

## CALVIN GEOLOGY PROF COMPLETES FOUR-DECADE PUZZLE

When Calvin College professor of geology Davis Young sent three rock samples to the Smithsonian Institution in Washington, D.C., he put the exclamation point on a puzzle that spanned four decades and perplexed him for almost 30 years.

The Smithsonian was interested in Young's rocks because they contain crystals of an extremely rare mineral called prismaticine — the only known occurrence of prismaticine in the United States.

Young discovered the mineral in 1967 while on a geologic mapping expedition in the New Jersey highlands. At the time he was a graduate student at Brown University in Providence, R.I., doing Ph.D. work in geology.

He literally stumbled onto the prismaticine which he said was running in distinct bands through an outcrop of approximately 15 feet by 15 feet.

"When you're a geologist you're always down on your hands and knees," he said with a wry smile. "I just couldn't miss it (the prismaticine)."

Young did not recognize the mineral as anything he had seen before, so he took a few samples back to school with him and cut a thin section to analyze under the microscope.

"It wasn't any of the minerals I thought it would be," he said.

Putting the rock under an x-ray machine didn't help either, so Young, busy with the responsibilities of doctoral work, set the rock aside for a few years.

For the next 25 years he would revisit the sample from time to time —

"about every five years or so" he said — "but nothing ever clicked."

Then three or four years ago he was working on an entirely different project and was sending out samples to be analyzed with an electron microprobe, a sensitive and sophisticated instrument which can analyze the chemical composition of tiny samples.

"I decided to send out that thin section of my unknown mineral," Young said, "in the hope that if I knew its chemical composition,

I could finally figure out what it was." When he got the results back the lab noted that they had analyzed the sample in 10 different spots and they suggested it might be a mineral called surinamite. "At first I wasn't sure," said Young, "so I kept at the analysis."

The electron microprobe cannot check for boron so Young did an analysis of his sample looking for that substance and found out that the mineral did indeed contain a high percentage of boron, an element lacking in surinamite.

"I knew then that I had something different," said Young, his face growing excited even now as he recalls that breakthrough after almost 25 years of hunting.

With a fairly specific chemical analysis now in hand Young set about the laborious task of identification. His first step was to consult a rather exhaustive reference book which contains brief descriptions of all known minerals. Comparing his chemical analysis with each mineral in the 250-page book yielded about half a dozen possible matches, one of which was prismaticine. He then looked at published papers on each of those minerals and prismaticine began looking like a better and

better bet. Finally, when he compared his x-ray pattern — taken back in 1967 — to x-ray patterns of prismaticine he got a match.

"It was a pretty good feeling," said Young. "It was a lot of fun."

Prismaticine is known from about 40 to 50 locations worldwide. It was first discovered in Germany in 1886 and appears in just a few places in Europe. It also is found in India, Sri Lanka, Australia, eastern and southern Africa and Canada.

And now, thanks to Young's persistence, geologists around the world will learn that it's also found in northern New Jersey.

"It's exciting," said Young. "When I first began doing serious work on the sample I was hoping it would be a new mineral because then I could have named it, but this is pretty fun too."

As to the Smithsonian, Young is realistic about his chances. "It'll probably end up in a back room someplace," he said, "but you never know. It's rare enough stuff. As I told my students, it's rarer than diamonds."



Geology professor Davis Young displays a rock sample containing prismaticine.



Jo Duyst spent her career organizing and acquiring books.

## LIBRARIAN'S LEGACY LASTS 30 YEARS

Having spent 30 years behind the shelves, Johanna (Jo) Duyst has had a hand on most of the library's more than 400,000 volumes. Between her roles as cataloging assistant, acquisitions assistant and acquisitions librarian, Duyst has processed hundreds of thousands of books.

Many students and library patrons have been the beneficiary of her work, without knowing about the behind the scenes work of Duyst.

"In her quiet, unobtrusive manner, Jo Duyst worked behind the scenes in the Hekman Library, but her legacy includes thousands of books which she ordered for the collection," said Marvin Monsma, director of the Hekman Library. "During the 25 years (1971-96) that she was associated with acquisitions, the collection grew from slightly more than 200,000 to approximately 400,000."

Equally amazing is the number of changes that have occurred in Duyst's field over the last 30 years. Just keeping up with the changes from card cataloging to the ever-changing world of computers has been fascinating, she said.

She came into the field at Calvin in 1966 and earned an advanced degree in library science from the University of Michigan in 1973. During those years the library has gone to a completely computerized system along with changes in access because of the Internet and other changes.

In her retirement, Duyst will continue to read books and travel. Her most recent venture took her and her husband, Pete, to the Olympics in Atlanta, Ga., in July. They are also looking forward to traveling to American historical sites as well as spending time with their family.