

a very restricted region of the insect, being confined to the respiratory system, and only to those tracheæ which are associated with the anterior pair of spiracles. All stages of the Acarine were met with—eggs, larvæ, and adults; they occur within the tracheal tubes extending from the spiracles inwards. The tracheæ become darkened and ultimately black by the increasing deposition of chitin.

In studying the pathology of the disease Mr. P. B. White points out that the mites perforate the tracheæ and live upon the body fluids of their hosts, and he also raises the question, which is extremely difficult to answer, whether they exercise any toxic action also. When present in large numbers they entail the obstruction of the respiratory system of the head and thorax, thereby reducing the efficiency of the respiratory exchange of the organs supplied. In order to obtain some idea of the effects actually arising from the mechanical obstruction of the spiracles, a series of experiments was carried out upon healthy bees. The first spiracle of one or both sides of each bee was closed by means of melted paraffin-wax. Upon closure of one spiracle the experimental bees at once lost the power of flight, but otherwise remained active in their movements. After a lapse of several days the bees became more sluggish, and about the sixth or seventh day examples were noted with dislocated wings and other features which commonly accompany Isle of Wight disease. The thoracic musculature in many cases exhibited atrophy of the same type as had been found in bees infected with the Tarsonemus. In those experiments in which the first spiracle of each side was closed the power of flight was at once lost as before, but after twenty-four to forty-eight hours the bees developed a reeling gait and appeared to be continually falling over their own heads. It was seldom that any survived the third day.

As Mr. White points out, though too close a parallel must not be drawn with the natural disease, these experiments give a basis to the view that the rôle of the Tarsonemus in partially preventing thoracic respiration is of prime importance in the disease, possibly in itself capable of occasioning all the symptoms by which we are wont to diagnose the disease and the muscle atrophy so often associated with it.

There is evidently much still to be discovered; we know as yet very little concerning the migratory stage of the parasites, and provisional experiments in producing artificial infection have so far yielded inconclusive results. The reason for the parasite selecting the first pair of spiracles as its sole means of entry also needs elucidation. The authors of these researches are to be congratulated upon their discoveries, and it is quite evident that the whole subject of bee diseases is the most pressing problem in apiculture in this country to-day; in fact, the future of bee-keeping is dependent upon their thorough investigation.

### University and Educational Intelligence.

CAMBRIDGE.—Prof. F. G. Hopkins has been elected to the Sir William Dunn professorship of biochemistry.

Sir Napier Shaw will give the Rede lecture on June 9 on the subject of "The Air and its Ways."

Mr. H. G. Carter has been appointed curator of the herbarium.

It is proposed to make a grant of 75*l.* from the Worts Fund to Prof. Seward towards defraying the

expenses of an expedition to Greenland undertaken by Mr. R. E. Holthurn and himself for the purpose of collecting fossil plants from Cretaceous and Tertiary rocks on Disco Island and the mainland and of studying the recent vegetation.

Steps are being taken towards an agreed solution at an early date of the problem of the position of women in the University. It is already clear, however, that the latest proposal will not be acceptable to a considerable section of University opinion, though it may carry with it moderate opinion, and also secure the support of those who voted in December for Report A.

LONDON.—The following public lectures will be delivered at King's College during the Easter term. Admission to public lectures is free and without ticket, except when otherwise stated:—A course of three lectures on Wednesdays, May 18 and 25 and June 1, at 5.30 p.m., by Prof. A. P. Newton, on "The Universities of the Dominions and the United States of America."

In the department of science a lecture or lectures will be delivered by Prof. Einstein early in May. The date and title will be announced later.

A course of four lectures on Tuesdays, May 3, 10, 17, and 24, at 5 p.m., by Mr. J. H. Jeans, secretary of the Royal Society, on "Cosmogony and Stellar Evolution."

In the department of philosophy a course of four lectures on Tuesdays, May 10, 17, 24, and 31, at 5.30 p.m., on "The Present Issue between Realism and Idealism," by Prof. H. Wildon Carr.

In the department of engineering a course of four special lectures for post-graduate and other advanced students on Tuesdays, beginning May 3, at 5.30 p.m., on "Cascade Work in Induction Motors," by Mr. L. J. Hunt. This course is free only to the regular students of the faculty of engineering.

A HOLIDAY course in geology will be held at the School of Metalliferous Mining, Camborne, Cornwall, on July 18–August 27. The course will deal with economic geology, with special reference to West Cornwall, and will consist of lectures and laboratory and field work. The programme includes the mapping of areas both on the surface and underground, a number of excursions to localities around Camborne of interest to geologists, and work in the school dealing with rock-forming minerals, rocks, the mechanical analysis of alluvial sands, and methods of dressing the products. Students wishing to enter for it should apply to the Registrar, School of Metalliferous Mining, Camborne.

It is announced that Prof. E. Cohen, of Utrecht, will give two lectures on "Metastability of Matter and its Bearings on Chemistry and Physics," probably at University College, London, on May 10 and 12 at 5.30 p.m. Two lectures by Prof. H. E. Armstrong on "Enzymes in Relation to Plant Growth" have also been provisionally arranged; they will be delivered at King's College on June 3 and 10 at 5 p.m. Another course, of three lectures, by Prof. E. W. MacBride, on "Recent Advances in Experimental Embryology," will probably be given at the Imperial College of Science and Technology on June 7, 8, and 9 at 5 p.m. These courses of lectures are intended for advanced students of chemistry, agriculture, and zoology respectively and others interested in these subjects. In all cases admission will be free and without ticket.