

have been the consequence. This is a plain indication of its narcotick quality, and stupefactive powers.

N^o. XXX.

Description of a Machine for measuring a ship's way: in a letter from FRANCIS HOPKINSON, ESQ. to Mr. JOHN VAUGHAN.

Read Dec.
17, 1790.

IN the 2d. volume of our Philosophical Transactions, I published a description of an instrument for measuring a ship's way through the sea. I have not heard of any objection to the principles on which such a machine may be constructed, but it may, probably, have been thought too complex for general use.

As this object, should it be accomplished, would be of great importance, I have made another attempt to the same purpose; in which, if there should be no other objection, the want of simplicity cannot reasonably be complained of.

Close along the ship's bow is a copper pipe, about two inches in diameter, extending downward as low as the keel, and upward above the water line when the vessel is loaded. This pipe must be so bent at the bottom as that its orifice may be directly opposed to the line of the ship's progress, and project but a little way beyond the keel or cut-water. The upper part of this pipe must also be so bent as that it may enter into the fore-castle, through a hole made for the purpose, above the water line. The pipe should be secured in its place by staples or clamps.

On the top of this copper pipe should be a cover to be screwed on, and through the cover a hole must be made
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for the admiffion of a glafs tube, of the fize of a common barometer tube, and cemented there. The fea water will rife in the copper pipe to the general level of the fea, but will not appear in the glafs tube becaufe the copper pipe enters the fhip above the water line, as before obferved. But if a quantity of oil be poured down the glafs tube, the furface of the oil will rife and become vifible in the tube, on account of the fpecific difference between oil and fea water.

This glafs tube muft alfo be furnifhed with a fcale for meafuring the different heights of the oil, the cypher, or (o) of the fcale being on a line with the furface of the oil when the fhip is at reft, or makes no way. But when fhe is in a progreffive motion, the water contained in the copper tube, together with the column of oil in the glafs tube, will be forced upward, in proportion to the velocity with which the veffel proceeds; which will be afcertained by the different altitudes of the furface of oil, vifible on the graduated fcale.

The glafs tube fould be made to run fome depth into the copper pipe, and alfo be of a fufficient height above, to allow room for the vibrations of the column of oil, when the fhip is agitated by the waves.

When the fhip has got every thing on board and whilft fhe is under no way, the furface of the oil muft be regulated by bringing it even with the (o) or cypher of the fcale; and this examination, fould be frequently made on account of the confumption of provifions and other wafte, that may alter the fhip's draught of water.

In taking down the reckoning from the fcale, the moft favourable moment fould be watched for a fair obfervation, viz. when the fhip is proceeding with an average velocity, not when fhe is in the act of plunging into, or

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rising above the level of the waves, as this would sensibly affect the truth of the scale. But a little experience would soon make the use of the instrument familiar.

Nº. XXXI.

An Inquiry into the Question, whether the APIS MELLIFICA, or TRUE HONEY-BEE, is a native of America.

Read Feb.
1, 1792,

SO many animals and vegetables have been introduced into the countries of America, since the great discovery of Columbus, that naturalists are frequently at a loss to determine, which species are natives, and which are foreigners. This is particularly the case with respect to plants. Many of those species which are now distributed, in profusion, through extensive tracts of country; which are not merely confined to the gardens, the meadows, the fields, and waste places, but have even insinuated themselves into the thickest forests and the most lofty mountains, growing luxuriantly in their new situations, are, undoubtedly, European and other colonies, which have been introduced either by accident or by the hands of man. At some future day, I shall communicate the result of my inquiries on this subject to the Philosophical Society. Meanwhile, I shall mention a few instances, which more readily occur to me. The *Plantago major*, or *Greater-Plantain*, the *Verbascum Thapsus*, or *Great White-Mullein*, the *Chenopodium album*, or *Common Wild-Orache*, the *Antirrhinum Linaria*, or *Yellow Toad-Flax*, the *Hypericum perforatum*, or *Common St. John's wort*, the *Leontodon Taraxacum*, or