

REPORT FROM A MATHEMATICS FELLOW

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As teachers throughout the state locked their desks for the last time in June and pupils bid a fond farewell to "pencils, books, and teachers' nasty looks", I was thinking ahead to being a mathematics fellow at Rensselaer Polytechnic Institute in Troy, New York, and wondering exactly what it would include.

Briefly, I was one of fifty (twenty-three women and twenty-seven men) secondary school mathematics teachers from twelve eastern states who attended classes, labs, lectures, tours, movies, discussions, and demonstrations on our subject and its modern day uses. Sponsored by the General Electric Company with the cooperation of Rensselaer, this six weeks' fellowship program provides an expense-free opportunity to enrich and broaden one's knowledge of subject matter and to observe how mathematics is put to work in numerous phases of industry.

We were assigned in two sections to courses which met Monday through Saturday. These included three weeks statistics, three weeks electricity, and six weeks "Elementary Topics from an Advanced Viewpoint". In statistics and electricity little, if any, previous training was presumed. Therefore, this work included fundamentals and applications. However, the course in "Elementary Topics" started with "the basic study of the calculus" then series, differential equations, and some projective geometry. All of this material was presented from a new point of view so that it was not boringly repetitious; and, moreover, because of the fresh approach much could be gained whether one had studied the work previously or not.

For the laboratory course, each section was subdivided into two groups. This work was unique in that neither the experiment itself, or the physical involved, was considered of prime importance. Instead the emphasis was placed on the mathematics tools used in analyzing the results obtained and the mathematical ideas incorporated in the manufacture and inherent in the use of various pieces of equipment.

Working for credit was a personal choice made about the fourth week. Those who wished to receive any or all of the eight graduate credits for these courses took a three-hour examination for each lecture course and completed a project for the laboratory credits. The remaining fellows were awarded satisfactory grades without credit. Regardless of this choice each was presented with a certificate by Rensselaer and a pin by General Electric at closing ceremonies.

Beside classroom and laboratory instruction our schedule included trips to the accounting department, the engineering laboratory, the turbine division, the analytical machines department, the research laboratory, and manufacturing installations of General Electric, plus the W. & L.E. Gurley Company, makers of precision instruments. A trip consisted not only of touring a particular department or division with a guide, but also a thorough preparation and follow-up. A detailed explanation of what was to be viewed, a talk on where, how, and what mathematics was involved either directly or indirectly, and a briefing in personnel requirements as to number, type, and training preceded the tour itself and then an open discussion followed. The close relationship between classroom material and the various tours pointed up the high degree of cooperation between G.E. and Rensselaer. Lectures on topics such as atomic power, application engineering, marketing, educational services, and personnel services also were a part of the program.

Through the tours and lectures and at special luncheons and dinners we met hundreds of General Electric employees and Rensselaer professors and had the opportunity to talk individually with a large number of them. No one was too important, nor too busy, to give of his time and knowledge.

No doubt you're thinking - what does G.E. want in return? The answer - nothing. No strings were attached; we were asked only to return to teaching. Both the Institute and the company did their utmost to make the time spent profitable, comfortable, and enjoyable.

It was not all work and no play; there were social good times as well. From Saturday noon until Monday's first class we had no commitments and our location put many tourist attractions within commuting distances. Many visited the Berkshire Music festival, Lake George, Williamstown, Saratoga Spa, Jacob's Pillow Dance Festival, and of course, the government buildings in Albany.

To me it was six weeks well spent. Because of it I feel I am more qualified to make the mathematics which I teach fit the needs of the young people of today. Now I better understand exactly how and where industry is using this knowledge as a tool. Moreover, I hope to be able to impress upon my students more clearly than ever before that a well-rounded education, with specialization later, is more more desirable to industry than one-track training. Admittedly, many types of specialists are sorely needed, but cultured, thinking individuals with a broad background make-up the best raw material from which these needs can be filled. Mathematics is beneficial and necessary to the literati while language skills are likewise essential to the scientist.

Now that I know what being a mathematics fellow involves, I say, without reservation, that it is worthwhile and enjoyable. I sincerely appreciate having been granted this opportunity for personal professional advancement and I highly recommend such a program to any mathematics teacher who can give six weeks of his summer vacation.



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Note: Sixty years later, we at AMTNJ still find this experience very refreshing. -JMN- 08/15/2017