new photographs (Figs. 4, 5, and 6, *NATURE*, January 5) that the statement proffered by Dr. W. K. Gregory, of the New York Museum, in *NATURE* of November 24, 1923, to the effect that Mr. Akeley's photograph gives "a very fair representation" of his cast of the gorilla's foot, is contrary to fact. Dr. Gregory's erroneous statement was due to singularly inaccurate observation, on his part, of the cast and of the photograph compared.

Mr. Akeley himself has wisely abstained from publishing any attempt to defend or excuse his fantastic photograph of the gorilla's foot.

Under these circumstances, Dr. W. K. Gregory might have retreated from a somewhat ignominious position with a frank admission of his error and an apology for his intrusion. It appears, however, from his letter in *NATURE* of March 22, that he is unabashed by his discomfiture, and seeks to divert attention from it by raising a discussion as to a number of subsidiary points concerning the foot of Primates. That discussion is irrelevant. The question here under consideration has been, "Is the figure published by Mr. Carl Akeley in the *World's Work* a trustworthy document?" That question is finally answered in the negative—by the evidence of other photographs of the cast, published by me in *NATURE* of January 5.

As I stated when I first wrote of Mr. Carl Akeley's misrepresentation of the gorilla's foot, I was anxious to direct the attention of the authorities of the American Museum of Natural History, New York, to the danger which threatened their proposed Roosevelt Hall of African zoology, were the imaginative efforts of their taxidermist accepted for exhibition without careful scientific control. The attention desired has now been secured. What the result may be remains to be seen.

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SINCE Dr. W. K. Gregory now confesses that he was wrong in describing Mr. Akeley's photograph as "a very fair representation of the cast" of the gorilla's foot, and admits that the photograph is misleading, there is no need to discuss the matter further. He clearly fell into error through not detecting the failure of the photograph to show the hallucal crease. But when he chides me for not awaiting the arrival of the duplicate cast before writing to *NATURE*, I must reply that there was no reason for me to do so. The main defect of the photograph, which imparted its false likeness to the foot of man, was perfectly obvious from the first to any one acquainted with the appearance of the sole of the foot of the gorilla.

R. I. POCKOCK.

The Transmission of Human Malaria.

I SHOULD be grateful if you could allow me space to make a brief rejoinder to Sir Ronald Ross's reply to my letter published in these columns on March 1.

Sir Ronald Ross says (*NATURE*, March 8) that he has given full references to all the pertinent literature in his "Memoirs"; but I may remark that from these references there are some omissions which are by no means trivial. For example, in No. 40 of his references he cites the note by Bastianelli, Bignami, and Grassi, published in the *Atti della R. Accademia dei Lincei*, 1898 (meeting of December 4). Although he quotes this note at length in his "Memoirs," both in the original Italian and in English translation, he unfortunately omits to quote the appendix to it, in which the *fundamental fact* was recorded that we had already at that time obtained a double tertian infection in a healthy person by subjecting him to the

bites of *Anopheles claviger* alone (see my "Documenti," p. 51).

Furthermore, Ross has omitted to include among his references the memoir entitled "Ciclo evolutivo delle semilune nell' *Anopheles claviger* ed altri studi sulla malaria dall' ottobre 1898 al maggio 1899," by Grassi, Bignami, and Bastianelli—published, with two plates (III and IV), in the *Atti della Società per gli Studi della Malaria* in June, 1899. Yet it is only by ignoring this memoir that Ross is able to assert that we supplied "no details and no proofs" in support of our statements ("Memoirs," p. 529).

Since Ross has thought fit to cite authoritative opinions in his favour, I may perhaps remark that I also, on my side, could quote some favourable opinions which are no less authoritative: Bizzozero, Cuboni, Foà, Pittaluga, Fabbri, Golgi (who proposed me for the Nobel Prize), the University of Leipzig (which conferred the honorary degree of Doctor upon me, proclaiming that I deserved *laudem eternam* for my work), etc. But I do not believe that this is the way to settle the controversy.

For anyone to reach a satisfactory conclusion in this matter it is, in my opinion, necessary that he should first master all the relevant facts—completely and exactly, to the last detail. This, it seems to me, has been done by Dr. Fritz Eckstein, in whose recent article,¹ which I consider decisive, I find little that requires modification. This is a work of 40 pages, by a specialist in the study of mosquitoes. After severely examining Ross's "Memoirs," he concludes with the following words (which are in German in the original): "To Grassi therefore—rather than to Ross, the discoverer of the life-cycle of *Proteosoma*—belongs the chief credit, in the investigation of human malaria, for determining the transmitter and for investigating, in conjunction with Bignami and Bastianelli, the development of *Plasmodium* in *Anopheles*, which Grassi was the first to designate as the sole transmitter."

BATTISTA GRASSI,
Senatore del Regno.

Rome, March 12.

Cosmic Clouds of Calcium and Sodium.

THE most probable explanation I know of the existence of cosmic clouds of calcium and sodium, which reveal themselves in the stationary lines H and K in the spectrum of many helium stars, was proposed by Prof. Saha in *NATURE* of June 16, 1921, p. 488, on the ground of his theory of thermal ionisation. Ionised vapours of calcium, the resonance lines of which appear as H and K, are repelled by the radiation pressure of B-type stars, the radiation of which is particularly great in the region of those lines; in this way at a sufficient distance from the star there is an equilibrium between gravitation and selective radiation pressure, the conditions being specially favourable for Ca⁺, which forms extensive layers near the star.

This explanation, comparing the cosmic clouds of calcium with the abundant layers of this heavy material in the superior chromosphere, however, seemed less plausible after the discovery that in the spectra of helium stars there are not only the stationary lines H and K, but also the well-known D lines of sodium. The latter belong to neutral Na; they form its resonance lines and are found only in the spectrum of the inferior chromosphere and appear with increased intensity in the spectrum of sun-spots. The presence of the resonance lines of neutral Na, an element with a low ionisation potential, near the Ca⁺ appears incomprehensible from the point of view of the quantum theory, and in contradiction to

¹ "Zur Entdeckungsgeschichte der Malaria: eine historisch-entomologische Studie," *Zoologischer Anzeiger*, vol. 58, 1924.