

# MERRIMACK VALLEY WORKS NEWSLETTER



Vol. 2 No. 3

A Western Electric Publication

February, 1969

*From Indian Campaigns To Moon Missions:*

## Western Electric Enters Its Centennial Year

### Did You Know That—

During 1968, the Merrimack Valley Works established a new high in Cost Reduction, with more than \$5,000,000 in annual savings, an increase of \$700,000 over 1967.

The 1968 Cost Reduction is five times our annual savings for 1958.

### '68 Year Of Record Growth

The Bell System added about 4.2 million phones during 1968 to pace a year of record growth and plans to spend nearly \$5 billion in 1969 for new plant and equipment to keep pace with the growing communications needs of the country.

This telephone growth brings the number of Bell System phones to 88 million and the total telephones in the U.S. to an estimated 109 million.

#### Phone Usage Increases

People are using these phones to talk at a record rate to their neighbors across town, across the country, or across the seas. Some 105 billion messages zipped through Bell System facilities during the year, up from 101 billion in 1967. Long distance calls were up 11 per cent to almost 6 billion, while there were more than 15 million overseas calls, for an in-

Continued Page 4

### Dr. Grillo On Commission

Dr. Gene P. Grillo, 704-B, Consultant in Environmental Health Engineering at the Merrimack Valley Works, was among those to whom Governor John A. Volpe recently gave the oath for the Massachusetts Educational Communications Commission.

Dr. Grillo holds two degrees from Boston College and earned his doctorate in biochemistry at Boston University.

Western Electric celebrates its one hundredth anniversary this year. Its future, however, almost went up in smoke in the Chicago fire of 1871.

On the night of October eighth that year, Mrs. O'Leary's cow kicked over a kerosene lamp and—twenty-seven hours later—18,000 Chicago buildings worth \$196-million had been destroyed. The city-wide fire devastated 2,000 acres, but halted two blocks from a small firm that made fire and burglar alarms, telegraph equipment, and electrical devices.



#### Earned Fine Reputation

The firm, then known as Gray and Barton, swung into action and immediately began replacing vast amounts of telegraph and electrical equipment throughout the city. By its efforts, the company earned a reputation for dependable performance under emergency situations, and went on to become the manufacturing and supply unit of the nationwide Bell System.

Founded two years before the fire—on November 18, 1869—as a tiny model shop in a four-story loft in Cleveland, it boasted capital of \$7,500, a handful of employees, and a half dozen foot lathes.

#### 8th Largest Employer

Today, Western Electric employs about 170,000 people and has annual sales of about \$4-billion. FORTUNE magazine

Continued Page 2



INSTRUCTORS of the "Slim and Trim" class in the Merrimack Valley Club Evening School curriculum are shown here discussing material for the course. Left to right: Marjorie McKinnon, Rosemarie Davis, and Mary Paradis, all of Department 366. The Evening School spring term gets underway on February 10 and closes on April 14.



J. J. Zamierowski  
40 Years

## Anniversaries

Name	Dept.	Feb.
<b>FORTY YEARS</b>		
Zamierowski, Julius J.	974	15
<b>TWENTY-FIVE YEARS</b>		
Jaffarian, Cecelia P.	961	2
Smith, Frederic L.	365	14
Wihry, Albert F.	377	15
Pegnam, William H.	379	16
McGrath, Arthur	491	17
Bradshaw, Norbert F.	974	18

Name	Dept.	Feb.
Murphy, Margaret G.	373	21
O'Connell, Doris G.	212	21
Robinson, Helen O.	973	23
Kasida, Aspasia	300	28
Lane, Preston L.	533	28

### TWENTY YEARS

Wylie, John R.	744	14
Agnew, Virginia M.	979	17

### FIFTEEN YEARS

Delisle, Marcel R.	616	1
MacFarlane, Rita L.	974	1
Kimball, Charles M.	537	2
Connelly, Thomas P.	847	3
Pasho, Marjory C.	925	3
Zito, Tappse B.	562	7
Brunault, Robert N.	541	8
Crowley, Philip J.	494	8
Gaffney, Warren	366	8
Halkiotis, Penelope D.	230	8
Bilodeau, Lorraine F.	1151	13
Hamm, Joanne D.	212	13
Rockwood, Albert E., Jr.	161	15
Lescarbeau, Helen C.	1147	19
Weghorst, Thomas E.	540	19
Boucher, Irene D.	561	21
Lewis, Mary H.	367	23

Name	Dept.	Feb.
Morgan, John	373	23
DeGuglielmo, Gino A.	1163	25
Lamontagne, Irene C.	561	26
Radcliffe, William L.	163	26



J. E. Colburn



H. J. Renaud

## Retirements

James E. Colburn, a floor hand in Department 538, will retire from Western Electric on February 4, 1969; Mr. Colburn, who lives at 34 Main Street, North Andover, has over twenty-two years of company service.

Mrs. Mary Charlotte Amiro, a coil winder in Department 924, will retire from Western Electric on February 5, 1969. Mrs. Amiro, who has over twenty-five years of service with the company, resides at 19 Came Avenue, Haverhill.

Henry J. Renaud, 199 Brandy Brow Road, Haverhill, will retire from Western Electric on February 28, 1969. Mr. Renaud, an automatic screw machine operator in Department 541, has over twenty-one years of company service.

## WE CENTENNIAL

(Continued from page 1)

calls it the eighth largest employer and eleventh largest in sales among the nation's 500 largest industrial corporations. The company has sixteen major manufacturing plants, thirty-six service centers, seven regional headquarters, and an Engineering Research Center. It makes thousands of items of communications equipment, including 8 million telephone sets a year.

Three men contributed \$2,500 each to form the company. They were Enos Barton, 27, a former Western Union chief telegrapher from upstate New York, Elisha Gray, 34, a Cleveland inventor and one-time physics professor, and Gen. Anson Stager, 44, a Western Union executive who had been Chief of U.S. Military Telegraphs in the Civil War.

Gray left the firm after five years to devote all of his time to electrical research. Stager, the company's first president, negotiated the agreement that made Western Electric part of the Bell System, and Barton became its third president and guiding spirit throughout its early years.

### History Of Communications

The company's history is, in many respects, a history of communications during the past 100 years. The firm started out in telegraph equipment, pioneered in radio, motion pictures, loud-speakers, television, radar, and sonar—and has been the world's foremost producer of tel-

ephone equipment.

Among its major achievements were development of the first high-vacuum electronic tube in 1913, the condenser microphone in 1916, and air-to-ground radio communications in 1917.

Later, the company installed the world's largest switchboard in the Pentagon in 1942, established the first microwave radio relay system in 1947, and produced the first cultured quartz crystals used in transmission equipment in 1958.

In 1965, Western Electric installed the first electronic switching system for the Bell System, a milestone in the new art of transistorized telephony. Since then, dozens of similar systems have been installed in the Bell network, heralding significant new services for the telephone user. In the same year, the company became the first to apply a LASER for industrial purposes by using it to drill holes in diamonds.

### From Indians To Missiles

Western Electric has also played a vital role in the nation's defense—from telegraph instruments used in Indian campaigns in the 1870's to the SENTINEL Ballistic Missile Defense System in 1969.

As for the city that played so important a part in Western Electric's early history, Chicago is still a major locale for the company's activities. The Hawthorne Works in suburban Cicero employs about 17,000 men and women, largest individual work force in the company.

## MUSINGS

Everything in the modern home is controlled by switches except the kids.

Most jobs are done by committees of one.

## Annual Ball March 8th

The Third Annual Merrimack Valley Club President's Ball is being planned for March 8 at the Sheraton Rolling Green Motor Inn. The program will feature dancing to the music of Ted Herbert's Orchestra. A late evening buffet will be offered.

Serving as co-chairmen of the reservation committee are Bob Denney and Sheila Cook. Tickets are now available and may be obtained through Merrimack Valley Club representatives.

## Precious Metals, Gemstones Used In Telephone Circuits

That's gold in them thar telephone circuits!—also platinum, and gemstones such as diamonds and garnet!

Precious metals, such as gold and platinum, and the gemstones mentioned above are popular with Bell System scientists these days.

It's not the glitter of the gold nor the opulence of the gemstones which attracts the scientists. It is their often overlooked properties of purity, inertness, and ability to conduct heat.

Bell Telephone Laboratories is using increasing quantities of gold and platinum in developing new electronic circuits and for special laboratory equipment.

### Thin-Film Circuits

Much of the gold and platinum has been going into designing new thin-film integrated circuits and semi-conductor devices. Precious metals are important in these tiny circuits and components that are forging the "new electronics."

Gold has replaced copper as the primary conductor in the new circuits because it doesn't corrode; it bonds so well to other metals and most surfaces; and because it can be easily electroplated in thicknesses considerably less than the width of a human hair—thus the name "thin-film."

A complex circuit such as the new tone-ringer for the Touch-Tone (R) telephone set is made largely of gold, but it is applied so finely that only a few pennies' worth is used.

The pliability of gold has been put to good use at Bell Labs with the development of the beam-lead crossover—a microscopic gold bridge just seven ten-thousandths of an inch high, used where conductors must cross in the miniature circuits.

### Platinum Used, Too

Platinum is used when high-quality



CLUSTER OF GARNET crystals, held here by Diane Johnathan of Bell Telephone Laboratories, was artificially grown in a solid platinum crucible like the one she also holds. Both the platinum crucible and the garnet are examples of increased use of precious metals and gemstones in Bell System research and development.

connections are desired but the greater tendency of gold to interact with other metals cannot be tolerated. A little-known but very expensive metal called rhodium is also being tried in minute quantities in some circuits.

Platinum, highly resistant to temperature, is important for test equipment such as crucibles in which experiments reaching 1600 degrees Centigrade are carried out at Bell Labs. These involve crystal growing and synthesis of new materials.

Diamonds, extolled as "a girl's best friend," are also aiding electronics engineers these days. It has been found that diamonds have excellent ability for conducting heat away from tiny semi-conductor devices in the miniature circuits. The devices perform better when mounted on small chips of diamond instead of copper.

### Garnets Replace Rubies

Rubies, once popular in Masers (Sensitive microwave amplifiers for Echo and Telstar (R) satellite communications) and Lasers, have given way to a form of garnet for most Laser experiments at Bell Labs. The scientists are quick to point out however, that the gemstone is not of the jewelry variety, and is always artificially grown.

## PIONEER STORIES

### Community Service

The more than 600 members of the North Andover Council, Thomas Sherwin Chapter, Telephone Pioneers of America, are engaged in a wide range of community activities which are reported and featured in the MVW Newsletter periodically. These community service projects are developed with a view to offering all North Andover Council Pioneers an opportunity to be of service on some activity which they will enjoy and find satisfying and which they can feel is of benefit to their friends, neighbors, and community. Only in this way can the permanency of these projects be assured.

## In Memoriam

Leon Mesrobian, Department 533  
January 15, 1969

Mrs. Helen S. Stott, Department 1157  
January 15, 1969

## Names, News & Notes

Merrimack Valley Works employees, through the Merrimack Valley Club Blood Bank, responded most admirably during the recent blood shortage in this area. During the recent visit of the Red Cross Bloodmobile, the Club Blood Bank contributed 192 pints, 32 pints more than the average contribution per visit . . . Susan Pendergast, daughter of Tom Pendergast, 373, is one of six Lawrence area high school seniors selected among America's Outstanding Teenagers for 1969; the honor by the Outstanding Americans Foundation in Chicago is based on ability and achievement and makes those selected eligible to compete for governor's trophy and two national awards and scholarships later this year.

Jack Young, Department Chief, 731, addressed students at Brookline High School this past month on the subject "The Telephone in the Space Age" . . . WE is manufacturing experimental cable filled with a petroleum jelly compound to resist water damage; the 25-pair cable is made at the Omaha Works; field trials are now underway in Iowa.

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

For the information of employees of the

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BILL COLLINS, Jr., Editor

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DANIEL R. BALSLEY

## Snowmobiles Offer Fun Sport, But Keep Safety In Mind

What the powerboat has done for summer sports, the snowmobile is now doing for winter recreation. But, like motor boats, snowmobiles can be hazardous if operators are uninformed or reckless at the controls.

Performing chores and providing recreation for the sports-minded, tiny crawler tractors steered by skis now scoot across areas once impassable during winter. They are used for racing, towing skiers and toboggans, and transporting fishermen and hunters. They have even been used to rush expectant mothers to hospitals and to carry doctors to patients.

### Think Safety!

But, the National Safety Council advises, the same vehicle can be deadly if improperly used. In New England recently, a rider was killed when his snowmobile crashed into a fence post. Several persons were hospitalized in New Hampshire when two of the machines collided. In Ohio, two men drowned when their snowmobile crashed through thin ice and sank in thirty feet of water in a reservoir. The danger of falling through ice is one of the leading hazards with these vehicles, according to the National Safety Council, which suggests that snowmobilers avoid driving on frozen lakes. Ice strong enough for skating might not hold up under a heavy snowmobile loaded with people.

The danger of crashes can be decreased if snowmobilers make it a rule never to cut across another vehicle's right-of-way, never hot-rod, maintain a safe interval between vehicles, and make sure lights are working properly.

### Stay On Trails

Another major rule: stay on established trails. Follow trail markers where displayed. In fifteen minutes you can travel farther with your snowmobile than you can safely return on foot. If you run out of gas, or kill your engine, you may be in danger just a few miles from the beaten path. By leaving your travel schedule behind you, you can also insure that someone will start hunting for you if you don't return at the appointed time.

### Travel In Pairs

It is also safer for snowmobiles to travel in pairs. Two people can push a dead snowmobile only a short distance through heavy snow. It takes another machine of similar or larger size to tow a stalled machine home, or to go after additional assistance.

Avoid ski trails. Never use a railroad right-of-way as a trail for your snowmobile. Respect other people's property wherever you travel.

Above all, read operating instructions closely and practice driving your snow-

mobile for several hours before tackling tricky maneuvers. Even an apparently simple operation such as a turn demands skill from both passenger and driver.

A snowmobile can open up new worlds in the winter—worlds of fun and pleasure . . . but don't let carelessness spoil it.

## Over 222 Million Phones

There were 222 million telephones in the world at the beginning of 1968, according to "The World's Telephone," the annual review released recently by AT&T. The figures in the book are as of January 1, 1968, because it takes almost a year to gather the statistics from telephone administrations and companies around the world.

AT&T said 96 per cent of the world's telephones can be called by United States telephone users. More than half of the world's 222 million telephones are in North America. The continent reached a milestone in 1967 when it became the first to have one telephone for every two persons.

### Canada Most Talkative

In telephone talk, Canada leads the United States by a narrow margin. Telephone conversations averaged 667.7 per person during 1967, compared with 667.0 per person in the U.S. Both of these figures were up over the previous year.

Thirty-three countries now have more

than half a million phones. The United States has five and a half times as many phones as Japan, second in the ranking of countries.

The United States is also first in the number of telephones relative to population, with 51.8 telephones for every 100 persons. Sweden is second with 49.8 telephones for every 100 persons.

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## RECORD GROWTH

(Continued from page 1)

crease of 24 per cent. Prospects are for continued growth in both these areas.

### Investment Boosted

To accommodate this ever-increasing communications need, the Bell System spent \$4.7 billion on building new and improved facilities during the year. These expenditures brought the investment in the Bell System's lines, equipment, and buildings to \$45 billion, up from \$41.5 billion in 1967. Most of this investment is in the System's nationwide switched network, which now has 700 million miles of voice-grade channels, enough facilities to supply more than 1,500 two-way circuits to the moon.



**Haverhill Citizenship Award** for voluntary service was presented to two Merrimack Valley Works employees, Raymond E. DeMatteo (center), Planning Engineer, 190, former Appeals Board Chairman, and Theodore D. Thomas, Department Chief, 540, chairman, Appeals Board. Awards were presented by Haverhill Mayor James F. Waldron (left).