

and from the women's institutes, both of which reach a class which our adult education has largely failed to touch.

The future lies with adult education. Without it the masses will remain uneducated. But it is also needed for the 'educated classes', and an attempt should be made at the universities to provide opportunities for regular study by professional men, civil servants, politicians and others, whose systematic study and thinking is apt to end when they take their degree. Summer schools, doctors' 'refresher' courses, etc., are rudimentary forms of such study, which have evolutionary possibilities.

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### Soil Science

THE advances which have been made in soil science in the twentieth century are discussed in his presidential address to Section M (Agriculture) by Prof. James Hendrick. At the beginning of this century, agricultural research was in a low state in Great Britain, where there was only one great research station, a private institution, Rothamsted. That has now been altered and, under the guidance of the Development Commission, a system of agricultural research stations has grown up covering all the leading branches of agricultural inquiry. The development of the system of agricultural education has led to increase and improvement of agricultural research.

In the great advance which has taken place in agricultural investigation, the fundamental subject of soil science has received much attention, especially since the Great War. A great part of the inspiration has come from foreign sources. In all parts of Britain the climate is temperate and humid with a rainfall distributed over all parts of the year, but in a great country like Russia the climate varies from arctic to sub-tropical and from humid to arid and desert. The Russians studied soil formation and classification from the point of view of climate, and showed how greatly the character of the soil depends upon climate. Cut off as the British were from Russia by linguistic, political and geographical barriers, nothing was learned of this until after the Great War. Though the British Empire extends through an even greater range of climatic conditions than Russia, little account was taken of the influence of climate on soil formation, and classification was based more on geology. A revolution has taken place in our views since the development of international soil congresses has established contact with the soil scientists of Russia and other countries, and attention is no longer confined to the comparatively narrow range of soils found in the British Isles.

Another field in which great advance has been made in recent times is in our knowledge of base exchange and soil acidity, and in the application of colloid chemistry to the study of the soil. Calcium carbonate has lost, to the exchangeable bases associated with the soil colloids, much of the high place it used to occupy in agricultural chemistry.

The two great classes of colloids found in the soil are the mineral colloids of the clay and the organic colloids of the humus. Much advance has been made in unravelling the structure of the clay colloids, but the exact nature and structure of the humus colloids is still obscure.

Another sphere in which great advances have been made during the present century is in the manufacture of, and trade in, fertilizers. In the case of nitrogenous fertilizers, this has amounted almost to a revolution.

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### Preservation of Native Floras

THE preservation of native floras with special reference to the British flora is the topic of Dr. A. B. Rendle's presidential address to the Conference of Delegates of Corresponding Societies. The preservation of native floras is of high importance from a scientific point of view. The cases of St. Helena and the Bermudas are examples of interesting natural floras that had been largely destroyed by man's action, especially by the destruction of the trees and the introduction of alien plants which had proved superior in competition with the natural flora. But efforts should be made to preserve what remains. It will be a reproach to us if the only material for study by future students of a flora is that found in herbaria.

Our British flora is worth preserving. We cannot regard it as merely a part of the west European flora that invaded Britain after the disappearance of the glacial ice before we were cut off by sea. There is evidence for the survival of fragments of the original flora in sheltered unglaciated spots during successive periods of glaciation, and various elements of special interest may be associated with special areas that presumably remained open. Intensive work on British genera and species indicates that there is still scope for investigations of taxonomic, distributional and ecologic interest. Apart from an æsthetic point of view, there is good reason for efforts to preserve our flora, even though it has already been much changed by the action of man and his crops and herds.

Various means to ensure conservation can be used. The Plant Conservation Board of the Council for the Preservation of Rural England, in