Lancaster-Jones on "Searching for Minerals with Scientific Instruments," and the second by Sir Gilbert Walker on "The Physics of Sport."

Among the demonstrations given by the Gramophone Company was a display of television, on a system developed by the company's research staff at Hayes, Middlesex. The work has reached the stage of an advanced laboratory experiment, but there is no intention of exploiting it commercially at present. The aim of the company is to produce a form of television that will be of definite entertainment value, without which, it is considered, no system can hope to be commercially successful. Attention has been concentrated on two points—the employment of a large number of picture elements to each unit area of the picture, in order to get definition, and some means of modulating the strong light needed to give an image of real entertainment value. The second of these requirements has been met by using a powerful arc lamp and designing apparatus to control this powerful source of illumination.

In the experiments which are to be shown at the exhibition, cinema pictures are transmitted along cables, and reconstructed on a screen measuring about 24 in. by 20 in., without the aid of lens magnification. Although for this demonstration the transmitter and receiver will be only a short distance apart, there would be no difficulty in using cables of any length between them. At a private view at the Gramophone Company's works some days ago, several film pictures were successfully transmitted by the apparatus, including pictures of street scenes in London and of a cricket match. The pictures are scanned at the transmitter in five sections of thirty lines each, a lens drum being used to traverse a succession of images over five scanning apertures. Photo-electric cells placed behind these apertures generate currents corresponding to the picture elements, and these currents are amplified and transmitted along five separate channels. At the receiver, further amplification is necessary before the picture pulses are applied to a multiple Kerr cell. The received image is reconstructed by means of a mirror drum driven synchronously with the transmitter, and thus projected on the screen.

BUDGET FOR THE U. S. DEPARTMENT OF AGRICULTURE

ACCORDING to *The Official Record* the budget of the U. S. Department of Agriculture for the fiscal year 1932 as submitted by the President to the Congress recommends that a total of $225,537,476 (including $137,500,000 for roads) be provided for all activities conducted or administered by the department, as compared with $174,345,474 for all purposes for the fiscal year 1931, or an increase of $51,192,002 over total funds appropriated for 1931 up to December 1, 1930.

The 1932 budget includes a proposal for the establishment in the department of a Bureau of Agricultural Engineering, to which the work now conducted by the division of agricultural engineering of the Bureau of Public Roads, together with a portion of the appropriation of the latter bureau for general administrative expenses, is recommended to be transferred. As all the operations of the farm which involve the use of construction materials, labor, power, machinery and improvement of the land by irrigation, drainage and erosion lie partly within the field of engineering, it is felt that, in order to secure the most effective coordination of effort within the department and in its relations with the state agricultural colleges and experiment stations and with commercial and other non-governmental agencies, the agricultural engineering work should be segregated from road construction activities and set up as a distinct unit coordinate with the other major subdivisions of the department.

The recommended increases for 1932 include items totaling approximately $1,200,000 for expanding the research of the department, and $700,000 additional for continuing the building program at the forest products laboratory at Madison, Wisconsin. Among the increases for research are $30,000 for animal husbandry investigations; $25,000 for poultry investigations; $63,000 for investigating diseases of livestock; $80,000 for dairy research projects; $180,000 for investigations of the Bureau of Plant Industry; $227,000 for forestry research under the McNary-McSweeney Act; $113,000 for projects of the Bureau of Chemistry and Soils; $156,000 for research by the Bureau of Entomology; $93,000 for activities of the proposed new Bureau of Agricultural Engineering; $210,000 for marketing investigations of the Bureau of Agricultural Economics; $40,000 for investigations of the Bureau of Home Economics, and $70,000 for expanding the soil-erosion program. Also an increase of $58,000 is recommended in the department appropriation for printing, a large part of which is for the publication of manuscripts on scientific subjects.

The budget also includes increases of $21,000 for the motion-picture work of the Extension Service; $360,000 for extending the service of the Weather Bureau in aid of civil aviation, under the air commerce act; $250,000 for payment of indemnities in connection with tuberculosis eradication in California; $186,000 for the administration and protection of the national forests and $280,000 for construction and maintenance of national forest improvements; $75,000 for cooperation with states in fire control on state

and privately owned timberlands, under the Clarke-McNary Act; $28,000 for the protection of migratory birds, $200,000 for the acquisition, maintenance and administration of bird refuges under the migratory bird conservation act, and $150,000 for the acquisition of additional lands for the Cheyenne Bottoms Bird Refuge, under the Bureau of Biological Survey; $25,000 for extending the market inspection service, $43,000 for the market news service, $300,000 for enforcement of the perishable agricultural commodities act of June 10, 1930, $23,000 for enforcement of the grain standards act, and $57,000 for the administration of the warehouse act, under the Bureau of Agricultural Economics; $70,000 for strengthening the plant-quarantine inspection service of the Plant Quarantine and Control Administration; $27,000 to provide more adequately for the enforcement of the grain futures act; $200,000 for increasing inspection and analytical work connected with the enforcement of the food and drugs act; and $35,000 for the collection of loans made to farmers in previous years in flood, storm and drought-stricken areas.

The budget provides for the transfer of the department's experiment station at Fairbanks, Alaska, to the Alaska Agricultural College and School of Mines, and for the abandonment of the department stations at Sitka and Kodiak, Alaska, entailing a reduction of $28,750, which, however, is offset in part by a recommended appropriation of $15,000 to be paid to the Territory for the agricultural experiment station. Other decreases in the budget include $75,000 for operation of Center Market in Washington, on account of the proposed closing of this market on January 1, 1931, in connection with the federal building program; $50,000 for corn borer control, incident to removal of the requirement with respect to certain regulated products, and $30,000 for control of the Asiatic beetle, due to the lifting of the quarantine against this pest.

Provision is made in the budget for an increase from $11,000,000 to $12,500,000 for forest roads and trails and from $75,000,000 to $125,000,000 for federal-aid highways in connection with the enlarged construction programs contemplated by the acts of April 4, 1930, and May 5, 1930.

Included within the increases provided by the budget for 1932 is a total of $268,287 for salary adjustments under the provisions of the Brookhart Salary Act of July 3, 1930, amending the classification act of 1923. This amount is exclusive of approximately $30,000 for Brookhart Act salary adjustments of employees carried on certain special appropriations, such as the Federal-aid highway and forest road and trail funds, which have been absorbed by these appropriations without increase in their totals.

The budget also includes, distributed throughout the appropriation items, recommended increases totaling $223,820 for underaverage salary grade adjustments.

CHECK LIST OF THE BIRDS OF THE WORLD

THE Museum of Comparative Zoology announces that the first volume of a Check List of the Birds of the World by James Lee Peters is now in press and will be issued shortly.

The classification followed for the higher groups is that proposed by Dr. Wetmore, with the sequence of genera and species according to the author's own ideas where no authoritative treatment has been published. The first volume will contain about three hundred genera and one thousand seven hundred species and subspecies covering the following orders:

Struthioniformes, Rheiformes, Casuariiformes, Apterygiformes, Tinamiformes, Sphenisciformes, Gaviiformes, Colymbiformes, Procellariiformes, Pelecaniformes, Ciconiiformes, Anseriformes, Falconiformes.

The only recent attempt to list most of the species in these groups was that made in the first volume of Sharpe's Hand-list published in 1899 and consequently now thirty-two years old and out of date.

It is expected that at least ten volumes will be required to complete the work. The second volume is in active preparation and preliminary work on others is under way.

The new check list is not a museum publication and will not be distributed to the museum's exchange list, but will be published by the Harvard University Press.

CONFERENCE ON HUMAN PROBLEMS IN INDUSTRY

A SCIENTIFIC study of human problems in industry, directed at the roots of such social evils as unemployment, middle-age obsolescence, labor unrest and strikes, will be made at the Institute of Human Relations at Yale University, with the cooperation of leading industrialists and engineers, according to an announcement made following a conference on January 13 in New Haven between a committee of the American Society of Mechanical Engineers and members of the institute.

Members of the committee, which will act in an advisory capacity in the study, are E. W. Rice, Jr., honorary chairman of the board, General Electric Company, Schenectady, N. Y.; H. E. Howe, editor, *Industrial and Engineering Chemistry,* Washington, D. C.; Ralph E. Flanders, general manager, Jones and Lamson Machine Co., Springfield, Vermont; D. M. Bates, president of Bates, Inc., Philadelphia; J. P. Jordan, partner of Stevenson, Harrison and Jordan, New