formation of nickel sulphide, which forms a fusible scale.

Mr. J. Arnott gave a short account of the behaviour of Monel metal, which is composed chiefly of nickel and copper, towards various reagents. This alloy is particularly resistant to sea water, to impure waters such as those of many mines, and to steam.

An important point was brought out by Mr. J. H. S. Dickenson, who remarked that for many technical purposes stainlessness as usually understood was not required, freedom from pitting and gross rusting being more important. For example, in submarine work it is not essential that parts should remain quite bright, but it is necessary that they should not become jammed by accumulations of rust. A piece of soft stainless steel, merely sand-blasted, had been exposed in the garden for eighteen months, and, although it had rapidly assumed a yellowish tarnish after the first rain, it had not lost weight, while a mild-steel sample had rusted badly. Mr. Macnaughten remarked that for some purposes a good electrical conductivity was required as well as resistance to corrosion, and that in such cases pure nickel had advantages even over Monel metal.

Some differences of opinion were manifested in regard to the chromium steels. The comparatively recent introduction of alloys so low in carbon as to be available for use without hardening, and in the cold-worked condition, has led to the use of the term "stainless iron" for such alloys, while other authorities prefer to regard the stainless steels as forming a continuous series of varying carbon content. Commercial considerations are involved, but it appears that for practical purposes there is a division, which occurs at the point where the carbon falls so low that the use of an expensive ferro-chrome becomes necessary in the manufacture. Scientifically, there is no break in the series.

Turning to another class of alloys, an interesting announcement was made by Mr. Harold Turner, who exhibited articles made of a new standard silver, free from copper, but containing the 92·5 per cent. of silver required in order to obtain the hall-mark. Although it is not claimed that such an alloy is resistant to acids, experiments had shown that the tarnishing caused by the atmosphere of a town was very greatly less than that of standard silver. Fuller particulars of this interesting alloy will be given at a later date. The working qualities prove to be excellent. No account was given of the alloys of the nickel silver group, some of which have been improved in respect of their resistance to corrosion, particularly by the introduction of tin in place of zinc; but Mr. F. Orme described some acid tests with several alloys of this class, showing little difference between them and the older alloys. It was, however, argued that these alloys are not intended for exposure to acids, and that only a higher resistance to atmospheric action is to be expected from them.

A valuable paper on the mechanism of so-called "dry corrosion" was read by Mr. U. R. Evans, of Cambridge, whose experiments included the examination of a number of metals and alloys when exposed to various gases, either saturated with moisture or in a relatively dry state, excluding the case of the complete absence of moisture. The action was regarded as electrolytic, the formation of a thin liquid film being an essential part of the process. The conductivity of such a film is an important factor. When the product formed is hygroscopic, so that the surface of the metal becomes visibly wet and the liquid may fall off in drops, as in the attack of zinc by hydrogen chloride, nickel by sulphur dioxide, and copper by ammonia, the corrosion is very rapid. Observation of the tarnish colours formed in the early stages of the corrosion seems to indicate that local anodic and cathodic areas are present at the beginning. The formation of temper colours by oxidation at higher temperatures, as in the case of iron above 220°, appears to be a different phenomenon. Dr. R. S. Hutton mentioned that this side of the subject was engaging the attention of the Non-Ferrous Metals Research Association, and that Mr. Vernon was conducting experiments for the Atmospheric Corrosion Committee in this direction. Mr. Vernon, in a written communication, questioned the necessity for the presence of water in such attack by gases, and offered an alternative explanation of the facts.

The discussion undoubtedly served a useful purpose in bringing together data as to the classes of alloys now available when a greater resistance than usual to corroding agents is required. Great progress has been made in this direction, to which the stainless steels and the alloys of the nichrome class, as well as the older silicon irons, bear witness. The new silver alloy is a further indication of the attention being given to the production of alloys which will suffer less by exposure to the atmosphere of towns. Unfortunately, a scientific theory of the phenomena is still lacking, the theory of corrosion, in spite of its very extensive literature, being lamentably imperfect. The process of trial and error, which is at present almost the only method for the discovery of resistant alloys, needs to be replaced by a systematic conception of the process, which will make it possible to predict, with some approach to accuracy, the behaviour of a new combination of metals towards a given environment. The Faraday Society has already performed useful services in regard to this matter, and it is to be hoped that when the next symposium is held it may be possible to review the subject in a less empirical manner.

University and Educational Intelligence.

ABERDEEN.—Sir Robert Horne, who delivered his address as Rector of the University on Thursday, April 26, dealt with the relation of the Universities to post-War problems, and with their increasing responsibility for "cultural" education in an age in which the pressure of business leaves less and less time for the cultivation of the arts. After the address, he announced that he intended to offer a prize of 25*l.* for an essay on "The Function of Universities in the Modern State."

CAMBRIDGE.—Prof. Nuttall and Sir William Pope have been appointed to represent the University at the ceremonies connected with the centenary of the birth of Pasteur to be held in Paris and Strasbourg during the present month.

In connexion with the jubilee celebration of the Local Lectures to be held in Cambridge in July, it is proposed to confer honorary degrees on Sir Michael Sadler, Prof. R. G. Moulton, and Messrs. Albert Mansbridge, G. P. Bailey, J. H. Fisher, and A. Cobham.

Sir Archibald Garrod, Regius professor of medicine, Oxford, will deliver the Linacre Lecture on May 5, the subject being "Glimpses of the Higher Medicine."

LONDON.—A research studentship for post-graduate work at the London School of Economics and Political Science will be awarded in July next. Its value will be 175*l.*, in addition to fees, and it will be tenable for two years. Application forms (which must be returned not later than May 31) can be obtained from the director of the School, Houghton Street, Aldwych, W.C.2.

MANCHESTER.—Prof. de Sitter, of the University of Leyden, will deliver a lecture on "The Theory of Jupiter's Satellites" at the University on May 9, at 5.30 P.M. Visitors will be welcomed.

OXFORD.—Sir Michael Sadler has been elected Master of University College, in succession to Dr. R. W. Macan, who retired from the office on April 1. Sir Michael Sadler was well known in Oxford from 1880 to 1895 as scholar of Trinity and steward and senior student of Christ Church. He was president of the Union in 1882, and from 1885 to 1895 he did valuable work as secretary to the then lately-established Oxford University Extension Scheme. He was appointed professor of the history and administration of education at the Victoria University of Manchester in 1903, and became Vice-Chancellor of the University of Leeds in 1911. Sir Michael Sadler is the leading authority upon education in Great Britain, and his return to Oxford is confidently expected to prove a source of increased strength to the educational efficiency of the University.

BY the will of Dame Ella Mabel Farrar, the sum of 4000*l.* is bequeathed to such university or university college in the Transvaal as her executors shall select, to found a George Farrar agricultural scholarship for students of European birth.

H.R.H. PRINCESS MARY, Viscountess Lascelles, has consented to present the prizes and certificates to the students of the London (Royal Free Hospital) School of Medicine for Women (University of London), Hunter Street, Brunswick Square, W.C.1, on Saturday, June 2. Scholarships to the total value of 1010*l.* will be awarded for the session beginning in October 1923. Full particulars and forms of entry can be obtained from the warden and secretary of the hospital.

ON April 4, the Sterling Chemistry Laboratory of Yale University, the first building to be erected out of the funds provided by the bequest of John W. Sterling to the University, was formally opened, and Sir Joseph Thomson delivered an address on "The Unity of Physics and Chemistry." The date is interesting as being the centenary of the first lecture in chemistry delivered at Yale by the first professor of chemistry, Benjamin Silliman. The building has cost about 400,000*l.*, and according to *Science* of March 23, in which some details of its equipment are given, it is the finest material plant in the world for the teaching of chemistry and for research. There is a laboratory for industrial chemistry, which contains apparatus of factory size, and extends from the foundations of the building to the roof. The centre of the building is devoted to teaching laboratories, all on the same level, and separated from each other by light walls, which can readily be removed should it be necessary to enlarge any laboratory. The building also contains a large number of small private laboratories, two large lecture-halls, classrooms, and a well-furnished library.

THE foundation, recently announced, of six Henry P. Davison scholarships tenable by Oxford and Cambridge men for one year in Harvard, Yale, and Princeton Universities, may perhaps be regarded as significant of a movement in the United States in favour of endowments reciprocal to the Rhodes Scholarship Trust. Each of the Davison scholarships is worth 1500 dollars plus tuition fees, or about 375*l.* in all. According to an announcement by the Oxford selection committee, preference will be given, other things being equal, to undergraduates in their second year proposing to return, on the expiry of the term of tenure of the scholarship, to their own University for a further year of study. Selection will not be by examination. The selection committee will base their choice on a consideration of character, scholarship, and of general fitness to represent the University. It is understood that the scheme is, in its present form, experimental. Compared with the 96 Rhodes scholarships tenable in Oxford by Americans, the number of American university and college scholarships for British students is rather small. A list published in the "Universities Yearbook" gives: the Rose Sidgwick Memorial, 1000 dollars; Choate Memorial (Harvard), 1850 dollars; Bryn Mawr, three of 720 dollars each; Union Theological Seminary, New York, 1200 dollars; Jane Eliza Procter (Princeton), two of 2000 dollars each; and Auchinloss and Dawson (Yale), 2000 dollars. The very magnitude of the Rhodes Scholarship Trust has perhaps hitherto tended to discourage reciprocity.

EDUCATION WEEK in America, December 3-9, was marked by proclamations by the president of the United States and by governors of 42 States, by hundreds of thousands of addresses, sermons, and speeches, by special editions of or editorial support in half of the newspapers of the country and by articles in practically all the others, by special exhibitions in practically all the motion-picture theatres, and by messages from numerous broadcasting stations. What is the justification for such a raging and tearing campaign? The United States Government Commissioner of Education answers this question by saying that no step forward in education can be made except as the result and with the approval of public sentiment, and it is therefore of fundamental importance to arouse the interest of the public generally, and not merely of the educator and educated man, in the needs of education. The Bureau of Education itself made use in Education Week of the Government naval aircraft broadcasting station, and followed this up by establishing a regular service of broadcast messages. The "radio talks" are given on Monday and Thursday evenings, and deal with such subjects as consolidation of rural schools, health work in schools, etc.

THE report for 1922 of the Carnegie United Kingdom Trust gives particulars of grants amounting to 106,669*l.*, distributed as follows: Libraries 68,303*l.*, music and the drama 17,320*l.*, physical welfare 10,300*l.*, hostels 6452*l.*, miscellaneous 4294*l.* Of the grants for libraries 36,000*l.* went to rural circulating, 24,000*l.* to urban, and 5000*l.* to special libraries (central libraries for students, Co-operative Library of Dublin, Royal Aeronautical Society, College of Nursing, and Merchant Seamen's), while 1500*l.* was given to the School of Librarianship and 1600*l.* to the "Subject Index to Periodicals." The trustees aim at "providing the initial expenditure necessary for the efficient inauguration" of projects likely to have permanent national value, and especially new projects of a pioneer character, rather than at maintaining indefinitely enterprises which give no promise of becoming self-supporting. Their operations derive from this principle a certain liveliness not commonly associated with the administration of property in mortmain. In connexion with the rural libraries scheme the report comments on the disadvantages of the system under which in England and Wales the Education Committee is only a department of the County Council instead of being an autonomous authority as in Scotland. Among other important benefactions are: a guarantee of 1000*l.* in connexion with the publication of a "World List of Scientific Periodicals," showing libraries in Great Britain where they are on file, and a grant for the National Institute of Industrial Psychology.