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Metalwork

Cliff Alexis grasps a wooden beam by two small handlebars sticking out of the sides, raises the pogo-stick-shaped piece of wood above a 55-gallon oil barrel and drives the bottom down into the can lid.

The barrel resonates with a sound – a thud with a bright ring at the end of it – that will eventually be clear musical notes after Alexis hammers the metal into the right shape.

"My back doesn't let me crawl inside these anymore, so I use this," Alexis said about the plank. "Sometimes you get stuck inside."

Alexis grew up in Trinidad, the largest of 23 islands in the Caribbean country of Trinidad and Tobago. The island is the birthplace of the steel pan, more commonly – and incorrectly – known as the steel drum.

Often associated with beach parties and singer Harry Belafonte, the steel pan has gone far beyond the island breeze calypso stereotypes in its approximate 70 years of existence, and Alexis is one of the reasons why.

Tuning steel pans is a process that requires patience and practice – especially since hammering one note into place might mean another sound on the pan will not sound right. When that happens, he must turn the barrel, just under 4 feet tall, over again and pound some more.

"A lot of people literally bled and died for this instrument," said Liam Teague, co-director of the NIU Steel Band and a prominent composer and performer of steel pan music. "People like Cliff made a lot of sacrifices for steel pan. Now you have steel pan all over the world."

Versatile Metal

The pan Alexis is building will be used for the Northern Illinois University Steel Band - a world-renowned group known for not only its traditional calypso styles, but also for performing complex classical arrangements and modern rhythm-and-blues, with melody parts played entirely on steel pans.

Alexis serves as co-director of the band and composes pieces for the group to perform. He also builds the instruments. He learned to build pans through a lengthy trial-and-error process, using what he learned by watching steel pan tuners in the Trinidad cities of Port of Spain and Diego Martin. Alexis started building in the early 1970s, but said he didn't become proficient at it until the 1980s.

"I'm still learning. It takes that time," he said. "That's why there should be an apprenticeship program in learning to build and tune the instrument. It's nothing against this country, I got my

break here, but in America everybody is in a hurry.”

The steel pan is versatile. It can be shaped to have tones akin to a wide swath of sounds found in an orchestra. Pans are built to seven main configurations: tenor, bass, quad, cello, double tenors, double seconds and guitar. The number of notes and the size of skirting – the length of oil barrel body left on the steel pan – determine what sound the instrument will have.

Alexis used the wooden plank on what will be a bass, largest of the steel pan family. With three notes hammered into triangular shapes on the oil barrel's lid, the bass is part of the rhythm section. In order to get a range of low notes, steel bands will play with as many as nine bass pans played by one musician and similar multi-pan combinations for the higher tones.

Regardless of the sound, all pans are built the same way. The first stage is called sinking, when the top of the barrel is hammered into a concave bowl shape. The next step is to hammer in separating lines between what will be flattened panels where notes will be played.

"You want total separation between the notes, so they don't speak to each other," Alexis said. "That's a skill in itself."

The bass pans have two lines of separation to reinforce the notes.

"I'm amazed at the bands before me how they figured out separating the notes," Alexis said. "They have it down to a layman science, and it still works."

Oral History

Accounts vary on when the steel pan was invented. Musicians and historians agree the metal pan hammered and shaped into an array of playable panels first came to be in the 1930s, while the British maintained colonial rule over Trinidad and Tobago.

Steel pan evolved from drumming. Rule over the islands changed hands between Spain and France from when Christopher Columbus first landed in 1498 until 1797, when the British seized control. French farmers had shipped African slaves to the islands, and with them came drumming.

Despite attempts by the British to outlaw drumming, Trinidadians kept finding new ways to beat out rhythms. When drums with skin heads were outlawed, Africans cut bamboo sticks to make a sound when hit to the ground. When the "tamboo bamboo" was made illegal, they started banging biscuit tins – until a few insightful musicians found the metal could be bent into spots that made distinctive notes when hit.

With oil becoming the chief export for the islands, musicians had the perfect apparatus – barrels – to build pans of different shapes and sizes to equip steel bands with as many as 100 musicians. Throughout British rule, which ended in 1962 with Trinidad winning independence, people who wanted to play music fought for the right.

The vague history of the instrument only reinforces the importance of skills such as Alexis' -

since few people have had the experience necessary to build pans.

"You don't want to beat it up so much that you break it," Alexis said. "After you separate it and make sure everything is OK, then you put in these templates magnets. We have them shaped to fit the notes."

Alexis puts on a pair of headphones before he starts "bubbling" the pan. During the bubbling phase, the notes take an actual shape. Smaller pans, such as the tenor soprano, are turned over on top of a car tire, and a four-pound sledge hammer is used to hammer the bottom of the rounded pan the opposite way from how it was hit during the sinking phase.

Alexis hits the convex side of the pan with a firm stroke, but not with the same mechanical follow-through a carpenter uses to nail wood beams together. Alexis drags the end of the hammer along the surface of the pan after striking it to shape the notes. The strikes resonate, but have a gentle after-motion.

Once the notes are hammered in to the tuner's liking, the pan is put onto a fire, which will allow the metal to withstand more tuning and to be hit with a mallet repeatedly. The pan is set aside to cool on its own before being cleaned with muriatic acid to remove soot from the fire and any dirt that has accumulated.

The notes are checked with an electronic tuner for correct pitch, but even if the tuner says a note is right, it must sound right to the ear, Alexis said.

"You're still looking for the character," he said. "Until you get it and you're happy, you keep destroying the notes. Some areas need more beating than others."

Pan Academia

Alexis first came to work full-time at NIU during summer 1985, and immediately starting nagging Al O'Connor, head of the percussion department at the time and former steel band director, about setting up a scholarship for students to focus on steel pan. O'Connor had run the steel band for about 12 years before bringing in Alexis as co-director and technician.

"Before I came here, Al O'Connor heard the U.S. Navy Steel Band play," Alexis said about his journey from teaching a high school steel pan program to NIU. "He asked the guys who made the pans, and they told him this big guy in Minnesota. So he got my information and started hunting me down."

O'Connor started the first university steel band that put on performances. His efforts paved the way for further breakthroughs at NIU by establishing the first undergraduate program focused on steel pan, as well as the first master's program.

Today, NIU is the only college in the world where a student can earn a master's degree for steel pan.

"Then we had Liam, and that started the expansion of what's happening now," Alexis said.

Liam Teague, a Trinidad native who arranged classical music on the pan as a teen, enrolled at NIU to study steel pan in 1994. At the time, it was the only college with a steel pan program. Teague returned to NIU in 2001 during a successful performing and composing career, and started serving in 2003 as co-director of the steel band, O'Connor's successor.

"We keep students very exposed to different styles," Teague said. "We also try to impress the history of music. When they leave here, they have some understanding and respect for it. They might even be stars where they come from, but Cliff says NIU brings people on a level playing field."

Teague describes the approach to the steel pan band and program as holistic - allowing students to specialize in tuning, building, composing or playing, but insisting they try each facet of steel pan.

The band works all year for a spring concert in order to maintain a high standard set by Teague and Alexis, as well as listeners who have come to expect great quality from the group. Efforts by O'Connor, Alexis and Teague culminated in 2000 when the NIU steel band took second place in the World Steelband Music Festival in Trinidad – while competing against professional groups made up of members who grew up playing steel pan in Trinidad and other highly skilled bands.

"Even with some of the best in the world, and a collegiate level band placed that high," Teague said. "One that practices 50 minutes, four days a week placed second in the world."

To accomplish such a feat, Alexis and Teague focus on the importance of feel – a musical facet that is not easy to teach.

"I would think after you get started learning to build and tune, you realize, how you tune on a pan is the same as done on a marimba, done on a xylophone, done on many other instruments," Alexis said. "I wouldn't call myself a pan tuner; I'm a tuner and my medium is steel."

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