rying off the vapour. When the water begins to boil, the vapour ſhould be allowed to paſs freely for a minute, which will effectually clean the tube and upper part of the boiler. The tube is afterwards to be kept conſtantly wet, by paſſing a mop or ſwab, dipped in ſea water, along its upper ſurface. The waſte water run­ning from the mop may be carried off by means of a board made like a ſpout, and placed beneath the tube. The diſtillation may be continued till three-fourths of the water be drawn off, and no further. This may be aſcertained either by a gauge-rod put into the boiler, or by meaſuring the water diſtilled. The brine is then to be let out. Water may be diſtilled in the ſame manner while the proviſions are boiling. When the tube is made on ſhore, the beſt ſubſtance for the purpoſe is thin copper well tinned, this being more durable in long voyages than tin-plates. Inſtead of mopping, the tube, if required, may have a caſe made alſo of copper, ſo much larger in diameter as to admit **a** thin ſheet of wa­ter to circulate between them by means of a ſpiral cop­per thread, with a pipe of an inch diameter at each end of the caſe; the lower for receiving cold water, and the upper for carrying it off when heated.

When only a very ſmall portion of room can be con­veniently allowed for diſtillation, the machine (n⁰ 2.), which is only 27 inches long, may be ſubſtituted, as was done in this voyage. The principal intention of this machine, however, is to diſtil rum and other liquors; for which purpoſe it has been employed with extraordinary ſucceſs, in preventing an *empyreuma,* or ſiery taſte.

Figure I. repreſents in perſpective a ſection of the two boilers taken out of the frame. In the back part at D, E, are ſeen openings for the cocks. On the top is a diſtilling tube A, B, C, five inches diameter at A, and decreaſing in ſize to three inches at C; the length from B to C is five feet. Near C is a ring to prevent the water which is applied to the ſurface from mixing with the diſtilled water. In the inſide of the tube, below B, is a ſmall lip or ledging, to hinder the diſtilled water from returning into the boiler by the rolling qf the ſhip.

In figure 2. A, B, C, D, repreſent a vertical ſection of a copper box, 27 inches long, ſeven inches wide, and 11 in height, tinned on the inſide. In the bottom F is an aperture about ſix inches in diameter, having a ring to fit on the ſtill or boiler. The dotted lines which run nearly horizontal, are veſſels of thin copper, tinned on the outſide, two feet long, ſeven inches wide, and three quarters of an inch deep. At G is a funnel to receive cold water, which is conveyed into the veſſls by communicating pipes, contrived in ſuch a manner as to form a complete and quick circulation of the water through their whole extent. When the water is become hot by the action of the ſteam, it is diſcharged by the horizontal pipe at A. E is a pipe from which the diſtilled water or ſpirits run, and is bent in ſuch a form that the liquor running from it acts as a valve, and hinders any ſteam from eſcaping that way. On the top of the box, at H, is a ſafety- valve, which prevents any danger from a great accu­mulation of vapour not condenſed for want of a pro­per ſupply of cold water.

We ſhall now mention a different method, diſcovered by the Chevalier Lorgna, by congelation of ſea-water. Sea water requires a very great degree of cold in order to become ice, Our author found that a freezing mix­ture, made by mixing three parts of pounded ice with two parts of common ſalt, was quite ſuſſicient to freeze it. The cold produced by this mixture is equal to about 4⁰ below nought of Fahrenheit’s thermometer.

A quantity of ſea-water is never entirely congealed, a portion of it always remaining fluid; and, what is very remarkable, this fluid part is incomparably more full of ſalt and more nauſeous than the reſt: hence, if this be ſeparated from the congealed part, the latter on being melted will be found to contain much leſs ſalt than it did before congelation. This we ſhall call *the water of the first purification.*

If the water of the firſt purification be again congeal­ed, a part of it will remain fluid as in the firſt opera­tion. This fluid portion will contain a greater propor­tion of ſalt than the reſt, which is of courſe more pure, and, being melted, forms the water of the ſecond puri­fication. Thus, by repeatedly freezing the ſame ſea-wa- ter, and ſeparating the fluid from the congealed part in every operation, it is at laſt perfectly purified, lo as to be entirely diveſted of ſalt, and as fit for drink and other purpoſes as the pureſt water that is uſed.

At firſt the ſea-water, in order to be congealed, re­quires a very great degree of cold, as mentioned above, the ice formed in it conſiſts rather of ſcales or filaments than of a compact body, and the quantity of the fluid parts bears a conſiderable proportion to the quantity of ice. But as the water, by undergoing the ſucceſſive congelations, becomes more and more pure, ſo it be­comes capable of being congealed by a ſmaller and ſmaller degree of cold; the ice is at the ſame time more compact, and in greater quantity; the fluid part at lall becoming very inconſiderable.

*SEA-Weed,* or *Alga Marina,* is commonly uſed as a manure on the ſea-coaſt, where it can be procured in abundance. The beſt fort grows on rocks, and is that from which kelp is made. The next to this is called the *peaſy sea-weed:* and the worſt is that with a long ſtalk. In the neighbourhood of Berwick, the farmers mix it with liable-dung and earth, and thus obtain a great quantity of excellent manure. Sea-weed is found alſo to be a very fit manure for gardens, as it not only enriches them, but deſtroys the vermin by which they are uſually infeſted.

*SEA-Wolf* See ANλrrhicAs.

*Saltneſs oſ the Sea.* See *SEA-Water.*

*South Sea.* See *Pacific Ocean,* and *SoUTH Sea.*

SEAL, a puncheon, piece of metal, or other mat­ter, uſually either round or oval; whereon are engra­ven the arms, device, &c. of ſome prince, ſtate, com­munity, magiſtrate, or private perſon, often with a le­gend or inſcription; the impreſſion whereof in wax ſerves to make acts, inſtruments, &c. authentic.

The uſe of ſeals, as a mark of authenticity to letters and other inſtruments in writing, is extremely ancient, We read of it among the Jews and Perſians in the earlieſt and moſt ſacred records of hiſtory. And in the book of Jeremiah there is a very remarkable inſtances not only of an atteſtation by ſeal, but alſo of the other uſual formalities attending a Jewiſh purchaſe. In the civil law alſo, ſeals were the evidence of truth, and were required, on the part of the witneſſes at leaſt, at the atteſtation of every teſtament; But in the times of our Saxon anceſtors, they were not much in uſe in England. For though Sir Edward Coke relies on an