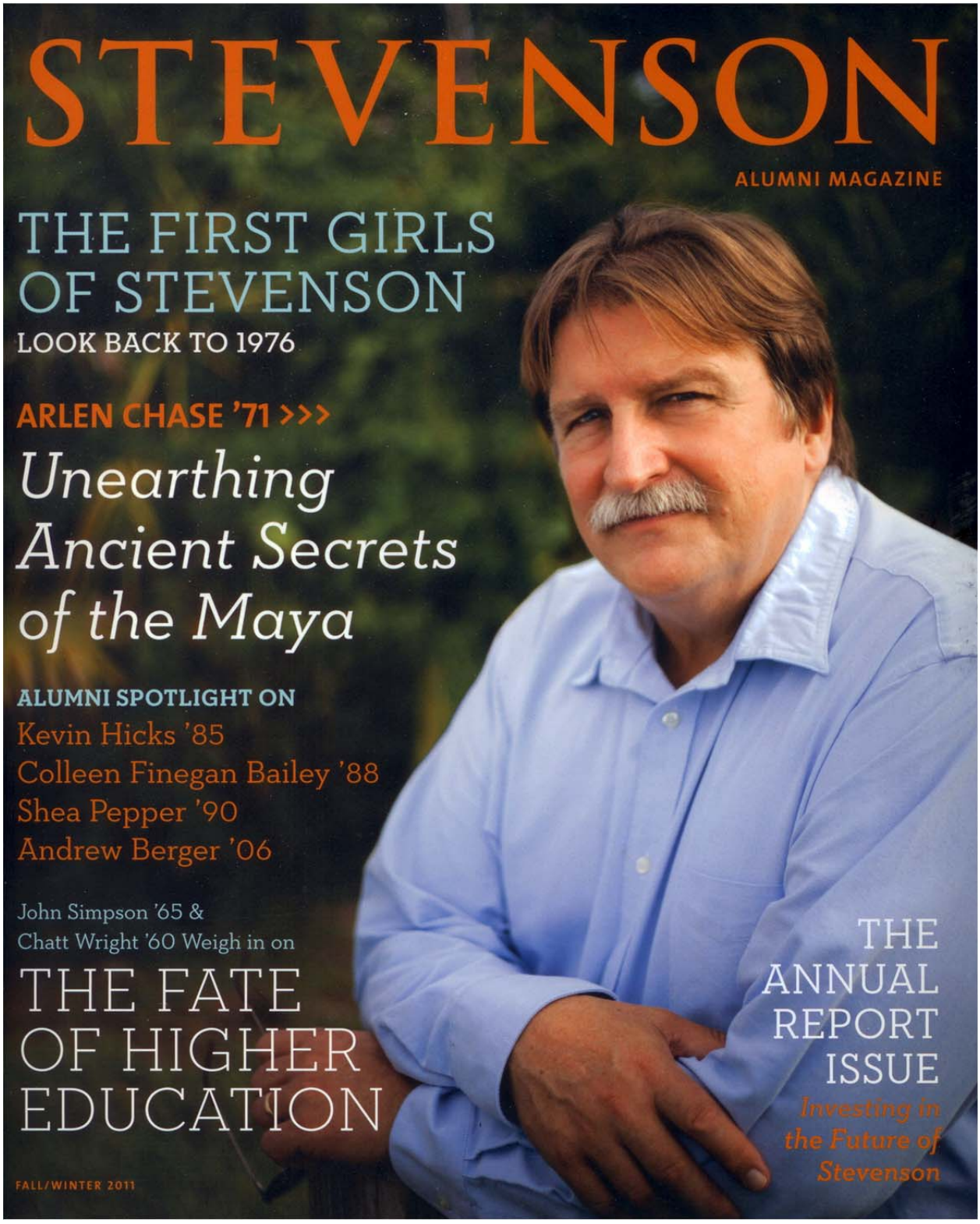
STEVENSON
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THE FIRST GIRLS OF STEVENSON
LOOK BACK TO 1976
ARLEN CHASE '71 >>>
Unearthing Ancient Secrets of the Maya
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Investing in the Future of Stevenson
FALL/WINTER 2011

DIGGING DEEP

Archeologist's dream career of Maya discovery began in the living room of a Stevenson teacher.

By Janet Kornblum

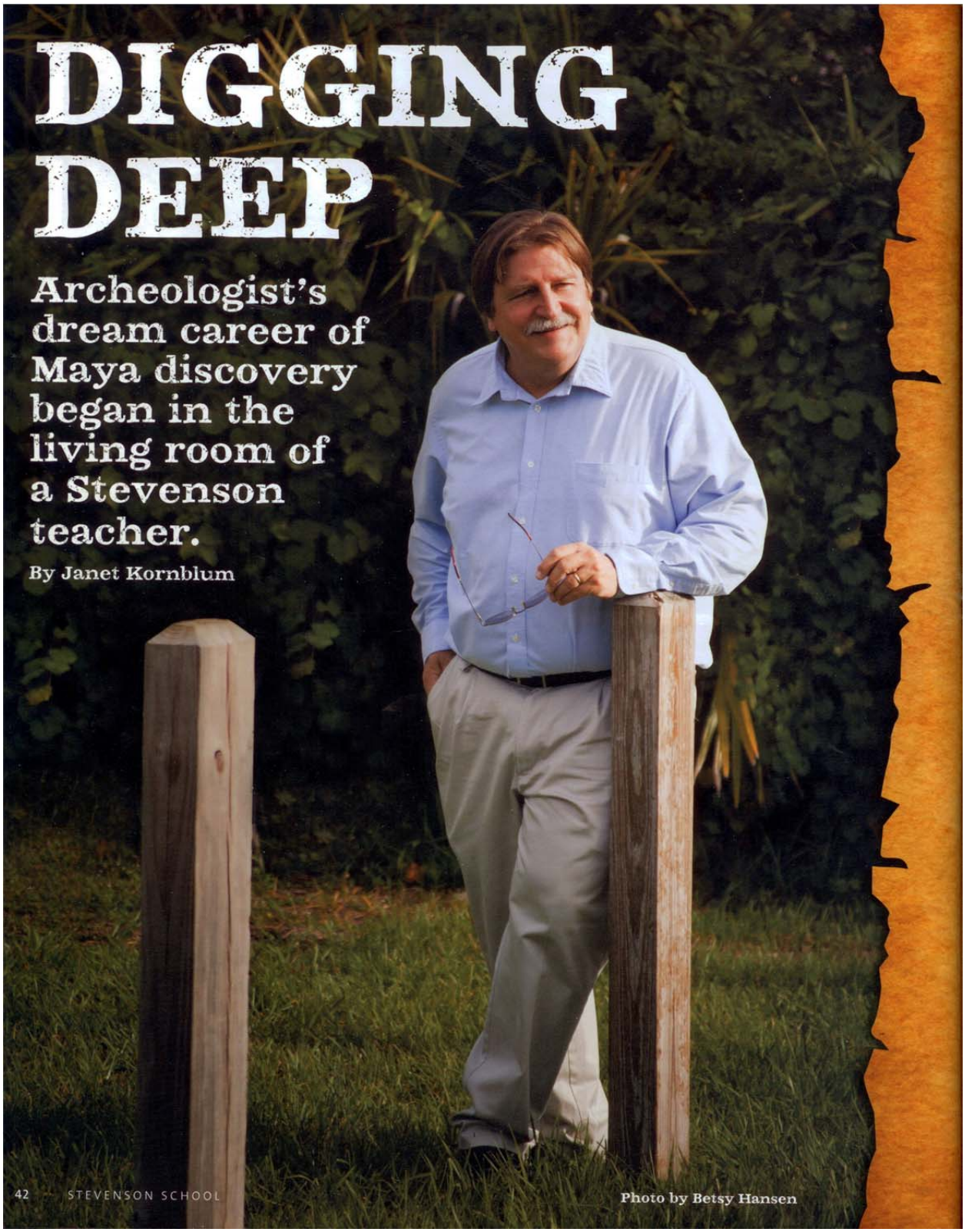
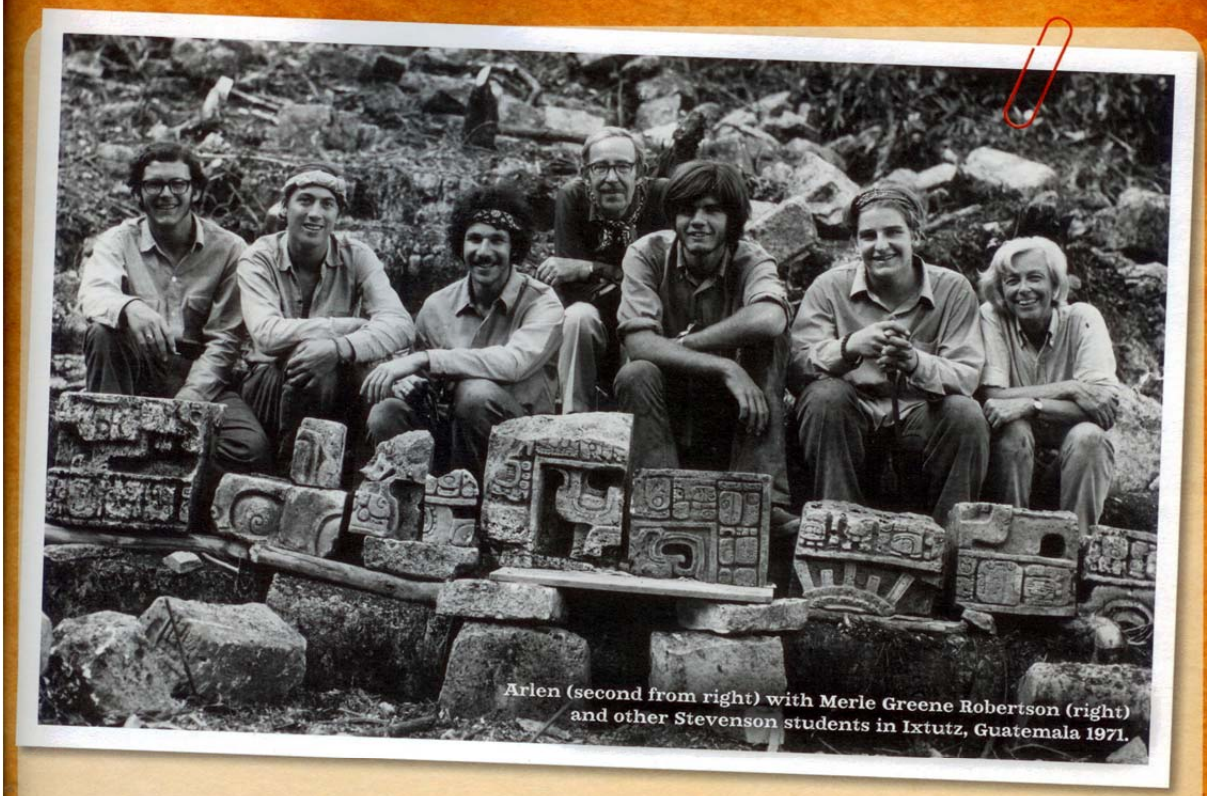


Photo by Betsy Hansen



Arlen (second from right) with Merle Greene Robertson (right) and other Stevenson students in Ixtutz, Guatemala 1971.

Arlen Chase's '71 first inkling of how he would spend the rest of his life came in the form of a bag of bones. Literally.

Chase was just in the third grade when his teacher brought him a bag full of dinosaur bones nestled in dirt — a gift from her paleontologist husband.

He can still picture the bag — just a square full of dirt. "It was full of these little bones — teeth and vertebrae and all kinds of stuff. It was amazing," he said.

He loved digging through that bag. After that, he just kept digging.

Reared in Europe until third grade (his father was in the military) and then Pebble Beach, Chase also discovered ancient Indian burial mounds that yielded shells, and Del Monte's old bottle dump, where he'd find glass and even an old newspaper clipping or two.

Then there was the old shooting range where his young mind was catapulted into the past, with bullets from both world wars that he'd discover sifting through the beach sands.

Early on, Chase learned that "the present" would allow him to "figure out what was going on in the past."

INSPIRED AT STEVENSON

As a senior at Stevenson, his desire to dig into the past took a new turn. He took a class on Maya archeology from renowned teacher **Merle Greene Robertson.**

That class, he said, "changed what I was going to do for the rest of my life."

With her unconventional teaching methods, holding class in her living room over fresh pots of coffee, Greene Robertson brought him into the world of ancient Maya civilization. Along the way, she also taught him scholarly writing.

Then she took him, along with classmates, on a three-week research trip in Guatemala. The field "was just absolutely fascinating," he said. "It was captivating."

"I hadn't really traveled to Central America," he said. "It was a very different culture." He remembers thinking, "Here we are in the middle of the jungle with all of these buildings that are overgrown with vines and trees, and we were discovering this beautiful artwork that was literally coming out of the topsoil of one of these temples. We found parts of a carved frieze. And they had hieroglyphs. All of this really brought it to life. This was a whole civilization that essentially disappeared and here we are on top of it, and we don't have any of these answers."

"That was it," he added. He knew then that he wanted to be an archeologist studying the ancient civilization that once dominated Mesoamerica.

Still, despite being from Pebble Beach, he didn't exactly grow up wealthy. His dad, a military veteran, worked as a policeman for the Del Monte police force and Chase went to Stevenson on a scholarship.

Archeology, once the province of the wealthy who could finance their own expeditions, didn't seem practical.

So Chase considered law.

But his dad steered him the other way.

"My father, who is a military veteran, said you should do whatever you want," Chase recalls. He remembers his father telling him very clearly, "That's what I fought World War II for."

Chase listened and enrolled at the University of Pennsylvania.

DIANE: A PARTNER FOR LIFE

On his very first day, he met a fellow student moving into the same building. That would turn out to be a very important chance meeting.

"I'd been there for a day or two," Chase recalled. "I was basically checking out who was moving into this all-girls floor."

He saw a girl come in with her parents, so naturally he helped them move her to the girls' floor.

She said she was interested in archeology, so there was a natural bond.

"That doesn't mean she liked me right off the bat," he added. In fact, it took more than a year for the two of them to get together. He wooed her with his equipment — the archeology books that his former teacher had given to him. It worked.

That student, Diane Zaino, also become an archeologist and eventually Chase's wife.

"They [Arlen and Diane] met at Penn and have been very, very close ever since. They're just a wonderful pair of people who are committed to each other and deeply committed to understanding what happened a millennium ago with the ancient Maya."

— Payson Sheets, Department of Anthropology Professor, University of Colorado at Boulder

Little did they know it then, but that partnership led them to where they are today: one of the most successful and well-known duos studying the world of the Maya.

"The two of them are a dynamic duo," said Payson Sheets, a professor with the Department of Anthropology, University of Colorado at Boulder, who has known the Chases since they were grad students together at Penn.

"They met at Penn and have been very, very close ever since. They're just a wonderful pair of people who are committed to each other and deeply committed to understanding what happened a millennium ago with the ancient Maya."

The Chases learned about Caracol, the site that was to become their lifework while they were finishing their PhDs at the University of Pennsylvania. (Diane Chase earned her PhD in 1982; Arlen Chase earned his a year later in 1983.)

"I heard a rumor from people that there was an individual out there who wanted to fund a Maya project," Chase said. "I got his number and I called him."

It was a good call.

DISCOVERING CARACOL

A week later, the Chases were in Belize. The archeological commissioner drove them to Caracol, an archeological site discovered in the 1930s but deemed relatively unimportant — except for the Maya monuments it yielded.

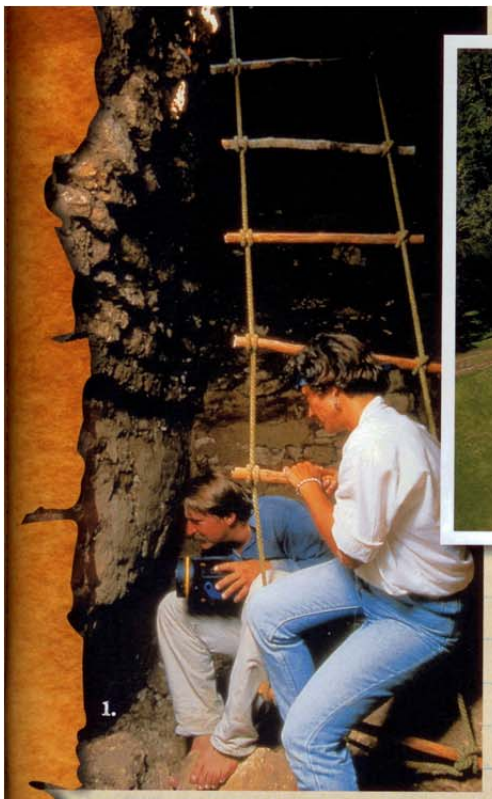
At that time, Belize would split monuments with archeologists, and the University of Pennsylvania had picked up a few in the early 1950s. Chase remembers passing those monuments on the way to class.

"At that point, he made us commit to doing a 10-year project, which was unheard of at the time because a long-term project was about four to five years, max," Chase said.

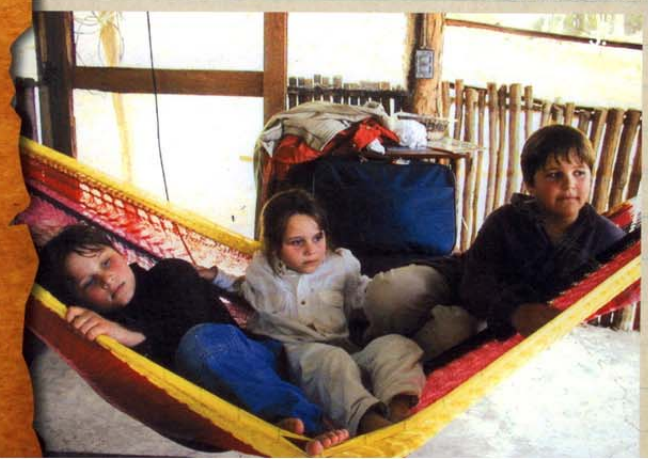
That used to be considered enough time to excavate a site.

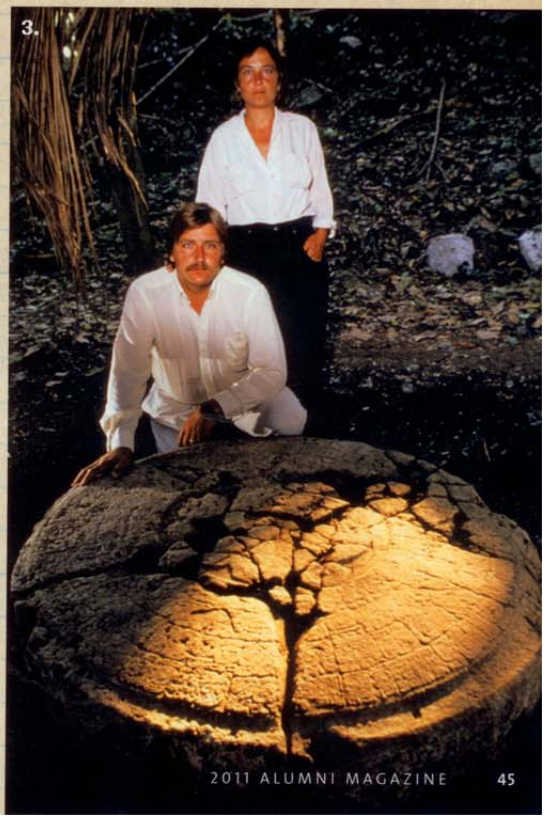
They had no idea what a great choice they'd made. Caracol turned out to be a much bigger project than they ever could have imagined.

They immediately began their dig, spending months at a time on the site, returning annually.



1. Arlen and Diane Chase, looking at rear text, in Structure B20 Tomb 4, 1993 2. Aerial View of Caana, Caracol's largest architectural complex, looking west; persons on stairs provide scale (Caana rises 43.5 m above the fronting plaza) 3. Arlen and Diane with Caracol Altar 21, which records the war with Tikal, Guatemala, 1986 4. Aerial View of Caracol's A Group, looking west (western pyramid is 25 m in height) 5. Adrian, Elyse, and Aubrey Chase in a hammock at Caracol, Spring 1997





1. Merle Greene Robertson and Arlen Chase '71, rubbing Caracol Altar 23, 1991

2. Areal excavation in Caracol's Northeast Acropolis, 2009

3. Polychrome bowl from a Caracol residential group, A.D. 550-600 (left) and a modeled-carved vase from a Caracol residential group, A.D. 750-800 (right)

Today — nearly 30 years later— the Chases are still working on the project, although in a much different way than they ever could have imagined back in 1983 when they first got the assignment. Chase expects the project to continue well after he and his wife are gone. That's how big it is.

JUNGLE LIFE —WITH KIDS

For the first 15 years, the Chases went together. They had delayed having children "because we were told that kids and academia didn't mesh." But once they knew they were going to get tenure, they started a family. Their first child came in 1989. They both got tenure in 1990.

Once kids were in the picture, "we just continued. We discovered that having small kids — you can just take them with you."

Eventually, they had three children and all "literally grew up camping for two to three months every year with us in the jungle."

Because work is impossible during the rainy season, the Chases had to take them during the school year. They'd work with the kids' teachers to get their schoolwork to bring with them and drive from Florida to Belize in January, returning to the United States in March or April.

The kids loved it.

"For them it was fairly normal to take (a few) months off from school, take all their studies with them, and go down and live in the jungle," Chase said. They lived in a camp, taking showers with solar-heated camping shower bags, sleeping on hammocks, and using camping toilets when they were younger, and then outhouses when they were big enough. There was a staff, and electricity was limited to a few hours. Still, the kids grew up interacting with the undergrad and grad students the Chases brought with them.

And "every Saturday and Wednesday night was movie night," Chase recalled. "We'd gather together, make popcorn, and everybody would watch the movie in our kitchen."

It clearly bode well for their children. "One of them is now at Harvard doing computer science and archeology, one is at Penn doing engineering, and the third one is a junior in high school and will go back to the field with us this coming season in the spring semester," Chase said.

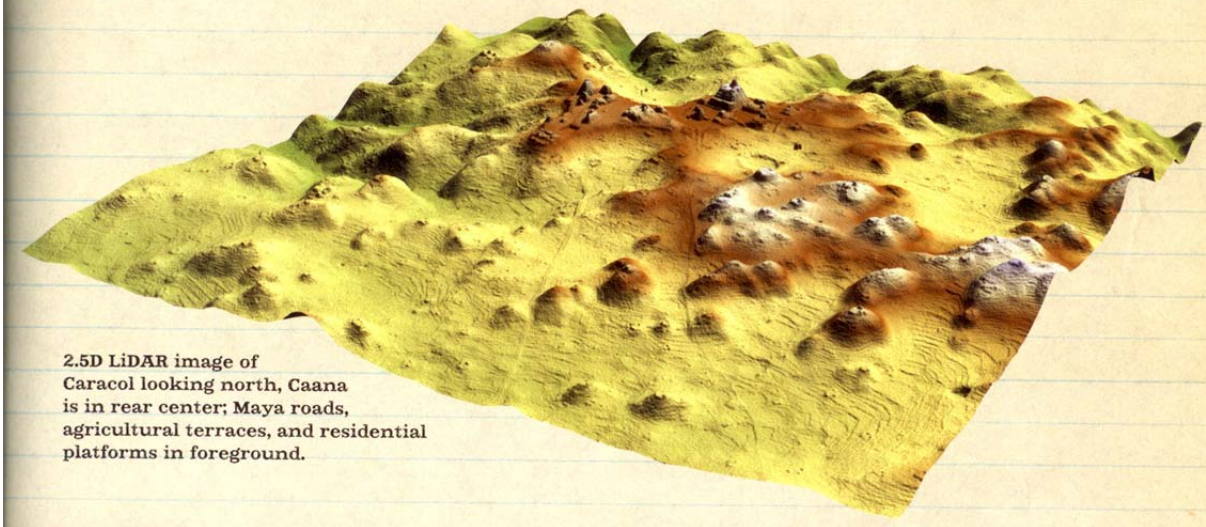
While the Chases raised their family in the jungle, the dynamic duo also turned the Caracol project into a major archeological site — and in Belize, it's become a major tourist attraction.

CARACOL — "A VERITABLE METROPOLIS"

In the beginning of the project, they made one discovery after another. In short order, they learned that Caracol was no run-of-the-mill Maya city. It was a veritable metropolis — and a hugely important one in the Maya area.

Each season, they'd make newer and greater discoveries.

They found roads leading out of the site, hinting at the city's size. And they quickly found that Caracol had defeated the better-known city of Tikal, Guatemala in warfare in AD 562.



2.5D LiDAR image of Caracol looking north, Caana is in rear center; Maya roads, agricultural terraces, and residential platforms in foreground.

"That started the ball rolling because until that time no one could have ever conceived that Tikal would've been defeated in any war by another Maya site," Chase said.

"The site kept getting bigger and bigger and bigger to the point where we were able to finally document that it is, in fact, much larger than Tikal," Chase said. "It was a very important site."

By 1994, they projected that the site was about 177 kilometers — or 109 square miles.

"Everybody said that was way too big," Chase said. And they had no way to prove absolutely that they were right.

They were frustrated because they couldn't define where the area ended. They also wanted to demonstrate the intensity of agricultural terracing — but were limited by what they could do.

"I got tired of mapping and we figured there had to be technology out there that would be able to see beneath the trees," Chase said.

> **"It's not an understatement to say their research has helped transform our scholarly understanding of ancient Maya civilization in the last couple of decades."**
>
> **— Jeremy Sabloff, President of the Santa Fe Institute**

While many archaeologists have successfully employed good old-fashioned radar and satellite imagery, Caracol was too dense with foliage to take advantage of those technologies.

But the Chases had read some promising studies about the use of something called LiDAR, short for Light Detection And Ranging. They spent five years trying to get funding.

In 2008, they succeeded. NASA gave them and a biologist colleague a grant to map the archeological remains of Caracol. At the same time of this pivotal moment, they celebrated their oldest son's acceptance to Harvard.

LIDAR YIELDS AMAZING DISCOVERIES

In April 2009, the National Center for Airborne Laser Mapping did a survey of the area. That entailed flying over the area for four days in a grid pattern. The plane pulsed down lasers "and returned a series of records of both ground elevation and canopy structure," the Chases explained in a paper for *Research Reports in Belizean Archaeology*. "Some 4.28 billion measurements were obtained."

The bottom line: LiDAR revealed thousands of new structures, roads, and terraces, among other things. They learned more with LiDAR than they could have hoped for.

"We were able to demonstrate how large the site was and that it was, in fact, 177 square kilometers in size and that it

<<< The Chase Family, from left to right: Elyse, Arlen, Diane, Aubrey, and Adrian at Rach Cobos' Chichen Itza Project, Mexico, July 2009

housed more than 100,000 people in AD 650," Chase said. "This is very cutting-edge technology, which is changing the way that we're going to think about Maya civilization and the way we do settlement archeology.

"The LiDAR absolutely blows people away," Chase said.

The research that the Chases have been doing is "really innovative," said Jeremy Sabloff, president of the Santa Fe Institute and another archaeologist specializing in Maya civilization. "It's not an understatement to say their research has helped transform our scholarly understanding of ancient Maya civilization in the last couple of decades."

In addition, Sabloff added, the Chases have "trained generations of students. Arlen writes very prolifically and writes very accessibly, so he's made sure that his interpretations are out there and are available."

That, Chase said, he owes to his high school teacher.

CHASE'S & CARACOL'S BRIGHT FUTURE

"Merle was a successful teacher because she was a researcher who involved her students in her research," Chase said. "That's exactly what you do in the university."

And that's just what they do now, bringing in students to help with the research.

The work may seem like it's only about the past. But it isn't. It can help people in the present understand how to live sustainably in a tropical climate.

And that's also why it's so incredibly satisfying, he said.

"We have the opportunity to study a major city–and that's what we've been doing—and getting long-term data," he said. "That will have impact on long-term questions that are really of interest to everybody: How did humans adapt to their environment? Here's a completely different adaptation and nobody down there does this today. There should be implications that come out of this for modern populations as to how to use their environment in essentially a green way."

For many years "we assumed that (the Maya) desecrated the environment, but they don't seem to have done that," Chase said. "Otherwise, they wouldn't have been successful for a thousand years."

And the work is far from finished. In fact, it really won't be done until well after the Chases are gone.

"Even if we stop digging, it will still take us 20 years to finish making the database completely accessible," Chase explained. "The longer you work at a place, the better your database will become. Once you have a very good database, then you're in a position to start to answer some of the bigger questions, questions that have applicability to even modern-day questions of urbanism."

Understanding is key. That's why Chase said he is "sure there will always be somebody working in that region."

Caracol, it turns out, "is so big that we've barely scratched the surface after 30 years," he added.

As for Chase's own future? At 58, he expects to continue working in Caracol at least another decade. Beyond that, he hasn't planned. "I haven't looked that far," he said. Even if he can no longer physically do a dig, he can participate in one way or another.

"There's always something we can do," he said. "This is one of the major tourist attractions for all of Belize, so Belize also has a vested interest in this site, and they want it to be done right."

But he does know one thing: He's healthy and strong and his life's work will always be in — or at least about — Caracol.