Western Electric mass-produces quartz crystals

One of the world's first factories for the production of quartz crystals for communications purposes went into operation at the Nerrimack Valley works of the Western Electric Company. The start of production on a commercial basis marked the successful climax of more than 50 years of experimentation and research; it also signified the end of the United States dependence upon foreign supply of pure quartz crystals. A strategic material, the crystal was in critically short supply during World War II. Quartz crystals are used in telephone radio and television transmitters, space communications equipment, radar, and sonar. Provisionally, the prime source for them has been Brazil, where existing of the first-class crystals desired for communications is few by individuals on a free basis, resulting in unstable supplies and high prices.

The new factory grows quartz crystals of superior size and quality under tremendous pressure and heat. In the growing area, twenty cylindrical vessels, each about ten feet long and a foot in diameter, are sunk below the surface of the floor. A long vise bar is lowered into each vessel. Seed crystals are suspended in tiers at the top of each basket.

The lower half of the basket is filled with small, inexpensive pieces of natural quartz. In this form quartz is readily available from many sources but is unsuitable for communications purposes. To begin the growth cycle, a weak alkali solution is poured into the vessel, which is then sealed. A heavy steel shield is lowered over the top by a crane for additional protection.

The contents of the vessel are heated to a temperature of 100 degrees, and the interior reaches a pressure of about 25,000 pounds per square inch. It takes about three weeks of continuous growth to produce a harvest of crystals. Under the heat and pressure, the small pieces of quartz at the bottom of the basket dissolve into the alkali solution. Crystals of quartz are precipitated from solution and slowly built up on the "seed" plates at the top of the basket, where the temperature is slightly lower.

While growth in a variety of forms is the world's most common mineral, the pure, colorless crystals required for communications cost about $30 a pound in the natural state. Improvements found in the best of natural crystals permit the saving of a significant amount of material. By comparison, the cost of quartz used for electronic purposes is about $9 an ounce ($1500 a pound). By comparison, the cost of quartz used for electronic purposes is about $9 an ounce ($1500 a pound).

Only three technicians are required to operate the new factory's growing area, which is automatically controlled except for feeding and unloading the crystal-growing vases.

While scientists have been attacking the problems of making perfect crystals, for half a century, it was only a few years ago that the most successful method, the hydrothermal process, was developed by Bell Telephone Laboratories. The achievement followed several years of research and experimentation after World War II. In 1950 a pilot plant for converting the laboratory process to commercial production was established at the Nerrimack Valley Works of Western Electric, the Bell System's manufacturing and supply company. Additional developments have been undertaken by Western to solve other problems in converting the laboratory process to factory production.

Not only does the hydrothermal process produce quartz at a fraction of the price of natural crystals, but also all of the product's variety contains fewer imperfections, dimensions can be controlled much more of each crystal can be usable.

Rooms burglarized in Baker House

Baker House has recently suffered a number of petty thefts, in which several residents have lost money.

The burglaries, occurring over the past few weeks have consisted of cash thefts from rooms whose doors were left unlocked.

Fund success celebrated

(Continued from Page 1)

The first conclusive radar contact with the cloud of fibers was made about 1:00 pm Sunday by the Lincoln Laboratory Field Station in Westford, Massachusetts. Observation has also been made by the west coast station in Florida, California. Tracking operations are continuing, to use more accurate information about the location of the cloud and to observe the formation of the belt.

F. Ejection of the dipole package by radio command from the ground, only after careful observations showed that it would be placed in a suitable resonating orbit. In this orbit, the force exerted on the dipole fibers by radiation pressure from the sunlight will limit the lifetime of the test belt to not more than five years. By that time, the solar radiation pressure will have forced all the dipole fibers down to lower altitudes where the atmospheric density is greater and the dipole will disappear harmlessly in this region.

Project West Ford orbits fibers

The Alpha Chi chapter of Alpha Chi Omega elected officers for the coming term at a meeting Wednesday, May 8. The officers are: President; Steve Lipner, publicity; Steve Bless, corresponding secretary; Steve Bless, recording secretary; and Bill Byrnes, historian. In other action Wednesday night, APO, decided to go ahead with its planned series of talks by MIT professors on topics of their own specialization beginning next fall.

Haspel Days Are Here Again!!!

Haspel leads the way again with an outstanding collection of unusual blouses in a very fine selection of the lightest weight summer clothing, assuring a cool, comfortable appearance. Haspel gives you cool correctness and wash and wear-ability. Make your selection from our wide variety of Haspels.

<table>
<thead>
<tr>
<th>Material</th>
<th>Price</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>75% Dacron polyester</td>
<td>$39.95</td>
<td></td>
</tr>
<tr>
<td>25% cotton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65% Dacron polyester</td>
<td>$39.95</td>
<td></td>
</tr>
<tr>
<td>25% cotton</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HASPEN DAY

3 MONTH PAY-PAN

Old Spice DODORANT...featur...easiest, most convenient to all day protection! It's the active deodorant for men, women, and babies. Hills on smoothly...dries in record time. Old Spice Stitch Deodorant -your most economical deodorant money can buy. 100% plus tax.

Old Spice STICK DEODORANT...

Shulton

THE TECH COOP