

Lord Curzon, ancient monuments have been restored and the care of antiquities made a matter of administrative charge. It is to be regretted that Sir Edward Gait has to record a falling off in the number of British civil servants who now devote themselves to such studies; but on the other hand there is a measure of compensation in the fact that the number of natives of India who are interested in the history and antiquities of their own country is on the increase.

#### Birds of Paradise.

IN the Bird House and the small Tropical House adjoining it, the Zoological Society of London now exhibits a dozen species of birds of paradise, several of them recent arrivals along with the rare Matschie's tree kangaroo (see NATURE, Dec. 12, p. 996), also coming from the Rawlinson Mountains in north-east New Guinea. Most noteworthy is the Emperor of Germany's Bird of Paradise (*Paradisaea guillemi*), a species new to the collection; it bears a general resemblance to the well-known Lesser Emerald Bird of Paradise, but has the crown as well as the throat green, and the side-plumes shorter and of a different and less downy texture, more recalling the nuptial plumes of the egrets. Among those species that have been in the collection some time, special mention may be made of the Twelve-wired (*Seleucidés ignotus*), because of the peculiarity it exhibits of having the legs bare for some distance above the hock, as in a wading-bird. This peculiarity is shared by a very different bird from the same zoological region and also in the collection, the great black Palm-cockatoo (*Microglossus aterrimus*); this is noteworthy, for neither affinity nor habits can be invoked for the explanation of this nudity in these two species. A very humble bird by comparison, but also of much scientific interest, is a newly received specimen of the melanistic mutant of the blackcap: this variation, which is found in the Canaries and Azores, has been known for upwards of a century, and is called Heineken's Blackcap. The bird is on view in one of the small cages in the Bird House.

#### British Empire Hardwoods and Turnery.

IN Museum No. 1 in the Royal Botanic Gardens, Kew, a temporary exhibit of articles turned from Empire hardwoods by the skilled hands of Mr. A. L. Hetherington, assistant secretary in the Department of Scientific and Industrial Research, has been arranged. While indulging his hobby of turnery, Mr. Hetherington also carried on important research, for he worked upon some eighty different kinds of Empire woods, many of which are new to the turner, the results of his work being demonstrated by excellently carved boxes, chalices, tazzas, goblets, dishes, ash trays, and other articles. Particularly beautiful are a chalice made from sapodilla wood (*Achras Sapota*), two tazzas made of African blackwood (*Dalbergia melanoxylon*), a goblet of bulletwood (*Mimusops littoralis*), a string box of puriri (*Vitex littoralis*), and two match stands of gidgee (*Acacia Cambagei*). Mr. Hetherington has added to the value of his demonstrative work by writing an account of the various

kinds of wood used, with particulars of their peculiar working properties. This book has recently been published by the Empire Marketing Board under the title "British Empire Hardwoods from the Point of View of Turnery." After discussing the properties of eighty kinds of wood, he goes into further particulars about those he considers of greatest importance for ornamental turning. All who are interested in wood turnery should make an effort to visit Kew within the next few weeks and inspect this interesting collection.

#### Forest Survey by Aeroplane.

IN the development and protection of Canadian forests, aircraft have come to play a most important part. The *Canadian Surveyor* for October in a general account of aviation in Canada explains how aerial photography is used to show the character, distribution, and accessibility of the timber, thus facilitating exploitation on sound lines. Even more valuable is the use of air patrols for noting forest fires, and of air transport in carrying crews and equipment for extinguishing the fires. In Ontario alone during the year 1929 more than three hundred fires were thus detected. Aircraft are also used in combating insect and other pests. These attempts are still in an experimental stage, but the results so far are promising. Areas of fir and spruce affected by spruce budworm and of hemlock and balsam affected by hemlock looper have been dusted with calcium arsenate from the air. The method is certainly cheap and fairly thorough. Experiments in Manitoba have shown the effectiveness of dusting wheat with sulphur in order to fight the destructive wheat stem rust. Aircraft are also being used to expose spore traps, in an endeavour to determine the spread of wheat rust and white pine blister rust.

#### Quantity of Matter in the Universe.

IN the discussions taking place at the present time on the structure of the universe, the amount of matter distributed throughout the whole of space is determined by calculating the total mass of existing protons and electrons. In all the celestial bodies revealed by the means of observation yet available, the whole number of these corpuscles is found to be  $10^{79}$ . All other hypotheses must, therefore, be based on this figure and on the dimensions of the radius of the universe. In a note by Prof. Gianfranceschi, broadcast from the Vatican on Nov. 26, it was pointed out that limitation of the consideration of this question to that of the matter constituting the corpuscles is scarcely justifiable. Protons and electrons represent a special, but not the original, form of matter. They exert forces of attraction and repulsion originating in their character as electrified corpuscles and in their masses, that is, in measurable magnitudes. The possibility of the transformation and formation of the corpuscles must, however, be assumed. In considering such changes, not merely the energy variations but also the inertia must be taken into account, and any theory of the universe which may be formulated, whether static or dynamic, should be based on these