

7. Limestone with sulphuric acid, pale brown to the thickness of cardboard, beneath slightly coloured.

8. Carbonate of iron with sulphuric acid, black to the depth of a quarter of an inch.

9. Nitrous acid, dark brown more than the eighth of an inch deep, beneath yellowish brown.

10. Nitric acid mixed with exposed ozone powder, blue-black to the sixth of an inch deep, below that reddish brown.

11. Nitric acid mixed with unexposed ozone powder, blue-black to the sixth of an inch deep, below that reddish brown.

These experiments may require some modification, yet they point out the fact that striking differences are apparent, differences which must open up a new method of investigating ozone.

Not only have the tests hitherto used been made without due regard to the pureness of the chemicals and fitness of the material used, but the paper box in which they have been kept is not sufficient for their perfect preservation; a dark, dry, air-tight box is essential; and this should not be opened in a room where there is iodine, chlorine, nitric acid, phosphorus, hydrochloric acid, or other chemicals likely to be injurious to the tests. I am now manufacturing the tests, which will be distributed by Messrs. Negretti and Zambra, and I have constructed a proper box in which in future they will be sent.

II. "On the Equations of Rotation of a Solid Body about a fixed Point." By WILLIAM SPOTTISWOODE, M.A., F.R.S.
Received March 21, 1863.

(Abstract.)

In treating the equations of rotation of a solid body about a fixed point, it is usual to employ the principal axes of the body as the moving system of coordinates. Cases, however, occur in which it is advisable to employ other systems; and the object of the present paper is to develop the fundamental formulæ of transformation and integration for any system.

The integrals found are—

$$p_1 = \sqrt{\frac{k^2 - (S + \theta_2)h}{\theta - \theta_2}} \cos am \left(\sqrt{\frac{\theta_2 - \theta_1}{\nabla}} \sqrt{k^2 - (S + \theta)h} t + f \right);$$

$$q_1 = \sqrt{\frac{k^2 - (S + \theta_2)h}{\theta_1 - \theta_2}} \sin am \left(\sqrt{\frac{\theta_2 - \theta_1}{\nabla}} \sqrt{k^2 - (S + \theta)h} t + f \right);$$

$$r_1 = \sqrt{\frac{k^2 - (S + \theta)h}{\theta_2 - \theta}} \Delta am \left(\sqrt{\frac{\theta_2 - \theta}{\nabla}}, \sqrt{k^2 - (S + \theta)h} t + f \right);$$

where θ , θ_1 , θ_2 are the roots of the cubic

$$(S + \theta)^3 - S(S + \theta)^2 + S(S + \theta) - \nabla = 0,$$

∇ being the determinant of the system A, B, C, —F, —G, —H, S the sum of A, B, C, and S that of the corresponding inverse quantities. Moreover p_1 , q_1 , r_1 are linear functions of p , q , r (the components of rotation about the axes for which A, B, C, &c. are calculated), the coefficients of which are determined in the paper itself.

III. "On the Fossil Human Jawbone recently discovered in the Gravel near Abbeville," in a Letter to the President, by W. B. CARPENTER, M.D., V.P.R.S. Received April 16, 1863.

University of London, Burlington House, W.
April 16, 1863.

DEAR MR. PRESIDENT,—I esteem it a privilege to have it in my power to communicate, through you, to the Royal Society some particulars of the important discovery just made by M. Boucher de Perthes, of a *human maxilla* in one of the gravel-beds near Abbeville also yielding the now well-known flint implements. Having been informed of this discovery a few days since, whilst staying in Paris, I became additionally desirous of carrying out my previous intention of stopping at Abbeville on my way homewards; and accordingly, after a short visit to Amiens,—which gave me the opportunity of disinterring for myself a small but well-characterized flint implement from the gravel-pit of St. Acheul,—I proceeded on the afternoon of Monday last to Abbeville, where I was received with the greatest kindness and attention by M. Boucher de Perthes.

The history of his discovery is given in the following extract from the local journal 'L'Abbevillois,' by which it will be seen that the specimen in question was removed by M. Boucher de Perthes himself from the bed in which the first indications of it had been found by the workman employed in that part of the excavation:—

"A la fin de mars dernier, le terrassier Halatre, travaillant à cette carrière, vint lui apporter avec un silex taillé un petit fragment d'os qu'il y avait également recueilli. Ayant débarrassé ce fragment du sable qui le couvrait, M. de Perthes aperçut une dent fort endommagée, mais qu'il n'en reconnut pas moins pour une molaire humaine.