

Des Races Humaines ou Eléments D'Ethnographie. Par J. J. D'Omalius D'Halloy. Pp. 157. 1869. (Williams and Norgate.)

THE author of this treatise divides mankind into five races, distinguished by the colour of the skin—the white, yellow, black, brown, and red races—which he holds to be more reliable than either craniological character or linguistic affinities; adducing against the former, or Retzius' classification, the observation of Brandt that in examining the crania of a large number of beavers he found great variations to exist; whilst in regard to the classification founded on language, admitting that the consideration of language may prove of great service to ethnology, there is yet no identity between the two sciences. He estimates the members belonging to the several great religions of the world as follows: Christianity 380,000,000, Mahommedanism 100,000,000, Buddhism 500,000,000, Brahmanism 100,000,000, other religions 120,000,000, making a total population for the world of 1,200,000,000. M. D'Halloy is unusually orthodox in his opinions, and defends Scriptural authority with more energy than of late years has been customary with anthropological savants.

Studien aus dem Institute für experimentelle Pathologie in Wien aus dem Jahre 1869. Herausgegeben von S. Stricker. (Wien: Braunmüller.)

THIS is another of those German local periodical publications which disturb the minds and pockets of English readers. The time is evidently not far distant when a sumptuary law of publications will become a necessity in Germany. This, the first number of an intended series, is devoted to the histology and physiology of inflammation, and contains papers entitled, "Experiments on Corneal Inflammation," "On Cell Division in Inflamed Tissues," "On Endogenous Formation of Pus Corpuscles in the Conjunctiva of the Rabbit," and others, in all nine in number, contributed by Stricker and his pupils, with a prologue "On the Present State of the Inflammation Controversy," and an epilogue "On the Effect on that Controversy of the Preceding Memoirs," both by Stricker. One paper by Oellacher, "On the Cleavage and Stratification of the Hen's Egg," has only a general and indirect reference to inflammation.

Sketches of Life and Sport in South-Eastern Africa. By Charles Hamilton, F.A.S.L. (London: Chapman and Hall, 1870.)

WE do not understand with what object this book has been published. Of sketches of sport there are few, and none that can compare in interest with the many exciting records of South African adventure in earlier books with which we are familiar. The author's ideas on all subjects connected with natural history are of the vaguest, as where he says, "The Struthionidæ may comprise, for what I know, other species besides those of the ostrich; a geologist would give the reader information on the possibility of these birds existing in some analogous form centuries before the present formation of the globe!" Of sketches of life there are some, but with not much greater claim to novelty. That Mr. Hamilton succeeded in so far divesting himself of European prejudices as to submit to be carried to his bath by twenty buxom Kaffir girls, and after having been ducked by them in the water (an operation which he found "rather agreeable than otherwise"), to be painted over with red earth, may be interesting to himself and his friends, but hardly to the general public. What becomes of the old crinolines appears from the fact that the ordinary costume of a Kaffir school-girl is a necklace and an outrageously large skeleton crinoline without any covering over it. The woodcuts are on a par with the letter-press, and would be a hideous disfigurement to any work of higher literary pretensions.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

Analogy of Colour and Music*

I HAVE read with interest the letters in NATURE of 31st March, on the relation between the harmonies of sound and colour, and I wish to point out that the most important principle of harmonising in colour is one which has no parallel or analogue in sound, except only that, like the harmony of sound, it has a mathematical basis. I mean the law that complementary colours harmonise with each other. The definition of complementary colours is, that any two colours which are complementary and of equal intensity, produce white when combined. In sound, on the contrary, there is nothing analogous to white, and consequently no relation analogous to that of complementaries.

All possible colours except white are colours of the spectrum. Black is only the negation of light, and grey is a subdued or lowered white. Brown tints, which to the eye appear unlike any of the colours of the spectrum, are "merely red, orange, or yellow, of feeble intensity, more or less diluted with white." (Clerk Maxwell, *Philosophical Transactions*, 1860.) "One circumstance, however, must not be left unnoticed here: namely, the difficulty of obtaining [that homogeneous red light which forms the transition between the violet and red of the ordinary spectrum, and which can only be produced by the prism under remarkably favourable circumstances (on a bright summer's noon). This outermost colour of the spectrum, which may be equally well regarded as extreme red or extreme violet, I will call purple In point of fact, the transition from violet to red is just as continuous to the eye as that between any two other colours, though the limit has not yet been fixed by observation at which the same impression of colour is produced by a different duration of vibration." (Prof. Grassmann, *Philosophical Magazine*, April 1864.)

The duration of vibration at the extreme of the violet end of the visible spectrum is about twice what it is at the extreme of the red end. According to Sir John Herschel (*Good Words*, August 1865), the vibrations at the extreme ends of the spectrum, number respectively 399,401,000,000,000 and 831,479,000,000,000; so that those of the extreme violet are a little more than twice as numerous as those of the extreme red, and the power of vision extends through a little more than a large octave.

With these facts before us it is scarcely possible to doubt that the principle of the octave is as true of light as of sound. Any two notes, whereof the vibrations producing the one are exactly twice as numerous in the same time as those producing the other, are in a manner recognised as the same note, the one being the octave of the other. It is in the highest degree probable that the same is true of light, and that "the limit at which the same impression of colour is produced by a different duration of vibration" is at the point where the vibrations of the one are exactly twice as numerous in the same time as those of the other.

Independently of this speculation (which is not a new one), it is a fact of observation, and is indeed only a statement in other words of the fact quoted above from Prof. Grassmann, that the order of the tints in the spectrum is recurrent. According to Prof. Grassmann, the order of the tints is the following:—

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| 1. Red. | 7. Azure. |
| 2. Orange. | 8. Indigo. |
| 3. Yellow. | 9. Violet. |
| 4. Yellowish green. | 10. Purple. |
| 5. Green. | Red again. |
| 6. Bluish green. | |

And he maintains, reviving Newton's theory, that every colour has its complementary in the spectrum;—the series of complementaries being this:—

1. Red + bluish green = white.
2. Orange + Azure = white.
3. Yellow + indigo = white.
4. Yellowish green + violet = white.
5. Green + purple = white.

*The importance of the accompanying letter from Mr. Murphy induces us to reopen a subject which we had considered closed; we append also two others previously received.—Ed.