

[Illustration: FIG. 35. VIEW OF 70-FOOT SELF-SUPPORTING ROOF ON BARN SHOWN IN FIG. 36; NOTE HOOPS ON STUDS IN RIGHT FOREGROUND.]

[Illustration: FIG. 36. BARN 70 FEET IN DIAMETER; FRAME HOOPED FOR PERPENDICULAR SIDING; LOWER SECTION SIDED.]

THE SMALL DAIRYMAN'S BARN

[Illustration: FIG. 37. BARN 40 FEET IN DIAMETER.]

[Illustration: FIG. 38. BARN 48 FEET IN DIAMETER, 16-FOOT POSTS; NOTE METHOD OF TAKING HAY INTO SMALL ROUND BARN.]

The round barns previously described do not meet the needs of the man with only a few cows. He usually wants a general-purpose barn. The circular form can be made satisfactory for this purpose if proper attention is given to the plan. It is necessary that the cow stable be distinctly separated from all other stock by a tight wall. Round barns with this arrangement are giving satisfaction in Illinois at the present time.

[Illustration: FIG. 39. SHOWING CONSTRUCTION OF BARN IN FIG. 40. HOOPS IN PLACE READY FOR PERPENDICULAR SIDING; ROOF SHEATHED FOR SHINGLES.]

[Illustration: FIG. 40. BARN 102 FEET IN DIAMETER AND 85 FEET HIGH.]

DISADVANTAGES OF THE POLYGONAL BARN.

A polygonal barn has the disadvantages of both the rectangular and the round barn, and is less stable than either. It must necessarily have a heavy frame, which is expensive, and as the siding cannot run around the corners, it is very difficult to tie the different sides together sufficiently to prevent the barn being racked by the wind.

BARN NO. 6

16-sided.

Built, 1888.

[Illustration: FIG. 41. BARN NO. 6; 85 FEET IN DIAMETER; SAME SCALE AS DRAWING ON OPPOSITE PAGE.]

Diameter, 85 feet.

Height, 26-foot posts on 9-foot wall.

Capacity, 88 cows; 350 tons of hay.

Foundation and first story, cement wall 9 feet above cement floor.

Supports, 4 × 8s, placed just back of stanchions, 3 feet on center.

Studs, 2 × 10s, 26 feet long, placed 2-1/2 feet on center.

Joints 3 × 12s, 20 feet long, 14 inches on center for main span.

Rafters, self-supporting. Sheathed with 1 × 6s with no space between. This roof has a purline plate thrown in the gambrel. The plate is supported only by the braces which tie the joints.

[Illustration: FIG. 42. ARRANGEMENT OF COW STABLE IN BARN NO. 6.]

The barn has been racked three times by the wind, replumbed and heavy iron rods put in to brace it, yet it is out of plumb at the present