I also used this strong method by pairs, for a measure of the horizontal extent of regional compensation, and find evidence that this is appreciable to about 160 kilometres (100 miles) from the station.

Another basic hypothesis of the Hayford reduction is that the densities so vary with the elevation that the mass in a unit column is constant. This cannot be true even approximately, in mountainous regions, for small unit areas. The correct conception is that of limited regional compensation horizontally, which is the same as incomplete compensation vertically, or partial lack of local compensation, for features of moderate extent.

All this affects the discussion of the so-called Airy and Pratt theories. With regional isostasy there will be horizontally extended compensation beneath mountains, instead of individual downward protuberances. Probably the depth of compensation varies appreciably, and the topographic relief must be explained by more than one kind and direction of force.

To bring the gravity measurements within the possibility of mathematical treatment general assumptions cannot be avoided, but these must be physically reasonable, and be such as to result in minimum residuals.

In the papers to which reference has been made, two regional isostatic methods of reduction of gravity observations are given. One, a more accurate method now first proposed, uses a practicable regional system of reduction by averaging the elevation for moderate areas about the station, thus avoiding the local compensation error. It yields results nearer the truth than the Hayford method, and requires less labour. A more correct, but less readily computable, conception, would substitute a warped surface for a levelled area about the station.

The second method, the 'average elevation isostatic reduction,' was devised and used by me in 1895; it averages the surface elevation within 100 miles of the station, and applies a compensation for this average elevation. This is a simple method, although approximate, as it neglects curvature. On a reasonable conception of isostasy, it eliminates or greatly reduces the extreme residuals in mountainous regions. This method is of special significance in the general problem, as it proves isostasy without using the Hayford assumptions. It is not based on any assumption as to the thickness or vertical density arrangement of the compensation, providing it is at a considerable depth, and hence an unlimited number of combinations of these elements will satisfy the condition of isostasy. This reduction is a regional treatment of compensation, and the area used conforms well to that found, by more exact methods, to be regionally compensated. It confirms the previous conclusion that regional isostasy cannot be ignored.

In 1894, gravity measurements across North America were made by me for the Coast and Geodetic Survey, at stations which had been carefully selected to test the condition of the earth's crust. I applied this average elevation reduction to these and other determinations, representing extreme and diversified conditions. This work, on a basis of isostasy, eliminated the larger residuals which all preceding methods had failed to do, and it was the first consistent proof of isostasy.

The first observational evidence of crustal equilibrium came from British trigonometric and gravimetric surveys in India. The first definite proposal of this theory was made by Airy seventy-three years ago, and English scientists have continued to make valuable contributions to the theory of isostasy.

University and Educational Intelligence.

CAMBRIDGE.—The governing body of Emmanuel College offers to a research student commencing residence at the University in October next, a studentship of the annual value of £150, tenable for two years. Preference will be given to a candidate who has already completed at least one but not more than two years of research. Applications should reach the Master of Emmanuel (The Master's Lodge, Emmanuel College, Cambridge, England) not later than June 30.

THE Geological Department of the University of Melbourne has been provided with a new building at the cost of £21,000, by a grant from the Government of Victoria. On the occasion of the opening of the new building by Lord Somers, the Governor of Victoria, a pamphlet has been issued summarising the history of the Department and giving a list of positions obtained by its graduates, and of the 123 papers issued in connexion with the School during the past twenty-three years. The pamphlet refers to the early history of the school under its founder, Sir Frederick McCoy, from 1854 until 1899, Prof. Gregory during the next five years, and Prof. Skeats since 1904. It has been conducted in recent years in a joint building with metallurgy erected in 1905. The growth in the number of students has rendered necessary the provision of the present large and well-equipped building. The staff of the Department includes Dr. Summers as associate professor and Mr. Frederick Chapman, of the Victorian National Museum and now acting as Palæontologist to the Australian Federal Government, as lecturer in palæontology.

STUDLEY COLLEGE, Warwickshire, is appealing to the public, and especially to those having agricultural interests, for £20,000 to enable it to continue its work of providing courses of instruction for women in horticulture, agriculture, dairying, and poultry-husbandry. Originating as a hostel at Reading in 1898, the College moved in 1903 to Warwickshire, where it became a teaching centre for gardening and dairying. It now provides a three-years' diploma course in horticulture; two-years' courses in horticulture, in agriculture, in dairying, and in poultry-husbandry; one-year and shorter courses in the above subjects and instruction in carpentry, bee-keeping, fruit-bottling, and floral decoration. The fees for tuition and residence amount to 110 guineas and upwards per annum. The College is always full, and the demand made upon it for trained workers is greater than it can supply with its present accommodation, which is limited to sixty resident students. Of the twelve hundred women who have passed out from it, many are now managing their own land or earning salaries not only in Great Britain but also in Australia, New Zealand, Uganda, Kenya, South Africa, Canada, India, and Ceylon, where they are growing crops of all kinds, including cotton, lemons, oranges, coffee, and tobacco. In 1911 the College obtained a lease of Studley Castle estate, comprising the castle, farm buildings (now needing repair and enlargement), and 340 acres of land. This lease is now drawing to a close and £15,000 must be raised before July 1 to complete the purchase of the freehold. Towards this the Treasury has promised a grant of £5000, former students have pledged themselves to find £1000, and the present students and staff are contributing £300. The College is recognised by the Ministry of Agriculture and Fisheries, from which it receives an annual grant of £1000. The appeal is signed by the Marchioness of Londonderry as president. Donations may be sent to the honorary treasurer, Mr. H. Keeling, 26 Eccleston Street, London, S.W.1.