of certain individual benefactors, and of those home cities or dominions which from time to time entertain it for its annual meetings, the power the association has acquired for the advancement of science might be far more effectively exercised if it possessed a larger endowment. The council would be loath to risk narrowing the present wide field of membership and therefore of interest and usefulness by increasing the subscription for the annual meeting, though that still remains at the figure of one pound at which it was fixed in 1831, and has even been recently reduced to half that sum for junior student members. The council has therefore decided to appeal for a centenary fund of £40,000.

A first charge upon that fund or the income from it must be the expenditure appropriate to the fitting celebration of the centenary itself. In this connection it is the object of the council to make the centenary meeting an occasion for the gathering of the largest possible representative body of scientific workers from the dominions, and by this means to repay something of the debt which the association owes to those dominions whose hospitality its members have enjoyed.

Beyond this immediate object the association earnestly desires to maintain and extend its annual financial support of scientific research, to discharge fittingly the trusteeship of Darwin's house at Downe, recently entrusted to it in custody for the nation and indeed for the civilized world, and to assure the means of carrying out its imperial responsibilities. Its financial constitution has always forced it to live in a measure from hand to mouth.

The contributions towards research from the funds of the association fluctuate annually with its net balance of receipts over expenditure, and it is therefore often a matter of chance whether the association is able to support any particular research in accordance with its intrinsic importance. Not infrequently the association has to count the cost, with too much appearance of parsimony, before accepting an invitation to a particular place, having regard to the prospects of local support, or to the distance and expense involved for members who attend. Where the association is summoned to carry on its public mission, there the council feels that it should be able to go without question or limitation on financial grounds.

Those who serve the association by contributing to its program, carrying out its researches and organizing its reception at successive places of meeting, do so voluntarily, and it has been said that to voluntary service in the interests of science the whole story of the British Association stands as one great memorial. The object of the present appeal is to strengthen the organization which makes use of that service.

Contributions to the centenary fund will be gratefully acknowledged by the General Treasurer, British Association, Burlington House, London, W.1, and it is competent for donors to hypothecate their contributions, if they so desire, for research in any particular department of science or for any of the objects which have been indicated above.

F. O. BOWER, *President*
J. C. STAMP, *Hon. General Treasurer*
JOHN L. MYRES, F. J. M. STRATTON, *Hon. General Secretaries*
O. J. R. HOWARTH, *Secretary*

THE BRITISH PARASITE LABORATORY

THE London *Times* reports that delegates from twenty-two British Empire countries who attended the Imperial Entomological Conference visited the Farnham Royal Parasite Laboratory, Buckinghamshire, which was founded by the Imperial Bureau of Entomology in 1927, by means of a grant from the Empire Marketing Board, to further the control of insect pests by the biological method. The visit gains topical interest by the publication of "The Biological Control of Insect and Plant Pests," which contains the first full account of the work at Farnham Royal.

The "Parasite Zoo," as the laboratory has been called, is a converted country house used as a clearing station and breeding center for "beneficial" insects. These are dispatched to the Dominions and Colonies to attack the pests which cause enormous loss to plant and animal life. The good insects are parasites, and control the bad insects by laying their eggs in or on the pest's grubs and eggs, and then by feeding on them. In the three years of its existence the laboratory has been asked by Dominion and Colonial Governments to investigate some seventy different kinds of insect and weed pests in the hopes that parasites might be found.

It is estimated that blowflies annually destroy about 5 per cent. of the sheep of Queensland, and cost Australia £4,000,000 a year. The wheat stem sawfly did £2,500,000 worth of damage in 1926 in one province alone. America suffers so severely that a sum of £2,000,000 was recently spent by the government in one year in an effort to check the advance of a single insect, the European corn borer. This borer is now advancing into Canada. The United States has recently spent £12,000,000 in fighting five insects.

The report describes some curious devices invented by entomologists. One of these is called a "bouncing machine." Insect eggs are made to roll down a wooden chute and bounce off a small piece of tin at the bottom. An egg which has been parasitized—that is, which has another egg, laid by the parasite, inside it—has not the same capacity for bouncing as have

healthy eggs, which jump into a further tin, and so are separated for laboratory purposes.

Shipments of some twenty different kinds of insects have been sent overseas, generally in cold storage, in special cases with food, such as raisins or sugar and water, for rations. Fourteen consignments of a parasite which attacks woolly aphis—a serious apple-tree pest—have been distributed in England, India and Kenya Colony. This has practically exterminated woolly aphis in New Zealand. Parasites of the wheat stem sawfly, the whitefly and the pine shoot moth have gone to Canada; one which attacks the sheep blowfly has been shipped in large quantities to Australia and South Africa; a Californian ladybird has gone to Madras; a miniature wasp which eats the pear slug has gone to New Zealand and a bollworm to the Barbados. In all, a total of about 58 shipments, comprising some 100,000 specimens, have been shipped from the laboratory to various parts of the Empire.

THE IRON ALLOYS COMMITTEE OF THE ENGINEERING FOUNDATION

A SUMMARY of world progress in the field of iron alloys, advance in which is held to be fundamental for American industry, is the object of a program of research enlisting the cooperation of more than sixty industrial and scientific organizations and corporations of the United States under the leadership of the Engineering Foundation.

A fund of $230,000 to make possible a review of all available literature has been contributed by the cooperating organizations, among which are the American Foundrymen's Association, the Battelle Memorial Institute of Columbus, Ohio, and approximately fifty companies producing or using steel and iron. Universities and technical schools, foreign agencies and bureaus of the United States Government are aiding the project, in which the Engineering Foundation has the active assistance of the American Institute of Mining and Metallurgical Engineers and the American Iron and Steel Institute. The American Society of Mechanical Engineers, American Society of Civil Engineers and American Institute of Electrical Engineers also are cooperating.

The scope of the investigation, which is described as the most ambitious ever undertaken in this field, was outlined by an advisory committee headed by Dr. John Johnston, director of research and technology of the United States Steel Corporation. Supervision of the program, which will require five years for completion, has been delegated to an Iron Alloys Committee, of which Dr. George B. Waterhouse, professor of metallurgy in the Massachusetts Institute of Technology, is chairman.

As its initial task, the foundation and its cooperating organizations are conducting a critical review of all available literature in English and other languages. Coincident with this review, two lines of original research into iron alloys have been initiated. Others will be taken up later as the need for them is revealed by the critical examination of the very extensive literature.

Underlying the plans of the foundation and its associated bodies is the growing necessity for condensed, dependable statements in convenient, classified reference books, of the basic information upon which the future advancement of the iron and steel industry may be built. World competition and increasing demands upon production are expanding the need for research which will keep the United States abreast of progress in the field of iron and steel alloys.

The critical examination of scientific and trade journals and books published during the last forty years in all parts of the world is the first step being taken by the committee. Much progress has been accomplished. A list has been made of approximately 2,000 journals in ten languages, containing information of all kinds on iron and its combinations with other substances, the announcement says. This list is believed to be very nearly complete for all periodicals which have been published for any period since 1890 in twenty-five countries. Books will also be included in the review.

The portion of the enterprise now in hand is searching the literature for information on thirty-nine elements and compounds in twenty-three separate classifications, making a total of more than 800 classifications.

With the cooperation of Lehigh University, a study of the combinations of iron with silicon was begun under the direction of Mr. Bradley Stoughton, professor of metallurgy, who brought to the Engineering Foundation the suggestion that has been expanded into the Alloys of Iron Research. The review of the literature has been nearly completed, a bibliography prepared, some laboratory research done and a monograph drafted.

A grant was made to the Carnegie Institute of Technology to assist a research in the combination of iron with manganese by V. N. Krivibok, associate professor of metallurgy, and associates under the direction of Francis M. Walters, Jr., director of the Bureau of Metallurgical Research. Important results have been achieved in the laboratory, and progress has been made upon a review of the literature. These two projects have proved fruitful not only in information on their subjects, but also in guidance to the committee in devising methods for the whole enterprise.