

characters in common, making it very difficult to draw an arbitrary line at a certain size as criterion for separating two classes of entirely different natures.

SIR HENRY referred to Huxley's discussion of biogenesis and abiogenesis, and to the recurring claims for the origin of life from dead matter, including the 'spontaneous generation' of worms, maggots and bacteria, and the repeated victories of the advocates of biogenesis. He stated his personal opinion that the similar claim that viruses have their origin by heterogenesis in the tissues of the host would in the future be disproved and that the doctrine that like breeds like would triumph in this field also. Sir Henry emphasised the fact that viruses are obligatory parasites and suggested that the minute filterable particles are only a stage in the life of the infective agent, which might be able to reconstitute larger and more complete forms inhabiting the cells of the host where they cannot now be recognised or their size determined. He propounded the view that our theoretical problem is not to determine the lowest limit of size compatible with the minimum required for a living reproductive cellular unit, but to determine what is the minimal portion of such a unit which might be adequate for its reconstitution under favourable conditions.

#### Royal Institution: Annual Meeting

MAY 1 was the day of the annual meeting at the Royal Institution, when the members received the report of their committee of visitors on the state of the Institution during the year 1934, and when the election of officers took place in accordance with the time-honoured procedure. The three scrutineers were sent to watch the three balloting glasses during the half-hour that the ballot must remain open; at the end of the time they marched out to the private room appointed for the counting of the votes; and in due course they returned, to report to the meeting the names of the officers, managers and visitors elected for the year 1935-36. The president is to be the Right Hon. Lord Eustace Percy; the treasurer, Sir Robert Robertson; the secretary, Major Charles E. S. Phillips; new managers are Prof. E. N. da C. Andrade, Sir Frederick Berryman, Prof. A. Fowler, Sir Richard Paget, Prof. A. O. Rankine, Dr. G. C. Simpson, Mr. W. J. Tennant and Mr. James Whitehead. The visitors report testified to increased membership, to improved attendance at the lectures and to a year of varied activities in the Institution. The accounts show a financial position which cannot but be gratifying to the members and to their treasurer, Sir Robert Robertson, who has had charge of the finances since 1929, one of the most eventful and at times anxious periods in the Institution's history. The report of the Davy Faraday Research Laboratory records valuable progress during the year in the researches, largely on the structure of organic molecules, directed by Sir William Bragg. In the unavoidable absence of the president, Lord Eustace Percy, the meeting was conducted by the honorary secretary, Major Phillips; and it was remarkable for the felicitous terms of a speech in

which the thanks of the members were given to the president for his services during the past year by Sir James Crichton-Browne, of whom the evidence of *Who's Who*, that he is now in his ninety-fifth year, is difficult to credit.

#### Atomic Arrangement in Metals and Alloys

PROF. W. L. BRAGG, in the twenty-fifth annual May Lecture before the Institute of Metals on May 8, dealt with the inner structure, or atomic arrangement, of metals and alloys. In general, when one metal is alloyed into another a series of phases appears. Metal *A* dissolves a certain amount of metal *B* with a gradual alteration in properties as the proportion of *B* increases. At a certain composition, a limit is reached, and for greater amounts of metal *B* a new phase appears as separate crystals of quite different properties mixed with the first phase. Regions of single and double phase alternate as the composition varies from pure *A* to pure *B*. These phases are the nearest approach in an alloy system to the chemical compounds formed by combining elements. X-ray analysis has shown that each phase has its own definite pattern, such as a cubical array with atoms at corners and centres, or at corners and centres of faces. The pattern changes from phase to phase. One of the most striking generalisations about alloy patterns to which X-ray analysis has led us is the empirical Hume-Rothery rule, which states that the ratio of free electrons to atoms in a structure is the same for alloys with the same pattern. H. Jones has recently shown how the alloy pattern affects the binding energy of these free electrons, and so has given a reason for this rule. Another point brought out by the X-ray analysis is that the method of arrangement of the atom amongst the positions of the phase pattern can be varied widely. The phase pattern is an entity apart from the way the atoms are distributed, in marked contrast to ordinary chemical compounds. The study of the movements of the atoms amongst the positions, as affected by heat treatment, can be made the basis of a very interesting theory; at high temperatures the atoms are shuffled up in a random way, while at low temperatures they sort themselves out into a regular alternation. The importance of this work is that it provides a basis for the chemistry of compounds formed between metals.

#### A National Statistical Service

THE establishment in Great Britain of a special statistical council comprised of business men, bankers, economists and members of the general public charged with the task of instituting a National Statistical Service was recommended by Mr. Roy Glenday in opening a discussion on "The Use and Misuse of Economic Statistics" before the Royal Statistical Society on April 16. This new body would not itself collect statistics, but would devote its energies to co-ordinating the statistical work now being performed by Government departments, private bodies and individuals. Mr. Glenday pointed out that international trade has reached a crisis in its fortunes