although none have as yet been accepted, it is the purpose of the corporation to lend its aid to the utilization of any invention or discovery which offers sufficient promise of promoting the application of scientific discovery to the industrial arts.

For the purpose of encouraging scientific research directed to the development of the industrial arts the research corporation offers a fellowship of the annual value of $2,500, to be awarded on competition under the following conditions:

1. The competition will consist of the submission of evidence of scientific attainments, discoveries or inventions, and of special fitness for advanced work.

2. All persons desiring to compete must fill in a form of application, which will be furnished by the secretary of the corporation upon request, and file the same on or before October 1, 1917, together with such letters of reference, scientific publications and other documents or evidence as they may desire to submit, including a specific statement of the particular field or object of the research or investigation which the competitor proposes to conduct and a pledge that he will devote himself faithfully to the prosecution of such research or investigation if awarded the fellowship.

3. The competition shall be decided on or before December 1, 1917, by a jury consisting of the president of the National Academy of Sciences, the secretary of the Smithsonian Institution, the presidents of the American Chemical Society and Research Corporation, respectively, and the chairman of the Engineering Foundation, or such persons as they may respectively designate to act for them.

4. The term of the fellowship shall be one year from the date of the award, but the term may be extended by the corporation for two renewals of one year each in exceptional cases upon the recommendation of the jury.

5. The stipend of each fellowship will be paid as follows: $300 on the award of the fellowship and $200 monthly thereafter for the remainder of the year.

6. Fellows will be required to report in writing at the office of the corporation within twenty days from the date of the award (unless the time shall be extended) and to begin their research or investigation at once. In case of their failure to do so, or in case they shall fail to prosecute the same with proper attention, the fellowship may be terminated by the corporation.

7. Any fellow who shall resign or retire before the conclusion of the term of his appointment, or who shall be dismissed by the directors of the corporation for cause, will forfeit all privileges and emoluments of his fellowship and have no claim to the further payment of his stipend.

8. The corporation will endeavor to secure for fellows the privileges of laboratories specially adapted for their particular work.

9. Each fellow shall make a written report to the corporation at the conclusion of his appointment of the results of the research or investigation which he has conducted. Any discovery or invention which he may make shall be deemed his personal property.

ANTHRACITE COAL MINED IN 1916

THE anthracite mined in 1916 amounted to 78,195,083 gross tons, valued at $202,009,561, a decrease in quantity of 1.6 per cent. and an increase in value of 9.4 per cent. compared with 1915. The shipments decreased 1.7 per cent.—from 68,666,456 gross tons in 1915 to 67,501,363 tons in 1916. The shipments of prepared coal of sizes above pea in 1916 were 40,747,215 tons, a decrease of 1.1 per cent.; the shipments of pea size were 7,520,804 tons, a decrease of 8.4 per cent.; and the shipments of steam sizes smaller than pea were 19,233,344 tons, a decrease of but .05 per cent. compared with 1915. There was an increase of nearly 6 per cent. in the quantity of anthracite sold locally and used by employees and a decrease of 2.4 per cent. in the quantity used for mine fuel. The compilation of these statistics has just been completed by C. E. Lesher, of the United States Geological Survey, Department of the Interior.

The effect of the extraordinary demand for steam sizes of anthracite that followed the industrial activity in 1916 and the high price of bituminous coal is indicated in the figures showing the output of washery product and dredge coal. Although the freshly mined coal in the anthracite region, including Sullivan County, showed a decrease of 2.6 per cent. in 1916 compared with 1915 there was an increase of 19.6 per cent. in the quantity of anthracite obtained from the washeries, which

operate mainly on old culm banks, and an increase of 16 per cent. in the quantity of coal dredged from rivers.

The production in the Lehigh region was 10,929,055 gross tons; in the Schuylkill region, 23,659,448 tons; in the Wyoming region, 43,111,732 tons; and in Sullivan County (Bernice Basin), 494,848 tons.

There was a large decrease in the number of men employed in the production of anthracite in 1916, and the output was maintained only through an increase in the number of working days. The number of men employed in 1914 was 179,679; in 1915, 176,552; and in 1916, 159,869. The average number of days worked was 245 in 1914, 230 in 1915, and 253 in 1916. The average output per man per day in 1914 was 1.84 gross tons; in 1915, 1.96 tons, and in 1916, 1.93 tons. The average output per employee for the year was 451 tons in 1914; 450 tons in 1915; and 489 tons in 1916.

ANIMAL COLLECTIONS FROM AUSTRALIA

THE animal collections of the Zoological Park have been enriched by the arrival of another great "caravan" from Australia. After six months of diligent effort, and generous expenditures of money, Mr. Ellis S. Joseph brought together and successfully transported to New York the largest collection of rare species of mammals, birds and reptiles that ever came to America. The common species, such as for years have been coming to us through the regular European channels, are conspicuous by their well-nigh complete absence.

Naturally, the officers of the Zoological Society feel measurably elated over this coup, at a period of great depression in the wild-animal supply from other sources. The receipts from England are very trifling, and from the continent of Europe nothing whatever comes. In fact, in America the German wild-animal business is thoroughly dead. Our further operations in South Africa must be postponed until after the war.

Encouraged through his previous reception by the Zoological Society, Mr. Joseph redoubled his former efforts to bring to America something worth while. The collection which he landed in Victoria, B. C., a month ago represents a large outlay in money and effort, and great scientific value. Of that importation the Zoological Society has purchased mammals, birds and reptiles to a total cost of about $6,000. The Philadelphia Zoological Society has purchased $3,000 worth, and other purchases are proceeding.

The following list shows the newly acquired mammals:

1 thylacine,
3 hyraxes,
2 water mongooses,
1 echidna,
2 rabbit-eared bandicoots,
2 West Australian rat kangaroos,
1 tree kangaroo,
3 yellow-footed rock wallabies,
2 Woodward kangaroos and young,
1 wallaroo,
1 brush-tailed wallaby,
2 short-tailed wallabies,
1 Paddy Mellen wallaby,
2 rufus-necked wallabies,
2 Tasmanian black phalangers,
6 spotted phalangers,
3 dusky phalangers,
3 gray phalangers,
3 Papuan phalangers,
1 Australian phalanger,
4 marsupial mice,
3 Australian water rats.

The majority of our accessions will be found in the large bird house, the small deer house, the reptile house and the small mammal house, but the thylacine is in one of the small bear dens. Each new species is marked by a red label reading "Recent Accession." Incidentally it is to be noted that our total kangaroo collection is believed by Mr. Joseph to be the most extensive series ever brought together. It will be found in the small deer house.

W. T. HORNADAY,
Director

SCIENTIFIC NOTES AND NEWS

PROFESSOR MILO S. KETCHUM, dean of the College of Engineering of the University of Colorado, was elected president of the Society