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

since the 'white' populations are rapidly approaching stagnation—that of Great Britain is actually on the eve of a decline—yet we have no means of measuring the industrial and commercial changes which this entails. No organisation has been evolved to collect the statistics and other information which it is imperative to possess, and instead we are continuing to press forward with reorganisation schemes in housing, education and transport at home and to expand food and raw material supplies overseas as if world populations are destined to go on expanding at the old rate and with their age distribution unchanged. The fundamental statistical facts and trends in regard to our economic life should become as much part of the common stock of ideas on which all act, as are certain of the fundamental facts of physics and chemistry.

Economics of Progress

THE James Seth Memorial Lecture at the University of Edinburgh was delivered on April 26 by Mr. Roy Glenday, economic adviser to the Federation of British Industries, who took as his subject "The Economic Consequences of Progress". There is a limit, he said, beyond which it is unhealthy to allow growth to proceed even in a community which takes special care not to overstep the frontiers of its own territory. Conflict will still inevitably arise in the process of growing, under the pressure of congestion between the members of the different groups or subdivisions into which the community of necessity splits its territory and occupations. No matter what may be the basic plan of subdivision adopted, there is a limit to the size of economic structure which can be erected on it with safety. The United Kingdom, however, still possesses enormous resources, and the solution Mr. Glenday favours is the one which accepts present tendencies as both reasonable and inevitable. They should be encouraged by promoting a flow of migrants from Great Britain, not for the purpose of developing the land and country-side of the Dominions and Colonies but to enlarge their industries and towns. Given supplies of cheap capital, there are no insuperable obstacles to a redistribution of population between the over-populated Mother country and the under-populated Dominions overseas. This would be as much to their advantage as to ours. In Canada, for example, the railways could serve a population three times its present size.

Guide to National Collections

AMONG the numerous suggestions which have been put forward of means whereby the public might be stimulated to visit in greater numbers the museums and national collections in London, that of a general guide covering all the collections has been one of the most attractive. It has been pointed out that few, outside those who are technically or professionally interested, know where to find exhibits which will illustrate subjects on which they desire to be better informed, while even among the learned and scientific public, not many could without hesitation state off-hand the range and purpose of each unit in the series. A "Brief Guide to the National Museums and Galleries of London" (H.M. Stationery Office, pp. 106. 6*d*. net) has now been issued in accordance with a recommendation of the Standing Commission on Museums and Galleries in the hope, as expressed by Lord d'Abernon, the chairman, in a prefatory note, that "this guide, giving in compendious form the salient facts of interest concerning each of the Institutions, may stimulate public interest, both at home and abroad, in the unrivalled resources of the National Collections". It is not intended to supersede individual guides and handbooks, but to supplement them by giving briefly within a single cover information relating to the origin, purpose, range and arrangement of each, together with much useful and practical information, such as how to get there, time of opening and closing, charge for admission, if any, and the like. Especially helpful is a series of street-maps, showing the approaches. The information is clear, direct and comprehensive and there are some excellent illustrations. Experience will show whether the information is given in a form which will attract those for whom it is intended. Should the demand justify, it will be revised annually. Copies may be obtained at H.M. Stationery Office sale branches or through any bookseller, as well as at the museums.

University of London Buildings

MR. T. LL. HUMBERSTONE sends us a copy of a letter he has sent to the Clerk of the London County Council relating to the provision of an open space on part of the site of the new buildings of the University of London at Bloomsbury. He informs us that since his election as a member of the Holborn Borough Council in November last, he has found that an undertaking was given by the University to the Council and also to the London County Council that the University would "preserve a garden area with trees and grass equal in size to, but not necessarily identical in location with, that now existing in Torrington Square gardens". It appeared after inquiries made by Mr. Humberstone that this undertaking was not carried out by the layout of the buildings. Representations were therefore made, with the result that a new design and layout have been prepared, providing approximately an acre of additional open space in the form of three bays on the Malet Street frontage, giving this façade a crenelated form. Mr. Humberstone is the author of a valuable historical work on "University Reform in London" and contributed to NATURE of July 9, 1932, a long article on the development of the University and the design of the new Buildings.

British Oil from Coal

THE first train load of 100,000 gallons of oil made by low-temperature carbonisation from British coal went to the new plant of Imperial Chemical Industries, Ltd. at Billingham from the Barugh (Yorks) works of Low Temperature Carbonisation Ltd. on April 26. The train, which was drawn by two locomotives, consisted of 34 tanks of 3,000 gallons each and weighed