

recognize that there are many women mathematicians who are not research mathematicians, even though the majority of women mathematicians — and the majority of all mathematicians — do not work at research institutions.

P. Kenschaft: And things really are a lot better than they were in the 1950's. In 1954, a woman whom I know was working as an actuary at Metropolitan Life and got married. A few weeks after her marriage, she received a letter from the company stating that it was company policy that a married woman could not be an actuary and that she was therefore fired. She is now a high school teacher. Such blatant discrimination could not happen now. The choices can certainly still be difficult, but the external conditions have certainly improved a lot since the 1950's. We owe a lot to the feminist movement.

M. Smith: Our time is just about finished.

B. Ruskai: In conclusion, I want to emphasize that we need input from lots of different kinds of people. We need to listen both to mathematicians and to social scientists, and we need to bring more voices into the discussion. We must listen to our differences, the differences in our positions in the world and the differences in our opinions, and we must respect those differences in an open and productive dialog.

REMEMBERING ALICE DICKINSON

by Joan P. Hutchinson, Associate Professor of Mathematics, Smith College, July 27, 1987

I had intended to write the AWM community of Alice B. Dickinson's death on June 25, 1987, due to Alzheimer's disease, when I read Rhonda Hughes' request for articles about departments and people who have been especially supportive of women and minorities. This spurred me on to write some thoughts about Alice's life and the inspiration many of us drew from her. As Professor of Mathematics and later Dean at Smith College, an undergraduate school for women, she was a role model and mentor to many women in mathematics and science long before such terms were current.

Alice Dickinson was born in New York City in 1921. She did her undergraduate work at Wheaton College and the University of Michigan. During World War II she worked for the M.I.T. Radiation Laboratory and the Sperry Gyroscope Research Laboratories on the design and testing of radar antennas. (She tested her work by flying with pilots who landed at night at unlit airports, guided only by the newly developed radar systems.) After the war she studied and earned her Ph.D. from the University of Michigan, working in topology with R. L. Wilder. Due to anti-nepotism laws, her first job at Pennsylvania State University was a temporary one; her husband David Dickinson is also a mathematician. In 1959 they moved to Massachusetts so that they could have jobs at neighboring institutions, Smith College and the University of Massachusetts. When Alice joined the Smith mathematics department she was the only woman in a department of five. When she retired in 1977, there were 5 1/2 women in a department of eleven. (My husband and I share a position. While Dean of the College, Alice instituted tenure-track shared and part-time positions.) Alice herself had wanted to teach part-time at first since they had two young children; however, a regular part-time position was not an option at that time.

I was an undergraduate at Smith College from 1963 to 1967 and joined the faculty in 1976. I hope that with a few personal recollections I can convey some of Alice's gifts as a teacher, as a colleague, and as a friend. As a freshman I was eager to try essentially all the liberal arts before choosing a major. In my second semester I had Mrs. Dickinson for calculus — literally within days I knew my choice of a major was made. Mathematics with Mrs. Dickinson became a challenging and irresistible exploration of a new and intricate world. For example, in that class I learned about the Lascaux cave-dweller paintings and the "floating" Babylonian calendar, and how carbon-14 dating and the related mathematics helped to date these. A subsequent differential equations course given by Mrs. Dickinson was alive with examples of clepsydras (water clocks), tunnels through the earth, vibrating strings and membranes, and bridges in resonance. The notes from this course became her book *Differential Equations: Theory and Use in Time and Motion*. Not only were her class presentations stimulating, but so also were the daily class discussions, based on homework assignments and outside

reading. In fact, students were asked to do a lot of independent work on in-depth assignments, on take-home problem sets (rather than tests), and on independent final projects that involved reading, working with newly-learned mathematics, and writing up the work in an expository paper. This type of study led me to a senior independent honors project under Mrs. Dickinson's direction in which I read Bourbaki in French, attended graduate seminars at the University of Massachusetts, and studied the theory of rings of continuous functions, a beautiful meeting ground of algebra, analysis and topology.

Mrs. Dickinson's appreciation of mathematics was felt beyond the classroom: she introduced English change ringing to the Smith campus with the installation of a peal of English tower bells and by teaching tower and handbell ringing. (In English change ringing, permutation groups, subgroups and cosets are rung in historically prescribed ways.) Mrs. Dickinson and other faculty members (including especially Mr. Neal H. McCoy, now Professor Emeritus of Mathematics) provided a fascinating learning environment for the women students of Smith College; many have continued in mathematics and related fields. I remember two particular comments of hers that really affected me. First, she suggested that a true test of what one was most interested in was the kind of books one read during summer vacation. Second, she asserted that if I was really serious about mathematics, I should study for a Ph.D. Both comments were surprises to me, but she was right.

Alice and her husband spent two sabbaticals in India. (One trip began by "hitchhiking" to Europe on a freighter.) Alice taught at the Muslim Women's College in Aligarh, the M.S. University of Aligarh, and the University of Baroda. At one institution her graduate seminar on topology was initially filled and overflowing: many came just to see a woman lecturer, it seemed! In India she learned to play the tabla drums and to cook wonderful curries. In this country Alice participated in a summer exchange program with a consortium of southern black women's colleges; she subsequently initiated a successful student exchange program between the consortium and Smith College. While Dean at Smith, Alice developed innovative new programs in engineering and dance, and she began the Ada Comstock program in which older women could return to Smith and complete their college degrees in individualized programs.

These are a few of the many facts of Alice Dickinson's life. I hope they convey also some of her spirit. She was a warm and unconventional person: she set and followed her own priorities, both professionally and personally. She filled her life with books and music, rather than more usual material possessions. She cared about individuals and affecting their lives positively.

Currently at Smith College 5% of all students major in mathematics with an additional 2-3% majoring in computer science; mathematics is currently the sixth most popular major. We have tried to understand the reasons for the large enrollments. Besides the standard mathematics curriculum we offer a range of applied mathematics courses and courses taught in a "Moore method" style; both these types of courses were first introduced to the department by Alice Dickinson. But, probably most important, members of the department try to continue the tradition of respect and encouragement for women students that we have learned from Alice Dickinson.

A STATISTICIAN GOES TO VIETNAM

by Arlene Ash, Boston University Medical School

Vietnam has a world-class capacity in theoretical mathematics, but "you can't eat prestige." Can mathematicians do something useful in an economically backward country still suffering from the residual effects of protracted war? The Kovalevskaja Fund evidently thought so when they offered a travel grant to enable an American woman researcher to give lectures in applied mathematics at the Vien Toan Hoc Institute of Mathematics in Hanoi in January, 1987.

I saw the ad inviting competition for that grant in the *AWM Newsletter*, and last April learned that I had been selected. With great effort I was able to arrange my work schedule (free-lance consulting and health policy research) to allow for eight weeks off. I wanted time to visit friends in the southern Philippines where I had taught mathematics as a Peace Corps volunteer (1967 to 1969) and time to tour. My "side trips" to Burma, Kampuchea, Thailand, the Philippines, and even to the south of Vietnam were useful as well as fun, providing a context for interpreting the vast differences between Boston and Hanoi.

My first surprise came at the airport in Bangkok, while checking in for the two-hour flight to Hanoi. There is so little intercourse between Vietnam and the United States that I had naively been