

secured." Now, who is to be the means of such salvation? None other than woman! Woman alone! For this is comprised in her sphere in life. The farmer's wife and daughters of to-day consider such work beneath them. In days gone by, *they* supplied the demands for milk, butter, bacon, eggs, vegetables, and flowers. There are endless occupations for women in this manner, as well as fruit growing, jam making, and bee keeping, all of which industries can be carried out by the individual without any extravagant outlay of capital, bringing in satisfactory remuneration.

The result of this renewed interest on the part of women in farm produce would be that the agricultural labourer would thereby be induced to remain at his rightful occupation, the depopulation of the country would be arrested, the necessity for the tremendous emigration of English lads and maids to the colonies would cease to exist, the competition for every other occupation would not be so swelled by incompetent applicants, the importation of the common necessities of life would diminish, the soil would be improved, the country grow richer, and the people more prosperous and contented. Why? Well, simply because woman, that great power for good or evil in the world, had been aroused to the fact of the deterioration of England's welfare, and had stepped in in time to avert the ruin inevitable with the continuance of so disastrous a state of affairs.

But co-operation must be the dominant power. Landlords will build creameries if the tenants will undertake to sell their cream, pigs reared on the skimmed milk and scraps, eggs sold to a collector who should call twice a week, and so on in every branch of farm produce. Where these creameries have been tried in England and Ireland they have proved a success. Let them be built in abundance! Let woman ameliorate the condition of her fellow creatures, and England will have no need for foreign importation.

The National Council of Women are already considering the organization of an Agricultural Section in the Industrial Division, for which the interest of Lord Winchelsea, President of the National Agricultural Association, has been secured. It is to be hoped that Mrs. Alec Tweedie will find time to interest herself in this important branch of the Council's work.

Science Notes.

FOSSIL PLANTS.

THE study of fossil plants has thrown much light on many problems with which botany has to deal, but nevertheless it may almost be regarded as a separate science, for its aims are mainly different and its methods almost entirely distinct from those of the ordinary botanist. When the remains of leaves, stems, and roots of dead plants were first discovered embedded in rocks which had once formed part of the beds of rivers, of lakes, of deltas, or even of old land surfaces, it seemed to botanists that the task of classifying these fragments was one which would always be beyond their powers. In dealing with living plants they were accustomed to rely almost

entirely on the mere external shapes, and particularly on that of the reproductive organs. The flowering plants had already been placed in a group by themselves, and the sub-division of this group was based on the differences between the form and the number of parts of the flower and the fruit. In general, however, the flowers and fruits of fossil plants had not been preserved, but while these more perishable organs had disappeared, leaves and stems had been perfectly preserved, and on close examination the system of veins in the leaves and the shapes and arrangement of the cells of the pith, wood and bark could frequently be made out with the utmost precision.

New subjects for careful study were thus presented, and as the result of much patient investigation it was found possible to classify plants when these organs alone were considered. This result has justly been claimed as one of the greatest triumphs of botany of the present century. For the last forty years, the microscopic study of fossil plants and the comparison of their minutest structure with that of living ones has been prosecuted with the greatest eagerness, and a whole system of classification has been based on these features.

One of the earliest and most successful workers in this science, Dr. W. C. Williamson, passed away a short time ago. He devoted himself mainly to the coal plants, which flourished when the great beds of coal now being rapidly consumed were in course of formation. The length of time which has elapsed since this era closed is so vast, that though it cannot be measured accurately in centuries, it is certainly hundreds of times as great as that which has elapsed since the appearance of man on the earth. The flora of the coal-period differed widely from that now existing. No flower had ever been seen, though the hum of beetles, and the chirp of the grasshopper were audible. Judged by our present standards, the vegetation was of a somewhat gloomy character. Cryptogams everywhere predominated. Ferns of all kinds, some of great beauty, abounded, and tree ferns were not uncommon. The largest trees—some over 100 feet high—consisted of representatives of an order now extinct which bore some resemblance to conifers. Another great group was closely allied to the living club-mosses, which now creep along the ground, rarely rising more than three or four inches above it. In the coal-period, however, the club-mosses formed great trees with trunks several feet in circumference, and 60 or 70 feet high. The horse-tails were also represented by giant Equisetums and Calamites. In later times, in Britain, these tribes of plants were replaced by a flora closely resembling that which now occupies Australia. Huge cycads, tree ferns and true conifers flourished in what was then a warm, genial climate, but even then the flowering plant had not yet come into existence. It was not until the beginning of the Tertiary epoch that this took place, and the earliest traces of these highly-developed organisms are found in America, although it cannot be said that sufficient evidence has yet been accumulated to prove that they originated there. While there have been so many successive floras on the earth, each perhaps evolved from its predecessor, nevertheless Carruthers points out that grains of wheat and poppy-heads from Egyptian mummy cases, which are at least 4,000 years old, are in no way distinguishable from those now growing in that country.

[previous page](#)

[next page](#)