VENTILATION. 1. General, *continued*—
Dr. Toms—
The difficulty is the admission of such cold air, 3647, 3655.
Dr. Macdonald—
The lining should be of thick non-conducting material, 4826; the hot-water system superior to hot air, 4831; but induced consumption in Haslar Hospital, 4832; hot-water pipes desirable for arctic ships, except as to waste of fuel, 4833; openings between the timbers commanded by valves would ensure the escape of foul air, 4835-6, 4840; this would be applicable to arctic service, but not to the ships sent, as provision had not been made in the original design, 4837; ventilation should form part of the original design of ships, 4840; means of escape of foul air, the proper way; an escape should be made between the deck and the ship's side, 4875; artificial means required in a confined space, for renewal of air, 4872-3; in such places cannot be renewed, without a draught prejudicial to health, 4873; destructive effect on rats of draught in a sewer, 4873; difficulty of renewal increased in cold climates, 4874; draughts might be obviated by larger spaces, and dividing the air in two, 4875; ventilation should be by extraction of foul air, not by injection on the plenum principle, 4927; method used in the Queen's sleeping cabin on board the "Royal George" would have been perfect if there was a special channel for the admission of air, 4928.
Mr. Busk—
Cubic space on board the arctic ships too small for constant residence, not if merely occupied at night, 5303; the difficulties of ventilation probably insurmountable, but the effects of bad air not a chief cause of scurvy, 5304-5.
Dr. Guy—
The space the crews had inadequate to preserve health where there is much confinement, 5403; difficulty of renewal of air in confined spaces, especially with low temperatures, owing to draughts, 5405; increase of difficulty in ventilation in ships' cabins with want of opposite openings, 5409.
Mr. Leach—
But little to complain of in the ocean-going merchant ships as to accommodation of seamen, 5579; the minimum allowed, seventy-two cubic feet and twelve superficial feet, 5580-81; no system of heating in ocean-going ships; he objects to stoves in coasters, 5582-3; not necessary, 5584; difficulties in arctic ventilation, 5591-2.
Sir A. Armstrong—
Difficulty in keeping lower deck of polar ships pure, 8948, 9064; owing to difficulty of renewal of air, the cold being one obstacle, 9072-3.
2. Recent Expedition—
Sir G. Nares, "Alert"—
Impossible to remove snow from skylights till May, 131, lower deck very dark even then, 131; disadvantage of dark decks with bright sun, 131; "Alert's" living deck less damp than "Resolute's," 216, 225; large extra houses on upper deck at the head of each hatchway, 216; "Alert" heated by service stoves distributed about decks, 217-18; holds did not require heating, 217; funnels from stoves turned into ventilators, 217; how the funnelling was led, 220; difficulty in producing uptakes, 217; very little ice inside "Alert," 223; the state of the air reported satisfactory, 227; ventilation dependent on stoves and hatchways, 228; and two tubes as down-takes, 229; stove funnellings the absolute uptakes, 229; the system as perfect as necessary, 230; what covering of snow was placed on upper deck, 232; holds closed to outer air, 232; but in communication with lower deck, 232; consequently temperature in them never low, 232; "Alert" thoroughly dry, 233; no foul smells till after the thaw, 234; alteration of a few berths, and ship's steward taken out of cabin owing to dampness, 235; omission to refer to snow houses round the hatchways, their advantage as condensers and ventilators; apparent small size of lower deck due to stores stowed there, these were landed and lower deck enlarged to twice its size, 9303; lower deck extended to abaft the mainmast in winter quarters, 9303; good drying-room, 121.
Commander Beaumont, "Alert"—
The "Alert," even with the extra men, had better winter accommodation than the "Discovery," 1003-4.
Commander Pelham Aldrich, "Alert"—
Great pains taken in ventilation, under supervision of the captain, 1303; the drying-room carefully looked after, 1303; the housing fitted with hatches which were thrown back, 1303.
Dr. Colan, "Alert"—
Not entirely satisfied with heating by stoves, or ventilation, 2172; except the quartermaster of the watch, all the men were below at night, 2183; whether satisfied with hygienic condition of the ship, 1635-6; usual allowance of cubic space given for men to sleep in, 1637; the lower deck extended further aft, 1697; the cubic space sufficient in his opinion, and the hygiene as good as could be under the circumstances, 1640; ventilation and warming pushed to extreme compatible with external cold, 2048; account of the ventilation established, 1650; perfect in the way of clearing the deck, 1650; difficulty in admitting external air owing to cold, 1650; they had sufficient air between decks, 1653; suffered from moisture, 1654; due to vapour given off by men, 1655; amount that can be given off, 1656; fresh air required to hold this in solution, 1657-8; no inconvenience caused by the moisture, 1659; method of treating excrementitious matter, 1660-62; no smell on the upper deck, 1663; hygienic condition of the sick room, 1843.
Dr. Moss, "Alert"—
Arrangements in, for ventilation and warmth, 2264, 2413; doors frequently open on to main deck, 2264; what openings there were into the outer air, 2266; all of them constantly available for change of air, 2267; the area of the openings, 2288; complaints by men of draughts, 2268, 2411; difficulty in effecting satisfactory ventilation, 2282-3; chiefly from coldness of the outer air, 2283; advantage of air being admitted after heating, 2286; impracticability of frequent renewal of air with means available, 2409-10; difficulty in equalising supply of cold air; complaints made of cold and draughts, 2411.
Admiral Richards, "Alert"—
Considered her spacious and very comfortable, 3108.
Sir L. M'Clintock, "Alert"—
Had the usual space for the number of men, 3258-61.
Dr. Macdonald, "Alert"—
Deficient in air space and provision for escape of air, 4826; want of it in officers' cabin, 4834.
Mr. Leach—
Considered the "Alert" and "Discovery" were closely packed, 5586-7; without as much space as usual in the navy, 5588; but allowance for retention of heat and stowage necessary, 5589-90; difficulties would exist in renewal of air, 5591; the cold outer air adding to them, 5592.
Captain Feilden—
The air of the ward-room of "Alert" wonderfully good, 5923; where his cabin was, 6048; warmed by the ward-room stove, 6049; generally above 32° in winter, 6050; anything just below freezing an advantage, less drip, 6056; its ventilation good, 6051; arrangement of an indiarubber tube communicating with the open air, opening or closing at will, 6051-3; could thus get air in or exclude it, 6055; an uptake in the ward-room, which ventilated his cabin, 6057-8.
Thomas Rawlings, "Alert"—
The "Alert" had more room than any ship he had served in, 7625.
Color-Sergeant Wood—
The accommodation of the "Alert" inferior to most men-of-war owing to the conditions of the climate, 7858-63; the space for living is about the same as in most ships, 7859-62, 7864; but the ventilation inferior, as the hatchways could not be opened except in summer, 7864-7; there were up-takes and down-takes of stove funnelling, which were useful, 7865-7; they were successful, 7869; besides the galley fire one stove on the lower deck, 7873-4; it was kept burning all night, 7875; the lower deck cleared during the forenoon, 7877; the lower deck not sweet, 7957; had a close and damp feeling through the day in winter, 7958-9; impossibility of remedying it, 7960.
Captain Stephenson, "Discovery"—
Arrangements for drying room, and for carrying off vapour from it, 380; for cleaning and drying the lower deck and ship below, 381-3; deck clothes, how far used and cleaned, 384-6; ironwork between decks covered with leather, 387; more cubic space desirable on lower deck, 437.
Commander Beaumont—
Ventilation of the "Discovery," 1005; good in preventing moisture, 1017; no moisture in cabins aft the ward-room, 1027; the moisture due to confined space and steam from galleys, 1029; only froze on metal bolts at night, 1007, 1020; no distress in breathing from moisture, 1018; holds and storerooms sweet, clean, and dry, 1019; to what extent frost formed in holds, 1020; carbolic acid used as a disinfectant, 1021; where required, 1022; what part of "Discovery" warmed by hot water, 1023-7; otherwise the method was similar to the "Alert," 1025; ventilation of lower deck attended to as far as possible, 1181; it was never perfect, 1182; but what could be was done, 1183.
Dr. Ninnis, "Discovery"—
Want of larger supply of fresh air, 2535; and means of arresting constant wetness between decks, 2535; impurity not to the senses greater than in ordinary ship, 2543; impossibility of remedying the impurity, 2538, 2546; efforts to do so, 2546; advantage of inverted funnell over the galley, 2685; in decreasing the moisture and smell of cooking on lower deck, 2685-6.
Captain Hamilton, "Discovery"—
Difficult to warm with stoves, owing to funnel, 3072.