

tained, both as regards the quality of the text and excellence of the illustrations. Prof. Florence Sabin gives a summary of her researches into the development of the great systemic veins of the abdomen, the result being to modify very considerably our present conception of the nature and origin of the inferior vena cava. She found that the posterior cardinal veins disappear with the Wolffian bodies during foetal life, and take no part in the formation of either the inferior vena cava or azygos veins. We note that Miss Sabin has attained her ends by reverting to a method which had fallen into disuse—that of injecting the embryonic blood vessels. Dr. J. Duesberg contributes a paper on “Recherches cytologiques sur la fécondation des Ascidiens et leur développement,” his conclusions being in support of those experimental embryologists who believe that the bases of the organs of an embryo are localised at certain definite points in the cytoplasm of the developing ovum. The final paper in vol. iii. is by Dr. P. G. Shipley and Dr. G. B. Wislocki, and describes the development and structure of the poison glands of *Bufo agua*. The secretion of these glands contains a substance identical with that secreted by the suprarenal bodies. At the same time, this paper shows the advantage of combining the labours of an expert chemist with those of an expert anatomist.

A. K.

#### SCIENCE AND COLONIAL AGRICULTURE.

AN article in a recent number of the *Agricultural News* (Barbados) discusses the probable effects of the war upon the organisation of science from the Imperial point of view in relation to industry generally and in particular to Colonial agriculture. This subject has been dealt with so exhaustively on all sides during the last twelve months that it would seem impossible to advance any new ideas about it, but the writer of the article selects two fundamental causes as responsible for the state of affairs prevailing until recently. He believes that the British character includes a keen appreciation of mechanical invention without any appreciation of the scientific research underlying it. The second reason is that science as a profession is considered by the older universities and public schools as lacking in the essentials of refinement, and that this social stigma deters able men of good position from entering it. But this deduction is surely incorrect; the true explanation lies in the fact that the prizes that science can offer are so meagre compared with those held out by other professions. The social question is merely a secondary effect. This aspect of the matter was referred to by Sir William Tilden, speaking as a representative of the Royal and Chemical Societies at a deputation to the Government a short time ago.

While in the case of manufacturing industries individual enterprise in recognising the true value of scientific work, can, and actually has, achieved much, practically nothing can be done in relation to agriculture without organisation. No single

farmer can afford to employ an expert to advise him on the scientific cultivation of his land, nor can any single scientific worker, however able, cope with more than a few of the varied problems that practical agriculture constantly presents. For this reason agricultural science is, in most countries, much more highly organised than any other of the applied branches. We do not think there are serious grounds for the fear expressed by the *Agricultural News* that in the general move to help the manufacturer British and Colonial agricultural science may be neglected. The Imperial Government seems to be alive to the importance of encouraging agriculture in all its branches within the Empire, and while some alteration of methods may be necessary, it is unlikely that any permanent reduction of scientific work will occur.

It is interesting to learn that in the West Indies there is the same lack of intelligent contact between the actual producer and the scientific worker that is still too obvious at home. There is also a need of more frequent intercourse between the agricultural experts, which is hindered by the natural difficulties of communication among the islands, and now almost impossible owing to the war. An optimistic view is taken of the future; it is hoped that the brighter outlook for science will attract more men of the best type, and that in the renaissance of science throughout the Empire agriculture will play its part.

#### THE PROPOSED CLOSING OF MUSEUMS.

AS we write, there are rumours that the Government is reconsidering the question of the closing of museums, at all events as regards the Natural History Museum, but, whatever be the ultimate decision, the whole affair has been a moral victory for museums, especially for those illustrative of science. We might have gone on for years without suspecting this warm appreciation on the part of the public; but the mere threat of a temporary closing has aroused a hurricane of protest, remarkable alike for the variety and vigour of its expression and for the number of interests and classes represented. One of the advantages of a non-party Government seems to be that it elicits the real opinion of the nation, and surely it is long since a Government proposal has been rejected with so near an approach to unanimity. Its supporters in the Press have included Mr. Evelyn Cecil, whose unhappily chosen parallels of football, fox-hunting, and racing only make more clear the essential educational value of museums; and Mr. Harold Cox, who quotes Madame de Maintenon to the effect that we all advocate retrenchment except when it affects ourselves. This is true, but when everybody cries out, it is because the interest attacked has become almost a necessity of life.

The necessity and the value in their diverse aspects have been emphasised in the *Times* and other periodicals by Lords Morley, Bryce, Grenfell, Sudeley, and Sydenham, by Sir Richard

Temple, Sir F. Treves, Sir Thomas Barlow and other distinguished physicians, Sir Edward Fry, and Sir Harry Johnston, by Dr. A. E. Shipley and Dr. Gregory Foster, by Mrs. Creighton and Mrs. J. R. Green, by Messrs. Halsey Ricardo, Walter Sichel, and Frank Brangwyn, as well as by a number of distinguished people more immediately connected with museums of art or science. The dubious economy of the proposal was well brought out in letters by Mr. G. W. Prothero and a "Past President of the Museums Association."

In a few cases the writers attempted to overcome difficulties which really do not exist. The claim that the closing alone will effect a saving of 50,000*l.* cannot be maintained in the light of Lord Morley's figure of only a little more than 2000*l.* for the huge Natural History Museum. The idea that the galleries of this museum could be used for clerical work was, we believe, suggested some time ago, but presumably found impracticable. Many suspect a reason in the greater safety of the collections; but this was attended to long since, and the removal of the more valuable objects from the public galleries of various museums has not impaired their educational activities; indeed, the contrary has been maintained. The idea that a number of active young men are still at work in these establishments is on a par with the myth of the policemen of military age. No body of men rushed more readily to the colours, and we do not believe that one is left to be compelled. If convalescent soldiers were employed to watch the galleries they would only release veterans who are, or soon will be, candidates for Chelsea Hospital; far better let the commissionaires, who perform their duties so admirably, stay where they are, and employ the convalescents elsewhere. One offer, however, might well be accepted: if there are competent people willing to help with demonstrations in the galleries, by all means let them. Even if red tape delays an official welcome, there is nothing to prevent them from organising small parties on their own initiative, and so doing a really useful work. Such aid would at all times be valuable on Sunday afternoons.

The Government may withdraw, but have our rulers learned their lesson? Do they understand that, instead of suppressing museums, they should utilise them? And the museum-people in their turn—possibly if some of them were a little more ready to adapt their exhibitions to the necessities of the time, no Government would dream of dispensing with such potent allies.

*SIR CLEMENTS ROBERT MARKHAM,  
K.C.B., F.R.S.*

**J**UST the accident of setting his bed alight with a candle, and the shock resulting from his effort to subdue the flames, led to the death of Sir Clements Markham on the evening of Sunday last, January 30, at his residence in Eccleston Square, London.

Sir Clements was in his eighty-sixth year, and although intellectually vigorous he had been a sufferer from gout for some years past, and was frequently confined to his room, where his active mind was ever engaged in those literary researches in the field of geography the results of which are so well and so widely known. He was a member of a good old northern family; his great-grandfather (not his grandfather as stated in the *Times*) was Archbishop of York, and at one time Headmaster of Westminster School, a fact which accounts for the deep interest in that school which was maintained by Sir Clements during his lifetime. His grandfather was William Markham, private secretary to Warren Hastings and resident at Benares, who stood in the same relationship to Admiral Sir Albert Hastings Markham as to Sir Clements.

Sir Clements Markham was born at Stillingfleet in Yorkshire, his father (Rev. David Markham) being vicar of that parish and Canon of Windsor. His mother was a Milner. The Markhams were a naval family, and young Clements followed the family profession, entering the Service in 1844 and retiring as a lieutenant in 1852. His early experiences as a sailor coloured his scientific outlook during his whole career. He was a devoted friend to the sailor, and this devotion led to an enthusiastic support of naval (Royal Naval) enterprise in Arctic and Antarctic fields which occasionally pressed rather hard on the requirements of other geographical projects. It was as a sailor, after his experiences with the Franklin Search Expedition in 1850-51, that he commenced his literary career, a career which marked him as perhaps the most prolific geographical writer of the day.

So early as 1852 Sir Clements acquired his first experiences as a land explorer in South America, when he visited Peru on a quest for information about the Inca period, and it was there that he made those investigations which rendered him an expert authority on that country. His greatest work in the cause of humanity was undoubtedly the introduction of cinchona from Peru into India, on which enterprise he was employed by the Secretary of State for India in 1859-60. He was successful both in the collection of plants and in the arrangement of plantations in India. The beneficial results of that enterprise to the fever-stricken plains and jungles of India can only be compared with those which have been attained by the discovery of the germ-carrying mosquito. Quinine was at once placed within financial reach of the mass of the people. Peruvian experiences formed the subject of books and pamphlets which appeared from his pen at intervals for many years. "The Incas of Peru," published in 1910, was the latest.

From 1863 to 1888 Sir Clements was one of the Hon. Secretaries of the Royal Geographical Society. They were busy years when pioneer explorations from every part of the known world into regions of the unknown were leading to sensational revelations and extending our geographical map knowledge with great rapidity. His position as