Music of the stars

Celestial whistlers turn a sound-video collaboration into an unearthly extravaganza.

By Mark Swed  In Iowa City, Iowa

DONALD Gurnett can't say exactly what it is about the sound of whistlers that he loves, but he is more than happy to try. In his office at the University of Iowa physics department, he pulls a tape out of an old cardboard box and pops open a Radio Shack cassette player from the early '70s. But before pressing "play," he figures he'd better close the door to the hall, or else "they'll all say, 'There goes Don Gurnett listening to his whistlers again.'"

Finally, the tinny speaker spews out short sibilants that rise and fall against a crackly background, not unlike the hiss of fireworks before they explode. It's the sound produced by lightning disturbing the plasma, the charged gas that makes up most of space outside the Earth's atmosphere. A beaming smile lights up Gurnett's face. "It's like the electrons get together and whistle," he says.

For 40 years, Gurnett has been recording whistlers and other space sounds, and the very thought of them can send shivers down your spine. Gathered by instruments he designs for NASA spacecraft, they are the authentic music of the spheres.

As one of the leading authorities in plasma physics, Gurnett is emphatic about the scientific value of these sounds. His discovery of whistlers on Jupiter, for instance, was the first indication that there was lightning somewhere other than Earth. But whistlers and similar phenomena are also musically engrossing, as rich in complex overtones and as unusual as electronic music. At their most alluring, they resemble cosmic speech whistled through some great celestial mouth with starry gap teeth. They are always changing; they [See Kronos, Page E32]
It was written in the stars

"S UN Rings" appeared out of a series of chain reactions between art and science. The big bang was a phone call — NASA, in Washington, to Kronos, in San Francisco. The space agency has a modest budget for art; since the early 1960s, it has offered commissions of about $3,000 to painters ranging from Norman Rockwell to Robert Rauschenberg to represent the drama of space flight.

But in the spring of 1966, Bertram Ulrich, the curator of the NASA Art Program and a long-time fan of Kronos, decided to reach, competitively, for the stars. He offered the quartet $30,000 to do something with space sounds, and he sent along a tape, culled from Garnett's collection.

"I knew right away the composer had to be Terry," says David Harrington, the Kronos' first violinist. "Terry, the quartet's closest collaborator, is best known for his psychedelically repetitive 'In C' and he's no stranger to imaginary space travel. His first string quartet, written at Harrington's urging in 1969, was called 'Universe for the Planetary Geologist.'"

More alien than space sounds to Harrington and Riley, however, was NASA itself. So they traveled to Cape Canaveral to watch a shuttle launch and make sure that they wouldn't unwittingly feed the military-industrial propaganda machines.

"The main reason we went to Florida was to find out what they really do at NASA," Harrington explained late one evening from Houston, where Kronos was on tour last month. "But of course, like a couple of kids, Terry and I really wanted to go to the launch."

What they found were fellow sewers. "This quest for knowledge and the desire to put people places where we hadn't been before seemed like what I had been involved in for many years," said Harrington, who has been the catalyst for Kronos' many multicultural musical adventures. The astronauts proved "very inspiring and strangely familiar."

Soon, the chain reactions began to seem inevitable. The tape Ulrich sent to the musicians was unfinished — it provided no clue that the whistlers had a connection to the University of Iowa. But because the school had commissioned some 40 works from Kronos in the past 20 years, it was an obvious source to approach for additional funding. Only after Iowa had agreed to be a co-commissioner did the players and Riley discover that the sounds were recorded by one of the leading scientists on campus.

The cosmos according to a plasma physicist

"Sun Rings" collaborators Terry Riley, David Harrington and Willie Williams all describe Donald Garnett as an amiable tour guide to the solar system. In fact, a visit to Garnett's office can be exhilarating and start your head spinning from the implications that plasma physics and space sounds can have on life on Earth. Here are a few typical Garnett observations:

"Worldwide, there are several hundred lightning flashes a second producing whistles, and lucky for us these sound waves aren't in our atmosphere, or it would be really complicated to hear anybody talk."

"I call some space sounds musical, but that raises an interesting philosophical question: Does music have to be made by humans?"

"Think about how few natural sounds there are here on Earth. If you rule out animate objects, like birds and whales, what is left? Thunder, wind blowing through trees, the noise you get from the tension on a string or a telephone line, crashing ocean waves. That's about it. But space is just full of weird tones that come and go."

THE CATALYST: Kronos cellist David Harrington.

THE COMPOSER AND THE PHYSICIST: Terry Riley, left, and University of Iowa's Don Garnett.
SPACE VOYAGERS: The Kronos Quartet – from left, David Harrington, John Sherba, Hank Dutt and Jennifer Culp – prepare three of “Sun Rings” 10 movements, “Hero Dangers,” left, “Earth / Jupiter Kiss” and “Venus Upstream,” at a University of San Francisco rehearsal. The title of Terry Riley’s first string quartet, written at Harrington’s urging in 1980, might be considered a harbinger: “Sunrise for the Planetary Dream Collector.”

Upon learning about Ournett, first Harrington, then Riley, headed to Iowa. After a day with the physicist, Harrington said that for the first time in his life, he understood how the universe operated.

“That night I called my wife and told her, ‘I’ll normally get it. ‘So, how does it work?’” she asked.

“You know, I knew a couple of hours ago,” I said.

“When you are with him, he makes you feel as if outer space is just around the corner.”

“He’s a brilliant guy,” Riley confirmed, “and a lot like an artist. He’s very creative and his general vibe is very twinky.”

A common bond

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RUTH is, Terry Riley and Don Ournett share that twinky vibe. They are, in the nicest sense of the term, a pair of space cadets. At 68, both exceed the kind of devotion to their work that makes them gift figures in their fields. They even look their respective parts, the unpretentious Midwestern physicists who does not stand out in a crowd and the West Coast composer, with shaved head and tie, Mr. N. Horace, who does.

On the stage at Hancher before the “Sun Rings” premiere, they made a great act. Ournett brought along one of his favorites from the card-sketch box. He calls the tape “RIDE.” It includes the sounds of phenomena known as “dragon chorus” which was recorded by one of the Voyager spacecraft on the surface of Jupiter. The similarities to garbled android speech gave the crowd a delight.

Riley, suffering from lingering bronchitis, was slightly more subdued. He noted that while composing he tried to put himself out in space, an attempt both men have in common. Forty years ago, as a student at Iowa, Ournett and his first wife, and it changed his life.

““This guy from the National Bureau of Standards came out from Boulder, Colorado, to record some sound. I mean it was a part of the space program, he had designs for going, all the way to the moon. ‘I wonder if he’s a scientist or a physicist,’ I thought. ‘I wonder if he’s a scientist or a physicist.’”

And that’s how the idea for “Sun Rings” was born. “When we were driving across Iowa, we had the idea for the piece. We thought it would be a great idea to go out and see the planets and the stars and the galaxies and the stars and the clouds and the sun and the moon. We thought it would be a great idea to go out and see the planets and the stars and the galaxies and the stars and the clouds and the sun and the moon.”

Riley also took unusual inspiration from the way the planets move. “I thought there was a prayer central that would be like a big operation system up there that all the others from different people, “he said.

And that’s what I have the chorus doing, they have the fragment of prayer of ideas about love and peace, and then they get jumbled and polychromed, so you only hear fragments of them coming out.”

As Riley explained what was originally to have been a 29-minute piece, Kronos decided that the work would benefit from a visual component as well. The quartet’s manager, Janet Cowperwaite, knew Willies Williams’ video work for the U2 Stradum show and gave him a call. He was committed to designing the 7-inch video projections for the current Rolling Stones “Let’s World tour, but he squeezed in “Sun Rings.” He said that he was inspired by an astronomy buff and an onetime physics student, “before,” as he says, “I ran away to join the circus and got involved with rock ‘n’ roll.”

NAB’s $20,000 commission has ultimately turned into a $300,000 project. Williams teamed with NASA’s archives to accompany Riley’s 96-minute work, complete with 60-voice chorus. The idea, he said, “is to double NASA’s contribution, and Barbara Centre in London, the San Francisco Jazz Festival and the Rochester Orange Festival in Orange County all signed on as well.”

As its first noted sources in late October, “Sun Rings” transformed Hancher Auditorium into a postmodern planetarium. Space sounds swirled in the air; galaxies carpeted the walls and ceiling; and Riley’s generous melodies flowed through Kronos’ four string instruments. The audience sat in spellbound silence they were spellbound by a space launch.

The work’s 10 movements were shot through with digitized versions of Ournett’s whiskers, including ones that the musicians could trigger. In a series of talks for the concept, Riley admitted, “That is just fine with Ournett.”

“This is not supposed to be a science lecture,” he said as he turned to answer questions from the crowd gathering around.

Mark Zevi is the Times’ music critic.