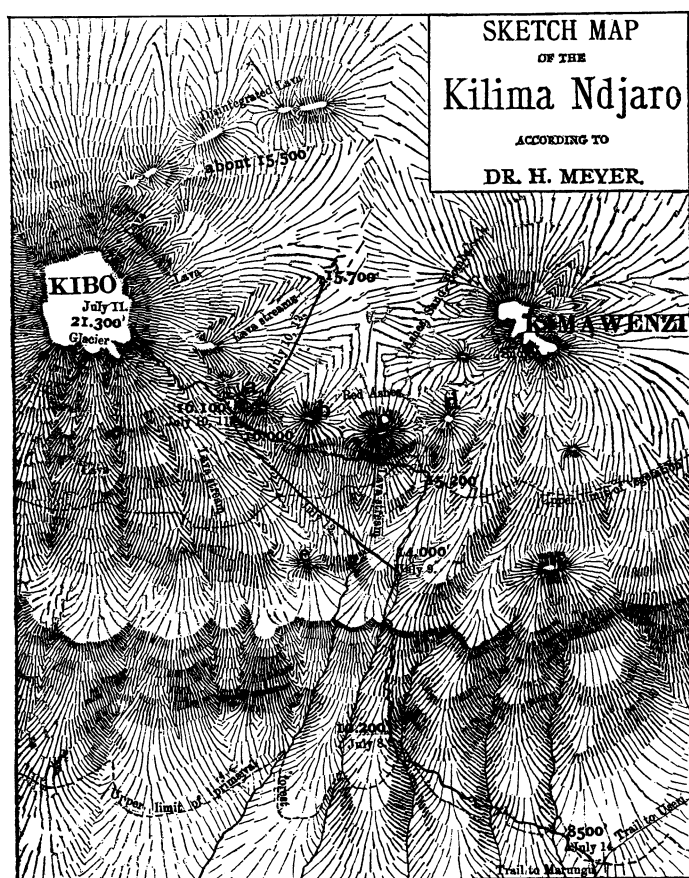


EXPLORATION AND TRAVEL.

Dr. H. Meyer's Ascent of the Kilima Ndjaro.

IN a letter to the Geographical Society of Leipzig, which has been published in *Petermann's Mittheilungen*, Dr. H. Meyer describes his ascent of the Kilima Ndjaro. On July 2 he left Taweta, and, after a two days' march through steppes and brushes, he reached, in company with Herr von Eberstein, the village of Mareale, a chief of the Marangu. He was kindly received, and Mareale gave him three guides, with whom and twenty-two men of his caravan he started for the Kibo, the higher summit of the Kilima Ndjaro. At a height of 5,700 feet they passed the last plantations of bananas, and entered the primeval forests, which are always full of mist, at a height of 6,600 feet. After two days, having passed these forests, they reached the grassy belt surrounding the upper part of the mountain. Here they left the trail which leads along the south-eastern slope of the Kimawenzi to Useri, and turned north-westward, following the upper limit of the forests. At the



end of the second day they reached the place where, in 1884, Johnston had staid for some time, at a height of 9,800 feet. Here part of the caravan remained, but eight men volunteered to carry tent, blankets, instruments, and provisions to the snow-line. The route led over grass-covered streams of lava, which were intersected by gulches of 150 feet depth, cut by the torrents which come from the snow-fields of the summit. From here the saddle between the Kimawenzi and Kibo appears almost horizontal. The travellers ascended a lava-stream, and soon reached a gently sloping region where meadows indicated the course of the brooks. Here the first patches of snow were met with, and Meyer left here his tent on the 9th of July, at an elevation of 14,000 feet.

On the 10th, when Meyer intended to strike camp, five of his servants refused to accompany him any farther, and therefore they were left behind, while the rest of the caravan continued their march. After a short time they reached the steep, fissured hill *c*, from which the lava-stream had come on which they travelled the preceding day. Here they discovered the series of parasitic craters *a*, *b*, *c*, *d*, from which numerous lava-streams have flowed southward.

Some of these are separated by deep valleys, while others form a continuous plateau which stretches out far northward between the Kimawenzi and Kibo. Meyer proceeded near the southern part of these hills at a mean elevation of 16,000 feet, and made his last encampment at the foot of the hill *a*. As the night promised to be very cold, he sent his three negro servants back to the previous camp, and ordered them to return the next day. Thus he and Von Eberstein were alone, and passed the following night at a temperature of -11° C. (12° F.) in their small tent. After a careful examination of the cone of Kibo with a spy-glass, Meyer concluded that an ascent on the south-eastern side was possible. But on the highest summit a light blue wall of ice was seen, which extended to a lower level on the south side of the mountain. In the beginning of the next day, after having passed lava-streams covered with large boulders, the travellers reached continuous steep snow-fields filling the rounded valleys between enormous lava-streams. Johnston had reached this point, and a little farther to the north Count Teleki had attempted an ascent a few weeks before Meyer's arrival. In the morning the weather was clear, the snow hard, and therefore the travellers succeeded in reaching a considerable elevation; but after three hours' climbing, fog set in. In the beginning the mist was light, and the summit of the mountain could be seen occasionally. Wherever a lava-stream crosses an older one, a new snow-field begins, steeper than the preceding. At such points the travellers staid for a few minutes, making barometrical observations and collecting rock specimens and lichens. They were careful not to ascend too rapidly, as work in elevations of more than 17,000 feet in height is extremely exhausting. Later in the day the fog became thicker, the highest parts of the mountain became invisible, and the sun disappeared. The temperature fell from 8° C. (46° F.) to -30° C. (27° F.), and a snow-storm set in, which threatened to obliterate the track. About half an hour later, Herr von Eberstein began to fall back, and after a quarter of an hour more his strength left him. As they were not far distant from the rim of the crater, Meyer proceeded alone, and notwithstanding giddiness, breathlessness, and exhaustion, succeeded in ascending the last steep snow-field. Here the slope became less steep, and, after having climbed over a field of gigantic boulders of ice, he reached the ice wall which he had sighted from the last camp. It is about 100 feet high, and inaccessible without the help of several expert guides and a great apparatus of ropes, ladders, etc. Although Meyer did not reach the rim of the crater itself, he concludes that it is probably filled with ice, as the ice wall projects over it on all sides. After having observed the barometer and thermometer, he returned to where he had left Von Eberstein, who had meanwhile observed the boiling-point thermometer. After a rest of about a quarter of an hour, they continued their descent, and reached their tent after an absence of seven hours. On the following morning the northern part of the saddle was visited for making topographical observations, and, after the three negroes had returned, the party continued their descent of the mountain, and reached Mareale's village after a march of four days.

NOTES AND NEWS.

ON Friday, Dec. 30, a meeting was held at the College of Physicians and Surgeons in New York City for the purpose of organizing an American physiological association. The association has for its object the promotion of physiological research and of social intercourse among the physiologists of the country. The association will meet as a section of the Medical Congress every three years. The meeting was presided over by Dr. S. Weir Mitchell and many prominent physiologists from all parts of the country were present. A constitution was adopted, and Prof. H. P. Bowditch of the Harvard Medical School was elected president, and Prof. H. N. Martin of Johns Hopkins University, secretary and treasurer.

— The seventh course of free lectures of the Cincinnati Society of Natural History will be given on Friday evenings in January February, and March, 1888, in the rooms of the society. The following is the programme: Jan. 6, Charles B. Going, 'How the Chemist Works'; Jan. 13, George Bullock, 'Modern and Orthochromatic Photography applied to Natural History'; Jan. 20, B. Mer-

rill Ricketts, 'The Dermal Coverings of Animals and Plants;' Jan. 27, Joseph F. James, 'The Great Deserts of the Earth;' Feb. 3, Amos R. Wells, 'Volcanoes;' Feb. 10, D. S. Young, 'Some Characteristics of Fishes;' Feb. 17, Charles Dury, 'Reason and Instinct in Animals;' Feb. 24, Walter S. Christopher, 'Bacteria and Fermentation;' March 2, F. W. Langdon, 'Races of Man;' March 9, A. B. Thrasher, 'The Voices of Animals.'

— The Council of the American Economic Association held its annual meeting in Hamilton Hall, Columbia College, at 10.30 A.M., Friday, Dec. 30.

— The *Political Science Quarterly* for December contains several articles that are worth reading, though none of special importance. Two of them are on the subject of profits and wages, — a subject that is sure to attract readers, but on which we cannot say that much light is shed. Professor Clark recognizes the fact, which most economists overlook, that a large portion of the employer's profits is of a mercantile character, arising from buying and selling to good advantage rather than from special skill in production; but, strangely enough, he thinks that this profit is due to causes beyond the employer's control, and "comes to him as rain from the clouds;" whereas it is due in great measure to his skill in taking advantage of the markets so as to buy at a low price and sell at a high one. The opening article of the number is a vigorous attack on the oleomargarine law, and will be read with interest by all opponents of government interference. The article on local government in England is of interest just now, when new and extensive changes in that branch of the English Government are in contemplation. There is also an article of considerable historical interest, on the Constitution in reconstruction, giving an account of the contest between Congress and President Johnson in regard to the recognition of the Southern States and the guaranties to be required of them before such recognition was granted. The closing essay is on India's unadjusted trade balance, and the usual complement of book-reviews fills up the number. This review, together with the *Journal of Economics* issued at Harvard, and the various publications of the Johns Hopkins University, are an addition to our periodical literature; for they furnish a kind of reading that we should otherwise hardly get.

LETTERS TO THE EDITOR.

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

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.

The Flight of Birds.

IN your issue of last week, my friend, Dr. Elliott Coues, takes part in the current discussion of the flight of birds with his usual boldness and independence, but not with his usual care and accuracy. He practically begins his letter with the following *ex cathedra* condemnation of Professor Trowbridge's theory, and denial of his facts: "With regard to the alleged locking of the primaries: 1. It does not take place; 2. Did it take place, flight would be impossible."

As Professor Trowbridge is abundantly able to defend himself, I leave the answer to the above extraordinary statements to him, and will simply remark, in passing, that I know from my own observation that the locking of the primaries can and does occur, either by accident or design, and that when it takes place it does not render flight impossible, as it affects only the extremities of the feathers. It is evident that Dr. Coues has not taken pains to inform himself in regard to the facts brought forward by Professor Trowbridge, otherwise he would not have uttered such dogmatic assertions.

Further on, Dr. Coues decapitates me much in the same way he does Professor Trowbridge; for he says, "The fixing of the wing of a mortally wounded bird in the manner described by Professor Newberry does not bear on the case. It is simply a muscular rigidity due to nervous shock, and of a part with the convulsive muscular action, which, under similar circumstances, results in the well-known 'towering' of hard-hit birds."

We have here other proof that Dr. Coues has not read all that has been said in this discussion: if he had done so, he would have

seen that I did not claim that the automatic rigidity of the arm and fore-arm, the 'setting' of the wing, first described by Professor Wyman, had any thing whatever to do with the locking of the primaries. As was said in the discussion of Professor Trowbridge's paper before the Academy of Sciences, and reported in my former letter to *Science*, the spreading and folding, and, according to Professor Trowbridge, the locking of the primaries, are functions of the *manus*, and have nothing to do with the flexion and extension of the arm. The spread of the wings of the turkey-buzzard maintained after death, reported by me in my 'Notes on the Birds of Northern California and Oregon' (*Pacific Railroad Reports*, vol. vi. Zoölogy, p. 74), was certainly not a case of muscular spasm. My report of it will be found at the place cited, and is as follows:—

"For the purpose of examining this bird in California, to determine for myself its identity, or otherwise, with the turkey-buzzard of the East, I took occasion to shoot one which was flying over us in the upper part of the Sacramento valley. He made no motion indicating that he had been struck by my shot, but sailed on with widely expanded and motionless wings, as before. Gradually, however, he began to descend in wide and regular circles, till finally, without a wing-flap, he settled as lightly as a feather on the prairie, and remained motionless. I went to him, and found him resting in the grass, his wings still widely and evenly expanded, but the head drooping and life extinct. It was a male, large, in fine plumage, and apparently identical with ours; then, too late, I regretted that I had been the cause of a death so calm and dignified."

I have been shooting now for a great many years, have killed many thousands of birds, and ought to know what their behavior is when mortally wounded; yet I do not hesitate to say that the extension of the wings in this case and those reported by Dr. Storer was not due to muscular spasm, but to a locking of the wing-bones. Nor had the death of the turkey-buzzard, cited above, any thing whatever in common with the phenomena of 'towering,' as asserted by Dr. Coues. Towering is exhibited only by birds which are wounded in the head, and which, with confused intellects, fly up and up, perhaps till lost to view. I have reported one such case in my notes which is typical, and I here repeat my account of it to show that it was totally distinct from all wing-setting, spasmodic or articular.

"Once when collecting water-birds on San Pablo Bay, California, I shot a gull (*Larus Hermannii*), which fell, apparently dead, upon some rocks near me. When I stooped to pick it up, however, it flew swiftly away, and mounted in circles higher and higher until it disappeared."

The article by Bergmann in Müller's *Archiv für Anatomie und Physiologie* (1839) has no bearing upon the statements made by Professor Trowbridge or myself. It is true that Bergmann describes the sliding of the radius on the ulna, and in the discovery of this anatomical feature he antedates Wyman; but he makes no reference to the 'setting' of birds' wings, which was the special subject of Professor Wyman's note. All Bergmann says about the function of the anatomical peculiarity which he pointed out is, "that it is desirable that observations should be made (for which he had no opportunity) to determine whether it might not have efficiency in the soaring of rapacious birds or in the flight of those which must quickly change the direction of their flight."

In conclusion I will venture to suggest that neither Professor Trowbridge nor myself are such tyros in science as to warrant the didactic tone which Dr. Coues assumes. Professor Trowbridge needs no indorsement from me, but I venture to say that he is one of the most eminent engineers in the country, and that he has occupied himself for many years in the study of the mechanics of animal locomotion, upon which subject he is as well informed as any one living. As for myself, I was for many years as enthusiastic an ornithologist as Dr. Coues himself, and have shot over as much ground, and have perhaps killed as many birds. I was also educated as a physician, and, at the time I made the observations cited above, I was serving as naturalist and medical officer to a detachment of troops.

I would also call attention to the fact, that, for all the interesting information we now have in regard to the structure and functions of the wings of birds, we are indebted, not to ornithologists, but to