

INTERNAL HEAT OF THE EARTH.—It is well known that the temperature increases, as we descend through the earth's crust, from a certain point near the surface, at which the temperature is constant. In various mines, borings, and Artesian wells, the temperature has been found to increase about 1° Fah. for every sixty or sixty-five feet of descent. In some carefully-conducted experiments during the sinking of Dukinfield Deep Mine—one of the deepest pits in this country—it was found that a mean increase of about 1° in seventy-one feet occurred. If we take the ratio thus indicated, and assume it to extend to much greater depths, we should reach at two and a half miles from the surface strata at the temperature of boiling water; and at the depths of about fifty or sixty miles the temperature would be sufficient to melt, under the ordinary pressure of the atmosphere, the hardest rocks. Reasoning from these facts, it would appear that the mass of the globe, at no great depth, must be in a fluid state. But this deduction requires to be modified by other considerations. viz., the influence of pressure on the fusing point, and the relative conductivity of the rocks from the earth's crust. To solve these questions a series of important experiments were instituted by Mr. Hopkins, in the prosecution of which Dr. Joule and myself took part; and after a long and laborious investigation, it was found that the temperature of fluidity increased about 1° Fah., for every 500 lbs. pressure in the case of spermaceti, beeswax and other similar substances. However, on extending these experiments to less compressible substances, such as tin and barytes, a similar increase was not observed. But this series of experiments has been unavoidably interrupted; nor is the series on the conductivity of rocks entirely finished. Until they have been completed by Mr. Hopkins, we can only make a partial use of them, in forming an opinion of the thickness of the earth's solid crust. Judging, however, alone from the greater conductivity of the igneous rocks, we may calculate that the thickness cannot possibly be less than nearly three times as great as that calculated in the usual suppositions of the conductive power of the terrestrial mass at enormous depths, being no greater than that of the superficial sedimentary beds. Other modes of investigation which Mr. Hopkins has brought to bear on this question appear to lead to the conclusion that the thickness of the earth's crust is much greater than that above stated. This would require us to assume that a part of the heat in the crust is due to superficial and external rather than central causes. This does not bear directly against the doctrine of central heat, but shows that only a part of the increase of temperature observed in mines and deep wells is due to the outward flow of that heat.—*Fairbairn's Address before the British Association.*

Editorial Notices, &c.

AGRICULTURAL SEED AND IMPLEMENT STORE

It will be seen from an advertisement in another column, that Mr. James Fleming has taken into Partnership Mr. G. W. Buckland the General Seed business, wholesale and retail. Mr. Buckland has had two years experience one of the largest and oldest Seed Establishments in London, England; and Mr. Fleming well known throughout the Province as a Farmer, Horticulturist, and for having successfully carried on the business of a Seedsman in this city, for more than a quarter of a century. The new Firm contemplate extending their business operations, and have accordingly rented a portion of the new Agricultural Hall in course of erection by the Board of Agriculture on the corner of Yonge and Queen streets, which they hope to commence occupying at midsummer next. In addition to a varied extensive stock of agricultural and horticultural seeds, they purpose keeping on hand a select assortment of the various tools and implements required by the farmer and gardener. Situated in the same building, with the Agricultural Museum, which the Board has solved on commencing, must prove both interesting and useful to a large portion of our population, especially to all such as are directly engaged in rural pursuits.

Notice of Co-Partnership.

THE Undersigned have entered into Partnership as Seedsman and dealers in all kinds of Agricultural and Horticultural Implements under the firm of James Fleming & Co.
JAMES FLEMING,
GEORGE W. BUCKLAND

NOTICE.

JAMES FLEMING & CO., Seedsman and Horticultural Association of Upper Canada will carry on the above business, wholesale and Retail, at 126 Yonge-st., 4 doors North of laid-street, until next July, when they will move to the new Agricultural Hall, at the corner of Queen and Yonge-streets.

JAMES FLEMING will continue the business of Retail Seedsman and Florist at his old place, 350 Yonge-street.

Toronto, January 1st, 1861.