

first part of the Report is concerned with the six summer excursions of the club in 1872, interesting accounts of the history, antiquities, and natural history of the various places visited being given. Of the papers contained in the volume, we mention the following:—"The Lignite of Antrim and their Relation to the True Coal," by Mr. William Gray, in which the author considers the subject both geologically and economically. The Rev. Dr. MacIlwaine, in a paper on "Life," gives an account of the various theories as to the nature of life held by philosophers from the earliest times to the present day. A different aspect of the same subject is discussed in Mr. Robert Smith's paper on "Darwinism," in which the author briefly sketches the nature of the Darwinian theory of development, and gives practical exemplifications of its working in every-day life. Mr. William Gray gives an entertaining account of some of the doings of the notorious "Flint Jack" in Ireland; and the longest paper in the volume, by the Rev. Edmund M'Clure, is one of considerable ethnological value, on "Family Names as indicative of the Distribution of Races in Ireland." The Society offers a considerable number of prizes, competition for which will no doubt tend to encourage the practical study of the various subjects with which the Society is concerned. Altogether it seems to be in a thoroughly healthy condition.

LETTERS TO THE EDITOR

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

Prof. Young and the Presence of Ruthenium in the Chromosphere.

I HAVE been asked by Prof. Young, of Dartmouth College (U.S.) to say, with reference to the statement made on p. 244 of the third edition of my "Spectrum Analysis" concerning the presence of Ruthenium (Ru) in the solar atmosphere, that possibly by a *lapsus calami* he may have written the symbol (Rb) when giving the information of his discovery to Dr. Huggins, from whom I received a note on the subject.

Although, in accordance with Prof. Young's desire, I make these remarks, I cannot help feeling that they are quite unnecessary, as no one who knows the careful exactitude of Prof. Young's work could for a moment suppose that he was capable of making a confusion between Rubidium and Ruthenium.

H. E. ROSCOE

Owens College, Manchester, Nov. 4

The Miller Casella Thermometer

I WAS surprised on reading Messrs. Negretti and Zambra's letter published in your journal of October 23.

I was under the impression that it had been conclusively established that the principle upon which the Casella-Miller or Miller-Casella Deep-Sea Thermometer is constructed is identical with the one originally made in 1857 by Messrs. Negretti and Zambra at the suggestion of Mr. Gaisher, F.R.S., by the late Admiral Fitz-Roy's directions for the Board of Trade.

I was present when Mr. Scott, F.R.S., Director of the Meteorological Department of the Board of Trade, read a paper upon the subject at the Meteorological Society, January 17, 1872; he said:—"I submitted one of these instruments, made for the late Admiral Fitz-Roy, to hydraulic pressure; it proved good and trustworthy. The history of these instruments was perfectly familiar to many gentlemen interested in deep-sea soundings in 1869."

I may add that I saw the original instrument at the Hydrographic Office ten years ago; in justice I am bound to say that Messrs. Negretti and Zambra were the first manufacturers of a deep-sea thermometer unaffected by pressure.

208, Piccadilly, Oct. 29

P. PASTORELLI

Captain Hutton's "Rallus Modestus"

IN the notice of the current *Ibis*, which appeared in Vol. viii. p. 519, reference is made to a paper by Captain Hutton, con-

tending for the validity of his *Rallus modestus*, as distinct from *R. dieffenbachii*.

The next number of the *Ibis* will contain my reply to Captain Hutton's communication. In the meantime I will merely state that the whole of his argument rests on the assumption that *Rallus dieffenbachii* and *R. philippensis* are the same, in which he is entirely mistaken.

It is a fallacy, therefore, to suppose that because he has shown his bird to be distinct from *Rallus philippensis*, with which he compares it, he has proved it to be distinct from *Rallus dieffenbachii*, which, by his own admission, he has never seen.

Oct. 18

WALTER L. BULLER

Flight of Birds

IN NATURE, vol. viii. p. 86, Mr. J. Guthrie calls attention to, and asks explanation of, a curious phenomenon in the flight of birds observed by him:—"In the face of a strong wind," he says, "the hawk remained fixed in space without fluttering a wing for at least two minutes. After a time it quietly changed its position a few feet with a slight motion of its wings, and then came to rest again as before, remaining as motionless as the rocks around it."

I have often observed the same phenomenon, but, until recently, not carefully enough to warrant any attempt at explanation, though always convinced that it was *not* due to any invisible vibratory motion of the wings, as suggested by Mr. Guthrie. During the past summer, however, while on a tour through the mountains of Oregon. I had a fine opportunity of watching very closely a large red-tailed hawk (*Buteo montanus*) while performing this wonderful feat, and of noting the conditions under which alone, I believe, it is possible. These conditions are precisely those described by Mr. Guthrie, viz., a steady wind, blowing across an upward slope, terminated by a ridge. For a half-hour I watched the hawk, with wings and tail widely expanded, but motionless, balancing himself in a fixed position for several minutes in the face of a strong wind; then changing his position and again balancing, but always choosing his position just above the ridge.

I explain the phenomenon as follows:—The slope of the hill determines a slight upward direction to the wind. The bird inclines the plane of his expanded wings and tail very slightly downwards, but the inclination is less than that of the wind. Under these conditions it is evident that the tendency of gravity would be to carry the bird forward and downward, while the wind would carry him backward and upward. The bird skilfully adjusts the plane of his wings and tail, so that these two opposing forces shall exactly balance. He changes his place and position from time to time, not entirely voluntarily, but because the varying force or direction of the wind compels him to seek a new position of equilibrium.

JOSEPH LE CONTE

Oakland, Cal., U.S., Sept. 19

Collective Instinct

IN response to the appeal which closes Mr. Buck's interesting letter (NATURE, vol. viii. p. 332), the following instance of "collective instinct" exhibited by an animal closely allied to the wolf, viz., the Indian jackal, deserves to be recorded. It was communicated to me by a gentleman (since deceased) on whose veracity I can depend. This gentleman was waiting in a tree to shoot tigers as they came to drink at a large lake (I forget the district) skirted by a dense jungle, when about midnight, a large Axis deer emerged from the latter, and went to the water's edge. Then it stopped and sniffed the air in the direction of the jungle, as if suspecting the presence of an enemy; apparently satisfied, however, it began to drink, and continued to do so for a most inordinate length of time. When literally swollen with water it turned to go into the jungle, but was met upon its extreme margin by a jackal, which, with a sharp yelp, turned it again into the open. The deer seemed much startled, and ran along the shore for some distance, when it again attempted to enter the jungle, but was again met and driven back in the same manner. The night being calm, my friend could hear this process being repeated time after time—the yelps becoming successively fainter and fainter in the distance, until they became wholly inaudible. The stratagem thus employed was sufficiently evident. The lake having a long narrow shore intervening between it and the jungle, the jackals formed themselves in line along it, while concealed within the extreme edge of the cover;