

WIND DIRECTIONS

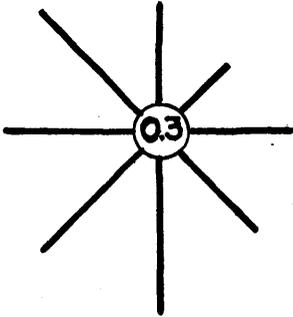
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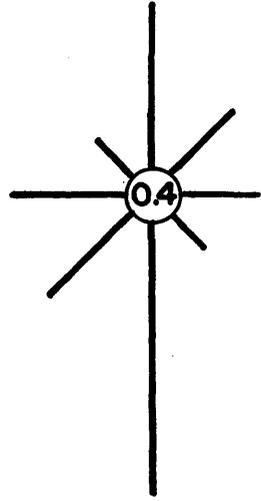
In the middle latitudes of the northern hemisphere, extending approximately from 40° north latitude to the subpolar lows in the vicinity of the Arctic Circle are the so-called Prevailing Westerlies or Southwest winds. The air moves out of the poleward areas of the subtropical regions of high pressure toward the subpolar lows and due to the earth's rotation the winds are deflected as they move into the higher latitudes, becoming southwest winds in the northern hemisphere and northwest winds in the southern latitudes. The Westerlies are a part of the well-known and often misapplied Planetary Wind system, or general air circulation of the earth. This general circulation system must be considered only as a background upon which more varied patterns of air movements take place. The practice on the part of some earth scientists to refer to the General Circulation as primary and all other air movements such as air masses, monsoons, local winds and the like as secondary is hardly in accordance with their relative significance, particularly, when reference is made to surface winds. The diversification and complexity of the factors affecting air movement are so great that any generalization has comparatively little importance.

The accompanying graphic representations of wind directions, the Wind Roses (Figs. 1-2), do reflect the principles of the Earth's general circulation; however, the fact that there are other influences, or disturbances, is equally in evidence. Local conditions, the degree of exposure and elevation of recording instruments are clearly represented in the Columbus Wind Roses (Fig. 1). When the Weather Station was located on Broad Street, the records of wind direction for the period 1918-1930, show a high prevalency of westerly winds. Later, when the station was moved to Marconi Street, the records for the years 1935-45 disclose that the predominant wind direction is south. The difference is undoubtedly due, primarily, to local circumstances. The recording instruments at the Broad Street location were 239 feet above ground (surface elevation 760 feet above sea-level) whereas the present Marconi Station wind meters are 110 feet above the street level (surface elevation 724 feet above sea-level). Furthermore, the Marconi Street Station has less free exposure than the former Broad Street Station. It may also be added that the wind velocity average is less at the lower elevation, namely, the Marconi Street position, than at the former Broad Street Station. In all probability, the difference in the records of the two Cleveland Stations (Fig. 1) likewise are indicative of difference in local conditions.

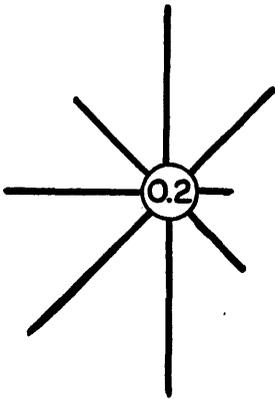
These preliminary notes, concerning wind directions in Ohio, have been made in full recognition of the Significance of the Earth's general air circulation as well as to emphasize the equally important but often misplaced and misnamed secondary air movements.



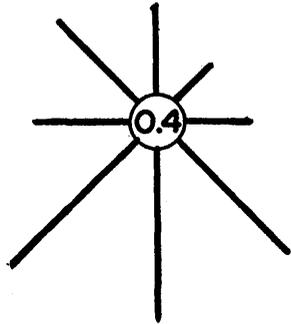
**COLUMBUS, OHIO
BROAD STREET
1918 - 1930**



**COLUMBUS, OHIO
MARCONI STREET
1935 - 1945**

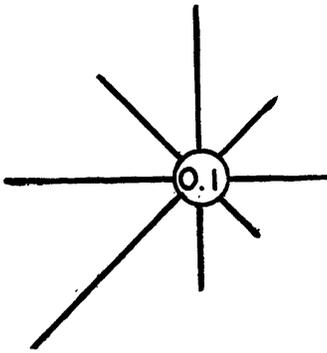


**CLEVELAND, OHIO
DOWNTOWN
1890-1930**

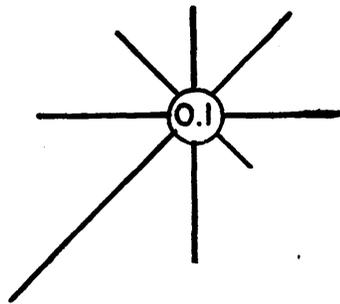


**CLEVELAND MUNICIPAL
AIRPORT
1942 - 1945**

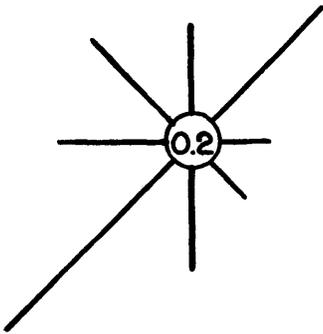
FIG. 1. Wind Roses.



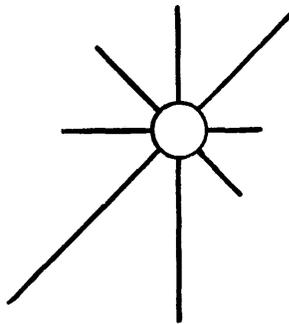
TOLEDO, OHIO
1918-1945



SANDUSKY, OHIO
1931-1945



VANDALIA, OHIO
DAYTON MUNICIPAL AIRPORT
1943-1945



CINCINNATI, OHIO
ABBE OBSERVATORY
1929-1938



FIG. 2. Wind Roses.