THE INVENTOR OF THE STATION POINTER

by

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The invention of that useful little instrument the station pointer has been attributed by some continental writers to NICHOLSON. This wrong attribution, which has persisted up to recent times, was probably originally due to the fact that the first published description of the instrument was given in *Nicholson's Journal* for January 1804. From the first part of that description quoted below it is quite clear that, according to William NICHOLSON (b. 1753, d. 1815), the actual inventor of the instrument was Joseph HUDDART, F.R.S. (b. 1741, d. 1816).

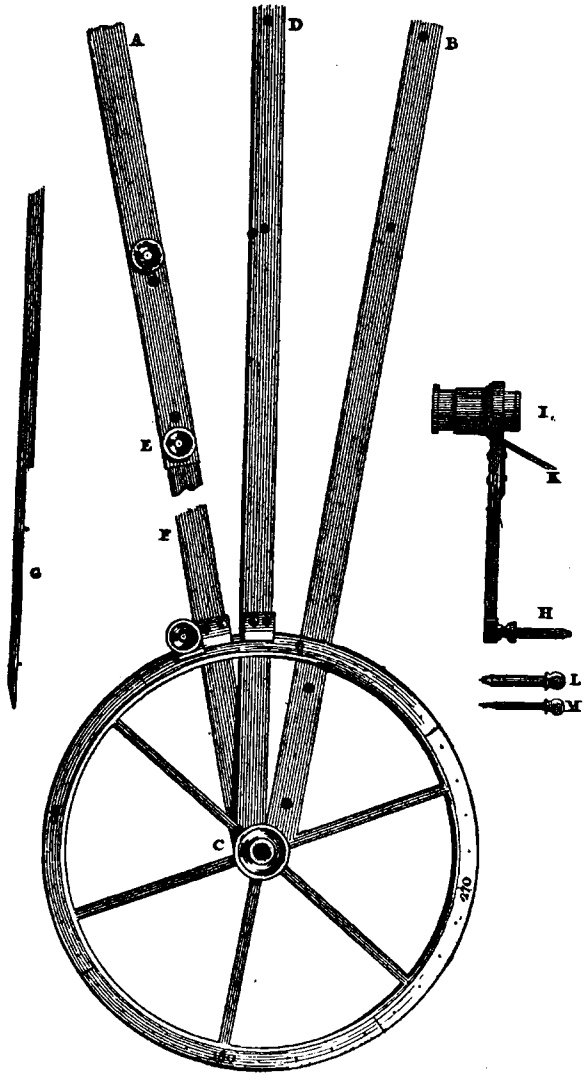

PLATE I.

"Description and Use of the Station Pointer; an instrument for readily ascertaining the Situation of the Observer after having determined the angular Position of three known Objects. Constructed by Joseph HUDDART, Esq., F.R.S., and communicated by him to the Editor.

"I have long been desirous of presenting my readers with a drawing and account of the instrument which forms the subject of the present paper. Its utility in protracting the situation of a vessel upon a chart from an accurate observation by the sextant of the angular position of three known objects on shore, instead of the uncertain and rough method of bearings by compass, is great and obvious; and if any other recommendation could be desired, it would be that of its repeated application in the hands of a man of science and experience. This we have the satisfaction to possess in the public labours of Mr. HUDDART, whose maritime surveys are too well known and esteemed to require the suffrage of any individual at this day. The very first occasion, when I happened to have the pleasure of conversing with him, I requested the communication of this instrument, with which he with great readiness favored me, and from which the drawing exhibited in Plate I was made.

"It consists of a circle divided into 360° and fitted with three radii, *CB*, *CD* and *CA* the first of which is fixed at zero and the other two are moveable, and have each a nonius shewing single minutes of a degree. The centre at *C* is perforated in order

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to admit the pointer *L*, which is cylindrical and well fitted to the hole, where it serves to give a correspondent mark upon the chart or paper when in use. *I* is a magnifier carried by an arm, having its reflector *K* to throw light on the divisions, and its cylindrical stem *H* to be inserted in the hollow centre at *C*. At it must, while in this situation, prevent the introduction of a steel point *L*, the stem *H* is itself perforated in order to allow a smaller steel point *M* to be introduced for the same purpose. The radii *A*, *B* and *D* are of brass; but they may be prolonged to an extent that would render them heavy and inconvenient if of metal, by the addition of three rulers of wood, which are attached when required by milled head screws and steady pins, as shewn by breaking the radius *A*, and also in the side view at *G*.

"The arms *D* and *B* are capable of being brought very near each other, and consequently of being set to a very small angle; but *A* cannot on account of the noniuses, be brought within ten degrees of *D*. Whenever, therefore, the left hand angle happens to be small, it becomes necessary to carry the arm *A* round, until by its situation on the other side of *B*, it comes to be employed to take the right hand angle, and consequently leaves the left to be taken between *D* and *B*.

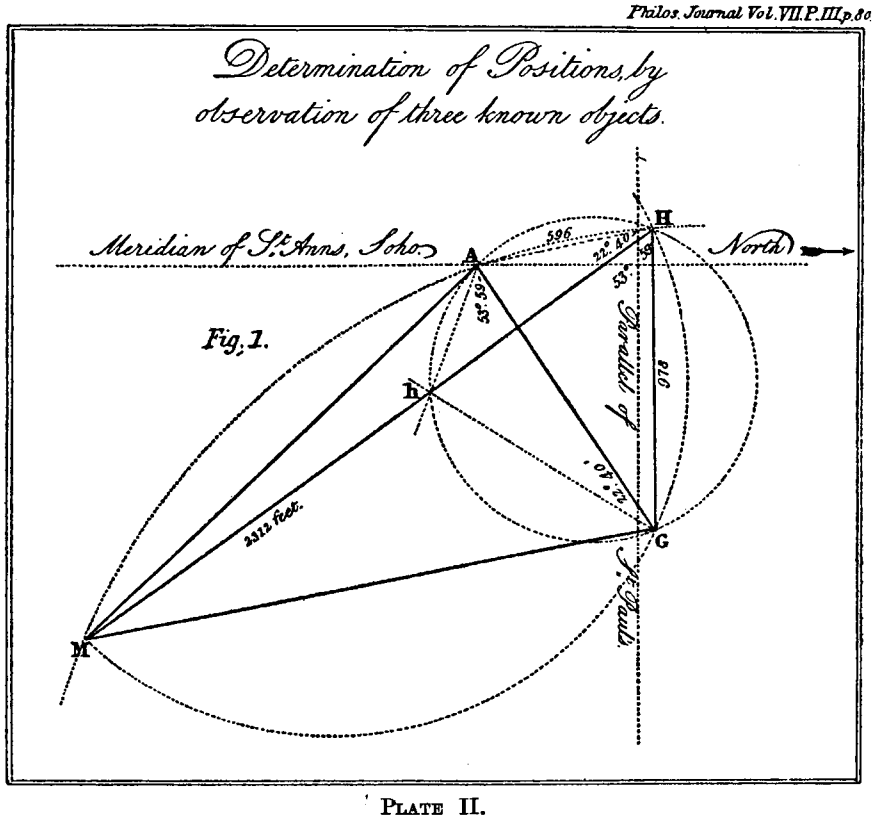

PLATE II.

"The pointer *A* is provided with a clamp, by means of which that arm can be first secured in its place, and the pointer *D* is then set without fear of disturbing the situation of the arm first set. It seldom happens that both angles are small in maritime surveying; so that the condition that *A* cannot be brought very near either of the other arms, has not been found productive of inconvenience.

"In Fig. 1, Plate II, let *A*, *G*, and *M* represent three objects, of which the actual distances from each other are known and projected in a chart. Suppose an observer at *H* to have measured the angle $AHM = 22°40'$, and the angle $MHG = 53°59$, it is required to protract the place *H* by means of the station pointer.

"SOLUTION. — Set the arms of the instrument to the respective angles, and apply them to the chart so that each point, *A*, *M*, and *G*, shall be found upon the fiducial edge of its respective pointer. The center will then be found at *H*, which may be marked by the steel point".(From *Nicholson's Journal*, Vol. VII, 1804, Jan. pp. 1-5, 2 Plates).

The rest of the paper is concerned with the "rationale of the process", and the initials "W.N." appear at the end of the whole; it is evident that the paper was written by NICHOLSON from information supplied by HUDDART. At that period NICHOLSON occupied a house in Soho Square (N° 10), where he kept a school for 20 pupils. Referring to Fig. 1, Plate II, he states: "*H* denotes the west garret window of my house in Soho-square, and the letters *A, G* and *M* respectively denote the steeples of the parish churches of St. Anne Soho, St. Giles, and St. Martin, laid down by their difference of latitude and departure from St. Paul's Church, obtained from the bearings and distances in General Roy's Surveys in the *Philosophical Transactions*, or the *Account of Operations carried on for accomplishing a Trigonometrical Survey of England and Wales, etc., published in quarto by Captain Mudge and Mr. James Dalby, London, 1799, with 22 plates*".

Captain Joseph HUDDART, F.R.S., hydrographer and manufacturer of cordage, was born at Allonby, in Cumberland. During his school days he showed evidence of possessing that bent towards constructive work combined with originality, patience and industry, which persisted throughout his life. When he was quite a boy one of his hobbies was the construction of ship-models. In 1756 large shoals of herrings came into the Solway Firth, and his father, a farmer and shoemaker by trade, promptly set up a fish-curing business. This involved the transport of the salted herrings to Cork and other Irish ports, and young HUDDART soon took an active part in this side of the business. He became commander of a brig, and his growing knowledge of the St. George's Channel led later to the making of a complete survey and the publication of a chart much more accurate than any previously available. His first voyage to North America was made in 1768 in the *Patience*, a vessel designed and built entirely by himself. In 1771 he entered the service of the East India Company and in 1778 became commander of the ship *Royal Admiral*, in which he made four voyages to the East. During this period he made various surveys and constructed charts of Sumatra and the coast of India from Bombay to the mouth of the Godavery. He retired from the Company's service in 1788 and in 1791 was elected F.R.S. and an elder brother of Trinity House.

Probably his most valuable invention was that of machinery for the construction of cables, etc., every yarn in which took its equal share of the strain when in use. Previously, during his voyages to the East, he had discovered that in the cables then available almost the whole strain was borne by the outer yarns, and consequently breakages were not infrequent. From 1793 to 1805 he took out five patents for his inventions in this cordage manufacture, which was carried out by a company under the name of *Huddart & C°.*, and provided HUDDART with a considerable fortune.

During the latter years of his life he designed a large equatorial telescope which was set up in 1797 at his house at Highbury. On HUDDART's death in 1816, the instrument was acquired by Sir James SOUTH, who had it re-erected in his Observatory at the top of his house in Blackman Street. From 1821 to 1824 it was used by Sir John HERSCHEL and SOUTH in compiling their famous catalogue of 380 double and triple stars (See *Phil. Trans.* 1824, Part 3). The precision work was by TROUGHTON, and the 4 ½ inch object glass with a focal length of 5 feet was made by DOLLOND. This instrument was bequeathed to the Science Museum in 1918 by the late Mr. William WOODARD.

HUDDART died in London on the 19th August, 1816, and was buried in a vault under the church of St. Martin-in-the-Fields.

The plate and diagram illustrating this article appear by courtesy of the Science Museum, South Kensington.