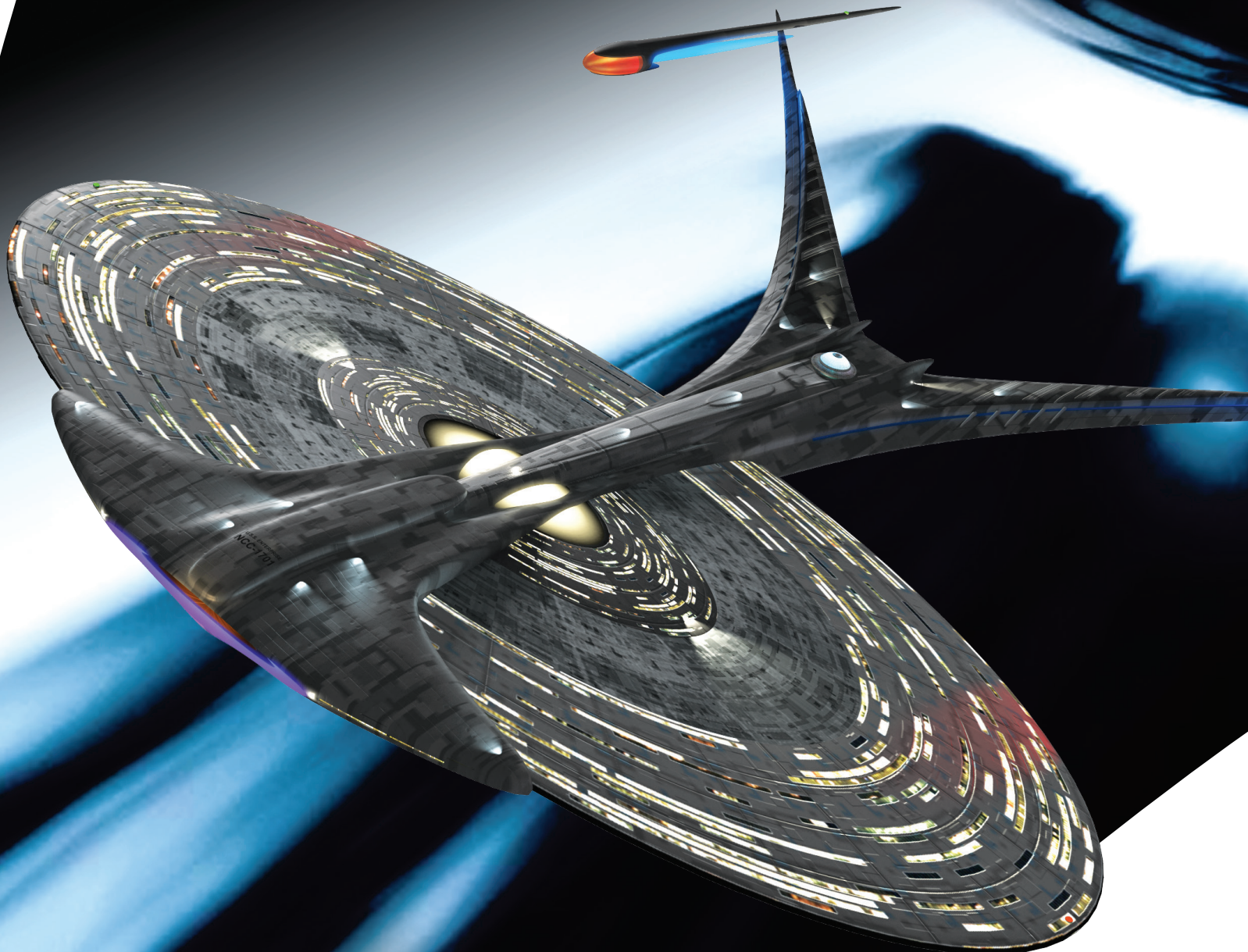


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U.S.S. ENTERPRISE™
NCC-1701-J
SPECIAL ISSUE

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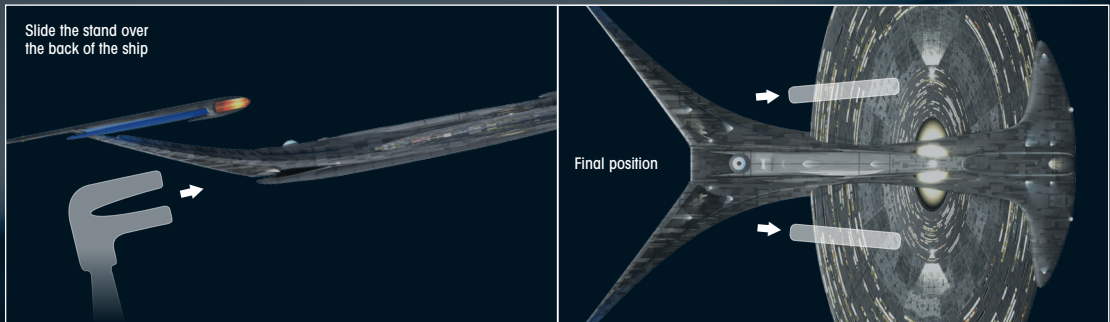
U.S.S. ENTERPRISE
NCC-1701-J

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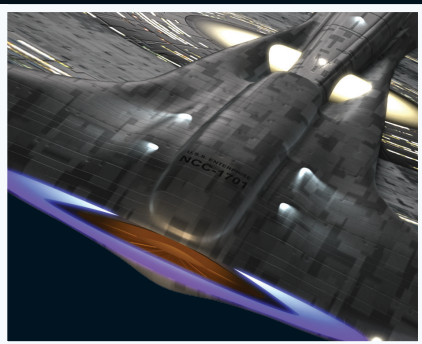
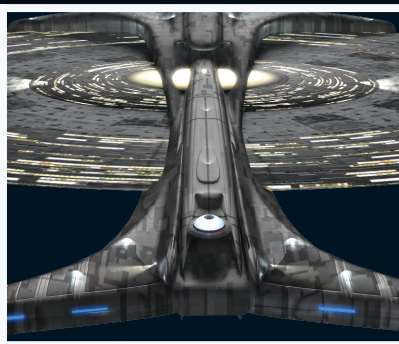
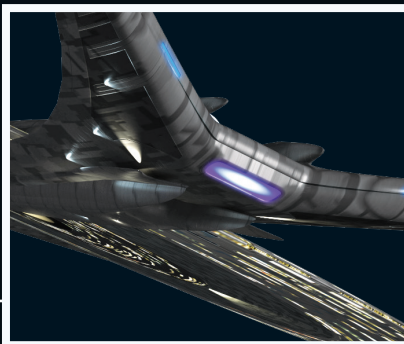


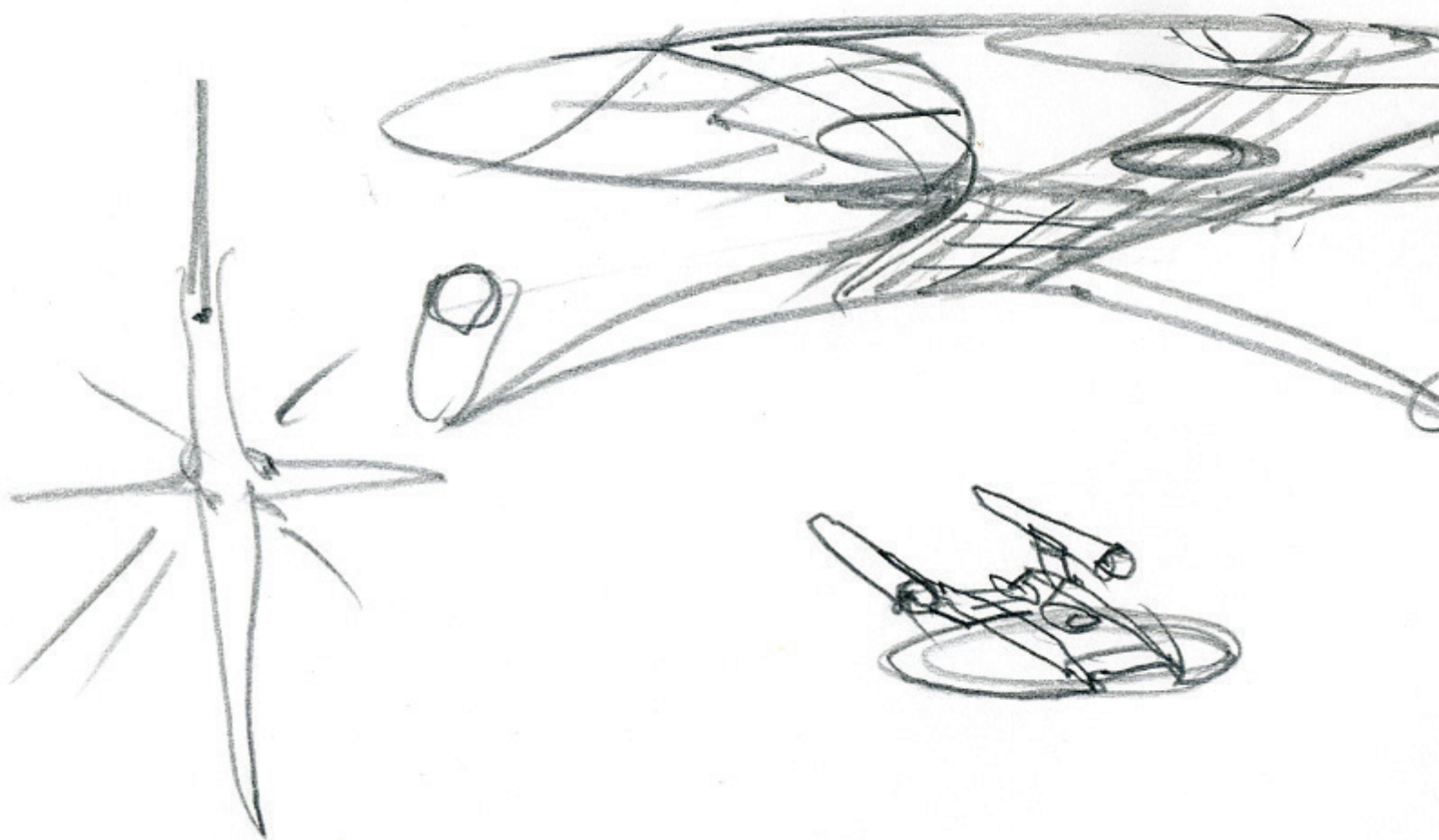
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DESIGNING THE

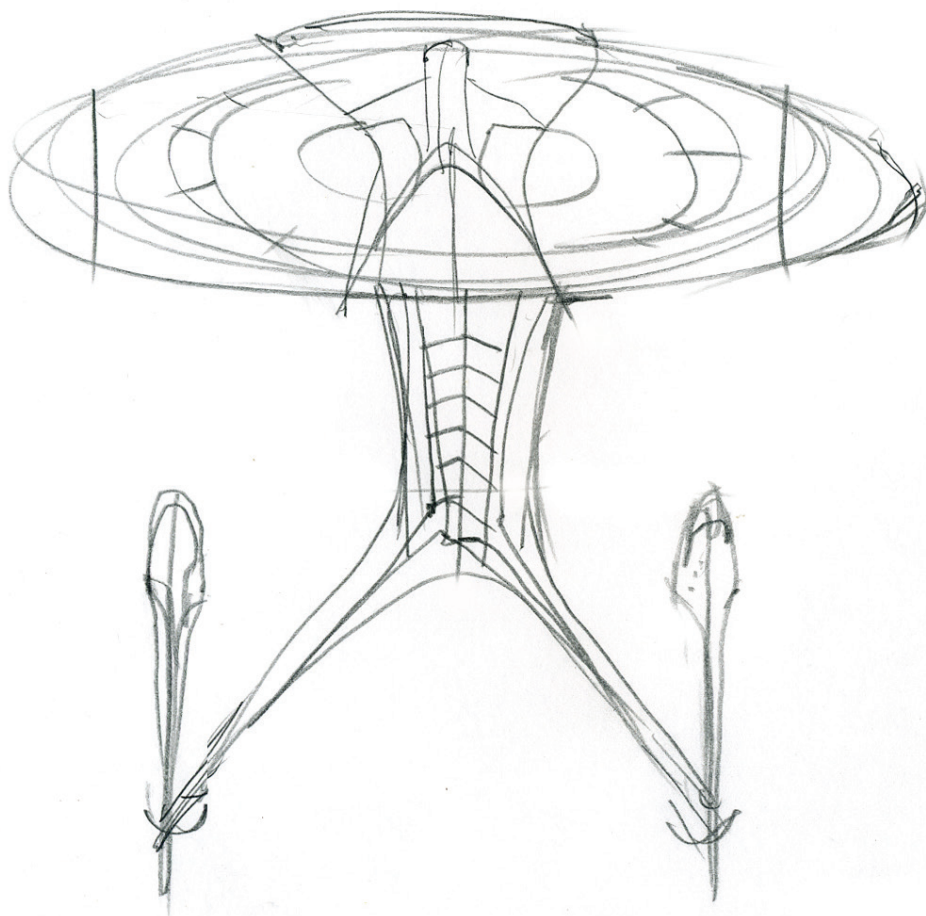
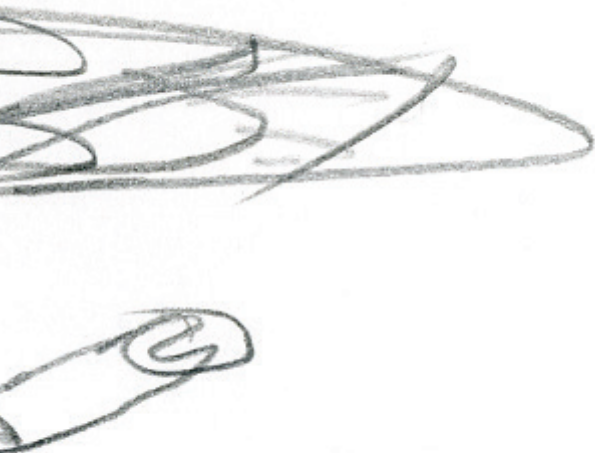
ENTERPRISE-J

Doug Drexler wanted the *Enterprise-J* to look as futuristic as possible, even though it was only on screen for a matter of seconds.

Of all the different *Enterprises*, the *Enterprise-J* has spent the least time onscreen. It is only briefly glimpsed on a display when Archer visits the 26th century in 'Azati Prime.' However, the original plan was to show it taking part in the Battle of Procyon V so the art department set about designing it. Production designer Herman Zimmerman gave the task to Doug Drexler, who only had the most basic brief

and hardly any time. "I remember Herman saying, 'Mister Berman would like to see designs for a starship at least four hundred years ahead of where we are now,'" he laughs. "I'll need some sketches to take to him the day after tomorrow.'"

For Drexler the biggest challenge was coming up with a design that looked more advanced than anything we'd seen before. "We've been designing starship for decades," he explains, "How



do you say futuristic, when you have been living the future for that long? Where do you go? That's a real challenge. You're stepping into a minefield. Dedicated fans would see it as an affront to their beloved *Enterprise*. Like what had gone before 'wasn't good enough.'"

At the same time, the ship had to be instantly recognizable as a Starfleet design. "I knew that we would only be seeing it for a second or two. It had to have a dramatically different signature, yet it still had to be an *Enterprise*."

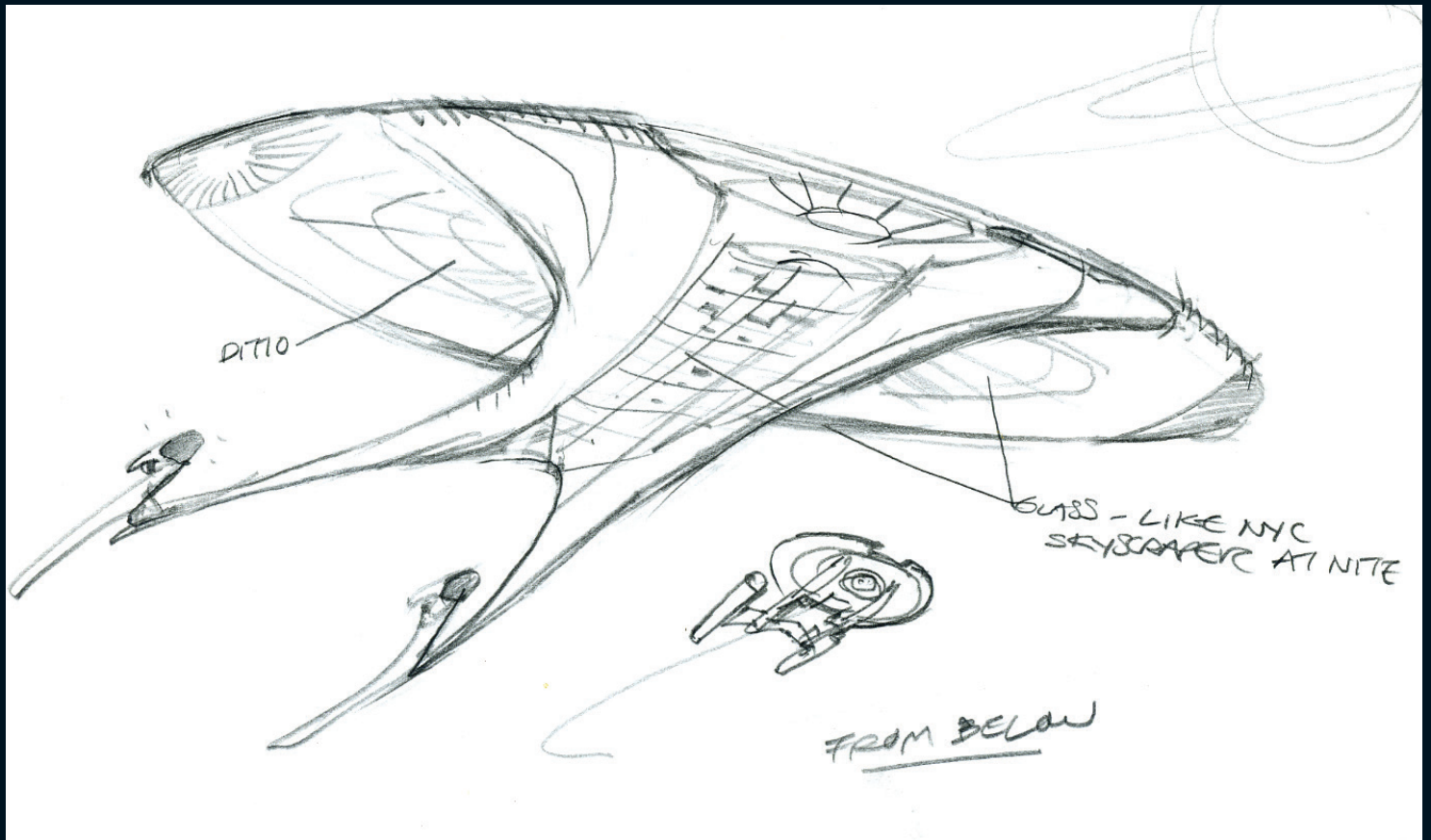
THE IMPOSSIBLE ENTERPRISE

Drexler's solution was to retain elements of traditional Starfleet design: two hulls and two warp nacelles, but to push the shapes as far as he could. "It had to be impossible in overall size, mission, and facilities," he says. "It had to break ape-brain rules in order to fulfil the order of far-flung future. I opted

for spindly nacelle struts because I felt it suggested a technology beyond what we were familiar with. Matt Jefferies used this same gag on the original series ship with its impossibly thin engine supports. Its nacelles had a floaty appearance, defying the laws of physics. The J has a deflector but I imagine that in the 26th century they are beyond transwarp. I imagine they can fold space, and that they are exploring other galaxies besides the Milky Way.

"The ship also had huge windows that covered large parts of the hull. Most people imagine that these would be ceilings and floors, meaning that our feet are always pointing 'down' in relation to the ship's direction of flight. But why? We control gravity and energy fields. There are large areas where your feet are pointed toward the center of the saucer, and the supposed ceiling and floor windows are actually walls."

▲ The *Enterprise-J* was designed in less than two days. The process began with some very quick sketches.



▲ Drexler wanted the J to be the biggest *Enterprise* ever, and says that it is two miles long.

▼ Drexler also revived a concept that he and Mike Okuda proposed as a possible design for the *U.S.S. Voyager*.

Drexler also put real effort into thinking about what life would be like aboard this *Enterprise*. "It was important that the basic mission profile, and its capabilities be developed before I went too far with the design. Even if people hated it at first, once they found out that it was all built around a real skeleton of imagination and thought that respected the world they loved, they would get behind it 110%.

"You know how the original *Enterprise* was described to Charlie X as 'a whole city in space'? The 1701 was really a village compared to the J.

At two miles in length, it even dwarfed the D. The "thin" areas really aren't thin at all. The saucer is 30 decks thick. That's the entire thickness of the *Enterprise-E*. You can live in an 'apartment' similar to what we have seen on the D, but imagine that there are suburbs on the ship, that are like living in a valley on Earth, with a sky, and a sun. Your starship would have large parks, entertainment zones, and entire universities on board. The ship is so large that turbolifts would be replaced with site-to-site transporters. If you're not in a hurry, you can catch the Grand Concourse Freeway, and drive your 20th-century Maserati into the 'urbs.' Sometimes a holo experience gets to be psychologically unfulfilling. The same would go for rock climbing, and skydiving. On this ship you can do the real thing."

FUTURE TECHNOLOGIES

Drexler was also clear that the ship would be made using impossibly advanced techniques. "The *Enterprise-J* would not be welded together. The very idea that a ship of this magnitude would be built like a 20th-century trestle was absurd. No, the J would be 'grown' like an organic animal. Even





◀ Because Drexler was working in CG he could produce variants of his designs with relative ease. This version combined elements of the two other designs he put forward.

today we are printing parts for machines. What's it going to be like in 500 years, and on a grand scale? Starships will be printed and, because structural members will be 'printed,' we will be able to custom design every individual part to cater to gradient stress distribution. This will allow us to take advantage of fractal patterns in the construction of the *Enterprise-J*. Not only is this mathematically more advantageous than standard truss construction, but it will give the ship a heretofore never seen design ethic."

Armed with these ideas, Drexler produced some quick pencil sketches showing a ship with a massive oval saucer and very thin nacelles on spindly struts. Before long he had made a basic 3D model showing the design.

He knew that putting forward a single design was

a risky approach so he developed an alternative based on a concept that he and Mike Okuda had developed that had a V-shaped primary hull instead of a saucer. "I took that and fleshed it out. We both like this design because it broke from the saucer, yet still felt starfleet." A third design combined elements of both designs with the V-shape behind a traditional saucer. He even prepared simple animations that showed all three versions of the ship in flight.

"After I'd talked to Herman, the machine spat out a series of images. I feel positive, but I know that anything is possible. What a great feeling handing Herman a VHS tape to show the producers. After the meeting Herman came back with a big smile, and pointed to the approved *Enterprise-J*. 'No notes,' he said."



◀ This design, which Drexler dubbed the 'Universe class', was approved without any changes.



DOUG DREXLER

Over the years, Doug Drexler designed ships for Starfleet, the Borg and the Vulcans, making a massive impact on the look of *STAR TREK*.

Doug Drexler is one of a select group of people who have designed an *Enterprise*, but incredibly, designing ships was never a formal part of his job description. He started life as a fan, before joining the *STAR TREK* makeup department, then moving to the scenic art department where he worked alongside Mike Okuda. Then he became a CG artist before joining the art department as an illustrator. In some ways he saw his makeup career as a

detour, even though it earned him an Oscar for his work on the movie 'Dick Tracy.' "I started off wanting to be an illustrator," Drexler explains. "Drawing gave you a kind of a power to create a world and, you know, I was kind of a shy kid and I think it was a great form of escape. I wrote a lot of science fiction and I drew a lot."

When *DEEP SPACE NINE* went into production, Drexler moved over to the art department where, as a result of his



STARSHIP DESIGNS

knowledge of *STAR TREK* and the openness of production designers Herman Zimmerman and Richard James, he was given the chance to contribute designs for several ships.

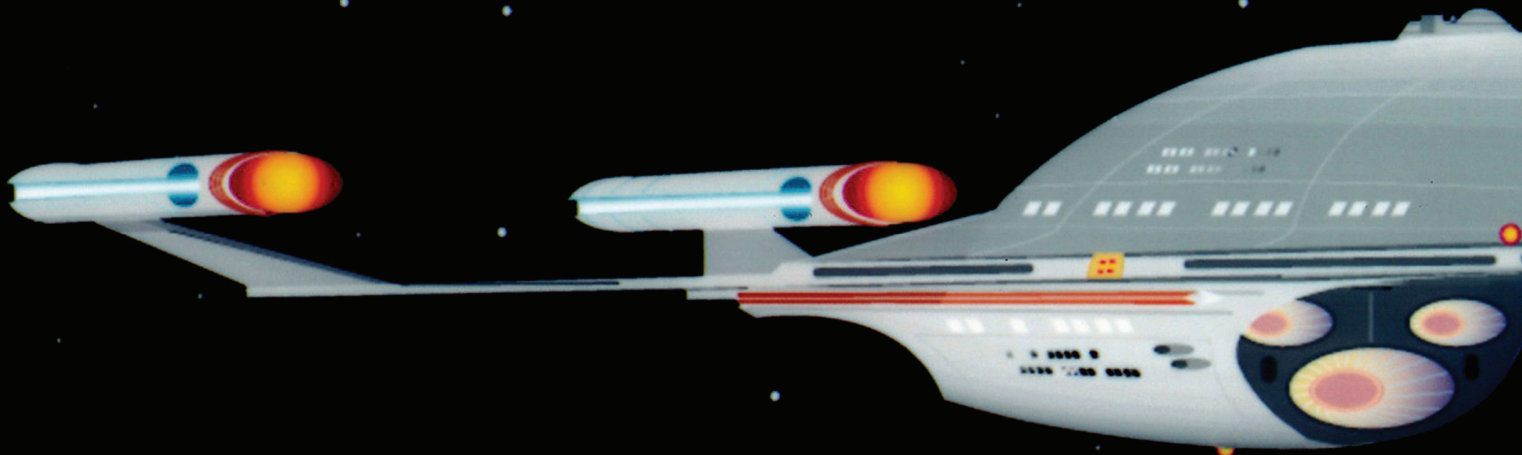
DESIGNING VOYAGER

The first time Drexler got a chance to show what he could do was when *Voyager* was being designed. Richard James was keen to see as many alternatives as possible, so while Rick Sternbach was working on the design, other

members of the art department, including Drexler, produced some alternative concepts.

The script for the pilot described *Voyager* as a smaller ship that looked like a bullet, “I was lucky I got to be involved with that,” he remembers. “I think that more than anything I probably was the person who stretched it in the direction it was going and had something to do with kind of compacting the shape down. If you look at the top of the saucer, it’s exactly the shape of a bullet, so that’s speed, and, if you look at *Voyager* from

▲ Doug Drexler has contributed the designs for some of the most memorable ships in *STAR TREK*’s history. The most famous and the most challenging was the *Enterprise NX-01*, which he designed in 3D working with production designer Herman Zimmerman.



▼ Drexler often returned to Matt Jefferies' rejected designs for inspiration and the ring in the center of this ship was drawn from one of Jefferies' concepts for the original *Enterprise*.

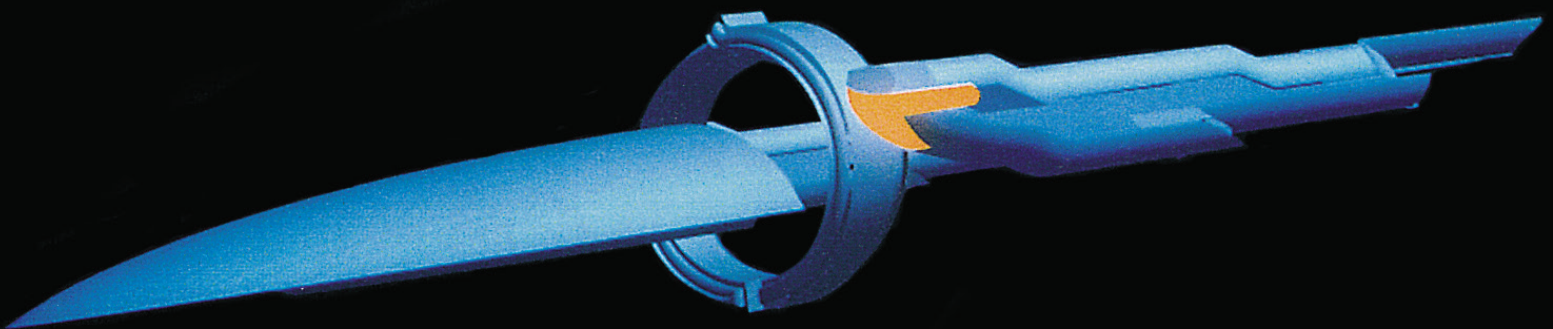
the side, it's an F-16."

Even at this early stage Drexler was using 3D software to create his designs. As a fan he was very familiar with all the design directions that Matt Jefferies had rejected and believed that there was something to them that could be explored further. One of the designs he came up with featured a ring that was used for the engines, which he placed around a dart-shaped body. This

approach was something he would return to again and again and which would eventually form the basis of the first Vulcan ship we saw on *ENTERPRISE*, the *Surak*.

Some elements of his designs were inspired by another of the shows he loved when he was growing up, 'My Favorite Martian.'

He and Okuda worked up another version of the design for *Voyager*, which they dubbed 'the wing





ship.' Instead of a saucer, this ship had a V-shaped section that was inspired by the shape of an old-fashioned television aerial. Like the idea of a ring-shaped engine, Drexler would remember this idea and pitch it again, before it eventually became the *U.S.S. Altair*, which featured in the 'Ships of the Line' calendars.

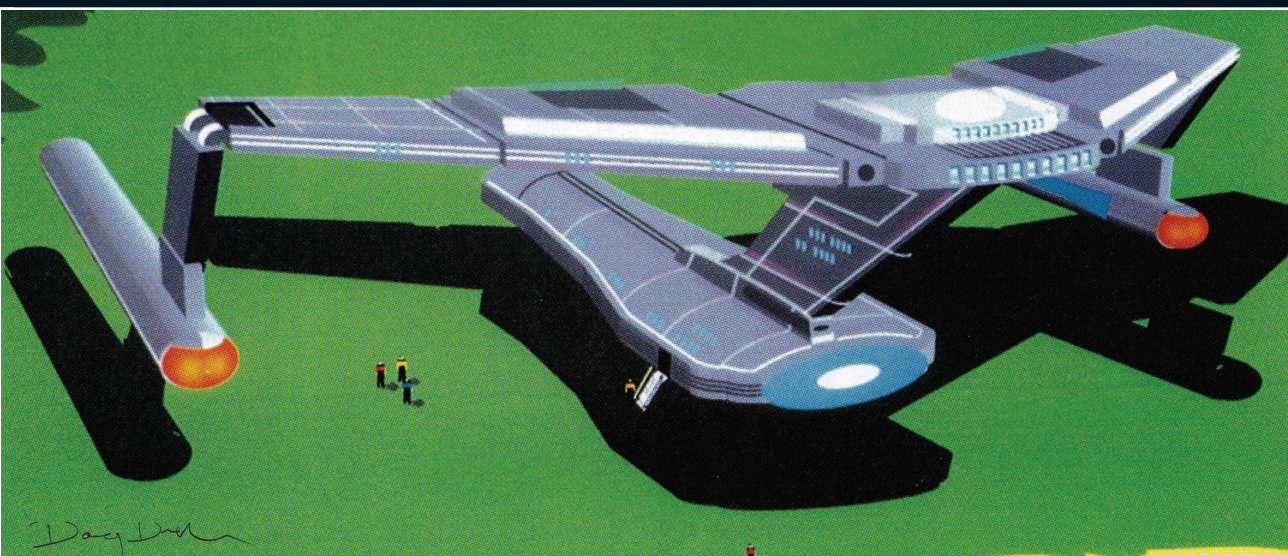
While he was in the art department, Drexler got his hands on a copy of the 3D software, Lightwave

and his interest in practical models meant he became friends with several members of the VFX team, in particular Dan Curry and Gary Hutzel.

ROMULAN SHUTTLE

Hutzel was a big believer in making use of talented people and in circumventing the normal processes, and he could see that Drexler could help him out when he needed something quickly

▲ The story for *Voyager's* pilot described Janeway's ship as being like "a bullet" so Drexler offered a long, thin design that anticipated the look of the *Enterprise-E*



◀ Drexler and Okuda worked up this design for *Voyager*, which had a V-shaped primary hull instead of a saucer.

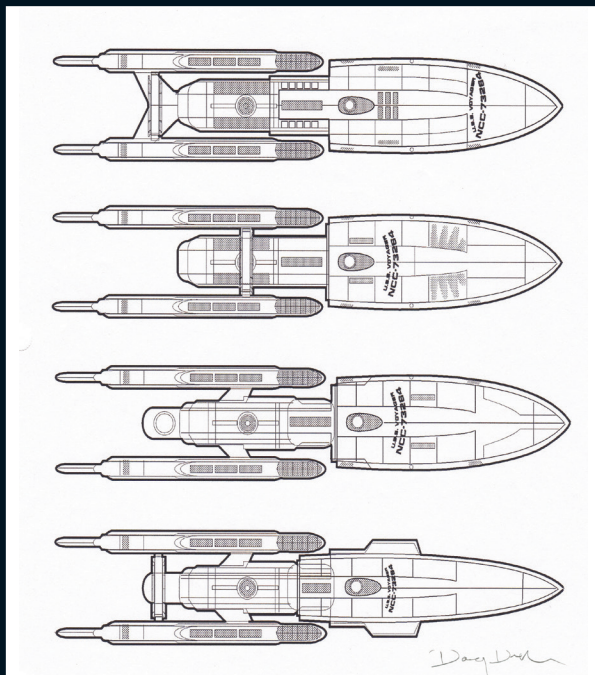


▲ The ship with the V-shaped hull eventually became the *U.S.S. Altair* which appeared in the 'Ships of the Line' calendar.

and cheaply. So when he wanted to show the Romulan Senator arriving at *Deep Space 9* in a new shuttle, he approached Drexler.

"You knew when Gary wanted something," Drexler laughs, "He would come into the art department and say, 'Would a guy like you be willing to do something like this for a guy like me?'" I was just that kind of guy."

Working at home after his regular work was finished, Drexler produced some sketches of the Romulan shuttle. He used a lot of the shapes from



► Drexler offered several variations of his *Voyager* designs to Herman Zimmerman, showing different shapes of saucer and arrangements of the nacelles.

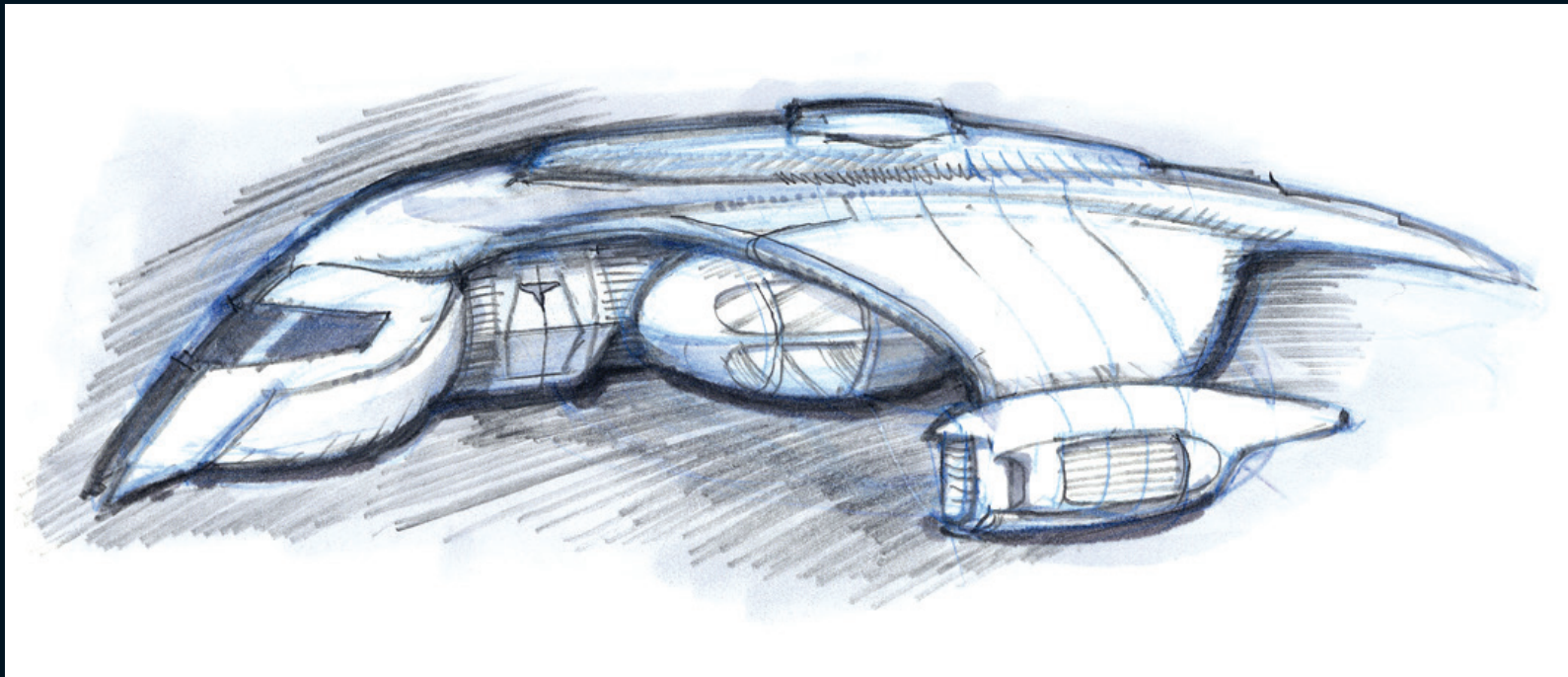
Andy Probert's design for the Romulan Warbird, which he combined with some shapes that were inspired by his pet parrot, B'kr.

Hutzel liked the sketches so Drexler produced more detailed drawings in Adobe Illustrator which were sent to Tony Meininger's Brazil-Fabrication & Design, who built a physical model. "I was blown away by the work," said Drexler. "They kept my design one hundred per cent, while embellishing it with incredible sensitivity and grace."

A few weeks later, the VFX team discovered that the model of the *U.S.S. Defiant's* shuttlepod had disappeared. Once again, Hutzel turned to Drexler, who produced two quick sketches for him, this time Drexler took as much inspiration as possible from the design of the *Defiant* itself. In particular, the engines were designed to echo the mothership. Hutzel passed Drexler's sketches on to Foundation Imaging, where Brandon MacDougal built the final model.

NEW DIRECTION

When *DEEP SPACE NINE* ended a year later, Drexler changed careers again, becoming a 3D modeler at Foundation Imaging, who among other things worked on *STAR TREK: VOYAGER*. The sixth season finale called for a new type of Borg ship, which was described as a tactical cube. As Drexler recalls, the idea came up after the *STAR TREK* art department had gone on hiatus, so Foundation



were left to design the ship themselves. "I was the only guy on the *STAR TREK: VOYAGER* team at Foundation who was a sketcher," Drexler explains, "so Rob Bonchune, who was my supervisor, asked me to come up with something. I was kind of amused when he said they wanted a 'new cube.' After all, a cube is a cube, right?"

THE BORG PYRAMID

Given the looseness of the brief, Drexler decided the best policy was to offer the producers a number of options for what the script described as a 'battle cube.' "I tried adding a lot of sharp pointy masts, spears, and antennas." He gave the surface protective cladding and even offered up the idea that the Borg battleship needn't be an actual cube.

"So far, Borg ship design has been a cube and a ball. As a joke I drew one up that was a pyramid. You know, the UPN symbol was a square, a ball, and a triangle. The pyramid (triangle) would have completed the thing with tongue planted firmly in cheek. I knew the powers-that-be wanted a cube, but I couldn't resist."

Drexler describes the concept that the producers chose as "a Borg cube wearing a flak jacket"

The design was then handed to Koji Kuramura, who built the CG model. "Koji sat right behind me. As he worked, he'd call me over for a look-see

and I'd put in my two cents' worth."

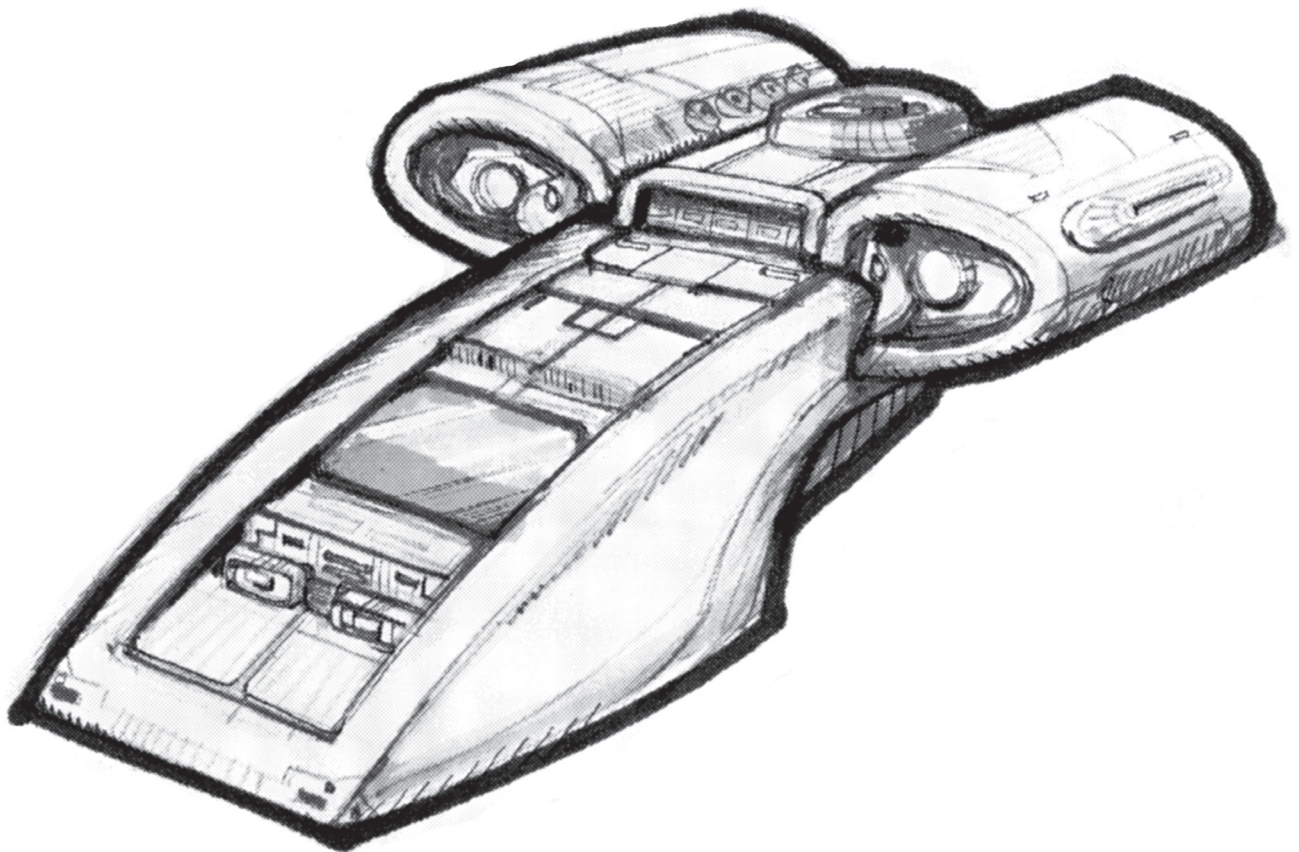
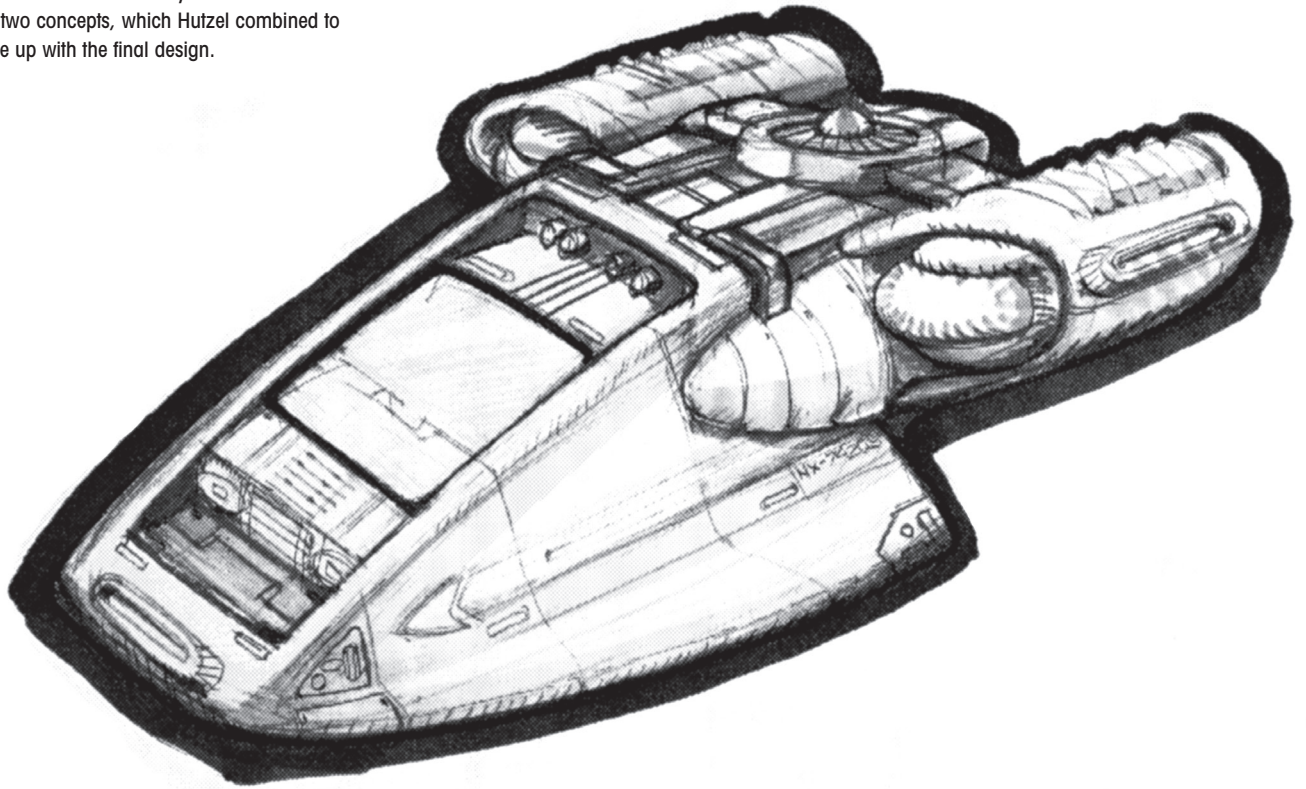
Drexler was still at Foundation Imaging when work started on *STAR TREK: ENTERPRISE*, a little more than a year after he had designed the cube. The art department was struggling to come up with a design for the new *Enterprise*, which needed to look both new and less advanced than Kirk's ship. Drexler's old friend Mike Okuda suggested that the answer might be to bring Drexler back into the fold, where his newfound expertise in 3D software and in-depth knowledge of the original series might help things.

"They were getting to the point where Herman and John really needed to move onto the sets. Mike said to Herman 'Why don't you bring Doug back? He'll bring the CG stuff that he's learned, and you could build it here in the art department.'

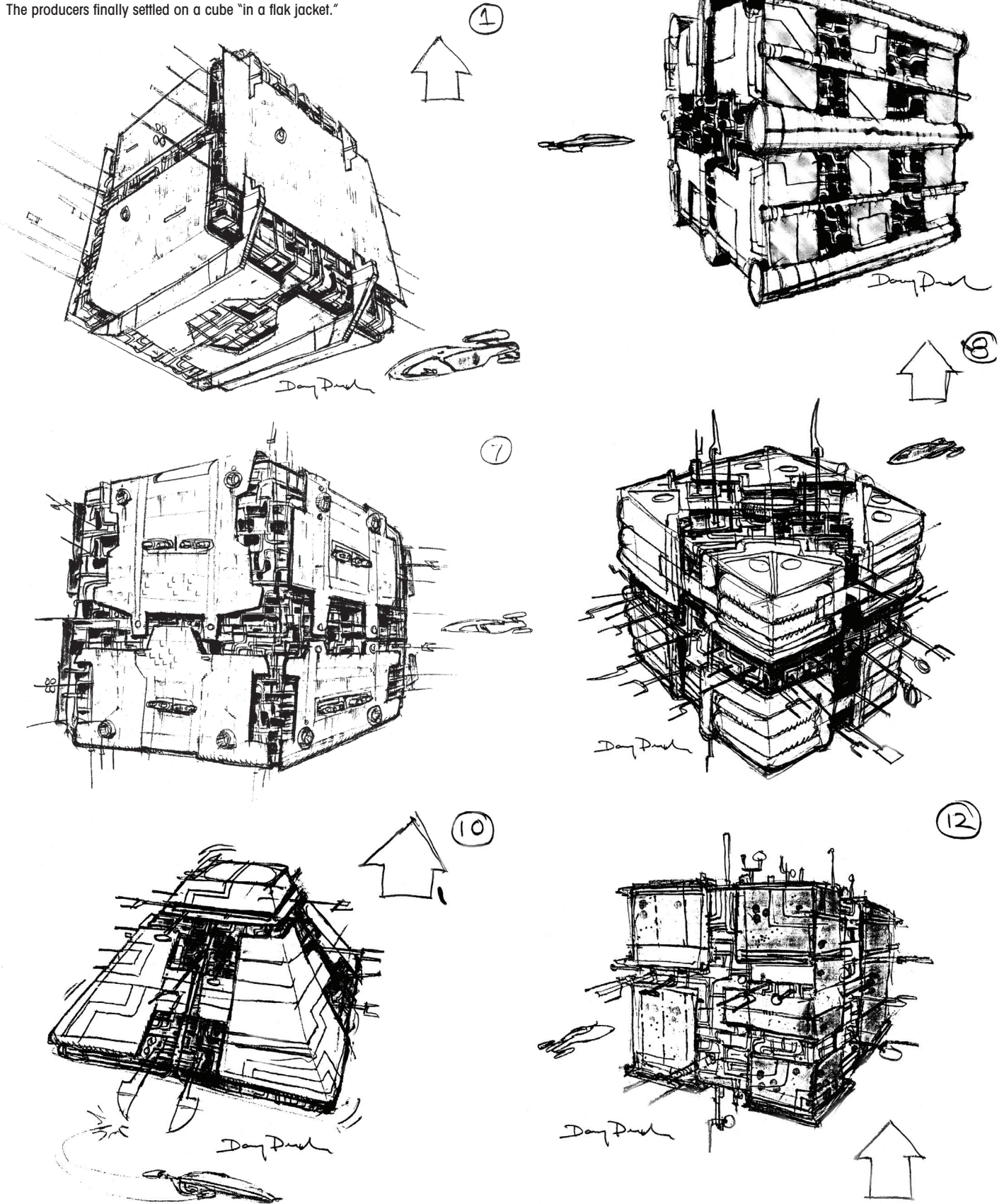
▲▼ Drexler based the design of the Romulan shuttle on his pet parrot B'kr and Andy Prober's design for the Warbird. He was delighted with the model (below) which was built at Tony Meininger's workshop.



▼ Drexler designed a new shuttle for the *Defiant* 'as a favor' to Gary Hutzel. He offered him two concepts, which Hutzel combined to come up with the final design.



▼ The tactical Borg cube was a heavily armed version of the familiar Borg ship. With his tongue firmly in his cheek, Drexler offered the suggestion that it could be a pyramid. The producers finally settled on a cube "in a flak jacket."





▲ Designing the NX-01 was a long process that involved a lot of dead ends. The final solution was to base the ship on the Akira class, which Drexler realised was a shape that could evolve into the familiar layout of Kirk's Enterprise.

Herman thought that was a great idea. The thing is that when Herman called me, I said, 'I can't just leave. I have to give them at least two weeks notice.' He said 'Okay, what time do you get off work? I'll come to your house.' So for two weeks I'd come home exhausted from work at Foundation and Herman would be sitting on my front porch. He would come in and we'd sit for a couple of hours every night."

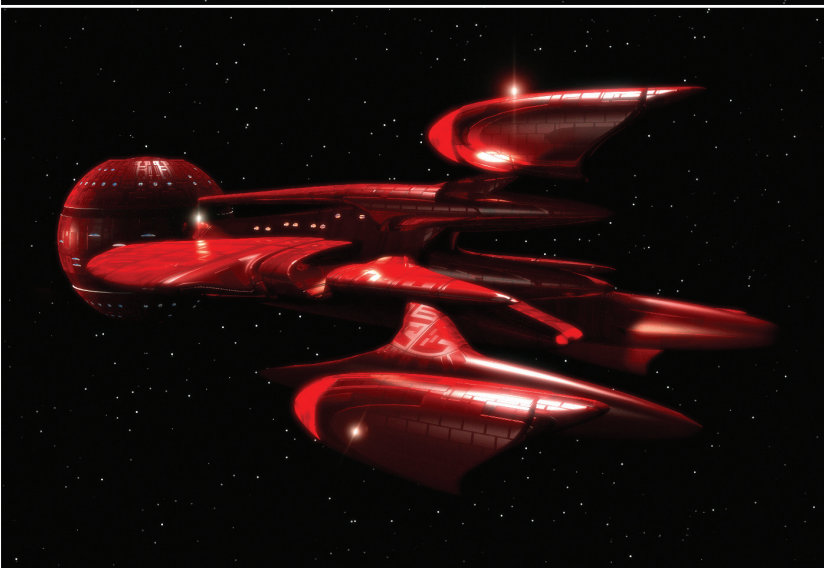
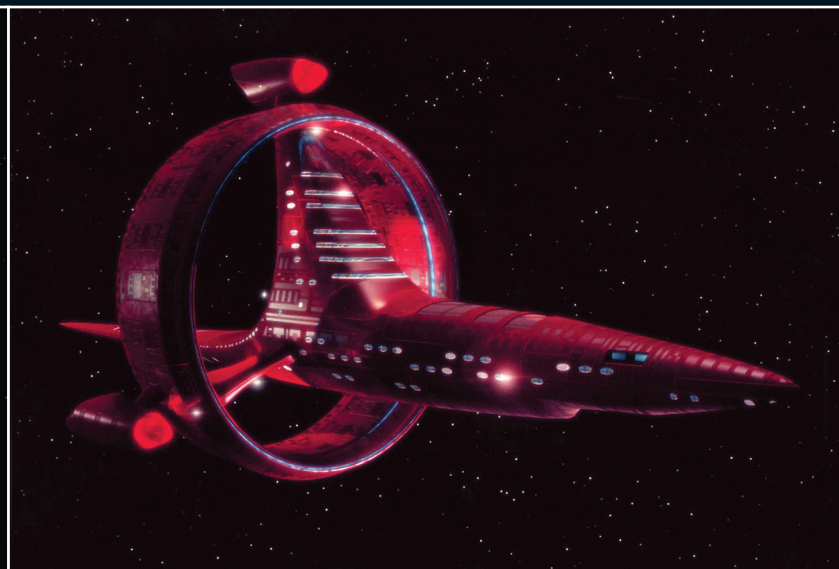
During those weeks Drexler and Zimmerman came up with a number of takes on the NX-01, including a version that featured an engine ring, once again based on Matt Jefferies' rejected designs and not unlike the version that Drexler had proposed for *Voyager*. As Drexler remembers, their favorite design was essentially a more primitive version of Kirk's ship, "It was close in configuration to the *Constitution* class but smaller. When you

looked at it you knew that it was not as ambitious as Kirk's ship."

NEW ENTERPRISE

This version of the NX-01 was all but approved before the producers decided that it was too close to the original series design. They told Drexler that they wanted to base the new design on a small ship Alex Jaeger had designed for *STAR TREK: FIRST CONTACT*, the *Akira*-class.

Initially, Drexler was frustrated by the decision since he was convinced that they should design something entirely new, but, as he worked on the design, he began to see the advantages of this approach. "The idea of not having a secondary hull was a really good one because it gave us somewhere new to go. It was an unusual choice but what I really loved about it was that it showed



an evolution. It's like a tadpole that doesn't have its legs yet. I loved that idea."

Once Drexler had designed the NX-01, he stayed with the *ENTERPRISE* art department as an illustrator. John Eaves continued to design the majority of the ships, but every now and again, Drexler would pitch in to develop new designs. *ENTERPRISE*'s eighth episode 'Breaking the Ice' called for the first 22nd century Vulcan ship that we would see. Eaves was tied up working on *STAR TREK: NEMESIS*, so Drexler stepped in.

"When I was asked to come up with a design for the Vulcan ship it was a little bit daunting," he recalls, "after all, here was undoubtedly one of *STAR TREK*'s most important and influential extra-terrestrial civilizations but we knew very little about the Vulcans. Their background had been shrouded in secrecy and antiquity and, because

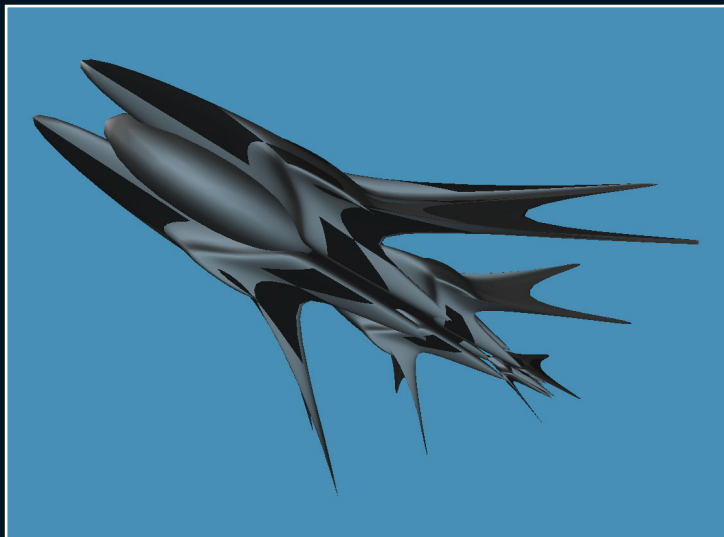
they had played such an important role in the original series, Gene Roddenberry had made a conscious decision to keep them out of the limelight on *THE NEXT GENERATION*."

Once again, Drexler turned to Matt Jefferies for inspiration and his first design featured an engine ring, although he added three nacelles around the edges. "In my mind," he says, "that was a classic design; it had an unmistakable profile and it couldn't be confused with anything else.

He incorporated other elements of Vulcan design giving it curved shapes that were inspired by the temple that we had seen in *THE SEARCH FOR SPOCK* and John Eaves' design for the Vulcan scout ship that appeared at the end of *FIRST CONTACT*.

Drexler offered the producers some alternatives, one of which was more directly inspired by Eave's

▲ During *STAR TREK: ENTERPRISE*'s first season Drexler designed the *Surak*-class, which was one of the first Vulcan ships we saw clearly. Once again he used an engine hoop that was inspired by Matt Jefferies' designs.



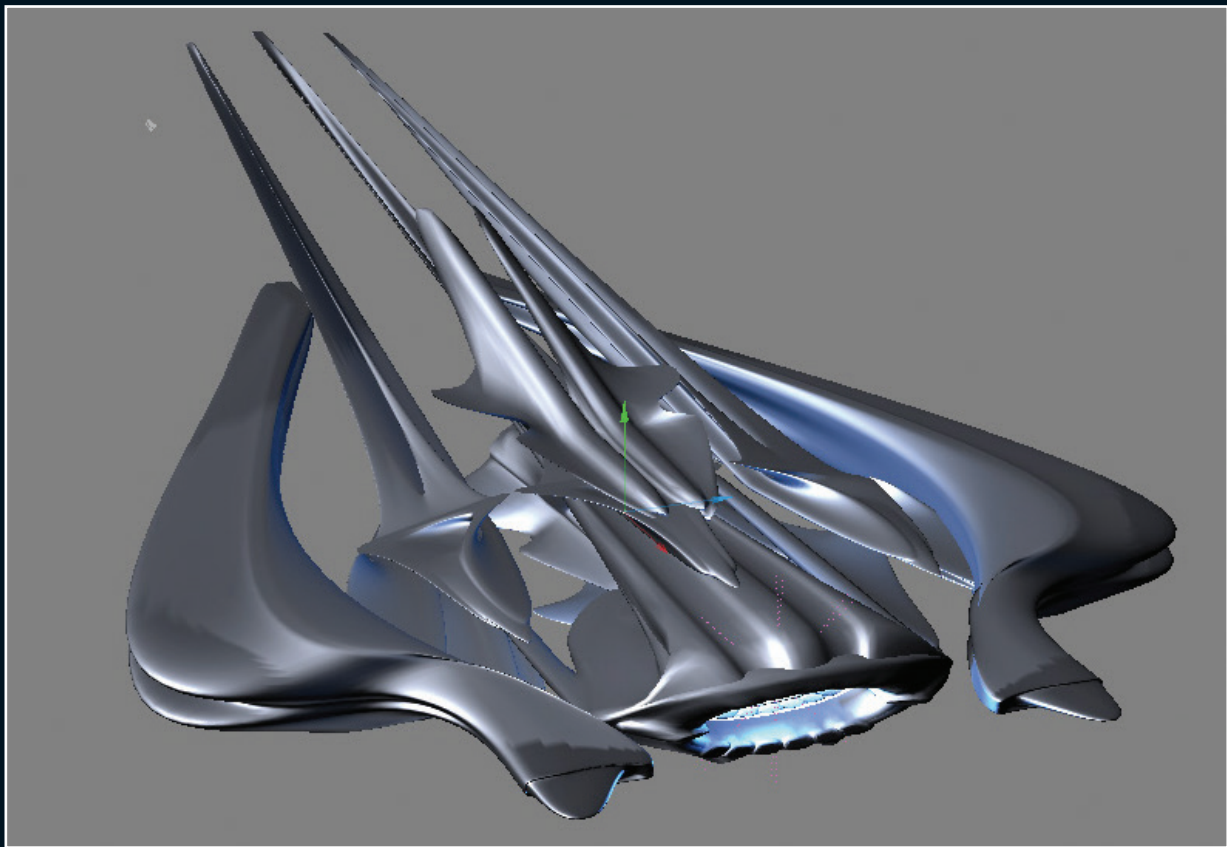
▲ The Xindi Reptilian ship was designed in the computer, using what Drexler describes as gesture sketches - a series of quick models intended to show basic shapes.

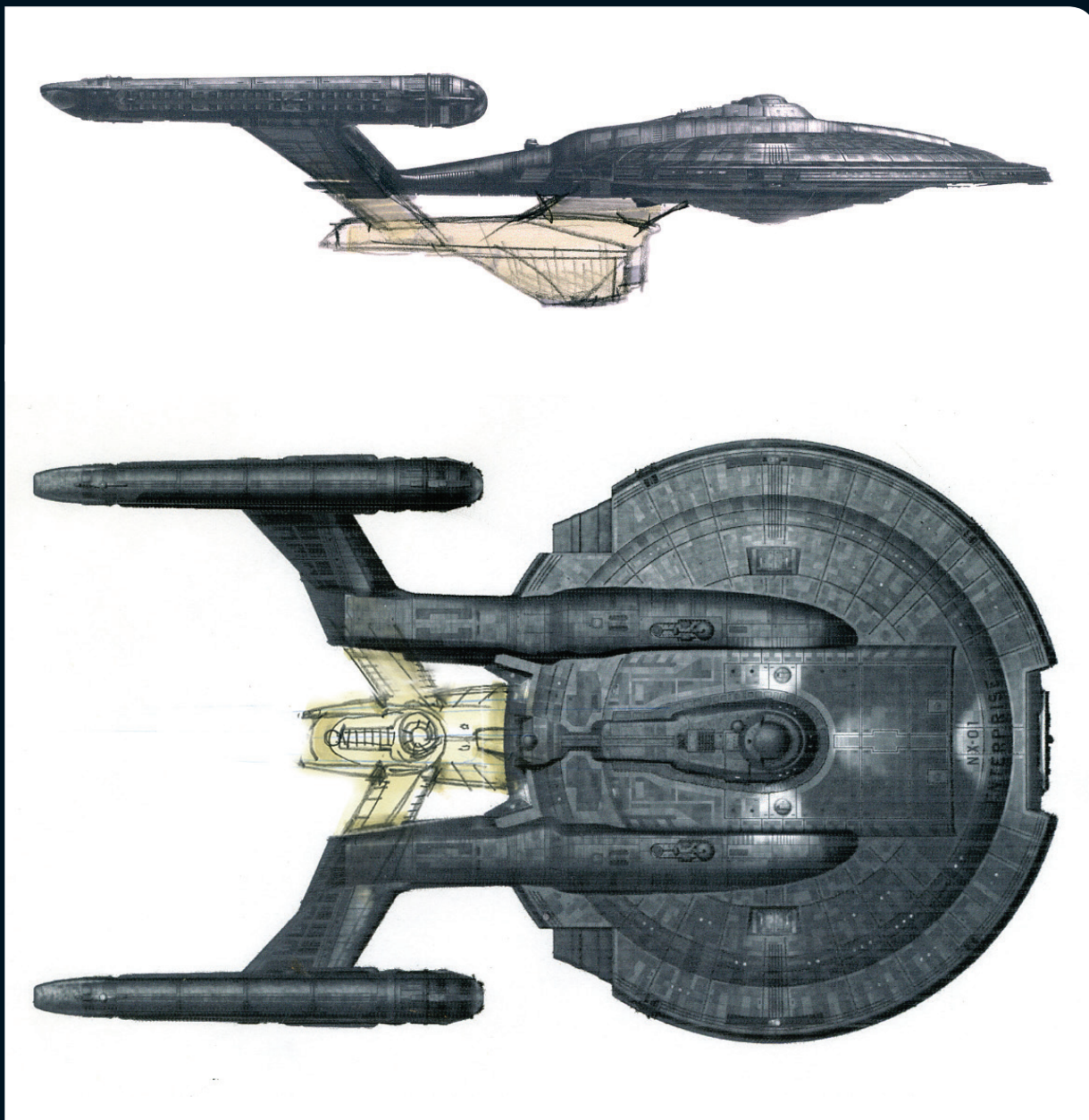
scout ship and one of which had a spherical bridge, based on another of Jefferies' rejected designs. To Drexler's delight the producers chose the version with the engine ring.

Over the years that followed, Drexler would occasionally pitch in to design other ships, including the *Enterprise-J*. Another of the most memorable designs was the Xindi Reptilian ship. This time he took the job on because time was extremely tight, and Eaves was up to his eyes in

other jobs. The entire job was finished in two days. By this point, Drexler had completely abandoned pen and paper and he started the design by generating what he describes as "gesture sketches" in the 3D software. "It's hard to beat it," he says. "When you do a gesture sketch with a pencil, you can't spin it around and look at it from a variety of angles, but you can in a computer. I set out to do four or five sketches. Knowing I was going to do a bunch of them as fast as I could

► The final design for the Xindi Reptilian ship was a more organic than most earlier designs and took advantage of CG modelling's strengths.





◀ After STAR TREK: ENTERPRISE had finished, Drexler returned to the design for the NX-01 and added a secondary hull, showing how it would evolve.

helped the ideas flow. Sometimes I'd combine two designs that were begging to be combined."

ORGANIC APPEARANCE

This approach also meant that the ship was conceived in 3D from the beginning, which Drexler explains meant that he could push the design further. "Over the years the ships started to look like they had all come from the same shipyard, simply because of the limitations of physical construction. In the case of the Xindi Reptilian ship, I went for a more organic look to break the mold."

"The producers approved one on the spot, which was 'Forktail,'" said Drexler. "I took another day to clean it up and refine it. I told the CG guys

that a fun 'lizardy' surface might be the way to go when texturing the ship."

This was the last ship that Drexler officially designed for *STAR TREK*, but the story wasn't completely over. After *ENTERPRISE* was cancelled, he returned to the design of the NX-01, and thought about how it would have evolved into a design that was closer to Kirk's ship. He sketched in a secondary hull and extended the pylons that supported the warp nacelles. Then he worked with Pierre Drolet, who had built the original model of the NX-01 to create this new version. The revised NX-01 made its debut in the 'Ships of the Line' calendar and went on to feature in a number of *STAR TREK* novels.

STAR TREK™

