

it is probable that a longitudinal splitting of the chromosomes takes place. Doflein does not find any evidence of such in process. In the absence of conclusive proof it is impossible to decide which of these two accounts is correct.

SCIENTIFIC JOURNALS AND ARTICLES.

The Plant World for August contains, besides short articles, notes and reviews, 'August Days,' by John Burroughs; 'Notes from Western Kentucky,' by Sallie F. Price, and, under the caption 'A Scanty Flora, a description of that of Bird Rock, Gulf of St. Lawrence,' by Henry E. Baum. But three species of plants are found on this islet: *Poa compressa*, *Achillea borealis* and *Plantago maritima*. Pauline Kaufman continues 'Orchids in Central Park,' and John Gifford describes 'The Dwarf Mistletoe, *Razoumofskya Prusilla*.' L. H. Pammel discusses 'Rare Plants and their Disappearance,' the drying up of sloughs and the overpasturing of the woodlot being accountable for the small numbers of the plants mentioned. In the supplement devoted to 'The Families of Flowering Plants,' Charles Louis Pollard describes the Trigonaceæ and other families of the Germinales and begins the description of the Sapindales.

The News Bulletin of the Zoological Society of New York appeared in new form with its last (July) issue, having been reduced to a small quarto about the size of *SCIENCE*. Besides a number of views of animals living in the park, there is a cut showing the state of the monkey house in June. The completion of a restaurant and of the Service Building is announced, and many improvements in the buildings and grounds are noted. Six species of mammals, twelve of birds and eight of reptiles were born in the park this present season. A special feature of the New York Zoo is its collection of reptiles, and the additions to this have been numerous during the first six months of the year.

The Osprey for July brings this periodical nearly down to date, and the August number is promised at an early day. The present issue contains besides shorter articles 'Camping on the Old Camp Grounds,' by Paul Bartsch;

'Stephen's Whip-poor-will,' by J. H. Riley; 'The Malar Stripe of Young Flickers and the Moults,' by William Palmer; 'The Blue Grosbeak in Eastern Kansas,' by Walter S. Colvin, and the sixth instalment of 'The Osprey or Fish-hawk; its Characteristics and Habits,' by Theodore Gill.

SCIENTIFIC journals are not often sold, and it is consequently a matter of interest that the market value of a special journal has been ascertained by the sale of the *Botanisches Centralblatt* to the International Association of Botanists. According to the *Compte Rendu* of the recent congress the price was 37,500 Marks, and the present editor, Dr. Uhlworm retains his position for five years, and if subsequently superseded receives an indemnity. About half the amount has been subscribed, and the balance has been advanced by the publisher, J. E. Brille, of Leipzig, who is to be paid 4 per cent. interest.

DISCUSSION AND CORRESPONDENCE.

DISCORD AND PSYCHOLOGY.

TO THE EDITOR OF *SCIENCE*: In the issue of *SCIENCE* for August 30 Mr. Max Meyer calls attention, in a discussion of 'Discords and Beats,' to a supposed error in my review of a recent book on physics, where I referred to Mayer's law expressing the duration of the residual auditory sensation as a function of vibration frequency. He is right in thinking it rare to find physicists well up with current psychological literature, a fact necessitated by the immense mass of literature now in all departments. This fact excuses Mr. Meyer for having apparently failed to read the investigations of Professor Mayer on this subject, which were published in the *American Journal of Science* (Oct., 1874, April, 1875, and Jan., 1894). This physicist did not assume that discord was necessarily due exclusively to beats. His own conclusions were tested in 1875 by a trained musician whose deliverances were given without considering anything else than the perception of discord. This was a purely psychological investigation, therefore, so far as musical sensation was concerned. If the psychologists have some time since agreed that discord cannot be defined by beats, this negative conclusion does not estab-

lish the proposition that all discord is wholly independent of beats. Whether it be due wholly or partly to beats or to something else quite unknown as yet, Mayer's curve is sufficient to disprove the statement that the maximum of discord is due to always the same number of beats, whatever may be the pitch.

It was not my intention to publish any detailed criticism of the point to which I took exception in my review of the book of physics under examination. But Mr. Meyer will probably agree with me in objecting to the following sentences, which may now be quoted: "One cause of discord is the presence of beats between the two notes, and the greatest discord results when the beats are about 32 per second. If the number of beats is fewer than 10 per second, they are not agreeable, but do not produce discord. Discord is caused by sounding together notes that give more than 10 and less than 70 beats per second." Whatever may be the cause of discord now agreed upon among psychologists, Mayer's law comes nearer to being a statement of the truth than the sentences just quoted. The author is creditably cautious in assigning the presence of beats as 'one cause.' Presumably it may not be the only cause. But his quantitative statements warranted my criticism that he had "defined 'discord' more sharply than the facts warrant by failure to recognize Mayer's law."

If Mr. Meyer will criticise the quoted sentences from the standpoint of the psychologist he will doubtless confer a favor upon physicists who have not kept up with recent advances in psychology.

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MAGAZINE ENTOMOLOGY.

It has been the habit to charge newspapers with the dissemination of scientific misinformation, and undoubtedly with considerable justice. But they are not the sole sinners. In the September number of *McClure's Magazine* there is a paper entitled 'Next to the Ground; Stories and Scenes of Farm Life,' by Martha McCulloch Williams. The amount of misinformation it conveys cannot be equalled by any bit of

newspaper writing, and for ignorance on the part of the author it is certainly entitled to the palm. First, we have information about the dragon fly, and the superstition concerning snakes that is connected with it; that is all right; but we are immediately afterward informed that it begins its early life as a fat white grub, variously known as Hellgrammite, dobsen, etc. Now, in the first place, the hellgrammite is neither white, nor fat, nor is it a grub; and in the second place, it has absolutely no connection with the dragon fly.

From any elementary work on entomology, national or foreign, the writer could have obtained an accurate life history of the dragon fly, and also information as to the adult stages of the hellgrammite. She may have seen a dragon fly; she certainly never saw a hellgrammite to know it. Then we learn something about the locusts, and most interesting, we are told that the eggs are laid in the pith of dying twigs. So much has been written about these insects that it does seem as if the authoress might have known better than to make an assertion of this kind. Pithy stems are rarely used by locusts, if at all, and dying twigs are never attacked. The eggs are always laid in growing shoots, and in the wood itself. I wonder where she saw the black beetles or 'Betty bugs' that were three inches long? She speaks of them as 'Scarabs,' and the largest of these, occurring in the United States entitled to that name, are not more than one inch in length.

More marvelous than anything else is the description of the change from the tumble bug, black and loutish, into a 'June bug,' green all over, with copper yellow tints on the legs, etc. Where in the world this information came from, if it was not the product of overstrained imagination, seems incomprehensible. In fact, reading the entire paper, which covers eight pages, there is more dense ignorance and absolute misinformation crowded into it than I have seen anywhere on a similar subject within the last decade. And what there was in it anywhere, to recommend to the editor its publication, seems almost beyond finding out. There has been of late years a great revival of interest in natural history. We have had many useful and accurate books, including the topics on which Martha