disposition of the piping used is adjusted by the engineer, who can control the circulation from the refrigerating-machinery room to suit the conditions in the cheese-chambers. In this style of chamber no arrangements are made for air-circulation. The insulation used varies in different vessels, and charcoal, silicate cotton, and granulated cork are all good insulating-materials, the latter, however, having been used in all the later vessels.

Air-circulation from expansion batteries: Capacity of chamber, 27,800 cubic feet; insulation used, charcoal; air-circulation per hour, 3,000,000 cubic feet for two fans; size of fan (2 off), 5 ft.; fan-revolutions, 300. The cheese-chamber referred to under this heading is one of six cargo-spaces, having a total cubic capacity of about 285,000 ft., and the vessel is fitted with two ammonia expansion batteries and two fans, one for each battery. The practice is with a full cargo of frozen meat and dairy-produce to work both fans and batteries, although one installation—that is, one fan and one battery—is sufficient to maintain required temperatures in all insulated chambers.

Air-circulation from side grids: Capacity of chamber, 34,312 cubic feet; insulation used, granulated cork; air-circulation per hour, 300,000 cubic feet; size of fan, 20 in. sirocco. The arrangement of this system of refrigeration consists of converting the brine-grids on the sides and bulkheads of the chamber into an air battery by fitting planed boards in portable sections in front of the grids, forming a 12-in.-wide air-duct all round the sides and ends of the cheese-space. A series of air-holes are cut in the wooden shutters, and the sirocco fan circulates the air across the chamber, the suction being at one side and the delivery at the opposite side; the 20 in. fan is used exclusively for the chamber referred to. Details of these systems are from Messrs. William Replen, Son, and Swinston, refrigerating engineers, London.

The successful carriage of cheese in ocean steamers is governed very largely by the condition and temperature of the cheese when being shipped, and, from personal observations, I am of the opinion that the temperature of cheese intended for long-distance transport should be reduced to approximately carrying temperatures before being placed on board ship. If it were possible to carry out the same methods of observation and control on board ship as are adopted in cold store on land, precooling would not be so important; but as such is not possible it is essential that cheese-temperatures be comparatively low in the first instance if the best possible results are to be obtained. Before passing on I would like to record my opinion that at no period during the life of cheese, from the time of manufacture until it reaches the retailer's shop, should there be any need for precooling, because at every stage of its life the temperature should be controlled right along the line. It should be remembered that in the transport of cheese it is not possible to use a treatment similar to that adopted with frozen produce. Frozen produce is delivered on board ship in a frozen condition, and all that the steamship people are required to do is to hold the produce at the requisite temperature.

Experience has taught us that the higher the temperature of the cheese when taken on board the greater are the difficulties that