

employed also to ascertain the different ranges of a piece of cannon, shortened by little and little. The knowledge of a practice applicable to so many purposes of the arts cannot be too generally made known.

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*Description of the new American Steam Boat, which crosses the Hudson, between New-York and Jersey.*

It is formed of two vessels, each about 80 feet long; these are decked as one, leaving a space between them sufficiently wide to admit the wheel by which the boat is propelled. In the centre of the deck is the engine-house, containing the machinery, which puts the wheel, immediately below it, in motion; the space on deck, on one side of the engine-house, (covered by an awning,) is appropriated to foot passengers, and on the other side, to horses and carriages; passengers can also be accommodated at the top of the engine-house, and below the deck.

The vessel is furnished with one rudder at each end, by which means it is unnecessary to change her direction during the whole passage, as what served for the rudder from New-York to Jersey, answers for a cut-water from Jersey to New-York. The advantages of such a vessel, which, independent of wind or tide, performs its passage in a given time, must be obvious, both for the ordinary purposes of a ferry-boat, and for the removal of troops and military stores. During the month of September last, it carried over 500 passengers, together with 5 horses and carriages.

[*Liverpool Mercury.*]

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*Extraordinary Mechanical Genius, discovered in the invention of a curious Clock.*

A YOUTH of the name of Benja-

min Caldwell, of Frodsham, in the county of Cheshire, has made a wooden model of a clock, for showing the various situations of the sun and moon, the times of the luminations, the rising, southing, and setting of the moon and stars, the moon's age and phases, the sun and moon's place in the ecliptic for every day in the year, and the day of the month, which will show for four successive years, without altering each month, as in common clocks; it also shows the days of the week, time of high water, and other phenomena. In the centre of the dial-plate is turned round the minute and hour hands, and two wires about four inches long, at the ends of which are fastened flat round pieces of metal, resembling the sun and moon. The sun is carried round in 24 hours, to which is fastened a circle, with the moon's age upon it. The moon is carried round in 24h. 50½m. whose wire projects a little beyond the moon, showing her age upon this circle, to every half and quarter day. Under the dial-plate, and showing through a somewhat oval hole of 4½ inches diameter, in the centre is a plate, carried round in 23h. 56m. 17s.; the middle of this plate represents the north pole, and on it is marked the two tropics, the equinoctial and ecliptic, the principal fixed stars, the day of the month, &c. The edge of the dial-plate round the hole, represents the horizon; the sun revolves round in 24 hours, the dial and centre plate, in 23h. 56m.; the sun will advance nearly one degree every day in the ecliptic, so that in 365 days and 5 hours, he will have gone through all the 360 deg. The centre plate goes round in the same time as the stars seem to go round, by the diurnal motion of the earth, and it may be seen at any time what stars are

rising, what stars are culminating, and which are setting; for when any star appears to come from under the horizon, it is then rising, and the hour-hands show the time. A wire put perpendicular from the pole, represents the meridian; when the moon or any star crosses the meridian, the hour-hands will show the time of the moon or stars southing or coming to the meridian; when any star comes to the edge of the

horizon, the index will show the time of its setting; and the degree which the sun or moon's wire cuts in the ecliptic, appears to come from or go under the horizon; the hour-hands will show the time of their rising and setting. In the arch is exhibited the four seasons of the year, the days of the week, time of high water, and the moon's places.

*Liverpool Mercury.*

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LIST OF NEW PUBLICATIONS.

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A general View of the Agriculture of the East-riding of Yorkshire; by H. E. Strickland, Esq. 12s. bds.

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