

No. V.

MENSTRUUM FOR BITING-IN ON PLATES OF  
SOFT STEEL.

*The GOLD ISIS MEDAL was this session presented to Mr. W. HUMPHRYS, 65, Charlotte-street, Rathbone-place, for his Menstruum for biting-in on Plates of soft Steel. The following communication has been received from him on the subject.*

65, Charlotte-street, Rathbone-place.

SIR,

April 19, 1826.

I HAVE a communication to make to the Society for the promotion of Arts, Manufactures, and Commerce, of a menstruum for biting-in steel plates. I have for some time back communicated it to various artists, to get their opinion of its merits, and have the testimony of Messrs. Turrell, W. Finden, &c., that it is the best, cheapest, simplest, and safest in its operation of any acid yet discovered; and those gentlemen will be happy at any time to meet a committee to explain its qualities. In addition, I have specimens of its performance from several engravers to lay before the society.

I am, Sir,

&amp;c. &amp;c. &amp;c.

*A. Aikin, Esq.**Secretary, &c. &c.*

WM. HUMPHRYS.

The composition of the menstruum is as follows :

Take a quarter of an ounce of corrosive sublimate powdered, and a quarter of an ounce of alum powdered, and dissolve them in half a pint of hot water.

*Directions.*—Let it cool before use. While using it, keep it stirring with a camel's hair brush, and take care to wash the plate perfectly after each biting. As this acid, though clear before use, becomes turbid during its action on the steel, it may be prudent, in fine works, to throw away each portion of acid after it has been on the plate. The taste and experience of the artist must dictate the length of time he may leave it on his plate ; delicate tints are obtained in about three minutes.

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It appears from the experience of those artists who have practised engraving on steel, that several of the menstrua employed in the process technically called biting-in, will succeed with hard steel, but give results by no means so satisfactory when employed on very soft or nearly decarbonized steel. Nitric acid is the essentially active ingredient in all these menstrua ; and the chemist well knows that when this substance is brought in contact with iron, it usually brings part of it to the state of protoxid, which is soluble in the acid, and also reduces a smaller portion to the state of peroxid, which remains, for the most part, undissolved, adhering to the surface of the iron, and thus preventing that deep, clean, uniform biting which it is the great object of the artist to obtain. The presence of carbon, in a finely divided state, has a tendency to prevent, or at

least to retard, the peroxidation of the iron, and this, probably, is the reason why it is less difficult to gain a good result with hard than with soft or decarbonized steel.

The composition employed by Mr. Humphrys contains no nitric acid; and, from the testimony before the Committee of Mr. W. Finden, Mr. Warren, Mr. Romney, and others, who have tried it; and also from the result of experiments made in presence of the Committee, appears to be superior for biting in on soft steel to any menstruum that has hitherto been used.

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No. VI.

DRAWING PEN.

BRYAN DONKIN, Esq., one of the chairmen of the Committee of Mechanics, having procured in France a drawing-pen, which appears to possess some advantages over those made use of in this country, presented it to the Society. The instrument itself has been placed in the repository, and the subjoined figure and description of it are published for the advantage of English artists.

