

problem of existence in creatures so well equipped mentally as living anthropoids are. For the production of man a different apprenticeship was needed to sharpen the wits and quicken the higher manifestations of intellect—a more open veldt country where competition was keener between swiftness and stealth, and where adroitness of thinking and movement played a preponderating rôle in the preservation of the species. Darwin has said, “no country in the world abounds in a greater degree with dangerous beasts than Southern Africa,” and, in my opinion, Southern Africa, by providing a vast open country with occasional wooded belts and a relative scarcity of water, together with a fierce and bitter mammalian competition, furnished a laboratory such as was essential to this penultimate phase of human evolution.

In Southern Africa, where climatic conditions appear to have fluctuated little since Cretaceous times, and where ample dolomitic formations have provided innumerable refuges during life, and burial-places after death, for our troglodytic forefathers, we may confidently anticipate many complementary discoveries concerning this period in our evolution.

In conclusion, I desire to place on record my indebtedness to Miss Salmons, Prof. Young, and Mr. Campbell, without whose aid the discovery would not have been made; to Mr. Len Richardson for providing the photographs; to Dr. Laing and my laboratory staff for their willing assistance; and particularly to Mr. H. Le Helloco, student demonstrator in the Anatomy Department, who has prepared the illustrations for this preliminary statement.

Biographical Byways.¹

By Sir ARTHUR SCHUSTER, F.R.S.

6. S. P. LANGLEY (1831-1906).

LANGLEY'S invention of the bolometer, and his pioneer work in the construction of the flying machine, are achievements sufficiently great to ensure a reputation which will outweigh the recollection of defects due to an exaggerated consciousness of dignity, accompanied by a marked inability to see the humorous side of things. I first met Langley on the occasion of the total solar eclipse in August 1878, when he established an observing station on the top of Pike's Peak in order to obtain, if possible, a measure of the thermal radiation of the solar corona. Unfortunately, he suffered severely from mountain sickness, and had to be carried down before the day of the eclipse.

In the following year, Langley visited England and expressed to me the desire to become acquainted with Clerk Maxwell. I was working at the Cavendish Laboratory at the time, and was able to assure him that Maxwell would be interested to meet him as he had, in my presence, referred in very eulogistic terms to a method proposed by Langley to eliminate the personal equation in transit observations. Clerk Maxwell was just then editing Cavendish's scientific manuscripts, and conscientiously repeated every experiment that was described in them. He was specially interested in the method which Cavendish had devised for estimating the relative intensities of two electric currents, by sending the currents through his body and comparing the muscular contraction felt on interrupting the currents: “Every man his own galvanometer,” as Maxwell ex-

pressed it. When Langley arrived, I took him to the room where Maxwell stood in his shirt sleeves with each hand in a basin filled with water through which the current was laid. Enthusiastic about the unexpected accuracy of the experiment, and assuming that every scientific man was equally interested, he tried to persuade Langley to take off his coat and have a try. This was too much for Langley's dignity; he did not even make an effort to conceal his anger, and on leaving the laboratory he turned round and said to me: “When an English man of science comes to the United States we do not treat him like that.” I explained that, had he only had a little patience and entered into the spirit of Maxwell's experiment, the outcome of his visit would have been more satisfactory.

As an experimenter Langley takes a high rank, though the numerical results he derived were sometimes based on calculations that were not entirely free from defects. This led him occasionally to an optimistic judgment of their accuracy. In sending out an assistant to repeat his measurement of the so-called solar constant, which expresses the total solar radiation in certain units, his final words to him were: “Remember that the nearer your result approaches the number 3, the higher will be my opinion of the accuracy of your observations.” The assistant, who since then has himself attained a high position among American men of science, fortunately was a man of independent judgment and skilful both in taking and reducing his observations, with the result that the number 3 is now altogether discredited.

¹ Continued from p. 163.

Obituary.

DR. J. M. ELLIS McTAGGART.

THE news of the sudden death of Dr. McTaggart on January 18, at the early age of fifty-eight, came as a great shock to his numerous colleagues and friends both in Cambridge and throughout Great Britain. He had, indeed, resigned his lectureship in Trinity College, Cambridge, more than a year ago in order to devote more time to literary work; but he went on giving some of the courses of lectures he had been accustomed to give, and his interest in everything that

pertained to the University continued to be as keen as ever. His Friday evening lectures, open to students of all schools, have been for many years past a Cambridge institution; and various stories are related of his acuteness, resource, and ready wit in endeavouring to initiate the *profanum vulgus* in the problems of metaphysics. In the affairs of his College and in those of the University he took a leading and conspicuous part, bringing to bear upon every issue a fearless independence of judgment, which won for him the