NOTES AND EXTRACTS.

THE METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA.

Sir John Eliot, who was knighted on the occasion of the coronation Durbar at Delhi, on January 1, will, we understand, resign his position as meteorological reporter to the government of India and director general of Indian observatories at the end of the present year. Mr. Gilbert T. Walker, M. A., Fellow of Trinity College, Cambridge, England, has been appointed assistant meteorological reporter and will proceed to India during the coming summer, with the understanding that he is to succeed Sir John Eliot on his retirement.

In connection with the above paragraph from Symons's Meteorological Magazine for February, we have been favored with the following biographical sketch by one who knew Mr. Walker in Cambridge:

Mr. Gilbert Thomas Walker, M. A., of Trinity College, Cambridge, England, was born in 1868, educated at St. Paul's School, London, and went to Cambridge in 1886. He was senior wrangler in the mathematical tripos in 1889. (The chief assistant to the astronomer royal, Mr. F. W. Dyson, also of Trinity, was second wrangler in the same year.) He obtained first class, first division in Part II of the mathematical tripos, in June, 1890, and in the following November took the B. Sc. degree at the University of London, being the first in mathematical honors. He was shortly afterwards elected Fellow of Trinity.

His first memoir, presented to the Royal Society, was read in December, 1891; its title was "Repulsion and rotation produced by alternating electric currents."

Shortly after this Mr. Walker became interested in the problem of the boomerang, which weapon he learned to use with great expertness. In 1895 he was appointed lecturer in mathematical physics at Trinity, where, in continuation of his interest in the mechanics of primitive implements and weapons, he often went out with one or two students to practise with the boomerang. He also discovered a curious dynamical property of "celts" and exhibited his collection of these stone implements at the Cambridge Philosophical Society in May, 1895.

His well known memoir on the dynamics of the boomerang was read in March, 1897, before the Royal Society in London and appeared in the Philosophical Transactions for that year, vol. 190 (A), and he has more recently discussed this subject in the Physikalische Zeitschrift, as also in Nature for 1901.

He returned, however, to his investigations in the mathematical theory of electricity and magnetism as his chief work, and when "The theory of the aberration of light" was announced as the subject for the Adams Prize for 1899, he proceeded to tackle this difficult problem.

His contribution, "Aberration and some other problems connected with the electro-magnetic field" (Cambridge University Press, 1900), as also that of Joseph Larmor, "Æther and matter; a development of the dynamical relations of the æther to material systems, on the basis of the atomic constitution of matter, including a discussion of the influence of the earth's motion on optical phenomena" (Cambridge University Press, 1900), were both successful. This was the first time, I think, in the history of this prize that two contributions of sufficient merit to obtain the prize were presented.

Since then he has continued this subject and published a memoir on "Some problems in electric convection" in the Transactions of the Cambridge Philosophical Society, Vol. XIX, pp. 173–189.

On account of the analogy between hydrodynamic and electrical theory, and in particular because he has been working with moving media, Mr. Walker will be in a position to make important contributions to the theoretical mechanics of the earth's atmosphere, now that his attention is to be directed to meteorological problems.—[J. D. T.]

BOMBARDING AGAINST HAIL.

As the newspapers of the country continue to publish articles advocating some species of cannonading as a means of dissipating destructive hailstorms, it is proper for us to call attention to the report on this subject that has just been published by the Meteorological Office in Vienna.

The hail shooting delusion seems to have originated in Italy, but soon spread into Austria. It was especially diffused by the enthusiasm of Albert Stiger and the firm of Carl Greinitz, Neffen, manufacturers of the Stiger apparatus. It was, therefore, very proper that an international conference of experts should be held at Gratz in July, 1902, under the auspices of the Austrian Department of Agriculture, to decide whether hail shooting is efficacious or not, and what is to be done in case this question can not be answered categorically. The report just published at Vienna contains an historical article by A. von Obermayer; a section describing the present methods, by Gustav Suschnig, and a review of the criteria for determining the efficiency of the shooting and the application of this criteria to the facts in hand, by Prof. W. Trabert. The whole report occupies 154 quarto pages.

In general, the cannonading with small apparatus and small charges of powder has proven itself useless in very many cases, and there is no evidence that one can attain absolute success by the use of small apparatus. With regard to large apparatus and large charges, which are used in a small number of cases, there is much to show that it also fails to secure the destruction of the hailstorm.

In a review of this report, presented to the Minister of Public Instruction for France, by Prof. Alfred Angot, of the Central Meteorological Office in Paris, he says:

If the question of the efficiency of cannonading against hail has not been settled, still the conference at Gratz has certainly attained progress in the study. The technical details of the shooting were made the object of profound discussion, and precise rules were adopted for the organization of controlled stations, where the shooting, done in a systematic manner, will be accompanied by complete observations of all the details of the thunderstorms. This is the only scientific manner of deciding whether the cannonading is really effective, and, if so, how it produces its effect and upon what meteorological element it is capable of acting. One may add, furthermore, that the general impression resulting from these discussions is far from being favorable to the cannonading. The doubt and skepticism that men of science have shown from the beginning have not been diminished, but seem rather to have gained headway, replacing the immoderate enthusiasm of the early days in the minds of many practical men and vineyardists.

HORIZONTAL CURVILINEAR MOVEMENT OF CLOUDS.

In 1872, the Editor had occasion to urge that more attention be paid to the most careful observation of the direction and apparent velocity of the clouds. Several forms of nephoscope were devised and constructed; among them was one that may be called the "vanishing point nephoscope," which is described on pages 333–334 of the Editor's "Treatise on meteorological apparatus and methods" (see part 2, Report of the Chief Signal Officer, 1887). In this apparatus a graduated semicircle can be set at any azimuth and altitude so that the movement of the cloud, if it move in a straight line, must lie in the plane of this semicircle. In such a case, therefore, the horizontal diameter of the semicircle gives us at once the location of the vanishing points from which and toward which the cloud is moving, if its motion is horizontal. With this apparatus one can in a few minutes determine the average direction of motion of clouds in all parts of the sky, and, as stated on page 334 of the "Treatise," it was frequently observed:

* * * that clouds belonging apparently to the same stratum have a perceptibly different direction of motion in different parts of the sky. This diversity of directions has sometimes been explicable by ascending motions in different parts of the surrounding region. At other times this variation has been explicable by the assumption that clouds in different portions of the sky are not moving in precisely parallel rectilinear directions, but presumably in circles about some neighboring storm center.

The latter assumption was that which most frequently seemed reasonable, and we do not see but that the same explanation applies to the observations made at Montsouris and Paris, as described by Besson on a previous page of this number of the MONTHLY WEATHER REVIEW.