

SPECIAL
ARTICLES

Our Contributors

BOOK
REVIEWS

THE THICKNESS OF THE EARTH'S CRUST.

Further information of a valuable character concerning the thickness of the earth's crust, and the intensity of the heat of the globe's internal fires, has been obtained as the result of a series of investigations continued over a prolonged period by the Hon. R. J. Strutt, F.R.S., the well-known British scientist and son of Lord Rayleigh. Since the first discovery of radium by Madam and Prof. Curie, this scientist has been engaged in a continued and deep study of its various and peculiar phenomena, and has contributed to our scientific literature an excellent work on this new element. Simultaneously he has been engaged in a careful computation of the average amount of radium contained in the various representative igneous rocks to be found on the external surface of the earth.

The rocks have been gathered from all parts of the world, and comprise granites from Cornwall and Rhodesia, basalt from Greenland, the Victoria Falls, and Ireland; svenite from Norway, lonsite from Mount Vesuvius, the object being to extract and ascertain the proportionate amount of radium present in each.

The fragments of rock were decomposed by means of chemicals, thereby breaking up the various constituents, the yield of radium present being determined in a quantitative manner by the extent of its emanations. Owing to the slow decay of these emanations, they may be safely stored with a mixture of air in a suitable holder, thereby enabling the photographic and electrical action to be investigated at a later date. Strutt stored the dissolved rock solutions until the emanations had developed to the required extent, at which point they were extracted by boiling and measured in a specially-designed electroscope, by which process it was possible to ascertain the extent of the radium present. In order to render his calculations absolute, and to establish a standard of measurement, a similar process was carried out with a uranium mineral, with which was associated a known radium content.

As the result of these prolonged investigations, Mr. Strutt has been able to determine the percentage of radium present in the earth's crust. He has ascertained that the presence of radium, whether it exist in minute or large quantities, can be easily denoted in all rocks of igneous origin, but the percentage is highest in granitic formations while the basaltic rocks contain the minimum proportions of the element. He has also provisionally calculated the total quantity of radium present in each mile of depth of the globe's crust, from its uniform distribution, and estimates on this basis that not more than one-thirtieth of the total volume of the earth is composed of rocks which are to be found on the surface. As a result of his mathematical deductions, he estimates that the depth of the earth's rock crust is approximately forty-five miles. This deduction coincides to a certain degree with the calculations of Prof. Milne, the well-known seismologist, who has been engaged in investigations to the same end by the observation of the speeds of earthquake tremors. Prof. Milne concludes that at a depth of thirty miles below the earth's surface exist rocks whose physical properties are similar to those to be found on the exterior.

Mr. Strutt has also advanced interesting data regarding the temperature of the internal heat of the globe at the base of the rock crust forty-five miles

below the surface. This he computes to be approximately 1,500 deg. C. Such a heat indicates the melting point of iron, but it is considerably below the melting point of platinum, which Dr. Harker has fixed at 1,710 deg. C.

Furthermore, as a result of his researches Mr. Strutt is in agreement with the assumption advanced by several astronomers, more especially Mr. Pickering, that the moon is not a "dead" sphere, but that it continues to possess volcanic energy. And moreover, he makes the startling statement that he is of opinion that the internal heat of that body is far in excess of that obtaining within the interior of our own globe.

ALLEGED KINGUSSIE CHURCH
EVICTION.

Editor Dominion Presbyterian:—In your issue of Sept. 5 the following item appears:—"An event in connection with one of the evictions which has taken place through the Church crisis in Scotland is worth noting. The Rev. A. Bain, the minister of Kingussie, was at the end of July evicted from his manse by the legal Free Church. Mr. Macintosh, a former provost of the town, very generously placed at the disposal of Mr. Bain a very comfortable house free of charge. The building was formerly used as a shooting lodge, and has only recently been purchased by Mr. Macintosh, by whom it has been thoroughly renovated and put in order. What is most interesting to learn is that at the disruption this house was the manse from which the Free Church minister was evicted, and now, after a period of sixty-three years it once more becomes the home of a Free Church minister."

A few things in this item need some explanation.

(1). The manse from which Rev. A. Bain moved in the end of July was not his manse, but as is shown by the full name carved on the stone above the front door, it was and is the "Free Church Manse." It was built in 1884 at a cost of about £2,000 by the late George R. McKenzie, Esq., a native of the district, and a staunch Free Church man, who emigrated to New Jersey and became president of the Singer Manufacturing Co. Mr. McKenzie presented this beautiful manse to the Free Church for the use of the Free Church minister. The minister of any other church, even though he might secure admission into it, could not claim it as "his" manse.

(2). Rev. A. Bain is not a minister of the Free Church, but of the United Free. He is one of many ministers who left the principles of the Free Church, and, through uniting in 1900 with the United Presbyterians, formed the U. F. Church.

If a minister of the Presbyterian Church in Canada had, in 1900, joined the Methodist Church and still continue in the Methodist Church it would be absurd and untruthful to say that he is still a minister of the Presbyterian Church in Canada. It is equally absurd and untruthful to represent Rev. A. Bain as a minister of the Free Church. Many who write on the Church case in Scotland deserve the rebuke which the sub-commissioner, when conducting an inquiry at Kingussie, gave to one of the U. F. Church people who was claiming to be a Free Church man. "Surely at this time of day you know better than that,—the differences between the two churches."

The Presbyterian Church in Canada and the Methodist church have different creeds; the Free Church and the United Free have different creeds although many in the U. F. Church imagine they are in the real

Free Church. Such deplorable ignorance is due, at least in part, to wilful misrepresentation.

(3). Rev. A. Bain was not evicted from his manse by the legal (better legal than illegal) Free Church. It was not his, it belonged to the Free Church as decided by the House of Lords on August 1, 1904. The Royal Commissioner appointed in accordance with the Churches Act, August 11th, 1905, after a careful investigation intimated on April 11th, 1906, that it along with the other church property fell to be allocated to the Free Church. It was through the instructions of the Royal Commission that Rev. A. Bain, a U. F. minister, was asked to leave the Free Church manse. It is therefore not in accordance with facts to assert that he was evicted from his manse by the legal Free Church. A Mackay.

Kingussie, Sept. 19th, 1906.

YORKTON PRESBYTERY.

The regular September meeting of this Presbytery was held in Saltcoats. The Rev. James L. King was elected moderator for the ensuing year.

The Home Mission report was presented by Mr. Frazer. Twenty-three fields have been supplied with services during the summer, on each of which there are from three to six preaching stations. Six of these fields were opened this season in order to meet the needs of a rapidly increasing population. It is a matter of much regret that a few fields will be without regular services during the winter owing to the scarcity of missionaries, and Christian homes are reminded that on them lies the responsibility of supplying recruits for the church's work. The matter of giving to home mission work received considerable attention and arrangements were made by which both self-supporting congregations and mission fields should be visited for the purpose of having the claims of home missions fully presented. Dr. Carmichael, general superintendent of missions, agreed to visit in this connection the fields along the line of the Canadian Northern railway.

The report of the general assembly's committee on church union was discussed on the following motion: "That inasmuch as the reports of the committee on union are not complete, and the feasibility of union not yet declared, the Presbytery lay the report on the table in the meantime and instruct all mission fields within the bounds not to proceed toward union in advance of the decision of the Church, but to secure for themselves the largest measure of growth and influence consistent with what they believe to be the mind of the Master."

Temperance work received more than ordinary attention and a strong resolution was passed calling first upon the homes to make special provision against the influence that would draw the boys away to the saloon by fostering hospitality to those who are without homes in the district. The establishment of reading rooms and gymnasiums wherever practicable was strongly recommended, and all the means of instruction in temperance at present in use, were strongly urged upon all who are in a position to use them.

A call from Binscath and Foxwarren in favor of Rev. R. Paterson, late of Glenboro', was presented and sustained. Mr. Paterson is the unanimous choice of both congregations and is guaranteed a stipend of \$1,000 with free manse and one month's holidays. There is reason for much gratification that the congregation has the prospect of an early settlement by securing the services of a minister of Mr. Paterson's standing. The next regular meeting of Presbytery will be held in Yorkton in February.