of the treasury, and chancellor of the exchequer, &c. ; livery for the lord chamberlain, grooms of his majesty’s privy cham­ber, officer of his majesty’s robes ; for the two chief justices, for all the barons of the exchequer, and several officers of these courts ; all liveries for his majesty’s servants, as yeo­men of the guard, and wardens of the Tower, trumpeters, kettle-drummers, and fifers ; the messengers, and all belong­ing to the stables, as coachmen, footmen, littermen, posti­lions, and grooms, &c. ; all the king’s coaches, chariots, harnesses, saddles, bits, bridles, &c. ; the king’s watermen, game-keepers, &c. ; also furniture for the royal yachts, and all rich embroidered tilts, and other furniture, for the barges. Besides the master or keeper of the wardrobe, who had a salary of L.2000, there were his deputy, who had L.150, and a comptroller and a patent clerk, each of whom had a salary of L.300 ; besides many other inferior officers and ser­vants, who were all sworn servants to the king. There was likewise a removing wardrobe, which had its own set of offi­cers, and standing wardrobe-keepers at St James’s, Windsor Castle, Hampton Court, Kensington, and Somerset House ; but the whole of the wardrobe establishment was abolished by act of parliament in 1782, and the duty of it in future was to be done by the lord chamberlain.

WARDSHIP, in chivalry, one of the incidents of tenure by knight-service. See Feudal System.

WARE, a market-town of the county of Hertford, in the hundred of Braughin, twenty-one miles from London. It stands on the river Lea, which is navigable to the metropo­lis, and by which much malt, the principal commodity of the place, is conveyed to the great porter breweries and dis­tilleries in London. It is a well-built town, and consists of one long street, with several minor ones intersecting it. The church is an ancient and noble structure. Near to it is the spring by which the new river is mainly supplied. Ware has a good market on Tuesday, and two yearly fairs. The population amounted in 1821 to 3844, and in 1831 to 4214.

WAREHAM, a market-town of the county of Dorset, in the hundred of Winfrith and division of Blandford, 112 miles from London. It is situated on an eminence between the mouth of the rivers Frome and Piddle, and consists of four principal and several minor streets. The river Frome is navigable up to the bridge for small craft from Poole. This was formerly a place of more importance, having once seven­teen churches, now reduced to three, one only of which is used. There are however several dissenting places of wor­ship. It was once fortified, and some remains of the works are still visible. It has very little trade. The market is on Saturday. It returns, with the parishes of Corfe Castle and Bere Regis, one member to parliament. The population of Wareham amounted in 1821 to 1939, and in 1831 to 2325.

WARKWORTH, a town of the county of Northum­berland, in the ward of Morpeth. It stands on the river Coquet, 308 miles from London. It consists of three streets, in which are good houses. It is remarkable for the extensive ruins of the castle of its name, belonging to the duke of Northumberland, with its park and hermitage. The market has declined. The population amounted in 1821 to 591, and in 1831 to 639.

WARMING. Under the article Stove, the different means of heating apartments, both directly by stoves, and also by throwing in a supply of warm air, have been already noticed ; and under the article Stea m, the means of using it as a source of heat for warming buildings and fluids, and also for drying articles, have been fully described. There is still another method of warming to which we have to advert ; we mean by water. In considering the subject of heat, its communication from one object to another, and the mode by which it is conveyed through fluids, have been fully discussed ; but before proceeding to describe the process of warming by water, it may be proper to allude to the circum­stances accompanying the distribution of heat in this way.

When heat is applied to the end of a bar of iron, it passes from particle to particle, and the whole of the bar would in this way become warm, were it not for the operation of other causes. But the process of heating a fluid is dif­ferent. When heat is applied to the bottom of a vessel of water, the particles below, as they receive caloric, are ex­panded, become specifically lighter, and ascend : cold par­ticles must therefore fall to supply their place, which in their turn gain caloric and also rise ; and in this way, by the constant ascent of warm and descent of cold particles, the whole of the fluid is heated. The communication of heat in this case is therefore not from particle to particle, as in solids, but by currents.

If, instead of a jar, an apparatus of the form fig. 1 be used,

the currents will be established in *a b* when it is heated, and water will be found to flow from one vessel to another, owing to a difference in the gravity of the water in the dif­ferent parts of the apparatus. Suppose at the commence­ment that the water is at 50°, and heat is applied to the bottom of *a b.* Owing to the currents, the fluid in it becomes warm, and is therefore of less specific gravity than before, while that in *e d* continues cold, and is consequently not altered in gravity ; the pressure on c, occasioned by the column *d c,* is therefore greater than that on *b,* occasioned by the column *a b.* There is therefore a movement towards *b* corresponding to the difference in gravity, and consequent difference of pressure, on c and on *b.* As the water flows along c *b* into *a b,* there must be a flow along *a d* into c *d,* and this current in the circuit *adcb* will continue as long as there is any difference between the temperature of the water in *a b* and *c d.* Now if *a b* have heat constantly applied to it, and *c d* be constantly parting with it by exposure to a colder atmosphere, there must be kept up a difference in temperature, and thus the current will be continued ; and the heat which the water in *a b* receives will be given off dur­ing the circulation of the fluid along the other parts of the apparatus. Hence the mode of conveying heat generated by combustion to distant parts, as through the rooms of a house. The method to be followed will obviously depend on the construction of the building and the purposes for which the heat is required. If the whole of the apartments to be warmed are on the same level, the apparatus is very simple. At a convenient part of the building an open boiler is erected, and so situated that a fire can be kindled under it. From the upper part of the side of the boiler a tube, as *a d* in fig. 1, passes along the floor or near the floor, and is made to traverse on the same level to the dis­tant parts, and again to return on the same level, and, after making a turn downwards at any convenient part, to enter the side of the boiler near the bottom, as at *b,* fig. 1. In this way the heat which the water in the boiler receives from the fire is conveyed by the fluid travelling along the tubes, and in its passage is communicated to the surround­ing atmosphere of the apartment. The more rapidly the heat is abstracted from the tubes, the greater will be the difference between the temperature of the water in the boiler and in the other parts of the apparatus ; the more rapid there­fore will be the current, owing to the difference in gravity, and consequently the more abundant will be the supply of heat to the apartment.

In the method now described, the boiler is an open one,