



BRATRICE DE GEA/Los Angeles Times

MULTIMEDIA VOYAGE: *The Kronos Quartet rehearses Terry Riley's "Sun Rings" before its premiere.*

Music of the stars

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

By MARK SWED
Times Staff Writer

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 beatific 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 someplace 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 E42]



Photographs by BEATRICE DE OSA Los Angeles Times

It was written in the stars

[Kronos, from Page E1] always surprise you.

Gurnett's whistlers are no secret. The University of Iowa's physics department puts sound clips of them on its Web site for all to hear. And over the years, Gurnett has supplied tapes to numerous composers who have requested them. But he can't recall any of those composers' names, because none of them ever called back. As far as he knows, whistlers never found their way into music.

But now they have, and in a sensational form. Terry Riley's "Sun Rings," a multimedia extravaganza for string quartet, chorus, space sounds and video, was given its premiere at Iowa's Hancher Auditorium two weeks ago. Written for the Kronos Quartet and illustrated by new-media artist Willie Williams, it is the music of the spheres and then some — an incomparable love letter to the stars and the planets, including our own.

NASA commission

"Sun 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 \$2,500 to painters ranging from Norman Rockwell to Robert Rauschenberg to represent the drama of space flight.

But in the spring of 2000, Bertram Ulrich, the curator of the NASA Art Program and a longtime fan of Kronos, decided to reach, comparatively, for the stars. He offered the quartet \$20,000 to do something with space sounds, and he sent along a tape, culled from Gurnett's col-

lection.

"I knew right away the composer had to be Terry," says David Harrington, the Kronos' first violinist. Riley, 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 1980, was called "Sunrise for the Planetary Dream Collector."

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 machine.

"The main reason we went to Florida was to find out what they really do at NASA," Harrington explained late one evening from Budapest, 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 seekers. "This quest for knowledge and the desire to put people in 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 unlabeled — it provided no clue that the whistlers had a connection to the University of Iowa. But because the school had commissioned some 45 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.



BRATRICE DE GEA, Los Angeles Times

THE CATALYST: Kronos violinist David Harrington.

The cosmos according to a plasma physicist

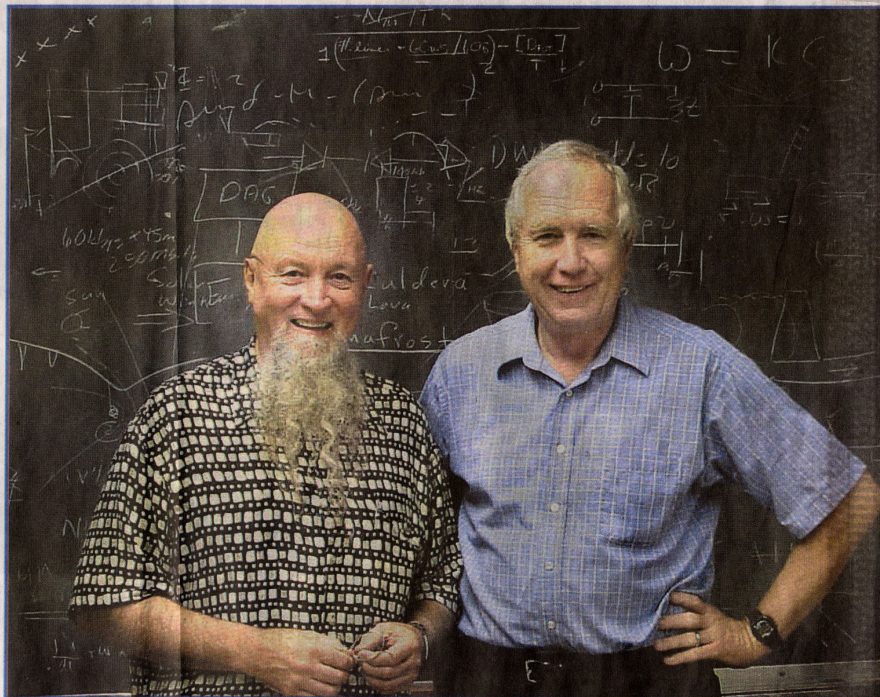
"Sun Rings" collaborators Terry Riley, David Harrington and Willie Williams all describe Donald Gurnett as an amiable tour guide to the solar system. In fact, a visit to Gurnett's office can be exhilarating and start your head spinning from the implications that plasma physics and space sounds can have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

"Worldwide, there are several hundred lightning flashes a second producing whistlers, 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 tones you can get from the tension on a wire or a telephone line, crashing ocean waves. That's about it. But space is just full of weird tones that come and go."

— MARK SWED



THE COMPOSER AND THE PHYSICIST: Terry Riley, left, and University of Iowa's Don Gurnett.

University of Iowa

SPACE VOYAGERS:

The Kronos Quartet — from left, David Harrington, John Sherba, Hank Dutt and Jennifer Culp — prepare three of “Sun Rings’” 10 movements, “Hero Danger,” 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 Gurnett, 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 finally get it.’ ‘So, how does it work?’ she asked. ‘Well, uh, 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 twinkly.”

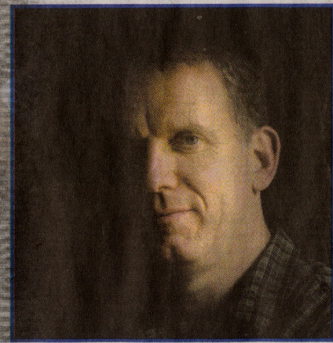
A common bond

TRUTH is, Terry Riley and Don Gurnett share that twinkly vibe. They are, in the nicest sense of the term, a pair of space cadets. At 68, both exude the kind of devotion to their work that makes them cult figures in their fields. They even look their respective parts, the unpretentious Midwestern physicist who does not stand out in a crowd and the West Coast composer, with shaved head and long, thin Mr. Natural beard, who does.

On the stage at Hancher before the “Sun Rings” premiere, they made a great act. Gurnett brought along one of his favorites from the cardboard box. He calls the tape “R2D2.” It includes the sounds of phenomena known as “dawn chorus,” which was recorded by one of the Voyager spacecraft off the surface of Jupiter. The similarities to garbled android speech gave the crowd a delighted start.

Riley, suffering from lingering bronchitis, was slightly more subdued. But 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, Gurnett heard his first whistlers, and it changed his life.



BEATRICE DE GEA Los Angeles Times

THE VISUALIZER: Willie Williams.

“This guy from the National Bureau of Standards came out from Boulder, Colo., to give a talk and play some recordings,” Gurnett recalled last summer, sitting in his office amid models and faded photographs of the many spacecraft he has designed instruments for, going all the way back to Explorer I in 1958. “I found it intriguing and just decided, gee, maybe I should try to build a radio receiver that could detect whistlers.”

All it takes is a simple device, so Gurnett, who had been a national champion model-airplane builder, assembled the equipment and took it to his parents’ farm outside Cedar Rapids. “We turned out all the electricity and stuff, and we heard some whistlers,” he says with a look of complete satisfaction.

Around the same time, Riley, then a young composer and jazz pianist in San Francisco, had his own profound extraterrestrial experience. Just as he was struggling with the idea for “In C,” he took peyote and spent a night under the stars.

“Suddenly I saw the geometry of the heavens,” he insists, with a note of awe still in his voice.

“Stars weren’t randomly placed at all but rather revealed an incredible order, a perfect symmetry like a mandala. It was just so apparent it dumbfounded me, and I wondered why I hadn’t seen it before. And I haven’t seen it since.”

A short time later, he unleashed the pulse and patterns of Minimalism, which would become one of the dominant musical styles of the late 20th century.

An inner journey too

TO get to Riley’s home on the edge of the Tahoe National Forest in Northern California, you drive through wilderness for a half hour. The glass doors to his studio peer out into the woods; a brilliantly illuminated night sky is available for the examining.

Riley began composing “Sun Rings” there in the summer of 2001, and his first impression of listening to the tapes was one of déjà vu. “You know so many of them sound like the music I was composing for [dancer] Anna Halprin in the ‘50s and ‘60s,” he explains.

But after about three weeks, he got distracted. “Once the terrorists struck on 9/11,” he says, “I knew that there would be a ferocious outcry for vengeance, and I was very saddened by it. It seemed like this piece had suddenly become superficial, just about NASA and space and shooting up rockets.”

A breakthrough came when Riley heard poet and novelist Alice Walker on the radio talking about how she had made up a Sept. 11 mantra — “one Earth, one people, one love.” It suddenly occurred to him that contemplating outer space could be a way to put the problems on Earth into perspective.

Riley also took unusual inspiration from the way everyone claimed that God was on their side. “I thought about a prayer central that would be like a big operating system up there that funnels all the prayers from different people,” he said.

“And that’s what I have the chorus doing, they’re all saying fragments of prayers or ideas about love and peace, but then they get quite jumbled and polyphonic, so you only hear fragments of them coming out.”

As Riley expanded what was originally to have been a 20-minute piece, Kronos decided that the work would benefit from a visual component as well. The quartet’s manager, Janet Cowperthwaite, knew Willie Williams’ video work for U2 stadium shows and gave him a call. He was committed to designing the \$7-million video projections for the current Rolling Stones “Licks” world tour, but he squeezed in “Sun Rings.” It so

happens that he is an astronomy buff and a onetime physics student, “before,” as he says, “I ran away to join the circus and got involved with rock ‘n’ roll.”

NASA’s \$20,000 commission has ultimately turned into a \$300,000 project. Williams culled images from NASA’s archives to accompany Riley’s 95-minute work, complete with 60-voice chorus. To pay for it, Ulrich doubled NASA’s contribution, and Barbican Centre in London, the San Francisco Jazz Festival and the Eclectic Orange Festival in Orange County all signed on as well.

As its first notes sounded 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 way spectators do at a space launch.

The work’s 10 movements were shot through with digitized versions of Gurnett’s whistlers, including ones that the musicians could trigger. The score called for devices like latter-day theremins to be placed on the stage next to the music stands. When the players waved their hands, random space sounds were released.

In the end, though, “Sun Rings” proved as

much an inner journey as a trip through outer space. As Riley peered through his musical telescope, he also looked back at himself and his career, and Williams always seemed to have an unexpectedly appropriate illustration. In one movement, “BeeBopterismo,” Williams synchronizes projections of Gurnett writing equations to a homage to Riley’s jazz-pianist youth.

“Earth/Jupiter Kiss” is a planetary romance with a heavenly, drawn-out melody accompanied by seductive shots of the planets.

In “Earth Whistlers,” the chorus, out of sight in the pit, sings a hybrid of Indian raga and Gregorian chant, through which the whistlers majestically sail.

The last movement, “One Earth One People One Love,” brought the work back home again in what may be the most mystically enveloping music Riley has created during a long career of writing mystically enveloping music. On the screens

‘Sun Rings’

Who: Kronos Quartet and choruses

Where and When: Wortham Center, Houston, Jan. 23
Barbican Centre, London, March 22
Orange County Performing Arts Center, Nov. 1, 2003
San Francisco Jazz Festival, San Francisco, date to be announced

Also

What: The last movement of “Sun Rings,” with Willie Williams’ video projections

Who: The Kronos Quartet

When: Feb. 15, 8 p.m.

Where: UCLA’s Royce Hall as part of its “Visual Music” program

Price: \$15-\$40

Contact: (310) 825-2101

On the Web

To log on to the University of Iowa’s sound clips of whistlers and other space sounds, go to www-pw.physics.uiowa.edu.

behind the musicians, Williams flashed images of Earth from the “golden disc” launched with the 1977 Voyager spacecraft and addressed to anyone out there that Voyager, now far past Pluto, might happen to run into.

Asked afterward what he liked best about “Sun Rings,” Gurnett said, “All of it, everything.” Asked what sun rings are, he said, “You’ll have to ask Terry.”

They are a poetic conceit, Riley admitted. And that is just fine with Gurnett.

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

Mark Sued is *The Times’* music critic.