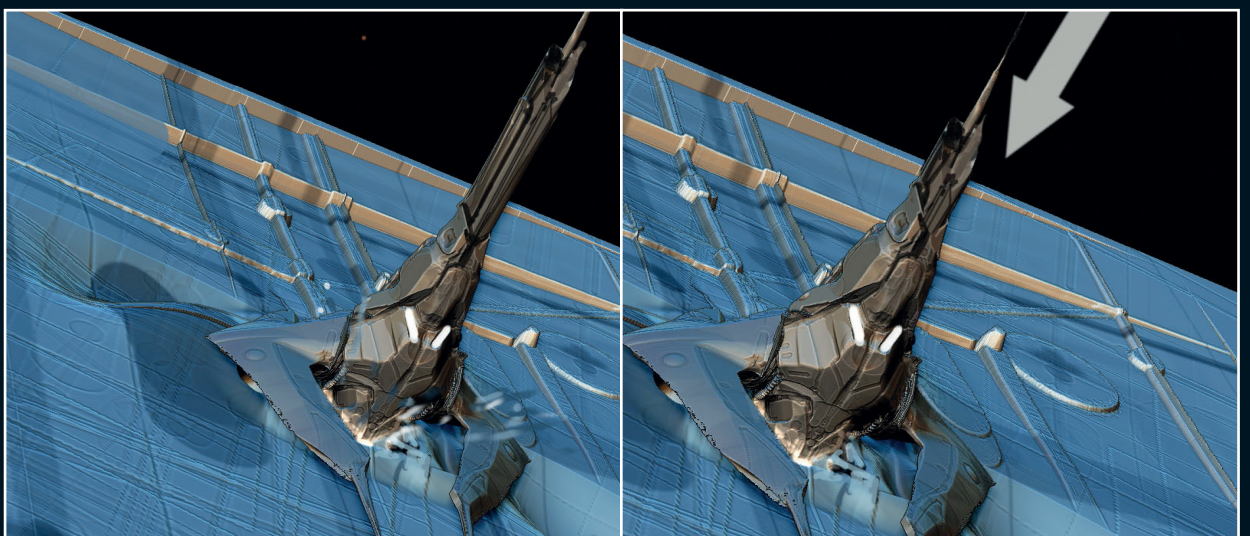
The design was now all-but final and Dalimata

handed his model on to Robert Woodruff who modelled the final version. Dalimata then took Woodruff’s model and used it to work out what the interior of the ship would look like.

#### AN OVERWHELMING SWARM

Meanwhile, the VFX team at Double Negative were still working out how hundreds of thousands of the ships would operate together. Programming and rendering so many individual models

► Once the swarm ships had penetrated the hull, the wings would fold down to form a seal, allowing the crewmen inside to enter the ship without being exposed to the vacuum of space.







▲ These renders of the CG model that was sent to the VFX team show what the Swarm Ship looked like in flight mode (left) and what it looked like when it folded up to become the 'dart' that Justin Lin had asked for (right). Dalimata also produced an animation showing how it changed from one state to the other.



▲ The drill bit was abandoned in favor of pincers that would penetrate the ship before folding back to tear a wider hole in the ship's hull.

presented them with some real challenges. Their solution was to produce different versions of the model, with higher resolution versions in the foreground and simpler ones being used further back in the swarm. Since it was impossible to program every individual ship, the movement of the swarm was driven by a series of algorithms that told most of the ships to follow a lead vessel that launched each wave of attack.

As Justin Lin had asked, the finished effect was of a terrifying, alien weapon that tore Kirk's ship apart, giving the audience something they had never seen in *STAR TREK* before.



▲ Although it wasn't actually seen in the movie, the idea was that once the jaws had created an opening in the ship, a tube would allow the pilot to drop through.



# STAR TREK™

