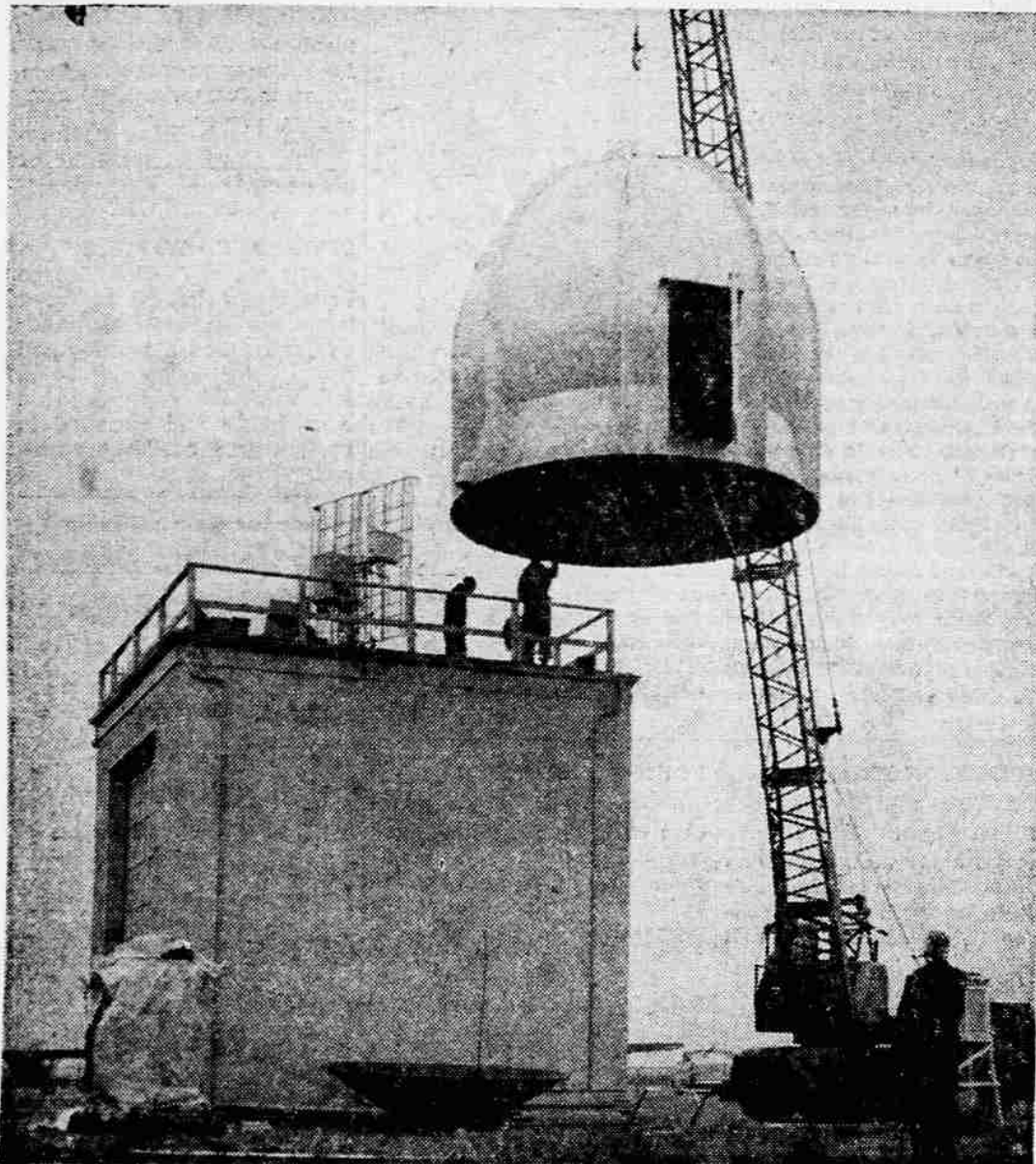
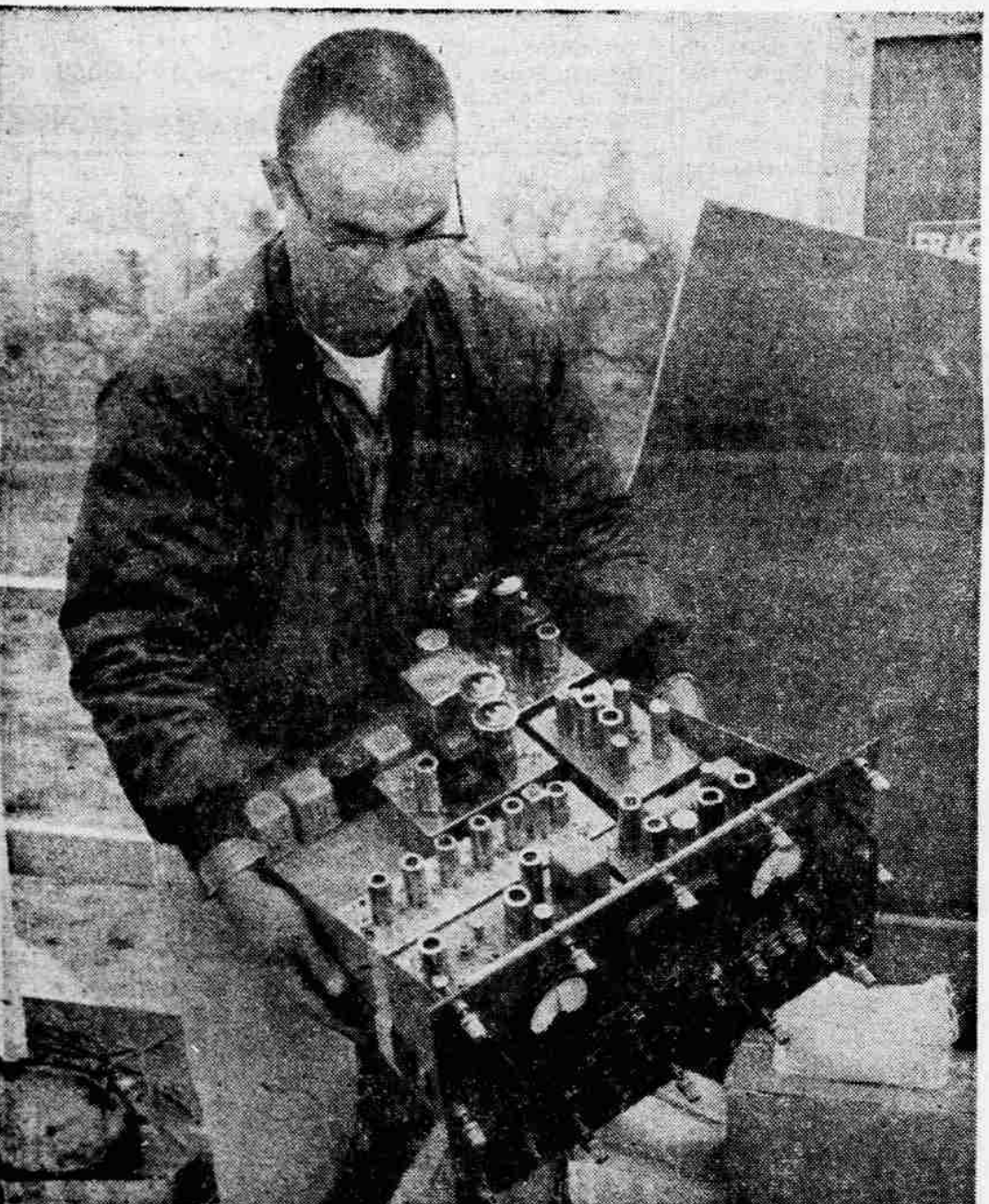


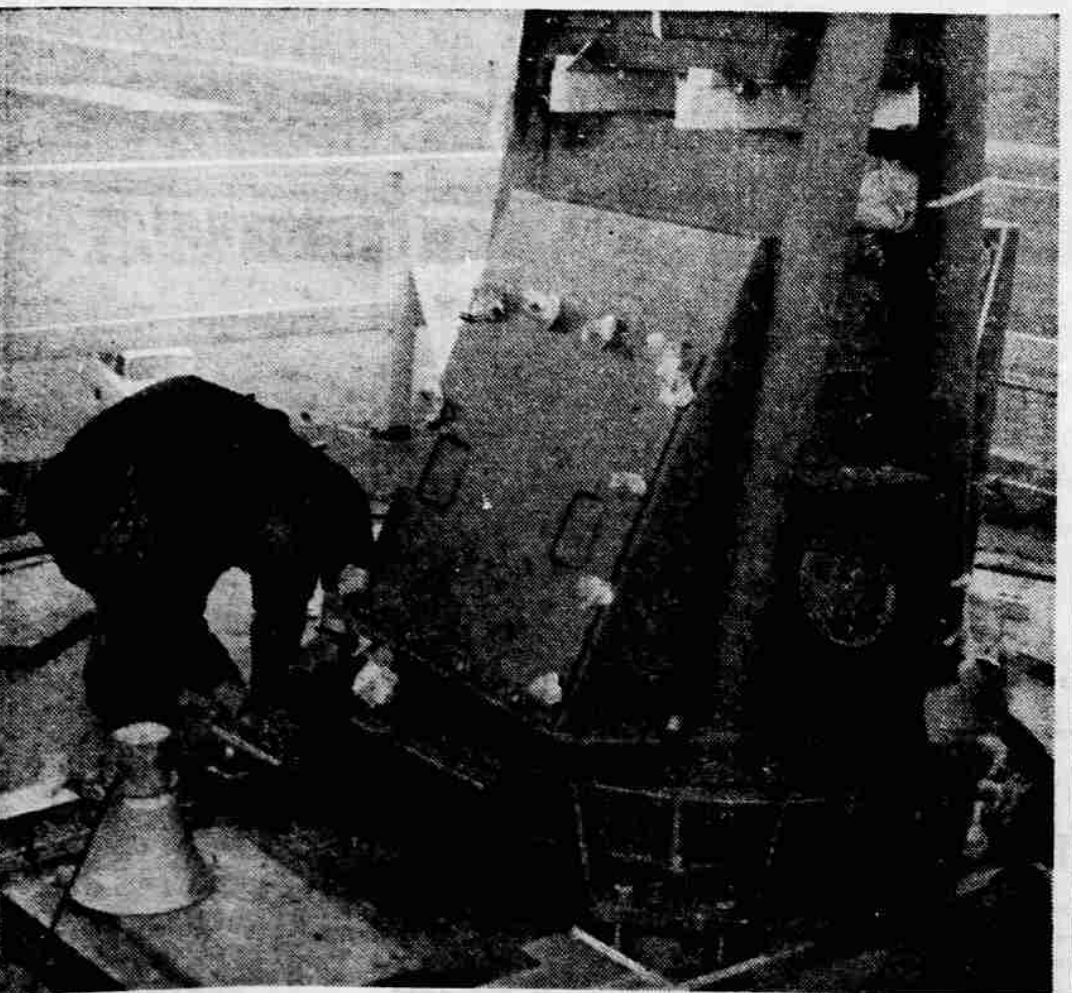
# Electronics Takes Guesses from Forecast



**UNIT INSTALLED**—An automatic tracking antenna for weather balloons released twice daily by the U.S. weather bureau, Medford, was installed recently, eliminating manual method of keeping "zeroed in" on balloon's position. Before, the balloon would sometimes be blown out of range by high winds before effective altitude could be reached. The crane above is lifting off the fiberglass dome so the old antenna (on top of tower) can be removed and replaced by the large "dish" antenna sitting on the ground below. Actuating mount is still covered with paper at left.



**TRACKER'S "BRAINS"**—The instrument unit being held by Electronic Technician D. T. Wiley, above, is the "thinking" mechanism that controls the automatic weather balloon tracking device recently installed here by the U.S. weather bureau.



**ANTENNA BASE**—The 12-foot dish-shaped antenna that follows the weather balloons in their flight into the upper air, swings and tilts automatically, actuated by radio impulses emitted from the balloons instrument pack. Electric motors drive gears that keep the antenna "on target." Tightening a mounting bolt, above, is R. A. Halverson, supervising electronics technician for the U.S. weather bureau, region 4, Salt Lake City, who was here to help with the installation.

## New Equipment at Medford Station Installed Recently

By BOB VROMAN  
Mail Tribune Staff Writer

Ever since the shaggy caveman sniffed the air, looked at the black clouds on the horizon and decided against washing the family dinosaur, man has been trying to outguess the weather.

Through history, various systems, from "signs" in the sky to the actions of birds and animals and aching joints have been used to foretell what Mother Nature is going to pull on us next.

But you don't hear Bob Church, head meteorologist at the U.S. Weather bureau, Medford, saying "red in the morning, sailors take warning," or see him watching for a ring around the moon.

Weather forecasting has come a long way in the last decade or so and sensitive electronic instruments, along with advanced technical know-how, has taken a good share of the guesswork out of predicting the kind of weather that's coming our way.

**Weather Man 'Ribbed'**  
Humorists have long "ribbed" the weathermen for their apparent lack of accuracy in these predictions and people even now wonder why it's still coming down when the weatherman says "it ain't gonna rain no more."

According to Church, meteorology is not an "exact" science, and men can only do what they can with what they have to work with in predicting what this ever-moving envelope of gas in which we live is going to do.

Unlike a baseball in flight, which has a definite inertia and direction, a storm goes in circles, up, down and sideways, and to anticipate these movements is sometimes next to impossible.

Often a full-blown storm will lose its identity when it passes over the coastal range, which sops all the moisture out of it, leaving only a few gusts of wind and a sprinkle of rain for the valley.

**Multitude of Variances**  
Here in mountainous southern Oregon particularly, when a major storm front is upon us, there will be precipitation in some areas and not in others, due to a multitude of variances.

Church admits that they "miss" once in a while, but it is largely because of the whims of nature, not because the men at the station don't know their jobs.

The U.S. weather bureau at Medford airport, like hundreds of others in the United States, is now entering a new phase—that of automation, where precision instruments and automatic computing devices will provide answers more rapidly and more accurately than was ever possible before.

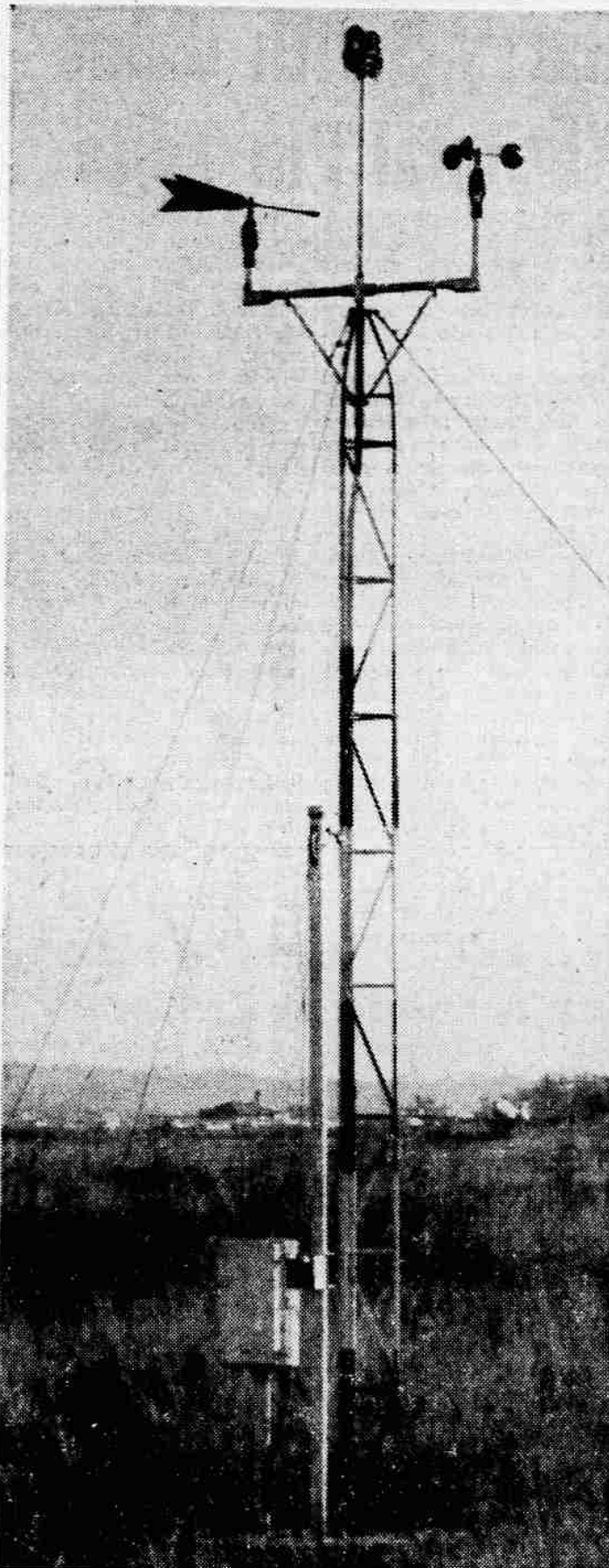
At the Medford station several pieces of new equipment have already been added that are part of the bureau's overall modernization program.

**Tracking Device**  
One of these is a completely automatic tracking device for the weather balloons that are released here twice daily. The sensitive unit "zeroes in" on the balloon in flight and shows on dials and charts the balloon's altitude, azimuth (compass direction) and speed of travel, in addition to picking up signals that tell upper air temperature and moisture content.

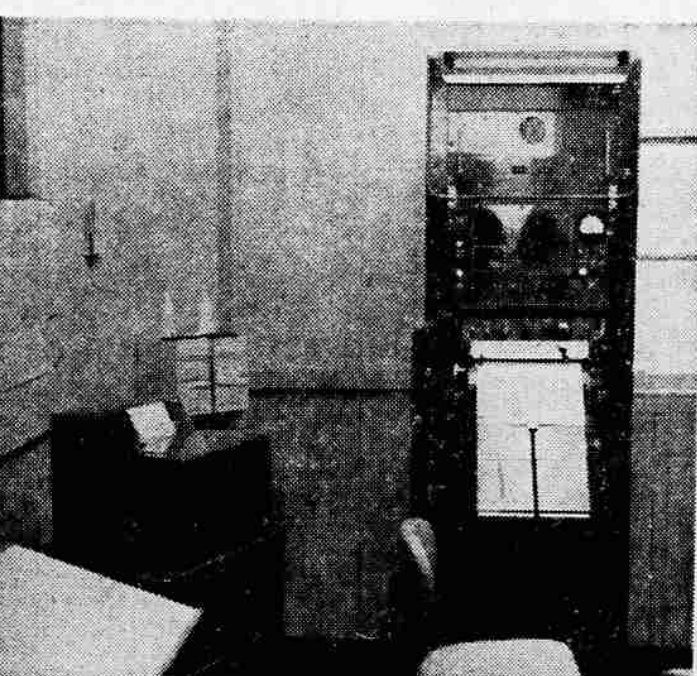
It is many times more sensitive than the man-operated system in use before and extends the range of the weather balloon's usefulness to far beyond the point where an operator would lose the signal. Before, in a high wind when the information was needed even worse than at other times, the balloon would be out of range before it reached the necessary altitude. Now, under the same conditions, the balloon can supply information for even the highest-flying jets.

**Located in Dome**  
The tracking device, located in the dome of the large tower west of the bureau office, consists of a 12-foot "dishpan" antenna, radio receiving equipment and the antenna actuating unit. Data recorders are located in the bureau office.

Every day at 3 a.m. and 3 p.m. a balloon, with its instrument packet, is sent aloft to get the temperature, humidity, wind direction and speed that will be used in compiling weather maps and charts throughout the world. After analysis, the data are used to disclose an impending local storm or help pre-



**NEW EQUIPMENT**—The unit, above, a wind instrument tower, was recently installed on the runway area at the Medford airport as part of the current modernization program being carried out by the U.S. weather bureau. The wind vane and velocity measuring device sends information via 3,000 feet of cable to the weather bureau office. Remote temperature and humidity elements will soon be installed nearby.



**RECORDING UNITS**—Musical notes emitted from the radios of high-soaring weather balloons are converted to visible form by the machines shown above. It is then only a matter of calculation to determine temperature, humidity, pressure-height and wind direction and velocity of upper air. In time, even these calculations will be done automatically.



**READS THERMOMETERS**—Bob Church, above, head meteorologist at the Medford weather bureau station, takes the wet and dry bulb thermometer readings to determine dew point and humidity, part of the information needed in determining forthcoming weather conditions.

dict the expected low temperature in the valley.

Another new unit, installed here several months ago, is a remote wind instrument tower located on the airport runway area, away from buildings that could cause air turbulence and thus give untrue readings.

A wind vane and velocity gauge located on the tower, send electrical impulses to dials inside the bureau office over approximately 3,000 feet of 32-conductor cable. The set-up results in more accurate readings of runway wind conditions and adds an extra margin of safety for planes using the Medford airport.

Other units that will be added at the Medford station in the not-too-distant future will be a visibility indicator (transmissometer) and remote-reading thermometers, both of which will be located near the end of the runway instead of near the airport buildings.

The visibility indicator will consist of an "electric eye" looking into a focused light source about 500 feet away; this will show the density of the fog or haze by measuring the amount of light getting from one unit to the other.

**Completely Modernized**  
Add the new installations to the equipment already in use and one will realize that the Medford station is one of the better-equipped first-order weather bureau operations in the United States, and is completely modernized as far as upper air analyzing devices are concerned.

The cloud-height indicator, or ceilometer, which has been in use here for some time, is in itself a mechanical wonder. Inside a small dome-shaped "dog house" near the bureau office is a telescope on a quadrant that constantly scans a vertical beam of light from the ground to a point nearly straight up.

Inside the office, the height of the overcast, if any, is recorded by squiggles of red ink on a graph. The beam of light, representing some 3 million candlepower, comes from a bulb no bigger than the stub of a pencil, which is cooled by jets of air from a compressor.

Although it takes a good deal of money to equip and operate a weather bureau station, it is worth it in dollars alone, to say nothing of the human lives involved, if one airplane is kept from crashing, one ship is saved from being wrecked or if flood dangers can be anticipated.

Other services of the weather bureau include that of working with Civil Defense in the detection of radioactive fallout, several geiger counters being part of the equipment at the Medford station.

People call the weather bureau to find out when to pour concrete, how road conditions are and whether or not to plan a picnic. One woman wanted to know if there were to be thunder storms during the day so she would know whether or not to give her nervous dog a tranquilizer pill before she went to work.

The weather bureau is in constant contact with other stations and regular reports are sent and received by teletype machines in the Medford office.

Ships at sea and weather stations all over the world form the network that aids in the compiling of a global weather picture.

Perhaps someday a television-equipped satellite will circle the earth and serve as a further aid to weather forecasting, but it will never replace the ground stations or the technicians that understand and operate the sensitive instruments.

### Firemen Called to Two Blazes Saturday

The Medford fire department was called to two fires Saturday morning.

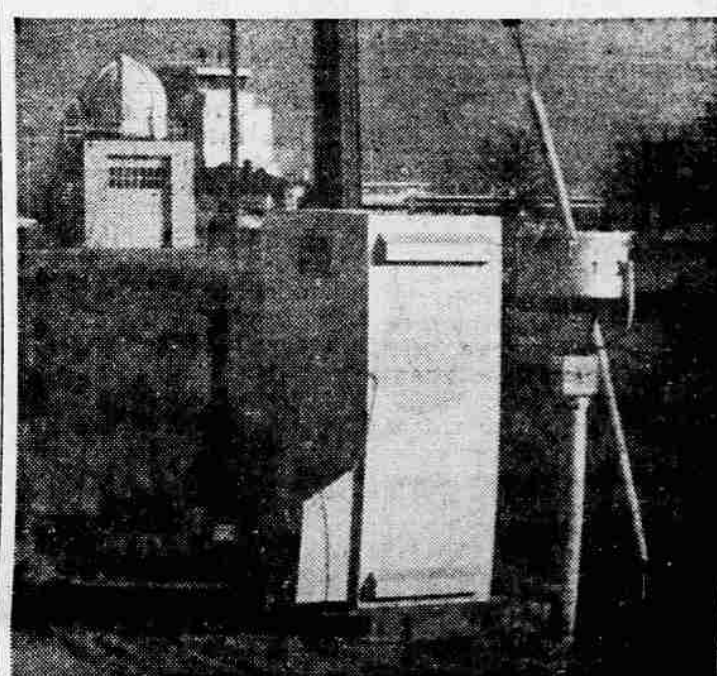
The first occurred in the parking lot at the East Side Big Y market when trash in a City Sanitary Service truck caught fire. No damage occurred, firemen said.

A clogged flue at the Ronald Lehman home, 3345 Bellingham lane resulted in an attic fire Saturday morning, firemen said. Flames spread to the wall and burned two beams which supported the center wall.

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**BALLOON READIED**—Getting set to release the 3 p.m. weather balloon, above, are, left, Meteorologist Stan Lacy and Meteorologist Technician Ralph Cutshall of the U.S. weather bureau, Medford. At Lacy's side is the instrument packet that is suspended from the balloon itself by 100 feet of cord. New tracking device picks up balloon's position as soon as it gets above tower and "locks" on its radio signal.



**BRIGHT LIGHT**—The small unit that looks like a kettle drum on a post, at right above, is a 3 million candlepower spot light, which creates the beam used in measuring cloud height by the Medford weather bureau. A scanning device picks up the "fattened" image where the beam strikes the clouds and transmits it to a graph in the weather bureau office.

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