

TRIBUTE TO BJARNI JÓNSSON

This volume of *Algebra Universalis* is dedicated to the memory of Bjarni Jónsson, who died September 30, 2016 at the age of 96. He was a pioneer, guide, friend, and mentor to so many of us.

1. BIOGRAPHY

Bjarni Jónsson was born on February 15, 1920 at Dragháls, Iceland. He was the third of the ten children of Jón Pétersson and Steinunn Bjarnadóttir, nine of whom (5 boys and 4 girls) survived infancy. Dragháls was the farm of his father's family.

Bjarni was named for his maternal grandfather Bjarni Bjarnason. His grandfather bought the farm Geitaberg in Svínadalur around 1900. In Bjarni's memory, there was never a goat on the mountain nor a pig in the valley. The farm had a few milk cows and several hundred sheep. When he was about nine months old, Bjarni was sent to live with his grandparents at Geitaberg. He stayed there, with occasional visits to his family at Dragháls, until after his grandfather died in December 1928, when he moved back to Dragháls.

There was no school in rural Iceland. A traveling teacher would come and stay on one of the farms to give lessons. The kids who lived nearby would walk to the lessons; those a little farther away would stay on nearby farms. "By the age of 14 you were done with education." But Bjarni's grandfather, Bjarni Bjarnason, told his oldest son, also named Bjarni Bjarnason and a medical doctor, to put Bjarni Jónsson on the education track. So around 1931 Bjarni moved in with his Uncle Bjarni, first in Akureyri and later Reykjavík. He attended high school at the Mentaskolinn in Reykjavík, graduating in the spring of 1939.

After that, he got a job as a bookkeeper in an office in Akureyi. Since he was good at math, his uncle thought that was an ideal job for him. Bjarni disagreed, and started looking for ways to further his education.

The Icelandic government had a program to send students to university abroad, which during the war meant the U.S. Bjarni won one of these scholarships, and in the fall of 1941 traveled by ship and then cross-country bus to Berkeley. With transfer credits from Mentaskolinn, he received his undergraduate degree in the spring of 1943.

Date: August 1, 2017.

As an undergraduate, he took a course in matrix theory from Alfred Tarski. In Bjarni's words, "It was pretty routine stuff, but he snuck in some deeper material occasionally, and I saw that there was something there."

Bjarni continued studying with Tarski at Berkeley, and obtained his Ph.D. in 1946 with a dissertation on *Direct decompositions of finite algebraic systems*. His first academic job was at Brown University.

During this period at Brown, Bjarni married Amy Sprague. They had a son Eric (b. 1951) and daughter Meryl (b. 1953). Somewhat restless at Brown, Bjarni twice took leave to teach a semester at Berkeley, and the 1954–55 academic year was spent at the University of Iceland. Upon returning, he immediately went to a position at the University of Minnesota. (His second wife, Harriet Parkes, was also at UM at that time, but they did not meet.)

While at Minnesota, Bjarni and Herb Federer wrote a calculus book [23], which he aptly described as "an artistic success – and a box-office failure."

In 1966, Bjarni went to Vanderbilt University. Tradition has it that his employment package included season tickets for basketball. This must have been true, because Bjarni seldom missed a Vanderbilt basketball game. He also enjoyed watching baseball, both Vanderbilt baseball and the Minnesota Twins.

The Vanderbilt era brought important changes to Bjarni's life. He was divorced from his first wife. In 1970 he married Harriet Parkes, a Nashville native, and their daughter Kris was born in 1971.

He took up running as a sport, and did well in his age group competing in races in Percy Warner Park. Later in life he still enjoyed long walks.

In 1966 he bought a cabin on Horseshoe Lake near Backus, Minnesota. It is the most peaceful place on earth, near the end of a mile-long gravel dirt road, yet only three miles from a bustling town of well over 100 people. For most of the rest of his life, he spent every summer there. The author visited often. Other mathematicians, including Alan Day, Bill Lampe, Mai Gehrke and Peter Jipsen enjoyed Bjarni and Harriet's hospitality at the cabin. A converted woodshed served as an office where he could work, and it was understood that mathematics had a certain priority. Then he would disappear for a ten-mile run around nearby Pine Lake.

The author also went to Vanderbilt in 1966, as an undergraduate student. Bjarni became my undergraduate advisor, and I wound up taking a couple of years of algebra from him. Some of the lectures were transforming, and I can even remember which room of Old Science

Hall they were in. I particularly remember one on the isomorphism theorems, and another on equational classes. Bjarni's lectures went to the heart of the matter.

But the most important thing he did was simpler. He gave me Tom Whaley's dissertation and said, "Here, read this." I had never seen such mathematics before, and was soon hooked.

Bjarni organized an incredible seminar for the fall semester of 1969. Bernhard and Hannah Neumann, their son Peter and student Mike Vaughan-Lee all spent the semester at Vanderbilt. I took field theory from Peter and complex variables from Mike, while Bernhard and Hannah Neumann lectured at the weekly seminar. All of them gave me kind encouragement.

Bjarni retired from teaching in 1993, and around the year 2000 they moved to Cincinnati, where Kris and her family lived. As often happens with older folk, Bjarni turned to the thoughts of his youth – in this case, canonical extensions and the foundations of number systems.

Harriet died on December 19, 2014. Bjarni passed away peacefully on September 30, 2016, surrounded by his children.

We will remember his enthusiasm for mathematics, integrity, and devotion to students and colleagues. He was a kind and gentle man. And I will especially miss the dry wit, so characteristically Icelandic, that enlivened us in his presence.

2. MATHEMATICS

The Jónsson Symposium was held from July 2 to July 6, 1990 in Laugarvatn, Iceland to celebrate Bjarni's 70th birthday. The proceedings of the symposium were published as volumes 31 and 32 of *Algebra Universalis* in 1994. Volume 31 contains surveys of Bjarni's contributions to universal algebra by Kirby Baker, and to lattice theory by J. B. Nation, with a foreword by George McNulty. So this article will only briefly survey Bjarni's mathematics, and refer the reader to those articles for a more comprehensive report. But Bjarni continued to be active after his 70th birthday, so this volume contains two shorter articles on his later work.

3. HONORS

Bjarni served on the editorial board of several mathematics journals, including the *Houston Journal of Mathematics*, *Algebra Universalis* and *Order*. In 1974 he was an invited speaker at the International Congress of Mathematicians in Vancouver. He received Vanderbilt's Harvie Branscomb Distinguished Professor Award in 1974, and the

Earl Sutherland Prize for Achievement in Research in 1982. He was awarded an Honorary Doctorate by the University of Iceland in 1986, and received the Knight's Cross from the president of Iceland in 1991. In 2012 he was elected an inaugural fellow of the American Mathematical Society.

4. QUOTES

“Mathematics is primarily an activity, and secondarily a body of knowledge.”

“Adventure is not in the guidebook and beauty is not on the map. The best one can hope for is to be able to persuade some people to do some traveling on their own.”

5. PH.D. STUDENTS

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- (2) Daniel Wagner, Brown, 1951.
- (3) Edgar Smith, Jr., Brown, 1955.
- (4) Peter Fillmore, Minnesota, 1962.
- (5) Steven Monk, Minnesota, 1966.
- (6) Fred Galvin, Minnesota, 1967.
- (7) Tom Whaley, Vanderbilt, 1968.
- (8) Dang X. Hong, Vanderbilt, 1970.
- (9) Robert Appleson, Vanderbilt, 1975.
- (10) Henry Rose, Vanderbilt, 1980.
- (11) Jeh Gwon Lee, Vanderbilt, 1983.
- (12) Young Kang, Vanderbilt, 1987.
- (13) Peter Jipsen, Vanderbilt, 1992.
- (14) John Rafter, Vanderbilt, 1997.

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