

### The Cresswell Engravings.

MR. J. WILFRID JACKSON, in his letter to NATURE of June 6, p. 874, refers to the occasion when he first saw these engravings and says, "I also told him it was a mistake to outline the figures in chinese white." I am quite sure Mr. Jackson did not intend it to be so, but, none the less, this is a misleading statement and open to a wrong interpretation. The engravings were not outlined in white, and only one specimen, the reindeer piece, has ever been so outlined. This example is executed in very fine, thin, lines upon bone afterwards scorched black by fire, hence the drawing is not readily seen unless the bone is held at the correct angle. For photographic purposes chinese white was *rubbed* into the lines, as a satisfactory picture could not be obtained otherwise.

Sir William Boyd Dawkins asked me to send the engravings to him for inspection, and photographs were sent with them. As an act of courtesy, the reindeer piece was forwarded in the condition in which photographed, and my covering letter expressly pointed out that it was sent thus outlined to assist him in his examination and that the outlining could be removed immediately by the application of a sponge or damp handkerchief. As neither he nor Mr. Jackson took the trouble to do this, they are scarcely in a position to express a trustworthy opinion upon the character of the lines composing the figure. Had they done so, they would have seen at once that the lines are clean, sharp, continuous cuts, and bear no resemblance whatever to the half-tunnels formed by roots. Mr. Jackson's interpretation of certain selected markings upon an ancient skull are interesting, but no one familiar with the technique of Palaeolithic art could mistake these broken lines upon the portion he illustrates for the handiwork of man.

The authenticity of the engravings from Mother Grundy's Parlour, Cresswell, is testified by the authorities at the British Museum, by Mr. Miles C. Burkitt of Cambridge, the foremost British authority on Palaeolithic art, Prof. Sollas, and others. The considered opinion (with full knowledge of Mr. Jackson's objection) of M. L'Abbé Breuil relative to the specimens was reported in NATURE of May 2, p. 658.

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### Ancient Science.

PERMIT me to supplement two passages in NATURE of June 20.

P. 963, *Accuracy of Weighing in the Eighth Century*.—In 1885 I found a hoard of fifty-eight Athenian tetradrachms of uniform type and unworn condition. I reduced the chloride on each by means of zinc, and so obtained the original weights. The average was 264.2 grains, with a mean variation of 0.6 grain. Thus 4/5 of the coinage of Athens would have passed the remedy of the Mint in modern England. This must evidently have been the result of careful weighing and adjustment. In a group of small Gaulish silver coins, from Chalons-sur-Saône, which I bought in Paris, the average is 29.85 grains and the mean variation 0.33 grain, so it is evident the balance was used in Gaul. Weights are found in prehistoric Egypt so far back as 8000 B.C.

P. 937, *Egyptian Mathematics*.—The most frequent kind of problem in the Egyptian mathematical papyrus, that of dividing a stock of food, seems to be the origin of their fractional system. If 2 loaves have to be divided among 7 people, the obvious way

is to divide the stock into 8 parts, distribute 7, and divide the remaining quarter of a loaf into 7 parts. Thus  $\frac{2}{7}$  naturally becomes  $\frac{1}{4} + \frac{1}{28}$ . The same system was used in dividing the profits of Scotch fishing-boats. The master served out a pound to himself, a pound to each of his crew, and a pound for the boat. When there were not enough pounds to go round, the remainder was changed into half-sovereigns, the next remainder into half-crowns, then shillings, then pence, and finally sweeties. The system seems obvious in all cases where written accounts were not prepared.

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### On the Daily Use of an Immersion Condenser.

IN daily observations on the structure of chromosomes fixed and stained in iron-acetocarmine (see *American Naturalist*, 1921, pp. 573-574), where the limit of resolution in the microscope must be maintained, it has been determined that water is, on the whole, to be preferred to cedar oil as an immersion fluid for the condenser. The corrections necessary are readily made. (1) By centring a large enough meniscus lens from a photographic camera below the condenser (Hartridge); and varying the distance of the light source, and the thickness of the object slide, until the best image of a grating close to the light source is obtained. (2) By unscrewing sufficiently the top lens or lenses of the condenser. Slides can easily be selected of approximately the required thickness. The test for applanatism is, of course, to diaphragm the source of light until its image is equal to or smaller than the field of view, and then observe the light circle at the back of the objective.

Cells in iron-acetocarmine become plastic after a certain time, and can be squeezed flat by slight pressure. When the chromosomes are thus spread out in contact with the cover-glass there is a good opportunity to seek for possible visibility of the chains of genes, either with the Watson dark field condenser of 1.3-1.4 aperture, or with the arc and two tourmalines, as mentioned by Beck in his lately published manual.

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### The Faraday Benzene Centenary and Kekulé.

IN connexion with the benzene centenary, it may perhaps be pointed out that the name Kekulé is not French. August Kekulé, born in Darmstadt (1829; he died in Bonn, 1896), was a descendant of Wilhelm Dionysius Kekule (or Keckhule) von Stradonitz, who came from Bohemia in the seventeenth century. The é was probably adopted to guard against the suppression of the final e; that has been done in other cases. August Kekulé himself spelt his name with é; even in his earliest papers, before he went to Ghent and Bonn, and still in 1890, when his researches on the construction of aromatic compounds and the twenty-fifth anniversary of his benzehe-hexagon (Bonn, 1865) were commemorated by an international Kekulé celebration at Berlin. But he had by that time (1890) resumed the full name A. K. von Stradonitz. The present members of the family spell their name without the accent.

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Chiswick, June 30.