THE SONIA KOVALEVSKY HIGH SCHOOL MATHEMATICS DAY

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Since 1985, the Association for Women in Mathematics (AWM) has received grants to support Sonia Kovalevsky (SK) High School Mathematics Days at colleges and universities throughout the country[1]. At first, grants to AWM were from the Alfred P. Sloan Foundation and the National Science Foundation, but in more recent years the grants have been from the National Security Agency. In turn, AWM has awarded more than 125 grants of up to $5,000 each to universities and colleges. Historically Black institutions and women's colleges are particularly encouraged to apply. The selected institutions are requested to secure additional funding in support of the program from local sources. Thus, colleges and universities throughout the country run Sonia Kovalevsky High School Mathematics Days. These individually funded programs are intended to promote an interest in the mathematical sciences among high school females in grades nine through twelve by introducing them, and their teachers (of both genders), to exciting applications of mathematics, and thereby encouraging them to consider mathematics as an appropriate field for women to enter.

The local program administrator, Dr. Eleanor G.D. Jones, first applied for an AWM grant in 1994; this grant funded the first SK High School Mathematics Day at Norfolk State University. This first Mathematics Day was so successful that AWM invited Jones to again apply and responded favorably to that application, as well as to subsequent applications. The mathematics department at Norfolk State has a truly integrated faculty of African-Americans, European-Americans, Asian-Americans, and foreign nationals with no one group having a majority. Under the leadership of the department head, Dr. Phillip McNeil, staff and faculty members of the Mathematics Department always assist with the program.

The program at Norfolk features motivational talks, workshops for students, team problem-solving competitions, workshops for teachers, lunch with a discussion group, and a career panel. Each teacher and student receives a certificate of participation; certificates

[1] Sonia Kovalevsky was the first woman to earn a Ph.D. in mathematics from the University of Stockholm in 1874.

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acknowledging outstanding achievement are also presented to teams of students that excelled in the competitions.

The team competitions alleviate mathematical anxiety in participants as they experience the enjoyment of solving mathematical problems with the collaboration of others. The calculator workshops enhance the participants' proficiency in the appropriate use of the calculator. Moreover, the latest models of scientific and/or graphing calculators are used which means participants are introduced to the most current adaptation of calculator procedures to mathematical subjects.

With only one exception, the luncheon panel always consists of women from different professions who discuss their respective use of math and the opportunities which math provides. Professor James D. Reid of Wesleyan University in Connecticut is the only man to have been a High School Day panelist. Since he has been an inspiration, as well as the Ph.D. dissertation advisor, to several women now working in the mathematical sciences (including Jones) the presence of this distinguished and scholarly gentleman was an asset.

The population served by our project usually consists of 160 to 180 female high school students and twenty to thirty mathematics teachers from high schools in the Tidewater region of Virginia. We serve the cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach—all less than a forty-minute drive from the University. School participation includes ten public high schools, one private high school, and one Catholic high school.

Local donors often provide prizes for participants. At the first SK High School Day, a Texas Instruments promoter donated eleven TI30 calculators to a workshop presenter. These calculators were then awarded to those excelling in the competitions. A recent keynote speaker gave fascinating geometric puzzle key rings as souvenirs for each participant.

Writing the funding proposal to AWM for the High School Day is the first step in the organizational process. Responses to proposals have resulted in funding from as low as $1,800 to as high as $4,600. The amount of funding impacts decisions on who will be involved in the program. For instance, a female mathematician from the National Security Agency usually is available without cost to our program, but budgetary concerns dictate the level of honoraria to be offered to potential speakers.

When one of the larger funding amounts was available from AWM, the following proposed budget was submitted:

Food (approximately 200 persons)	$2000
Registration/Printing	$200
Telephone	$25
Postage/Faxing	$25
Photography	$60
Travel/Lodging	$1,400
Honoraria	$800
Total	$4,510

Most of the postage, faxing, and telephone costs are absorbed by the Mathematics Department at Norfolk State University, but these items are budgeted in case it might be necessary to use these services off-campus. When smaller grant amounts are received, honoraria are eliminated, travel and lodging expenses are decreased or eliminated, and the amount budgeted for food is decreased.

After receiving AWM's approval, brochures announcing the event are sent to the area high schools approximately two months before the scheduled program date. The brochure includes the program of the High School Day. At each school, the principal or mathematics chair is asked to personally select a mathematics teacher to be a liaison. Then the registration forms and brochures, along with picture posters, are sent to the liaisons to be displayed in the appropriate classrooms. Weekly telephone contact is made with the liaisons until the desired quantity and quality of applications are received. Every school that decides to have a student participate also must have at least one mathematics teacher participate; this condition is stated in the announcement brochure.

During the past Sonia Kovalevsky Day, an information packet sent by AWM was extremely helpful in the planning and the execution of the program. For the problem solving session, use was made of some of the problems in the packet. Also, the AWM questionnaire was used for evaluation. Additionally, two very timely and appropriate booklets, *Careers that Count*

and *Profiles of Women in Mathematics*, were provided by AWM for inclusion in the folder prepared for each participant.

The program concludes with each participant responding to the evaluation questionnaire in the information packet received from AWM. The feedback is quite useful in identifying the strengths and weaknesses of the program; we rely on these responses to plan future programs. Overall, the most important outcome is increased student awareness of the role of mathematics in many occupational endeavors, and that this is a field in which women can certainly take part. ■

INTERVIEW WITH ELEANOR JONES

Q. What career path did you follow to reach your present position? Is this what you originally aimed for, or were there twists that brought you here?

A. After graduation from high school, I entered Howard University to prepare to be a public school mathematics teacher. I received my Bachelor of Science degree with a major in mathematics and minors in both physics and education. Howard then offered me a fellowship, so I stayed another year and received my master's in mathematics.

A few months later I became a science and mathematics teacher at B.T. Washington High School in Norfolk. During my second year of employment, I was married to Edward A. Dawley, Jr. and the following year gave birth to a son. My second son (now deceased) was born eighteen months later.

When my second son was ten months old, I accepted employment as a mathematics instructor at Hampton Institute (now Hampton University). After being there six years, the academic dean very strongly indicated that I should do further study. My marriage was disintegrating, so my husband discontinued his law practice in Virginia and moved to California, while my two sons and I went to Syracuse where we lived for four years until I received the Ph.D. degree in mathematics from Syracuse University.

Q. Have you been involved in similar programs before? Was there a particular moment or stimulus that caused you to begin this project?

A. Dr. Mary Gray, a professor of statistics at American University as well as a practicing attorney and long-time executive of the Association for Women in Mathematics, provided the stimulus by asking me to write the proposal for funds for a Sonia Kovalevsky High School Day.

Q. Have there been any unique or unexpected consequences for you resulting from your project?

A. The appeal of mathematical problem solving was greater than I expected and more diverse than I anticipated.

Q. Are you able to identify the greatest lesson you have learned and the rewards you have gained through working on the Sonia Kovalevsky High School Day? What is the greatest benefit you see coming to students—and teachers—through their engagement with this project?

A. It has been rewarding to have convinced some students and teachers that mathematics can be an enjoyable and entertaining endeavor.