

are quite exceptional. While words seemed colored to them only when spoken very slowly and separately, and then simply take on the colors of the component sounds, particularly the vowels, the names of the numerals have distinct colors which are entirely different in father and daughter. Intense thought of a sound can bring up the color just as really hearing it does.

EXPLORATION AND TRAVEL.

Stanley's march.

ADVICES from Bansa-Manteka (about midway between Banana and Stanley Pool), dated March 29, say, "Mr. Henry M. Stanley, with his expedition for the relief of Emin Bey, has arrived here. All the members of the party are well. Mr. Stanley has decided to take a route by way of Stanley Falls for Emin's camp at Wadelai. He will restore the authority of the International association at Stanley Falls, install Tippo-Tip, and afterward ascend the Mburu, which is now known to be for a great part navigable. At the point where navigation ceases, the caravan will start across the country, striking the Albert Nyansa at Murswur, where Stanley intends to form a fortified camp, and then send in advance boats to inform Emin of the arrival of the expedition, and solicit transportation to Wadelai by Emin's two steamers. The caravan, which presents an imposing spectacle, is about to leave here for Leopoldville. Four bodies consisting of twenty-five men each, commanded by Europeans, will go in advance to drive off the marauders guarding the route. The association's steamer the Stanley, the Livingstone mission steamer Henry Read, and the trading steamer Florida, will wait at Leopoldville to carry the expedition to the upper Kongo. The enterprise has caused a sensation among the natives. Many men from the factories at Banana and Boma are flocking to join the expedition, news having spread of the return of the 'white prophet' who will restore order among the people."

This report confirms the views expressed in some letters on the state of affairs on the Kongo, published by the Paris geographical society, to which we referred in *Science* of April 1, saying that the intercourse on both banks of the Kongo as far as Stanley Pool was interrupted by the natives attacking the caravans. Slow though the progress be, we may hope, however, that the Kongo association will succeed, after all, in opening central Africa to commerce. Even the bitterest enemy of the association cannot deny that great progress has been made since the first steps of opening the Kongo route were taken. Though

the aspect is not so glowing as the association represents, we are confident of the final success of the numerous efforts for gaining a foothold in the Kongo basin.

Stanley's route leads through one of the most unknown parts of Africa, the exploration of which will lead to the discovery of the watershed between the upper Kongo and the Mvutan Nsige.

NOTES AND NEWS.

THE Congress of German teachers, to be held at Gotha during the latter part of this month, will discuss the following questions: 1. In what respects can the school contribute to the solution of the social question? 2. Is the standard of morality among the masses higher than formerly, and, if so, how much of the credit of this is due to schools? 3. What external circumstances have a beneficial, and what have a detrimental, effect upon the work of the teacher? 4. How can history be used as a means of forming character? 5. The teacher as educator. 6. Is the continuance of public examinations desirable or not? 7. The educational value of singing. 8. The regular hygienic inspection of the school by a physician. 9. Educational walks with the pupils as object-lessons. 10. Instruction and reading books on the principle of the *Realschule*. 11. Discipline the *sine quâ non* of school-education. 12. Refuges for boys and girls. 13. Reformatory education. 14. The education of girls. 15. The need for a general simplification in the present spelling. 16. The exercise of the franchise by the teacher, both at general and municipal elections, is of the highest importance.

— The schools of Vienna are henceforth to give instruction in civics as part of the regular elementary teaching. This step is taken in accordance with a municipal decree.

— The prize of 25,000 francs, offered by the King of the Belgians for the best essay on the best means of improving the study and the teaching of geography, has been awarded to Anton Staubers, professor at the gymnasium at Augsburg.

— Sir Henry Sumner Maine, well known as the author of 'Early history of institutions,' 'Ancient law,' and 'Popular government,' has been chosen Whewell professor of international law at the University of Cambridge, in succession to Sir William Vernon Harcourt, resigned.

— Lord Rosebery is to be the Liberal candidate for the lord-rectorship of Glasgow university at the next election.

— Vienna university has now 6,135 students on its books.

— Harvard's two hundred and fiftieth anniversary and Columbia's one hundredth seem insignificant when we read that the University of Bologna will next spring celebrate the eight hundredth anniversary of its supposed foundation, the exact date of which is not known.

— M. Bernard Perey, whose books on infant and child psychology have been so successful, is at work on another of the same character, entitled 'La petite fille.'

— The University of Utrecht has now 37 professors, — theology, 4; law, 7; medicine, 9; science, 10; letters, 7, — 7 lecturers, and 5 priv-docents. 541 students are attending the university.

— After a heavy shower in Washington last week, the gutters and low places were covered with a deposit of fine yellow powder. Professor Ward pronounced it vegetable pollen, which came from the pine-trees of the district. It was very light, and was carried into the upper regions and washed out by rain. Professor Ward said, "It is the male element of the pine-trees, which usually shed their pollen at this season. It consists of minute grains, like little spores, and to the naked eye looks like yellow dust, but, subjected to the microscope, the grains have different shapes, which differ with the varieties of pine. It is common wherever pine-trees exist."

— The U. S. geological survey will collect all attainable information regarding the recent earthquakes in Arizona. Circular letters of inquiry will be sent to residents on the area affected, as usual. The disturbed area seems to be a circle of some four hundred miles radius, fully one-quarter as large as the Charleston earthquake, and nearly one-third of the area of the Riviera earthquake of last February.

— Dr. Sternberg left, May 3, for Rio de Janeiro, to investigate yellow-fever. He expects to return in September.

— Houghton, Mifflin & Co. have just published, in the 'American commonwealths' series, Prof. Alexander Johnston's history of Connecticut. Lee & Shepard have in preparation new editions of 'Milch cows and dairy farming' and 'Grasses and forage-plants,' by C. L. Flint of the Massachusetts state board of agriculture. Both are being carefully revised, and brought down to date.

— Sir Austen Henry Layard is now preparing for the press his early adventures in Persia, Susiana, and Babylonia, which will include an account of his residence among the Bakhtiyari and other wild tribes before the discovery of Nineveh. It will be published by Mr. John Murray.

LETTERS TO THE EDITOR.

*.*The attention of scientific men is called to the advantages of the correspondence columns of SCIENCE for placing promptly on record brief preliminary notices of their investigations. Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

The editor will be glad to publish any queries consonant with the character of the journal.

Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

Osteological notes.

In *Science* for April 15, Mr. F. A. Lucas takes very courteous notice of my observations upon the rudimentary metacarpals of *Bison bonasus* (the auroch). As I remarked therein, the data were altogether too fragmentary upon which to draw conclusions. Still, it would seem, so far as my observations go, that the American bison exhibits only one rudimentary metacarpal, and that one invariably the fifth; while the European bison, according to Owen, develops both second and fifth. The skeleton in the Museum of comparative zoölogy presents only one, the second, without a trace of an articulating facet for the fifth.

I have again carefully examined the eight disarticulated and the two mounted skeletons of the *Bison americanus* in this museum, and in not one do I find a trace of an articulating facet for the second metacarpal. In *Bos taurus* the same is true, with the exception that occasionally, in place of the second metacarpal, there is present a very rudimentary styloid completely ankylosed to the cannon bone, and appearing as an exostosis. It could not be termed in any sense a rudimentary metacarpal.

Mr. Lucas says that an examination of four or five of the skeletons of *Bison americanus*, with which the U. S. national museum has lately provided itself, shows that in every case, rudiments of the second and fifth metacarpals are present, and that, as they are all *in situ*, there can be no mistake in the matter.

Possibly Mr. Lucas and myself differ as to what constitutes a rudimentary metacarpal; and I maintain that a distinct metacarpal, however rudimentary, requires the presence of an arthro-dial facet upon the corresponding surface of the cannon bone. Nor do I believe, that, once such facet is developed, it ever disappears.

I can find no authority, except Owen on *Bison bonasus*, that speaks of the Bovinae as having more than one rudimentary metacarpal, and that the fifth.

If, as Mr. Lucas says, "there exists on the mounted skeleton of *Bison americanus* in the U. S. national museum a well-defined articular facet for the second right metacarpal," I yield.

At present my personal observation allows me to make the following deductions:—

1. That *Bison americanus* exhibits only a single rudimentary metacarpal, and that invariably the fifth.

2. That *Bison bonasus* may exhibit one or both rudimentary metacarpals; if only one, that this may be either the second or fifth. D. D. SLADE.

Cambridge, April 19.

With Dr. Slade's permission, I will add a few lines to his polite rejoinder to my note of April 15, he having kindly permitted me to read it before publication.

I fear I must indeed differ with Dr. Slade as to what constitutes a rudimentary metacarpal, holding that a bone, be it never so small, if constantly found