

# MERRIMACK VALLEY WORKS NEWSLETTER



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May, 1969

## Search For MVW "Vacation Queen" Now Under Way



**MEMORIAL.** Dick Sirois, 379, is shown here working on part of a replica of the Lincoln Memorial, which he has created for exhibition as a memorial to departed Pioneers at the North Andover Council, Telephone Pioneers, hobby show May 19-21.

### Pioneers Plan Hobby Show

A hobby show will be held by North Andover Council, Telephone Pioneers, in the auditorium of the North Andover plant May 19-21. The show will be held daily from 11 a.m. to 1:30 p.m. and from 6:30 p.m. to 9 p.m. The event is open to all employees, their families and friends. Children under 18 will not be admitted.

The hobby show committee is as follows: Eleanor Donovan, Ted Dulemba, Elly Grandmason, Sue Locke, Rose McCaffrey, and John Pizar.

**SHARE IN AMERICA '69  
BUY U.S. SAVINGS BONDS**

### U.S. Bond Drive June 2-13

The Merrimack Valley Works will conduct its annual U.S. Savings Bond/Freedom Shares Campaign from June 2 through June 13. John F. Zahoruiko, Assistant Manager, Manufacturing - Transmission Apparatus, is chairman of this year's drive.

During the campaign, all employees will be contacted. Those not already purchasing U.S. Savings Bonds will be invited to do so through the Western Electric Payroll Savings Plan. Those currently participating will be asked to consider increasing the amount they are now saving.

Each year, Western Electric people have responded generously to this campaign. Last year, the drive resulted in the overall participation of 123,000 Western Electric employees, investing \$22.1 million in U.S. Savings Bonds through Payroll savings. At the close of the 1968

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The search for a 1969 "Vacation Queen" is currently in full swing at the Merrimack Valley Works. A committee of ten people—five women and five men—is now in the final phase of interviewing the nominees. It is anticipated that the election will be held in early June.

The actual title to be awarded to the young lady—married or single—who is selected by her co-workers as most representative of the female employees at this Western Electric location is not yet definite. A number of titles have been suggested by Merrimack Valley Club officers, directors, and representatives. The title, which would replace the former designation of "Hello, Charley" Girl, will be announced in the immediate future.

The committee of five women and five men, including Merrimack Valley Club Vice President Jim Jameson as chairman, was selected by the officers, directors, and representatives of the Merrimack Valley Club. At a special meeting, each representative voted for five people to serve on the committee. The officers and direc-

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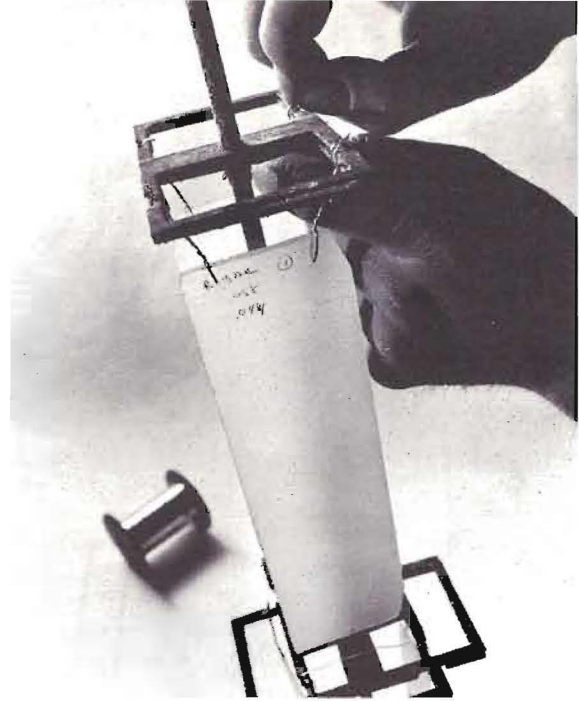


**INTERVIEWS** of nominees for the 1969 Merrimack Valley Works "Vacation Queen" title are being conducted by the above committee. Seated, left to right: Marge Wholley, Agnes Lauretta,

Jean Stott, and Minerva Webster. Standing, left to right: Dom Pallaria, Bill Halloran, Jim Jameson, chairman; Frank Stone, Alice Smerdon, and Ray Nadeau.



UP FROM the sunken crystal garden. Rack of newly grown quartz is removed by Joseph Boie, 145.



SEED FOR "NEW BLOOM." Silver wire is used to attach quartz seed to growing rack.

## Fresh Face for Quartz

**There are new blooms** from the sunken crystal garden of Western Electric. They have no odor but the sweet smell of success—and a bouquet of future benefits for the Bell System network.

The garden harvest is a new kind of cultured quartz of a higher quality and lower cost than any produced by Western Electric during the last decade. That's how long WE and the Bell Telephone Laboratories have been pioneering in man-made quartz crystals.

Cultured quartz is used in almost all long distance communications systems. Like natural quartz, it is piezoelectric. Feed it electricity and it vibrates. The opposite is also true. Squeeze or twist it and an electric current results. What's important is not that quartz vibrates, but that it vibrates a particular number of times a second very consistently. Thus, crystal filters responding to particular frequencies are used by the Bell System to separate individual conversations from the hundreds or thousands moving at the same time along the same telephone cable.

Until the late 1950's, natural quartz was the best material for communications-grade crystals. About all of it was imported from Brazil, which had held a world-wide monopoly for fifty years. Then came the technological breakthrough to home-grown quartz crystals (not only by WE-BTL, but by other U.S. firms as well). For low frequency usage—up to one million vibrations per second

—cultured quartz swept the field because of much lower cost. But natural quartz still held its own in the higher frequencies.

Enter the "new blooms." They are crystals that can be used to make synthetic quartz plates both larger in size and higher in frequency than before. They work as well or better than natural quartz, but cost less. And they've arrived in time to play important roles in coaxial cable systems (L-4 and L-5) that carry more than 30,000 telephone calls simultaneously.

Improved cultured quartz is a result of many changes in crystal growing processes. Taking a brief walk through the sunken crystal garden will help explain them.

It's a hothouse kind of garden. In the winter, heavy New England snow covers the hills around Western Electric's Merrimack Valley Works. In the summer warmth, the surrounding air may reach the low nineties in temperature. During all seasons in the garden, however, the mercury hovers around 750 degrees Fahrenheit. The atmosphere for growing is on the heavy side—up to 25,000 pounds per square inch. And it's all done in the dark!

Actually, the garden is a series of 27 giant, cylindrical tanks, sunk beneath a concrete floor in a separate building by the main plant. These vessels, technically termed "autoclaves," are 12-foot long, 1½ feet in diameter and weigh 7,500 pounds apiece.



**CLEAR CRYSTAL.** Donna Serwon, 221, looks at newest quartz crystal, better in quality and lower in cost, grown at the Merrimack Valley Works.

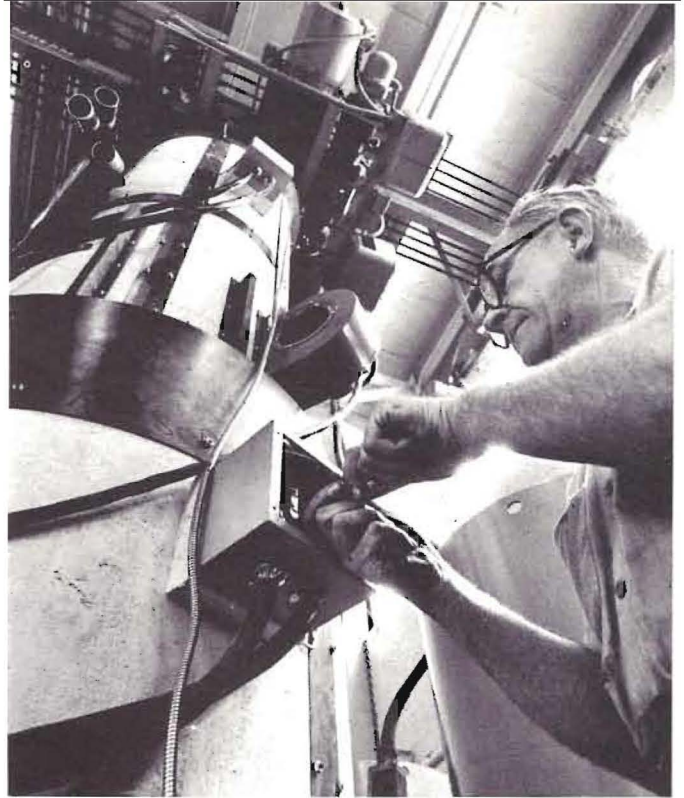
Inside some autoclaves used for a new kind of crystal growing, there is a lining of silver. It does not react during the process and so guarantees purity in the final product. Small, irregular (and inexpensive) pieces of natural quartz are placed in the bottom of the autoclave, and then it is almost filled with a caustic liquid that dissolves the quartz. At the top, a rack is inserted with "seeds." Unlike flower seeds, these are thin quartz plates about 8 inches long and two inches wide. The autoclave is sealed, 30,000 watts of electricity applied for heat, and growing begins.

Dissolved quartz in the bottom is heated so it rises to the cooler top with the seeds. There it deposits out of the solution and settles onto the seeds.

The growth averages about 1/20th of an inch a day. This may not seem very fast, but it's about three times quicker than much of the cultured quartz grown for high quality crystals.

An electronic computer is used to monitor and regulate precise temperatures and pressures every minute of every hour for 27 days. Special reports or "readouts" are made by teletypewriters connected to the computer.

At the end of the growth period, the electricity is turned off and the autoclave cools for a half-day. Then it is opened and the seed rack pulled up. For every original seed there is now a scintillating crystal about 9½ inches long, 2½ inches wide and



**CHECK ON CRYSTAL GARDEN.** Control circuit on 7,500-pound autoclave is inspected by Charles Andrews, 534.

1¼ inches thick, weighing about two pounds. This is somewhat longer and thinner than Western Electric's other crystals, but the structural difference is more important than the dimensions.

The engineers say the crystal has a new "face." Specifically, it is an "R-face," short for rhombohedral. The new crystal began with a different kind of seed, and grew differently from Western Electric's earlier crystals. Engineers say R-face crystal has a crystallographic and piezoelectric orientation that is superior for making new communications filters. Pound for pound, more slices can be cut from each crystal, and their quality is uniform from edge to edge.

Economy as well as quality is the goal of Western Electric in the products it makes for the Bell System. Natural quartz would meet quality standards for new filters, but it is expensive (\$30 to \$100 a pound) with about one-eighth the yield of cultured in good slices. On the other hand, older type cultured quartz could have been produced to new standards. But this would have required slower growth in the autoclave and the cost would have been greater.

**R-face is the answer . . . from the sunken crystal garden.**

## HORSESHOE DRIVE PLANNED

In conjunction with the expansion of the North Andover Plant, a 1,175-foot horseshoe drive will be constructed in the front of the office building. The drive, which will be twenty feet wide, will connect with the present north and south roadways to the visitors parking lots. No parking will be allowed on the drive. Construction is scheduled to begin immediately.

## BOND DRIVE

(Continued from page 1)

campaign, 6,741 Merrimack Valley Works employees were investing \$101,911 monthly in U.S. Savings Bonds.

This is your opportunity to help your country and yourself through your participation in this program.

## VACATION QUEEN

(Continued from page 1)

tors then selected the ten committee members.

Serving on the "Vacation Queen" committee with Mr. Jameson are: Agnes Lauretta, Minerva Webster, Alice Smerdon,

Marge Wholley, Jean Stott, Ray Nadeau, Frank Stone, Bill Halloran, and Dom Pallaria.

This committee, upon completion of its interviews of the nominees, will name ten finalists. From these ten finalists, employees at the Merrimack Valley Works will select a "Queen" and a second and third runner-up, each of whom will stand ready to succeed the "Queen;" should the need arise. Since there are ten finalists to be chosen, the girl ultimately selected to reign as "Queen" will have nine attendants.

The "Queen" and her nine attendants will serve as hostesses, as needed, at various Merrimack Valley Club functions and company events during the ensuing year.

Fred H. Baker, president of the Merrimack Valley Club, reports that plans for the coronation of the "Vacation Queen" have not been finalized. They will be announced in the near future.

**HELP YOUR COUNTRY  
HELP YOURSELF  
SHARE IN AMERICA '69**

## Promotions

The following promotions were effective May 1, 1969:

Richard C. Hardy, Department 134, from Engineering Associate to Planning Engineer.

Francis J. Lyons, Department 713, from Engineering Associate to Planning Engineer.

Salmon W. Putnam, Department 732, from Engineering Associate to Industrial Engineer.

Richard T. Ward, Department 735, from Engineering Associate to Industrial Engineer.

Sandra L. Vachon, Department 162, from Engineer to Development Engineer.

Bryce G. Colburne, Department 751, from Engineer to Development Engineer.

Anthony J. Cucinotta, Department 753, from Engineer to Planning Engineer.

Richard K. Curtis, Department 753, from Engineer to Planning Engineer.

Kevin L. Campbell, Department 755, from Engineer to Planning Engineer.

Anne F. Banks, Department 162, from Information Systems Designer to Information Systems Staff Member.

Gary R. Underwood, Department 164, from Information Systems Designer to Information Systems Staff Member.

## Did You Know That . . .

The Merrimack Valley Works was among the first Western Electric locations to use the LASER in an industrial application. In 1967, Engineering Research Center engineers determined LASER requirements for adjusting resistance values in resistors mounted inside glass capsules. Development Engineers at the Merrimack Valley Works used this information to design an automatically controlled LASER system.

In 1966, Western Electric developed the first use of the LASER in large-scale production—a LASER process for piercing tiny holes in diamond dies used for wire drawing. In 1969, WE announced the smallest known LASER weld for production use, believed to be the first use of LASER welding in a full-scale, continuing production line.

John F. Connolly, Department 165, from Information Systems Designer to Information Systems Staff Member.

Philip J. Palmer, Department 165, from Information Systems Designer to Information Systems Staff Member.

Alan B. Schiftner, Department 166, from Information Systems Designer to Information Systems Staff Member.

William F. Herzog, Department 141, from Planning Engineer to Senior Engineer.

David C. Starkweather, Department 142, from Planning Engineer to Senior Engineer.

Leonard J. Peltier, Department 151, from Planning Engineer to Senior Engineer.

Signumd P. Jurewicz, Department 542, from Design Engineer to Senior Engineer.

David J. Spofford, Department 711, from Planning Engineer to Senior Engineer.


George S. Roman, Department 732, from Planning Engineer to Senior Engineer.

Robert A. Menard, Department 742, from Planning Engineer to Senior Engineer.

Lyman S. Gray, Department 744, from Planning Engineer to Senior Engineer.


Roy C. Steeves, Jr., Department 164, from Information Systems Staff Member to Information Systems Staff Senior Member.

Kenneth Weisslitz, Department 165, from Information Systems Staff Member to Information Systems Staff Senior Member.



**MERRIMACK VALLEY WORKS  
NEWSLETTER**

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**Western Electric**  
MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

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