

idea itself was not novel. It was anticipated in the seventeenth century by Francesco Lana, and the first air-bombardier was the giant bird Rukh when he hurled huge boulders at Sindbad's ship."

There is the legend of a "flying chariot" reputedly constructed by an ancient Chinese mechanic known as Ki-kung. The Chinese emperor, in this story, "caused the airship to be destroyed, as he did not wish his own people to see it. He evidently was anxious to remain intrenched on his throne and to steer clear of innovations that might menace the safety of his realm...."

"The famous boat-shaped aerial car, theoretically conceived by the Jesuit Francesco Lana (1631-87)... exhibits some affinity with Ki-kung's machine.... It was Lana's idea to lift his ship into the air by means of four large hollow globes of very thin sheets of copper, from which the air had been wholly extracted, thereby causing them to weigh less than the surrounding atmosphere, and enabling them to rise and support the weight of the ship in the air; propulsion and direction were to be obtained by sails and oars.... If, in Lana's sketch, the four copper globes are replaced by four powerful paper kites, we may realize what the Chinese Ki-kung's aerostat might have been.... Lana, in his *Prodomo* (1670), gives us the best explanation of the reasons which may have prompted the Chinese autocrat to destroy Ki-kung's machine. Having developed his plan of an airship, Lana writes:

"I do not see any other difficulty that could prevail against this invention, save one, which seems to me weightier than all the others, and this is that God will never permit such a machine to be constructed, in order to preclude the numerous consequences which might disturb the civil and political government among men. For who sees not that no city would be secure from surprise attacks, as the airship might appear at any hour directly over its market-square and would land there its crew? The same would happen to private houses and to ships crossing the sea, for the airship would only have to descend out of the air down to the sails of sea-going vessels and lop their cables. Even without descending, it could hurl iron pieces which would capsize the vessels and kill men, and the ships might be burnt with artificial fire, balls, and bombs.'"

From ancient tales of India Dr. Laufer obtained a description of an early conception of a dirigible airship. Schemes for harnessing birds to draw vehicles through the air, conceived by ancient Babylonians, Persians, and Greeks, are discussed. In the chapter on "ancient air mail" the history of the use of carrier pigeons is given.

A complete set of masks used by the Navaho Indians in their Night Chant Ceremony is shown in Hall 6.

## THE MAGELLANIC EXPEDITION CONCLUDES ITS WORK

The work of the Magellanic Expedition of Field Museum was concluded in June with the return of Mr. Colin Campbell Sanborn, Curator of Mammals, who was the last member of the party to leave the field. The expedition began zoological collecting in various remote parts of South America nearly a year ago. Other members who returned previously are Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, who came back in December; and Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, and Mr. John Schmidt, field assistant, who arrived home in April. The expedition was sponsored by Mr. Stanley Field, President of the Museum.

Mr. Sanborn had remained to carry on a special project in certain regions of Argentina and southern Peru. He brought back extensive collections of the fauna of those countries for addition to the Museum's study collections. Included are a number of rare specimens, and a large representation of species of small mammals hitherto lacking in any museum except the British Museum. The London institution possesses the less complete collections made by P. O. Simons forty years ago. Of particular interest among Mr. Sanborn's collection are an extremely rare parrot, and a mouse-opossum from the highlands which previous knowledge had indicated was confined only to lowland habitats. Mr. Sanborn also laid the groundwork for future research, and made arrangements for collecting by local scientists in Bolivia and Peru.

The expedition as a whole collected in the Lake Titicaca region of southern Peru, in an area high in the Bolivian Andes, in various parts of Chile, along the shores of the Straits of Magellan, and on the island of Tierra del Fuego at the southernmost tip of the continent. The last named region had not been zoologically explored since Darwin collected there 106 years ago.

## THE FOREST OF NAHUEL BUTA, A CHILEAN SANCTUARY

By WILFRED H. OSGOOD  
CHIEF CURATOR, DEPARTMENT OF ZOOLOGY

The araucaria forest of the Parque Nacional Nahuelbuta in central Chile should rank as one of the sights of the world. Chile may well be as proud of it as California is of her sequoias. It is included in an area of 5,000 hectares (about 12,500 acres) and has been set aside as a national park, but it is difficult of access and very few visitors reach it.

Our trip to this forest while en route to southern Chile on the Magellanic Expedition of Field Museum, was made on horseback for two days, with oxcarts carrying our baggage over roads which are only passable in the summer season. The beauty of the great trees, more than 100 feet high, their

unique prehistoric appearance, and the lovely setting in which they are found, were fascinating to a naturalist, and should be equally so to any one. From one high point among them rises a great granite rock called Piedra de las Aiguilas (Eagle Rock). This was near our camp, and on a clear day we could stand on this rock and see the Pacific Ocean on the west. In the opposite direction, across the central valley, appeared the high ranges of the Andes and a series of five or six somewhat isolated snow-covered volcanic cones, every one fit to be classed with Fujiyama and other famous mountains of the world. At present the park has little care, and the trees are endangered by fire and insect pests. Also, there is pressure by private interests to exploit the forest for profit, and unless Chile develops national pride in these trees it is not unlikely they may be despoiled. They should have at least a resident ranger, and the roads should be improved. Chile is poor, however, and funds for such things are difficult to get. The man in charge at present is obliged to live at a distance, has no assistance, and has many other duties. There is one other forest of Chilean araucarias in the southern Andes which is more accessible, but it can scarcely be more beautiful.

In the future, if the park were developed, it would be possible to introduce interesting animals, for this part of Chile has no large mammals. Among those that would be suitable are the American elk, bison, Scotch red deer, white-tailed deer, etc. There is an abundance of forage for them, and the climate should be right although sometimes the winter is fairly severe.

Araucarias, like our own sequoias, are survivors of a prehistoric period and at one time were widely distributed. Besides the Chilean species (*Araucaria imbricata*), there are still a somewhat similar species in southern Brazil and several species in the Australian region, each confined to a limited area. The Chilean species has often been successfully transplanted, and in parks and botanical gardens is sometimes called the "monkey-puzzle" tree.

## IF YOU WOULD BE A HOST TO BIRDS

read Margaret McKenny's *Birds in the Garden and How to Attract Them*.

"This fascinating book will be an invaluable boon to all who delight in profuse bird life and wish to create sanctuaries about their homes," says Mr. Emmet R. Blake, Assistant Curator of Birds at Field Museum. "In it are many practical hints leading to a more complete enjoyment of the outdoors."

On sale at THE BOOK SHOP of  
FIELD MUSEUM—\$5.





Osgood, Wilfred Hudson. 1940. "The Forest of Nahuelbuta, a Chilean Sanctuary." *Field Museum news* 11(7), 5-5.

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