ever, when the auroræ were very bright, consecutive exposures were given, lasting from 0·5 second to 1 second for each image.

Another series of about 100 photographs was taken on April 8 with the kinematograph, each exposure lasting about four seconds. These photographs demonstrate the great utility of this instrument not only in obtaining consecutive features of the displays, but in securing ordinary photographs at the two stations. The communication is accompanied by two most interesting plates. The first of these shows excellent reproductions of the aurora on March 3, photographed at the two stations at the same time, with clear impressions of the stars, demonstrating at a glance the parallactic effect (Fig 1). The second plate reproduces four portions of the kinematograph strip exposed on April 8 at Bossekop. These speak for themselves in indicating the valuable aid the kinematograph brings to auroral studies. A portion of these strips is here reproduced, the exposures for each portion being four seconds (Fig. 2). The gradual change in form and density of the filaments illustrated is here clearly indicated. M. Störmer states that the results of this expedition will be published in considerable detail in a subsequent memoir, and the above brief summary is sufficient to show that the memoir will be a most valuable contribution to our knowledge of the aurora.

THE INTERNATIONAL MEDICAL CONGRESS.

THE International Medical Congress, which is now meeting in London, may fairly be described as the greatest scientific congress ever held in the metropolis; for the time has gone for ever when a medical congress can be confined to the sciences commonly thought of as medical, and it is probable that the future will remember with most gratitude those contributions to the present congress which may seem to have the least relation to medicine.

No single fact marks better the advance of medical thought since last the congress met in London, thirty-two years ago, than the delivery of an address by Mr. W. Bateson on heredity. The supreme names of the past may have no living parallels, but their work bears fruit. Pasteur is gone, but the bacteriologists are all in force at the congress, and his pupil Laveran, who discovered the parasite of malaria a generation ago, is here to see, at any rate in tropical medicine, something like the realisation of his master's *dictum* that "it is in the power of man to make all parasitic diseases disappear from the earth." Lister is not here, but Prof. Cushing can scarcely fail to refer to the surgery of the pituitary body, which seemed wildly impossible only a few years ago. Jonathan Hutchinson is not here, but Prof. Ehrlich will report on the modern treatment of syphilis, though Schaudinn, who found the spirochæte, did not live to hear of salvarsan.

The congress will greatly serve science, but it may still more greatly serve public opinion, and even develop something like public wisdom in some respects. The international resolution on the value of vivisection will be an illustration of this, and also the discussion on alcohol and degeneracy; but most may be hoped from the discussion, in the Albert Hall itself, of the duty of the State in respect of syphilis. This can scarcely fail to reinforce the demand for a Royal Commission lately made by the leaders of medicine in this country, supported by the British Medical Association at Brighton, and repeated by the English-Speaking Conference on Infant Mortality in London on Tuesday, on behalf of absolute innocence, now commonly murdered by our immoral neglect of this subject.

THE RIVERS OF THE SCOTTISH LOWLANDS.[1]

THE handsome volume before us is about evenly divided between the physiographic and industrial questions of the Forth area, and in this combination of interests serves to remind us of the enormous scope of modern geography.

Mr. Cadell has qualified himself to be the historian of the Forth by a long period of service in the Geological Survey of Scotland; and for the subjects treated in the latter half of the book by an almost equally long period of public service in the Lothians.

The history of the Forth begins naturally with the origin of the solid rocks which form the floor of its valley. These foundation-stones were laid in the far-off times of the Old Red Sandstone lakes and the steamy swamps of the Carboniferous. In the first three chapters an excellent light treatment of the many points of interest in connection with the deposition of these rocks, especially the economic materials they contain, is given. After the formation of this basement there must have been a long period of peneplanation, then submergence, and finally re-emergence of the peneplane with a slight tilt *en bloc* to the east. This tilt determined the direction of the Forth and other consequent rivers.

The most original and interesting portion of the book, perhaps, is that which deals with the development of the river system. The Forth, however, cannot be treated in this respect as a separate entity. Its origin involves that of the Clyde and Tweed, and also the lochs of Dumbartonshire and Argyllshire. The Forth originally rose in the highlands of the latter counties, but its headwaters were captured by an energetic stream which flowed southward down what is now the Firth of Clyde. The well-marked narrow trench crossing the Midland Valley from Clydebank to Grangemouth is now occupied by small streams totally disproportionate to its size, and is regarded by Mr. Cadell as the course of a former large tributary of the Forth. The Clyde

[1] "The Story of the Forth." By H. M. Cadell. Pp. xvii+299+plates (Glasgow: James Maclehose and Sons, 1913.) Price 16*s*. net.

system has thus been formed largely at the expense of the Forth, and in its later depredations has also appropriated part of the Tweed. It has been favoured by the comparatively soft rock-material along its earlier course, by its steeper gradient, but most, perhaps, by the more copious rainfall of the western mountains.

The subsequent Glacial period, although causing considerable modification in detail, has not altered the essential features of the topography developed by the rivers. Neither has the submergence which has drowned the seaward parts of the Clyde and Forth valleys, and transformed the Clyde system especially into a series of sea-lochs, availed to obscure the ancient lines of the drainage-system, of which Mr. Cadell has given such a luminous explanation.

Much scattered information on related physiographic subjects, such as the buried channels of the Forth valley and the old lochs of the Edinburgh district, is brought together for the first time in this book.

The latter half of the book deals with industrial subjects connected with the Forth valley. The famous Carron Company and the rise of the Scottish iron industry are treated in chapters ix. and x., and we are reminded how great a part the Cadell family took in the establishment of this great concern in the latter half of the eighteenth century. We also note that Mr. William Cadell, after leaving the Carron Company, interested himself in the establishment of the Clyde Ironworks at Old Monkland, near Glasgow, and thus helped to lay the foundations of the iron-smelting industry in the west of Scotland.

The final chapters deal with land reclamation in the Forth valley, and a very interesting account of an old labour colony is given. This was established by Lord Kames in 1766 for the clearing of Blairdrummond Moss, a work which turned a quaking bog into a fertile plain that now supports scores of families. These later chapters are most interesting and readable, although garnished here and there with obsolescent economics. The book is finely printed, and is a pleasure to read and handle. It is illustrated by many excellent plates and maps.

FIG. 1.—Scene at the end of the Ice age when the valley was submerged under an icy sea.

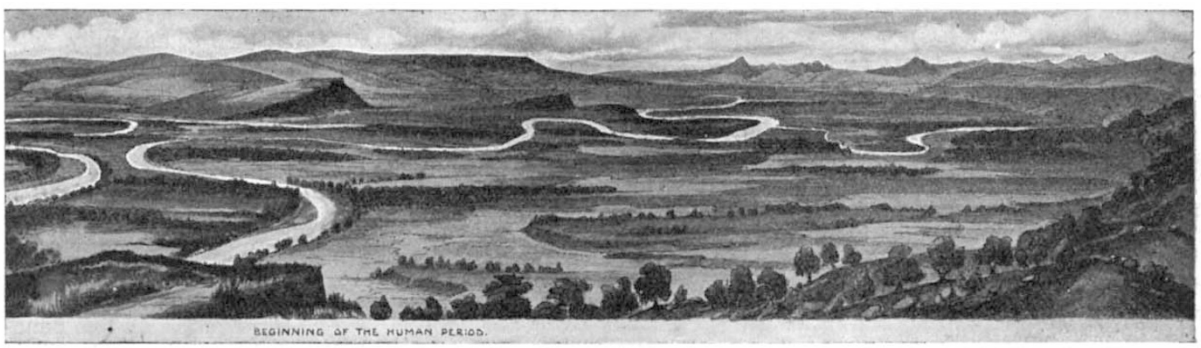

FIG. 2.—The modern landscape after the sea had retreated to its present level.
Panoramas from the Craig at Stirling at different periods in the history of the earth. From "The Story of the Forth.

THE IMPROVEMENT OF INDIAN WHEAT.[1]

NOWADAYS, when the English miller regards Indian wheat as a valuable addition to his resources, the work of the authors of this memoir in improving it is of the utmost national importance. The progress they have made already deserves to be widely known and commended. The problem is the same as that which confronts us in this country, where, however, the farmers still refuse even to try to understand it—namely,

[1] Memoirs of the Department of Agriculture in India, vol. v., No. 2. By A. Howard, H. M. Leake, and G. L. C. Howard, Agricultural Research Institute, Pusa.