

looked with unusual interest through such a catalogue received from "the well known Chinese Scientific Book Depot, 407 Hankow Road, Shanghai." According to the title-page of the catalogue, the works described have been translated or written by Dr. John Fryer; and as there are nearly two hundred of them, covering the whole fields of natural and physical sciences, we confess to a reverential feeling for Dr. Fryer's marvellous industry and encyclopædic knowledge. The translations are mostly based upon standard English or American educational books, and are arranged into five series. There is the "outline" series, for general reading and elementary instruction; the "handbook" series, for more advanced students; the "temperance physiology" series, the "magazine" series, adapted for school reading books; and the "Imperial Government" series, consisting of treatises, which together form a valuable encyclopædia. As the avowed object in publishing the works is the higher education and intellectual enlightenment of the Chinese nation, we echo the hope that the use of the translations will continue to extend wherever instruction in scientific subjects is given in the Chinese language.

THE additions to the Zoological Society's Gardens during the past week include two White-shafted Francolins (*Francolinus leucocephalus*) from North-east Africa, presented by Lord Lilford; two Nilotic Crocodiles (*Crocodilus niloticus*) from West Africa, presented by Mr. J. A. McDiarmid; four Hispid Lizards (*Agama hispida*) from South Africa, presented by Mr. J. E. Matcham; an Australian Fruit Bat (*Pteropus poliocephalus*) from Australia; a White-fronted Amazon (*Chrysotis leucocephala*) from Cuba, purchased.

OUR ASTRONOMICAL COLUMN.

A NEW VARIABLE STAR OF THE ALGOL TYPE.—Dr. E. Hartwig announced in the middle of September that the star B. D. + 15° 3311 (R. A. 17h. 53m. 36s., Decl. + 15° 8' 47" 2, 1900) was a variable of the Algol type. He afterwards determined the period to be 3d. 23h. 49m. 32s. 7. (*Astro. Nach.* 3260). It appears, however, that Dr. S. C. Chandler discovered the character of the star's variability at the end of July, and communicated his discovery to several other observers, who confirmed it. The star was assigned the notation 6442 Z. Hercules about the middle of August, the period having previously been determined as 3d. 23h. 50m. Prof. Duner has found that the minima follow each other at unequal intervals of forty-seven and forty nine hours. There appears to be a secondary minimum which occurs a few hours previous to the time midway between two successive primary minima.

THE POLAR CAPS OF MARS.—Several sketches of Mars, made at the Juvisy Observatory, by M. Antoniadi, accompany a paper by M. Flammarion in the current *Comptes-rendus*. The figures show clearly the slow diminution of the snow-caps of Mars during the summer of the planet's southern hemisphere. The summer solstice occurred on August 31, and the planet was kept under observation from June 1 to November 1. The following are the results of the measures of the diameters of the cap at the south pole of Mars, on different dates:—

Dates.	Areocentric arc.	Diameter in kilometres.
June 1 ...	65°	3900
" 15 ...	50	3000
July 1 ...	42	2520
" 15 ...	35	2100
August 1 ...	30	1800
" 23 ...	15	900
September 27	11	660
November 1	5	300

ENCKE'S COMET.—Prof. M. Wolf has found Encke's comet upon a photograph taken on October 31, that is, a day before Dr. Cerulli's observation, noted last week (*Astr. Nach.* 3262). The comet has been observed by M. Perrotin, and is said to be at the extreme limit of visibility of the twenty-eight-inch refractor of the Nice Observatory.

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STATISTICAL ACCOUNT OF FRENCH FORESTS.¹

M. DAUBRÉE, the Director of the French Forest Department, has recently published a statistical account, up to the end of 1892, of the French forests which are managed by that department; and as these forests, especially in the northern and central parts of France, greatly resemble those which might be grown in the United Kingdom, and of which some badly-managed examples are still to be found, a short notice of this work will be interesting to those who wish to know what are the possibilities of economic forestry at home.

The areas of the forests in question are as follows:—

	Acres.
Belonging to the State	2,691,165
" communes and public establishments (hospitals, colleges, &c.) ...	4,738,637
Total	7,429,802

Or 11,609 square miles, one-eighteenth of the total area of France, which is about 207,100 square miles.

No account is here taken of the private forests in France, which contain about 20,813 square miles, so that the area of all the forests in France is 32,422 square miles, or 15½ per cent. of the area of the country.

Of the 7½ million acres of forest managed by the State, 18 per cent. of the State forests and 3·6 per cent. of the communal forests are classed as unproductive or not stocked with trees.

A larger proportion of the State forests is unproductive because the State is constantly acquiring waste lands in order to prevent denudation of mountains by torrents, or the encroachment of sandy dunes; whilst land belonging to the communes, &c., which is not fit for reforestation, is not generally handed over to be managed by the State Forest Department.

Twenty excellent maps are attached to the report, and are differently shaded so as to show the distribution of the forest area among the different départements, according to ownership; mode of management (coppice, coppice-with-standards, high-forest); annual degrees of productiveness—in material (cubic metres per hectare); in money (francs per hectare)—and also in oak and coniferous timber.

From these maps and the statement which precedes them, it may be readily seen that the State forests are most extensive north of Lyons, and especially in Lorraine, Bourgogne, Isle de France, Normandy, le Bourbonnais, and that in these provinces there are scarcely any unproductive areas, which chiefly occur in the south of France. The communal forests are also chiefly in the east of France, or bordering on the Pyrenees and in Corsica; this distribution depends on political and not on natural causes, for the climate of the west of France is very favourable to forest growth, and this region contains some magnificent State forests and large areas of forests in private hands. As regards the mode of treatment, the State forests are distributed as follows:—

	Percentage of total area.
Simple coppice	2·5
Coppice-with-standards	29·2
" under conversion to high forest ...	16·8
High-forests	51·5

The simple coppice belonging to the State is chiefly situated in the south, where the State shares in the produce with certain communes, or the inhabitants have rights to fuel, which prevent any improvement in their treatment, and they are generally composed of *Quercus flex*, which yields tanning bark, and firewood rather than timber.

Coppice-with-standards is applied to large forest areas bordering on Belgium, and to another series of State forests stretching from the Jura towards Paris. These forests are generally situated near large towns or the northern coal mines, and find a ready sale for their somewhat branchy timber and underwood, as building material, pit-props, firewood, &c., provided their rotations are long enough to exclude a large supply of charcoal wood, for which the demands are being gradually restricted.

A large area of coppice with-standards, which is remote from large towns and the coal mines, is being converted into high forest, to increase the supply of timber as compared with firewood.

¹ Statistique des forêts soumises au régime forestier, Anné 1892. Extrait du Bulletin du Ministère de l'Agriculture. Paris: Imprimerie Nationale, 1894.