

The officers of the commission, provisionally elected at the first meeting, were confirmed as follows:—President, Mr. Duddell; vice-president, Mr. Wien; general secretary, Mr. Goldschmidt; assistant secretary, Mr. R. Braillard.

#### THE RESEARCH DEFENCE SOCIETY.

THE annual general meeting of the Research Defence Society was held last week at the Royal Society of Medicine. About 160 persons were present, among them Sir William Osler, Sir John Tweedy, Sir David Ferrier, Prof. Cushny, Sir James Reid, Sir Charles Dalrymple, Sir John Brunner, Sir Hugh Bell, and Sir Francis Champneys. Expressions of regret for non-attendance were received from Mr. Waldorf Astor, Mr. Arthur Balfour, Lord Bath, the Dean of Canterbury, Lord Hugh Cecil, Lord Cromer, Sir Francis Darwin, Lord Faber, Lord Farrer, Bishop Frodsham, Mr. Walter Guinness, Lord Claud Hamilton, Sir John Prescott Hewett, Lord Kilmorey, Sir Norman Lockyer, Mr. Walter Long, Prof. Howard Marsh, Lord Northbrook, Sir Gilbert Parker, Sir Frederick Pollock, Sir William Ramsay, Lord Rayleigh, Sir Henry Roscoe, Lord Salisbury, Lord Sheffield, Sir Edgar Speyer, the Bishop of Stepney, Sir Frederick Treves, and Mr. Henry S. Wellcome. The chair was taken by the president, Lord Lamington.

Lord Knutsford, chairman of committee, presented the reports of the society. He referred to the Dogs Protection Bill, pointing out that such a Bill might have prevented the discovery of a cure for distemper; and he directed attention to the educational work of the society. "We are trying, trying, to make the truth understood."

The president then gave his address. After a reference to his predecessors in office, Lord Cromer and the late Sir David Gill, "Our society," he said, "is really a protecting guard for science, in its noblest form, against those who, whilst we can respect their feelings and desires, are led by their emotions rather than by their reason." We should look around, to see what other nations were doing. All nations were engaged in research involving experiments on animals, and that, in most instances, without any legal restriction. "That is a system of which I am sure this country would not approve. Our desire is to reduce human and animal suffering, and on no account to encourage any practice which could possibly tend to permit callousness or indifference to the pain suffered by others. I cannot help thinking that it is this idea which is at the back of the mind of anti-vivisectionists: it is the dislike of seeing human beings engaged in any undertaking involving pain, and the fear of its thereby hardening or debasing human character. It is not merely the fact of pain being inflicted upon the animal, but the fear of the reactive effect on the mind of the person who inflicts the pain. For instance, we should term a farmer, who chose a pet lamb to be killed, rather than one out of his flock, a man of brutal character; yet the pain to the animal would be alike in either case."

Speaking of pain in the animal world, "I may be wrong," he said, "but I am honestly convinced that it is not physical pain that causes the greatest amount of suffering to animals; it is when their instinct of self-preservation takes alarm that they suffer. Anyone who has seen wounded wild animals must have noticed how, when unalarmed, they appear indifferent to their wounds. It is only when their instinct of self-preservation is aroused, and they become aware of their disablement, that they seem to suffer. . . ."

"I wish here to say, most emphatically, that the chief business of our society is not mere fighting. It

is the quiet, steady educating of public opinion as to the true character and method of experiments on animals in this country, and the great advantages which these experiments give, not only to human life, but to the life and health of the higher domestic animals."

A vote of thanks was proposed by Sir Reginald Talbot, seconded by Dr. Sandwith. After the meeting, there was a demonstration with the kinematograph of living germs of cholera, typhoid, sleeping sickness, etc.

#### THE SYNTHETIC POWER OF PROTOPLASM.<sup>1</sup>

FROM the point of view of the biological chemist the phenomena of life are manifestations of interactions of colloidal and crystalline materials in a peculiarly organised solution; over and above this every form of protoplasm, existent in any organism, is stereochemically ordered in specific relationship to that organism, so that the products of synthesis have an impressed structure and manifest optical activity. It has been suggested by Prof. Armstrong that the protoplasmic complex may be regarded as built up of a series of associated templates which serve as patterns against which change takes place in the various directions necessary for the maintenance of vital processes. This view is based on the well-known relationship between an enzyme and its hydrolyte; the synthetic enzymes, it may be supposed, serve as patterns for the elaboration of complex materials of definite pattern from the simple units.

In speculating on the origin of organic life from inorganic material Prof. B. Moore has ignored this stereochemical aspect of the question. His use of the well-known synthesis of formaldehyde from carbon dioxide and water in presence of an inorganic catalyst—in his case a colloid—can lead only to optically inactive material, and there is no justification even for the mention of the term life until evidence of directed synthesis is adduced.

The stereochemical hypothesis enunciated has been advocated by Prof. Reichert, of Pennsylvania, in his researches on hæmoglobin, in which he showed that this substance is modified in specific relationship to genus and species. He now extends the hypothesis to the study of starch, expecting that the peculiarities of the protoplasm in different species of plants will occasion the formation of different types of starch. The variations in the starch granule with origin are, of course, well known, and they are of industrial importance. They are now shown to be absolutely diagnostic in relation to the plant and to constitute a strictly scientific basis for the classification of plants. In addition to recording the microscopic characters of the starches an attempt has been made on a large scale to characterise them chemically, and although these tests are admittedly crude and leave much to be desired, they do mark a great advance in the treatment of the subject.

It may be regarded as established that starches of different origin vary both visibly and in chemical properties; moreover, plants of closely allied species contain starches with similar properties, and it is logical that such variations must be attributed to the differences of protoplasmic influence under which the starch granules are formed. It must not be overlooked, however, that starch granules are made up of three kinds of substances, namely, the true

<sup>1</sup> "The Differentiation and Specificity of Starches in Relation to Genera, Species, etc." *Stereochemistry Applied to Protoplasmic Processes and Products, and as a Strictly Scientific Basis for the Classification of Plants and Animals.* By Prof. F. T. Reichert. In two parts. Pp. xvii+900+102 plates. (Washington, D.C.: Carnegie Institution of Washington, 1913)