The strange contraptions on top of the dwellings of the Lower Sind district of West Pakistan express natural man's attempt to control his environment. The "wind-catcher" or "bad-gir" is a local solution to the particular climatic conditions of the Indus Delta and is not known elsewhere. It is simply a scoop which directs the prevailing wind into the living spaces for cooling and ventilation.

Because they are primarily used for urban residences which were built of temporary materials, it is difficult to trace their origin. There is one mosque, however, in Tatta which incorporates a permanent wind-catcher. The Shah Jehani Mosque was erected in 1663, but the domestic use goes back at least to the 15th Century. Probably their ancestor was the "mugha" or opening in the roof. The "mugha" has three possible uses: First, as a method of entrance. In the earlier periods, as in the Pueblos of America's Southwest, the ground floor level had no door but ladders up to the roof and then down again into the rooms. Second, as a light source in the rooms. Even today there are few wall openings other than doors and "mughas" are extensively used throughout West Pakistan. Third, as an escape for smoke from cooking fires. The usual practice, however, was to place the kitchen outside the houses in the Sind so this reason is least likely. The archaeological excavations, most extensively at Mohenjodaro 2500-1500 B.C., have not uncovered any evidence of roof structures. Therefore, it is not yet known if any form of "mugha" or "wind-catcher" was used.

The Lower Sind is a tropical semi-arid steppe with dry winters. In the hot weather period (April to June) the temperature goes up to 120°F and some times higher. Along the coast there is, in the afternoons, a pleasant southwest sea breeze, which keeps the maximum temperature down to about 95°F. When low pressures appear in the North Arabian Sea, the sea breeze over the Indus Delta is stopped and hot southeast desert winds from Rajasthan bring high temperatures and sultry weather. The winds in the monsoon period (July to September) and post monsoon period (October and November) continue from the southwest and bring some rain (6" average per year.) During the cold weather season (December to March) the winds are from the northeast. A high pressure area from the middle of December is established over Central Asia and the Middle East and the maximum and minimum temperatures during this season are from 75°-55°F.

Most of the wind catchers operate from March to September. Although some are used in the middle of February and late October. Because the winds during operation are continually southwest, the wind catchers are permanently fixed. The "mugha" are always on the northern walls and usually in the corner.

On one story blocks, each wind catcher represents one room. For multi-stories a variation is used to service rooms above one another and one catcher may service two or more rooms. In this case the catcher also is used for verbal communication between flats.

Building materials and construction methods are the same as for the main structure. The local materials are bricks or wood lath and mud plaster. The two types of bricks are "kachha" or sun baked and "pucka", oven-baked and still much the same as those at Mohenjodaro. Recently concrete, metal sheets and lumber have been used, but the form has not been altered. A
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Although the special geographical and climatic conditions of the Sind are not likely to be repeated, there is another more sophisticated solution found in New Gourna, upper Egypt. This structure acts as an evaporative cooler. The unit is placed on the side of the room which faces the direction of prevailing winds. Porous pottery jars near the top are filled with water which drips. The water cools by evaporation when it drops onto charcoal placed at the bottom. Air passing around the jars and charcoal is cooled appreciably. The Egyptian innovations are not found in the Sind, but probably could be effective.

The ingenuity of the Sindi has adopted three architectural forms which combat the extremes of the environment very effectively. The obvious logic of the form probably has been the result of trial and error for many generations. Today, however, the solution is another representation of the genius of the anonymous architect.

—Harold Benson