irrespective of its direction. When there is no wind ordinary convection comes into play with a greater degree of certainty than with a V-ridge ventilator. Contrary to expectation the flat ridge board is entirely weather proof. (See Figs. 1, 2, and 3.)

The dimensions of this type of ventilator can be altered to suit the size of building and the weight of timber used. A gap of 1in. or 1½in. is sufficient between board and ridge, with a width of 2in. to 4in. between the two sides of the roof. On small roofs a flat ridge board 6in. to 8in. wide will be sufficient.

Where rafters are butted on to a ridge plate this plate must not be carried above the line of the roof each side of the ridge opening, as if this is done the free flow of air from one side to the other under the flat ridge board is obstructed and the whole object of this type of ventilator is defeated.

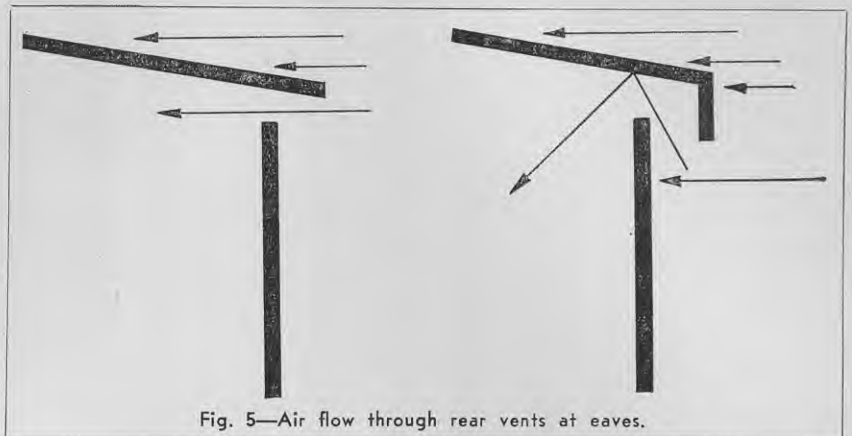

Fig. 5—Air flow through rear vents at eaves.

The flat ridge ventilator can be applied safely to all ridge roofs, provided it is built correctly. It could also be applied efficiently to other types, such as the reversed lean-to, which is fairly common in the South Island (see Fig. 4).

Special types of sheds, incubator rooms, and brooder sheds, for example, can be regarded as closed rooms and the ventilation must be based on the dimensions so that the eight air changes per hour take place. To do this there must be a definite relationship between the areas of inlets and outlets and the volume of the room. Eight times the cubic capacity (length x breadth x average height) of the building will give the volume of air required per hour. This figure divided by 50 gives the minimum area in square inches of the required inlets. The area of the inlets divided by 2½ gives the area in square inches of the outlets required. These sizes may be increased safely, and probably should be, provided the inlets are always 2½ times the areas of the outlets. Having them larger than the minimum allows control by sliding shutters or baffles. The rate of flow of air is governed by the outlets, but the volume of air passed is controlled by the area of the inlets, as obviously a hole in the roof or ceiling will not let out more air than is coming in lower down. In practice the two must balance, but better control is obtained by shutting off the outlets rather than the inlets.

Basically the foregoing applies to open-fronted sheds. Air can enter through the open front, but its passage through the house will be uncertain and confusing unless a definite opening is made for it to go out. If the open front is regarded as the normal exit of used air, an inlet for fresh air must be provided. In both instances the ventilation opening along the top back wall plate under the eaves should be satisfactory. Care should be taken if this opening is baffled, as a straight-through flow of air often does less harm than the oblique downward draught caused by many of the baffles used today (see Fig. 5).

Depth of House

The floor area of a laying house is fixed by the number of birds it has to hold and to a degree by the depth of the house, because, as discussed earlier, this will affect the height. Experience has shown that it is safer to have a house too deep rather than too shallow. Depths of between 16ft. and 18ft. were once accepted as being satisfactory, but the latter figure should be regarded as the absolute minimum depth for a 100-bird house. The deep house will provide an amount of fresh air and direct sunlight which the comparatively shallow house cannot.

The latest trend, in the Auckland area at least, is for houses up to 40ft. deep with open, wire netting fronts very nearly to ground level. Several houses with what may be called floor-to-ceiling wire netting fronts are all working very well. Rain certainly does not beat in to the extent previously feared, and in any case the floor is freely exposed to air and sun, which quickly dry out the surface and damp litter.

A small backyard poultry house built in Auckland on these lines has 6ft. of wire netting on the front studs, which are only 6ft. 6in. high. The only protection for this open front is a 3ft. overhang of a straight lean-to roof and a low front wall of less than 18in. Yet conditions in this comparatively shallow (10ft.) shed are first class in spite of the abnormal amount of north-easterly weather experienced.

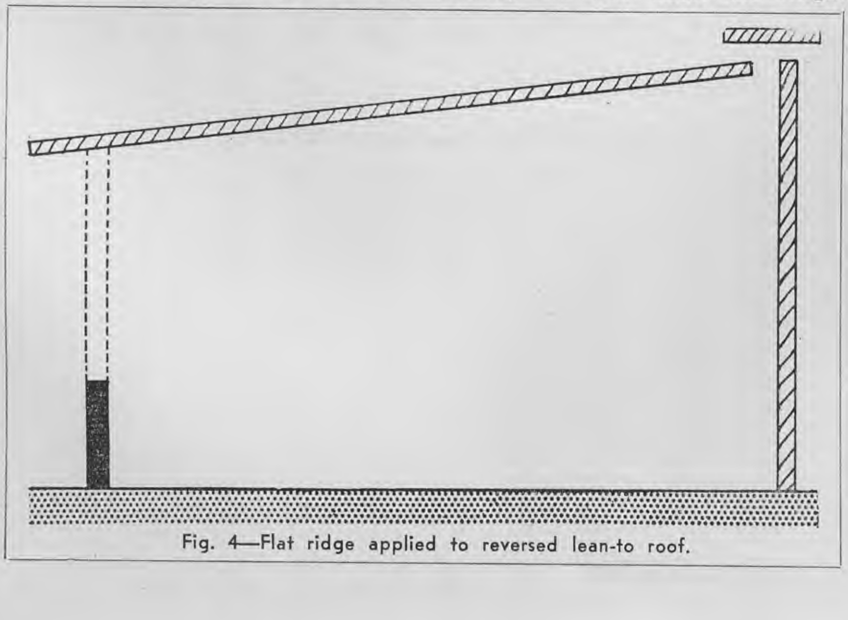

Fig. 4—Flat ridge applied to reversed lean-to roof.

Importance of Winter Sun

As far as possible all poultry sheds should be orientated to face the midday winter sun. In midwinter the minimum elevation of the sun at midday is about 18 degrees above the horizon, and in midsummer the maximum elevation at midday is about 74 degrees above the horizon. Winter sun streaming into the sheds at midday is of far more value to birds than is a fleeting glimpse of early-morning or late-afternoon sun. Midday summer sun is too hot for birds, and a house designed to take advantage of winter sun will still allow summer sun to enter during the morning and afternoon though excluding oppressive, midday summer sun.

The extensive, open, wire netting fronts becoming more common today can be given protection from driving rain by carrying the lean-to roof forward for 3ft. or so and fitting a 12in. barge board along the front of the rafters. A simple scale drawing