

SIRIUS.

ADDRESS BY PROFESSOR R. W. CHAPMAN.
 Sirius and its companion star were the subject of an address by Professor R. W. Chapman to the North-East Institute on Wednesday, 10th inst. The star which he dealt with was a remarkable one, in that it would not have been possible to fall to two years ago. To it had contradicted theory of the brilliant men, yet they could not but find that they looked out upon the unknown that they were still at the beginning of their knowledge. Sirius must always have existed unadmired and undrowned. It was one of the stars of the firmament, and the fact that it was derived from the Greek word meaning 'dog' is a fact which is of no account. The star was actually discovered by Alvin Clark in 1844 that there must be a companion star. The first step was the discovery of the distance of Sirius from the earth, a triumph of Gill's discovery of the parallax of Sirius in 1838. He discovered that the parallax of Sirius was 3.74 seconds of arc, and from this he calculated that the light took eight and a half years to reach the earth—a comparatively short time. It was the distance that the companion revolved around Sirius in a year, the average distance of which was 23 times that of the earth from the sun, and that the brightness of Sirius was 21 times that of the sun, but that the companion shone very faintly. The orbit of the two bodies was eccentric. From that it was deduced that the masses of each were approximately similar although their light was different. The total mass was a little more than twice that of our sun, and the distance between the two of its companion, or about eight times the distance of the earth from the sun. The temperature of the spectrum the temperature and density of the companion were learnt. The temperature was 7,000 degrees Centigrade, on the sun 5,000 degrees, and the sun 5,000 degrees. The density of the companion was 10,000 times greater than that of water, comparable with no known substance on the earth. Although its diameter was 24,000 miles it gave out only one thousandth part of the light of the sun. Those amazing discoveries, made by Sir R. W. Chapman, may be believed, but in recent years they have been verified in a remarkable manner by observations in accordance with the celebrated theory of Einstein.

THE IRRIGATION COMMISSION.

APPOINTMENT OF MR. W. J. COLEBATCH.

Mr. Walter John Colebatch, B.Sc., M.R.C.V.S., at present principal of the Roseworthy Agricultural College, has been yesterday appointed by the Executive Council, an Irrigation Commissioner under the provisions of the Irrigation Act, 1922. This appointment will complete the Commission, the other two members being Messrs. E. J. Field (chairman), and H. G. Tolley. The vacancy was caused by the resignation of Mr. S. McIntosh last year, and the question of the appointment of his successor was held over pending consideration by Parliament of the proposal to place the South-Eastern drainage works under the control of this Commission. The South-Eastern Drainage Act, which was passed last session, makes provision for this transfer.

the appointment of Mr. Colebatch as the third member of the Irrigation Commission. They remarked that the settlers in the South-East would be pleased at the view of the fact that any development that took place in the district must be considered from a point of view of the irrigation works and land settlement. The policy and settlement could not be separated from the development policy. Therefore they felt that with the general knowledge on these points, the South-East acquired by Mr. Colebatch, it would be to the advantage of the district. The appointment should be most popular.

may be regarded as being built up of carbohydrates (that is, starches and sugars), fats, and proteins, but there are many necessary building materials required in relatively very small quantities, and these it is that we term the vitamins. The vitamins at present known are five in number, and they are distinguished from one another by letters of the alphabet. As research is still actively proceeding on these substances it is quite possible that the list may be extended in the near future to include known vitamins, A, D, and E, and without cooking; B is partially destroyed, and C is totally destroyed by cooking.

THE NEWS

SATURDAY, APRIL 16, 1927

VITAMINES AND HEALTH

(By Prof. T. Baisford Robertson)

We owe the discovery of the vitamins to the man's attempts which were made during the latter part of the last century and the first decade of the present century to feed animals upon wholly artificial diets. We knew that the food of animals must contain three classes of organic foodstuffs, namely, the class formed by the sugars and starches, the class formed by the fats, and the class formed by the nitrogenous foodstuffs or proteins. Mineral Compounds.

In addition, we were aware that animals must receive a ration of mineral compounds, chiefly, the common salt, with some admixture of other mineral salts. So far as we knew, until about 1912, this was all that an animal should require, and consequently attempts were made from time to time to feed animals upon what were called "synthetic diets" composed of varying proportions of these necessary constituents.

Experiments were invariably unsuccessful, but it was not until 1914 that Prof. Sir F. Gowland Hopkins, of Cambridge University, showed that the origin of the failure of animals to sustain and to live on such diets was the fact that some substance or substances were lacking in these diets which are present in natural foodstuffs. He showed that a very small admixture of vitamins would enable an animal to live upon a "synthetic diet" with every appearance of satisfactory well-being.

Beri-beri Disease. At about the same time extensive investigations were being carried out in Java and other Eastern countries on the disease known as beri-beri, which had by the end of the first decade of this century assumed the proportions of a veritable plague among the peoples of the Orient.

It had been shown by Eijkman, a physician resident in the Dutch East Indies, that rice and towels would develop beri-beri if fed upon polished rice, and that they could be cured by administering to them the washings, or pericarp, which had been removed from the rice in the process of milling.

How Vitamins Were Found

In 1912 Dr. Casimir Funk, who was then working at the Lister Institute in London, was appointed to ascertain what substance in the rice polishings was responsible for their curative effect, and he succeeded in preparing from rice polishings a small amount of a nitrogenous substance, which acted in a curative agent for beri-beri in excessively minute doses. This substance he termed Vitamin.

There is nothing very mysterious about a vitamin. So far as we can see, it is nothing more than one of the building materials out of which we construct our tissues. It is an accessory building material. Thus we might say that a house is made of stones and bricks and wood, which would be a very fair description of its most important constituents no doubt, but the house would not hold together very well or be very satisfactory to live in if there were rigorously no mortar in its construction.

There are all sorts of accessory materials—tiles, nails, glass, etc. which enter into the construction of the finished building; so it is precisely the case with animals. In the main it

What Deficiency Means

The discovery of these substances and the drastic effects resulting from their absence from the diet has led many men to imagine that vitamin deficiencies may be at the root of a host of ills whereby mankind is afflicted. Such widely differing diseases as cancer, decay of the teeth, and osteoporosis, have been attributed by certain authors to deficiencies of vitamins in our diet.

These beliefs are totally unfounded and there is no ground for supposing that in any occupation such as curing, living upon a varied and fairly abundant diet, there is any very widespread deficiency of vitamins.

Just as in the construction of a house a supply of bricks in excess of a superfluous luxury and a needless expense, so also in the nutrition of an animal or a human being a superabundance of any foodstuff, which is devoid of any effect whatever. Doubtless a number of our modern foodstuffs are otherwise preserved, made, or stored in tins at a high temperature, or sealed in vacuums, and B and C, but doubtless also we can satisfy all our requirements of these vitamins from other foodstuffs. As regards vitamins A, D, and E, it is difficult to see how a diet living under one conditions could possibly experience any deficiency of them.

Nutrition of Infants

Vitamin deficiency becomes a formidable possibility, however, whenever the diet is restricted to one or a few foodstuffs, because then the opportunity is lacking to make up the deficiency of one foodstuff by the abundance of another. Vitamin deficiency is always a thing to be guarded against in the nutrition of infants, dependent as they are exclusively upon milk.

The populations of the present time and living under excessive poverty and restricted to very few foodstuffs, are constantly in danger of vitamin shortage. In remote and inaccessible districts, as in some of our furthest outback country, where foodstuffs have to be carried great distances at rare intervals, the same danger may arise. But no apprehension need be felt in the closely settled portions of a highly productive country such as ours, so long as the general standard of wealth is sufficient to permit a fair amount of voluntary choice in the selection of a varied and an abundant diet.

NEWS 20. 4. 27 TOMATO WILT

Waite Institute Experiments

Thousands of pounds are lost annually by tomato growers in Australia through the ravages of a pest which is known as tomato wilt. Many remedies to overcome it have been tried, but although some experiments have been fairly successful, the results have not been sufficient to check the spread of the disease, can be considered reliable.

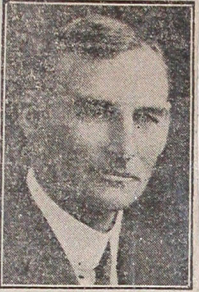
Growers will follow with keen interest the results of the experiments which are being conducted at the Waite Agricultural Research Institute this season. Special glasshouses for the purpose are being completed, and in the near future seeds will be planted.

Under the direction of Mr. G. Samuel (plant pathologist), the growth of the plants will be closely watched during the season 2,300 tomato plants were grown at the institute, and from these many affected with the disease have been selected for closer examination in the laboratory.

NEWS 14. 4. 21 IRRIGATION COMMISSIONER

MR. W. J. COLEBATCH APPOINTED

Mr. William John Colebatch, B.Sc., M.R.C.V.S., was appointed a member of the Irrigation Commission in Executive Council this morning in succession to Mr. S. McIntosh, who resigned some time ago. Mr. Colebatch is a native of South Australia and attended Prince Alfred Col-



Mr. W. J. Colebatch.

lege for control, and will be brought into force on July 1 next, when the title of the Commission will be altered to that of the Irrigation and Drainage Commission.

The Minister of Agriculture (Hon. J. Cowan) stated yesterday that the Government felt that Mr. Colebatch was eminently fitted for the position to which he had been appointed, particularly in view of the knowledge gained by him of the problems in connection with the South-Eastern Drainage Scheme during the time he was manager of the Kybyllie Experiment Farm, and more recently in his capacity of member of the South-Eastern Drainage Commission, and chairman of the Rural Settlement Commission. Mr. Colebatch's training and experience in scientific agriculture would also greatly strengthen the Commission in grappling with the problems incidental to settlement in the irrigation area. The commission had already been greatly assisted in its work by advice from the Department of Agriculture, and the steps to ensure closer co-ordination between that Department and the Commission in regard to its work both on the River Murray area and in the South-East.

In this connection it was the policy of the Government to arrange for the Department of Agriculture that the services of its officers would be available for the Irrigation Commission, and also the Lands Department, whenever required in connection with matters requiring investigation by scientific agriculturists or chemists. Expenses were being performed for the Irrigation Commission by Mr. C. G. Savage of the Berry Experiment Farm, in connection with the inquiries into the productivity of settlers' holdings in irrigation areas. Assistance had also been rendered by the Commission from time to time by Mr. G. Quinn, the Chief Horticultural Inspector, who had furnished valuable reports on problems that had arisen.

Similar results were also anticipated from the investigations of the Waite Institute. The director, Professor Hillbrandson, and his assistant, Professor Mackenzie, were being cordially in collaboration with the State officers in investigations of soil values and other scientific problems connected with the settlement of the irrigation areas, and other agricultural lands.

District Members Pleaded

Satisfaction was expressed by the members for Victoria dated in the House of Representatives, March 17, by Mr. Sheahan at the announcement of

MR. W. J. COLEBATCH HAS BEEN APPOINTED A MEMBER OF THE IRRIGATION COMMISSION.

Jege. Later he studied agricultural practices at the Roseworthy institution, where he was awarded several prizes. Proceeding to Edinburgh University, Scotland, Mr. Colebatch studied agricultural science. Before leaving Scotland he received an appointment as lecturer in veterinary science and zoology at the Canterbury Agricultural College, New Zealand.

He was later transferred to the Victorian Department of Agriculture. In 1900 Mr. Colebatch became superintendent and instructor in agriculture in the South-East, and manager of the Kybyllie experimental farm. On the appointment of Prof. A. J. Perkins as Director of Agriculture in 1914, Mr. Colebatch was selected to fill his position as principal of the Roseworthy College.

His appointment to that position Mr. Colebatch had been a member of the South-Eastern Drainage Commission, and Rural Settlement Commission, which consisted of a public meeting. He was chairman of the public meeting.