Storms

Two kinds of storms bring practically all the precipitation in the Lehigh Valley and effect the greatest changes in temperature and in the winds. These are the extratropical cyclones and the thunderstorms. In some respects these are not definitely separable as the thunderstorms may be a part of the larger cyclones.

Extratropical Cyclones

The extratropical cyclones are great spirally whirling masses of air several hundred miles in diameter that sweep across the country from west to east during most of the year, but especially noticeable during the winter. On the daily weather map they appear as areas of low pressure and are generally called "lows."

The approach of one of the storms is marked by a gradual but decided drop in the barometric pressure, the winds shifting to the east or northeast, increasing humidity, increasing cloudiness, and generally a slight increase in temperature. So regular are these changes that one can make fairly accurate predictions of an approaching storm from twelve to twenty-four hours in advance of the beginning of precipitation. The wind may blow from the northeast or east for a day or more before rain or snow starts to fall. Precipitation, having started, continues more or less steadily as long as the wind remains in the east and the barometer is falling. Sometimes in late fall, winter or spring the storm may last two to three days, or rarely even longer, and the rain from a single storm amount to several inches. During the summer these storms are much less pronounced and one that appears fairly well developed in the central part of the country may disappear before reaching the Atlantic border. The winds in these storms are not often strong enough to do much damage in Pennsylvania although along the ocean these east or northeast winds result in considerable shore erosion and damage to coastwise shipping. The strength of the winds is determined mainly by the rapidity with which the barometer falls.

The ending of one of these storms is marked by the rise in the barometer; the cessation of precipitation and gradually clearing skies; decided drop in temperature producing, when extreme, what are known as "cold waves;" and the shifting of the winds to the northwest or southwest and marked increase in their velocity.

In normal winter weather a storm of this kind passes through eastern Pennsylvania about every four or five days, but there is much variation. In the summer the "lows" normally move more slowly and are less pronounced. Occasionally such a storm passes with all the usual pressure and temperature changes but without precipitation.

Thunderstorms

Thunderstorms are a characteristic feature of the summer months in the Lehigh Valley, although they have occurred in every month of the year. During the growing season, and especially in July and August, practically all the precipitation may be received from storms of this kind; the extratropical cyclones may be scarcely noticeable. Thunderstorms also commonly accompany the extratropical cyclones.