

In the upright pianos of fifty years ago the hammer was hinged on to a vertical rod called the "hopper" or "sticker," which pulled it back with a variable force, the escapement being *below*, between the hopper and the key. With a shallow touch in such an instrument it is just possible to avoid bringing the escapement into action, and thus not to hasten the return of the hammer, but the effect is decidedly difficult to produce, and the mechanism has become obsolete owing to its unsatisfactory working.

In modern uprights the hammer is more free, for the escapement is a *stage higher*, between the hammer and the hopper; a piece of tape passing from the hammer to the hopper exerts an elastic pull on the hammer, assisting gravity in causing the return of the hammer, but only when the key is released.

In the grand piano the hammer is left as independent as possible, so as to ensure rapid repetition; and I have not yet found or read of a horizontal action in which any accessory mechanism can influence the return of the hammer. Therefore in the horizontal piano (and probably in the ideal upright) the hammer at the moment of hitting the wire is an unencumbered projectile, and the variables (1) and (2) are not separable.

It should be remembered that *staccato* and *legato* effects are functions, not of the hammer, but of the damper. But after all, the most important element in a good touch is the player's ability to strike the different notes in chord with different intensities. The artist instinctively gives their relative importance to the various notes of a chord as surely as to those of a melody; and this is one of the features which distinguish him from the mere executant or the most perfect player-piano.

F. J. ALLEN.

Cambridge, June 10.

#### A Mechanical Vacuum-Tube Regulator.

THE mechanical vacuum-tube regulator, in which the position of a movable glass sheath relatively to the kathode determines the speed of the kathode rays, mentioned in NATURE of June 19 (p. 415) as recently brought before the Cambridge Philosophical Society by Mr. R. Whiddington, is not new, Mr. J. C. M. Stanton, Mr. H. L. T. Wolff, and myself having, in 1898, devised a similar arrangement, which is described and illustrated in the discourse which I gave at the Royal Institution in that year.

We had previously shown, in a Royal Society paper read in 1897, that the speed of the kathode rays is increased by diminishing the size of the kathode itself, and what is new and interesting is Mr. Whiddington's discovery that the mechanical regulator operates by reason of the effective size of the kathode being diminished owing to the electrostatic repulsion of the rays by the negatively charged glass sheath.

A. A. CAMPBELL SWINTON.

66 Victoria Street, London, S.W., June 20.

#### The Crossing of Water by Ants.

It may not be new to observers of animal life, but I have been much interested in watching the common house ant here. We have an American fly-trap: the sugar was one day covered with ants, so I placed the trap on a finger-bowl standing in a plate of water. The ants, when they came to the edge of the water, ran round the bowl until convinced there was no way across, and then calmly "took to the water," and ran across it by aid of surface tension without getting their feet wet. Having presumably been home to the nest, they returned for more sugar, crossing in the same way, and this went on regularly, a steady procession crossing the water.

JOHN C. WILLIS.

Jardim Botânico, Rio de Janeiro, June 4.

NO. 2278, VOL. 91]

#### ETHNOGRAPHICAL WORKS.<sup>1</sup>

(1) THIS magnificent monograph of the races of Borneo, by Dr. Hose and Mr. McDougall, illustrated by an unrivalled gallery of artistic views, covering the life of the natives of that island from the swinging-cot to the grave, will be welcomed with enthusiasm by all classes of readers. The ground had indeed to some extent been prepared by the publication in 1896 of Mr. H. Ling Roth's "Natives of Sarawak and British North Borneo," which actually contained (i., 37), seventeen years before the appearance of the present work, a "List of Tribes in Borneo," specially prepared by Dr. Charles Hose.

The book before us is a singularly happy example of joint authorship. Dr. Hose, with his record of twenty-four years' service and priceless experience under the Sarawak Government, supplemented (as he tells us himself) by his travels in other parts of Borneo, the neighbouring islands of the Archipelago, and the Malay Peninsula, was, indeed, more than ordinarily fortunate in securing a collaborator whose special qualifications as reader in mental philosophy at Oxford were crowned by his experience in the field as a member of Dr. Haddon's famous expedition to the Torres Straits and Borneo in 1898. The chief cornerstone of the book is, of course, the invaluable classification (ii., ch. xxi) of the tribes of Borneo, which is supplemented by an admirable appendix on the statistics and comparative literature of the same subject by Dr. Haddon, who correlates so far as possible the ethnological work of the best Dutch authorities. The classification in the text, described (ii., 224) as resting only "on a slight basis," gives us the mature views of Dr. Hose's unequalled experience, and satisfies us that the foundations of anthropological science in Borneo have here, once for all, been "well and truly laid."

Excluding the coastwise "Malays," the authors recognise six main ethnic groups, viz., Kayans, Kenyahs, Klemantans, Muruts, the nomadic Punans, and Ibans, or Sea "Wanderers," commonly called "Sea Dayaks." But since (ii., 245) both Kenyahs and Klemantans are "sections of the aboriginal population of nomadic hunters (Sc. Punans) who have absorbed Kayan culture," these six clearly represent but four original stocks, viz., Kenyah-Klemantan-Punans, Kayans, Muruts, and Ibans; and this agrees with the statement made elsewhere that "the present population of the island is derived from four principal sources," the last three being regarded by the authors as later immigrants.

The members of the first group are identified as "Indonesians," that much-misused term which, as

<sup>1</sup> (1) "The Pagan Tribes of Borneo." A description of their Physical, Moral, and Intellectual Condition, with some Discussion of their Ethnic Relations. By Dr. Charles Hose and William McDougall, F.R.S. With an Appendix on the Physical Characters of the Races of Borneo, by Dr. A. C. Haddon, F.R.S. Vol. i., pp. xv+283+143 plates. Vol. ii., pp. x+374+211 plates+4 maps. (London: Macmillan and Co., Ltd., 1912.) Price 42s. net. 2 vols.

(2) "In the Shadow of the Bush." By P. Amaury Talbot. Pp. xiv+500+plates+map. (London: W. Heinemann, 1912.) Price 18s. net.

(3) "Monumental Java." By J. F. Schelteema. Pp. xviii+302+x1 plates. (London: Macmillan and Co., Ltd., 1912.) Price 12s. 6d. net.

defined by the authors, means a predominantly "Caucasic" (and dolichocephalic) race modified by Mongol admixture, the latter strain supplying an element which, as the authors remark (ii., 228), has been wrongfully ignored by some writers. The second main stock is the brachycephalic "Malayan" or "Southern Mongol" element, called "proto-Malays" both by our authors and Dr. Haddon. This element is described (ii., 229) as "a blending of the Mongol stock (or of a part

which occurs both in the Malay Peninsula and the Philippines, seems now to be in total default in Borneo, and of Melanesians, according to Dr. Haddon, there are also no traces. It should be noted that Dr. Haddon (ii., 313) regards the Punans and Kenyahs as "mainly proto-Malayan in origin," whereas the authors classify them definitely as Indonesians.

It would take many pages of NATURE to do full and adequate justice to all sections of this book.

A veritable museum of Bornean ethnology, its cases contain, as in the matter of the Kayan headhunting cult (the stupid European exaggerations about which receive satisfactory castigation, i., 76), weird forms of burial, *tatu* rules, strange forms of spirit-worship and possession, and so forth, many of the most suggestive specimens of modern race-lore.

We may conclude with an item of personal interest in reference to totemism. In vol. ii. (p. 112 and footnote) Messrs. Hose and McDougall, boldly heterodox, avow and give reasons for their belief in the possibility of deriving the clan totem from that of the individual. Upon this very point Mr. Lang, in 1908, remarked to the present writer: "I am unable to conceive the reason, when everybody has his own *ngarong*, which he has not hitherto bequeathed, for a rule that Mary's or Jane's *ngarong* must for ever belong to her descendants. . . . Given the individual with his *rapport*, no one has shown how it became hereditary, in the female line, at a time, too, when the man's children (or the woman's) had also *their* individual *rapport*."

The writer of the words just cited *silet*, alas, *aeternumque silebit*, but the controversy continues, and it should, perhaps, in justice be conceded that the case made out by Messrs. Hose and McDougall is, so far as it goes, a strong one. It would have been interesting if they could have told us of any communities where the children were regularly named after plants or animals, or other natural objects. We must not, however, be led into a discussion on the origin of totemism, which is too large a question to discuss here, and must therefore recommend the authors' views to the attention of the advance guard of totemic experts.

(2) Mr. P. Amaury Talbot's "In the Shadow of the Bush" gives us an intensely vivid and illuminating picture of the Ekoi, a semi-Bantu people of the south-east corner of Nigeria, a region that recalls the mingled mystery and horror of—

Enter these enchanted woods,  
Ye who dare. . . .  
Thousand eyeballs under hoods  
Have you by the hair!

Here all is blasted by the terrible blight of negro witchcraft. Indeed, the attention will doubtless



FIG. 1.—Youthful Sea Dayaks in gala dress. From "The Pagan Tribes of Borneo."

of the Indonesian race) with darker" proto-Dravidian stock, "of which the Sakai of the Malay Peninsula (and perhaps the Toala of Central Celebes) seem to be the surviving representatives in Malaysia." Thus the chief factors in the population are due to varying blends of two main stocks, the one Indian, the other Mongolian, these elements agreeing with those that are found, though quite differently blended, on the neighbouring mainland of Asia. Yet the negrito element,

be immediately riveted by the account of the Human Leopard and Alligator Societies (first revealed to most Englishmen by the writings of the late Mary Kingsley), the late (1912) activity of which recently drove the local Government to action and provoked an interchange of questions in the Imperial Parliament.

Ethnography in the widest sense, linguistics (especially on the Bantu affinities of Ekoi and on its secret signary, "Nsibidi"), folklore, native art, even archæology, all these, with much valuable natural history, go to make up a fascinating volume full of direct and irresistible appeal. The achievement is worthy of one who, besides his administrative experience, can claim to have made

defiance of the protests of Dutch scholars, whose noble efforts, like those of Raffles (pp. 55, 76, 238), are freely acknowledged. The work clearly illustrates the real significance of "Boro Budoor" as a sculptured record of the history of Buddhism, the type being that of the Mahayanistic or northern Church (pp. 222, 235), not the Hinayanistic or southern type, as was claimed for his Church by the late royal visitor. W. W. SKEAT.

#### THE BRILLIANT FIREBALLS OF JUNE 14.

ON June 14 at 8h. 4m., when the sun was shining, and at 10h. 0m., in the bright moonlight, very large meteors made their appearance.

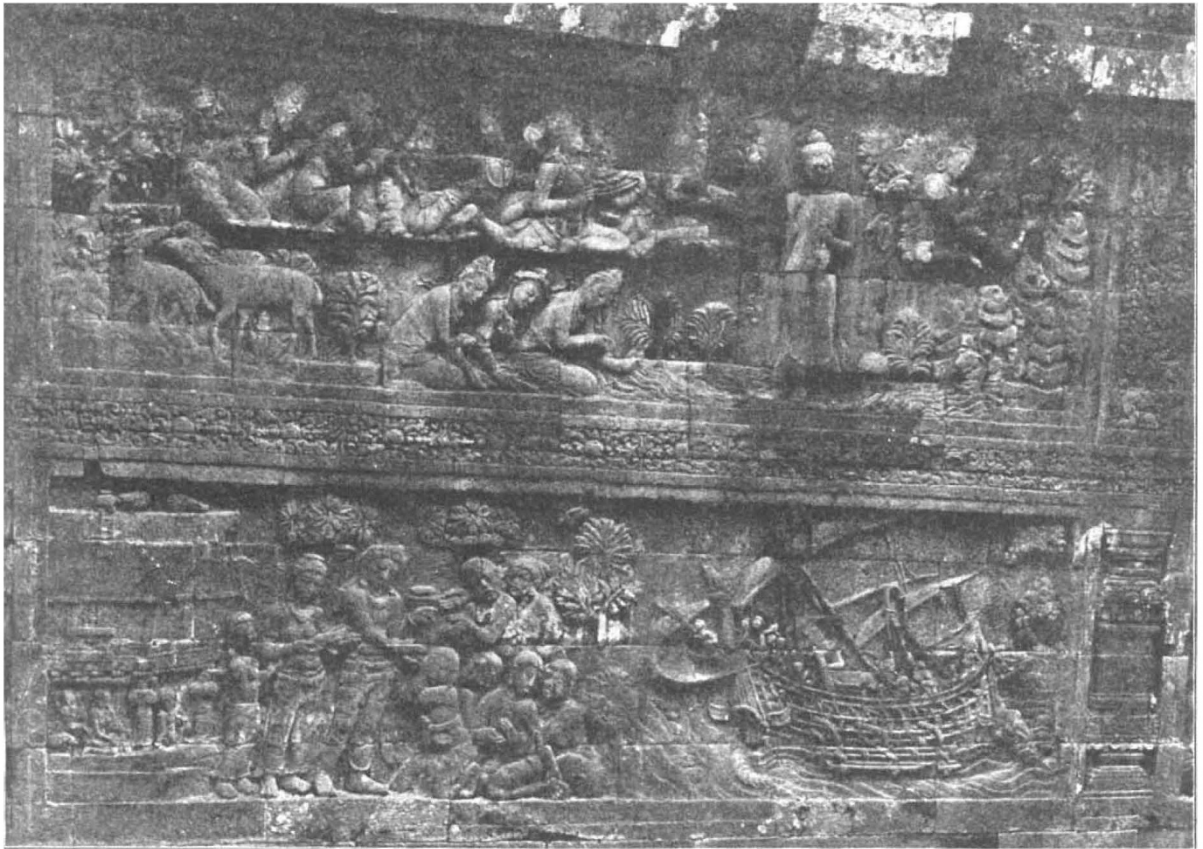


FIG. 2.—Reliefs of the Boro Budoor. From "Monumental Java."

history in companionship with the late Boyd Alexander.

(3) The record of official ineptitude and rapine pictured in Mr. Scheltema's erudite and enlightening "Monumental Java" is almost incredible. Thus (p. 240) Mr. Scheltema, with biting sarcasm: "We are told in legendary lore of statues which flew through the air . . . dissolving into space; the statues of the Boro Budoor developed that faculty in an astonishing degree!" The climax was reached in 1897, when the late King of Siam, on his visit, was invited and allowed to remove (p. 244) from that "superb temple, whose soul is the soul of Java," eight cartloads of irreplaceable statuary! Such vandalism was in

The former gave a startling flash, even in the daylight, and the latter was strikingly brighter than the moon, according to the testimony of several observers.

Neither of the fireballs passed over any part of England, though witnessed by many persons from the eastern and south-western counties respectively. The earlier fireball at 8h. 4m. appeared over the sea off the eastern coast near Harwich and Aldborough, and it had numerous spectators in Kent, Essex, Suffolk, and Norfolk. The other passed above the sea far west of Land's End, and had a long and horizontal flight of 490 miles directed from south-east to north-west from over L'Orient, about sixty miles south-east of Brest