

LEAGUE OF NATIONS

COMMITTEE ON INTELLECTUAL CO-OPERATION

ENQUIRY

INTO

THE CONDITIONS OF INTELLECTUAL WORK

Second Series

INTELLECTUAL LIFE

IN THE

VARIOUS COUNTRIES

MEXICO

Biological Studies

by

CRISTOBAL RODRIGUEZ

Licencie-es-Lettres-Philosophie—Member of the Latin American Office
of the Secretariat of the League of Nations.

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NOTE

The object of the Committee on Intellectual Co-operation in publishing this series of pamphlets is to call attention to the problems of organisation and intellectual assistance to which each subject gives rise. The Committee does not propose to treat these subjects exhaustively, but desires rather to bring them to the notice of the public and to provide an opportunity for further suggestions.

BIOLOGICAL STUDIES IN MEXICO

By CRISTOBAL RODRIGUEZ

The Mexican Ministry of Agriculture, Commerce and Industry has provided us with one of the best and most complete contributions to the enquiry into intellectual conditions in Latin America which we have received ; and we are indebted to Professor Alfonso L. Herrera, Director of the Biological Department of that Ministry, for the information which has enabled us to give the following brief description of the present position of biological studies in Mexico.

The Biological Studies Bureau is a recent creation ; it was inaugurated on October 2nd, 1915, by M. Pastor Roubaix, who was at that time Under-Secretary in the Ministry of Agriculture, Commerce and Industry. But here, as elsewhere, no entirely new departure was made, this Department being, as it were, the central bureau of other organisations which have hitherto had an independent existence, such as the National History Museum, the National Medical Institute and the Tacubaga Museum. The credit for bringing about this indispensable administrative centralisation belongs to M. Roubaix, to whom Mexico is already indebted for the scientific organisation of numerous exploring expeditions which have revealed the natural wealth of the country ; excellent collections have been exhibited in the museums, which have proved of the greatest use even to foreign explorers, such as, for instance, the United States Commission which explored California from May to August 1921, under the leadership of Mr. Joseph Slevin, accompanied by the Mexican Professors F. Contreras and C. Lopez.

This central organisation appears to have obtained excellent results, thanks to the energy of Professor Alfonso L. Herrera, who has been in charge of the Department of Biological Studies since its creation.

The principal aims of the Biological Studies Bureau may be summarised as follows :

(a) Scientific study of the flora and fauna of Mexico. The different species and varieties are classified not only according to their geographical distribution but also according to their value to medicine or to industry in general ;

(b) Organisation and upkeep of botanical gardens, natural history museums, aquariums, zoological gardens and other similar institutions devoted to scientific research and to the demonstration of the country's biological wealth.

Special mention should be made of the *National Natural History Museum* at Mexico City, which is visited every year by half a million persons. Mexicans have a special predilection for this institution, not only on account of the improvements which are constantly being effected, but also because of its antiquity. It is indeed closely bound up with the history of Mexico ; the Museum was created at the end of the eighteenth century by Antonio Maria de Bucareli, at that time Viceroy of New Spain (1771 to 1779), who decided that "all documents on Mexican antiquities preserved in the viceregal archives should be handed over to the Royal University as being the place where they can be of most use".

The National Museum contains sections of biology, botany, mineralogy and geology, each of which possesses a very fine collection mainly composed of the natural products of the country ; their preservation and improvement are in the hands of specialists.

We propose to give a special description of the biological section, which is perhaps the most valuable and interesting part of the work of the present director of the institution ; it is of capital importance from the scientific and educational point of view since "it enables the public to form a clear idea of the stages through which living creatures have passed in the process of development from the amoeba to Man, and the visitor with an enquiring turn of mind is here able to examine to his heart's content the organic creatures which form the links between various zoological species". (MOISES HERRERA, *Boletín de los Estudios Biológicos*, Vol. II, No. 3, p. 338.)

Thanks to the untiring efforts devoted by Professor Alfonso L. Herrera to the development of this important section of the National Museum, its admirable collections have come to constitute a valuable instrument of education, enabling the public to form an idea of the various characteristics of the specimens exhibited and of their close relationship with other specimens of the various natural groups. The value of the biological section in arousing interest in the marvels of the living organisms of Nature is unquestionable.

(c) In addition to these two technical aims, the Biological Studies Bureau pursues a practical aim of no less importance, *i.e.* the popularisation of knowledge in regard to indigenous species which can be profitably used in industry and commerce. This is accomplished in the first place by means of lectures, in conjunction with numerous expeditions methodically organised with the help of an excellent biological map of Mexico, which is also the work of the Bureau ; we are informed that these lectures are greatly appreciated. Further — and this is perhaps of more immediate value — the specimens supplied by the Biological Studies Bureau are chemically analysed in the laboratories of other Departments of the Ministry of Agriculture, Commerce and Industry. Thus, numbers of biological species, derived from mountains, lakes

and rivers, as well as resinous, medicinal and dye-producing plants, etc., are not only made known to the general public but utilised industrially on a considerable scale. In this connection we may mention that the Department of Agriculture has for some time been actively engaged in seeking an effective serum against the bites of the poisonous snakes which abound in Mexico.

(d) Mention should also be made of the very important prophylactic and health work which the Biological Studies Bureau has undertaken in various parts of the country. For example, maps have been drawn up showing the districts which suffer from certain endemic diseases and which possess the necessary means of extirpating them. Special attention has been paid to the following matters : the malarial zone, infested by the pernicious *anopheles* mosquito ; the zone affected by bubonic plague, which makes its appearance somewhat sporadically and in very limited areas ; the disease known as *uncinariasis*, which especially affects the inhabitants of rural districts and miners ; and, lastly, the goitre zone, which, as in Europe and Asia, is limited to mountainous districts at a great distance from the sea and deprived of the beneficial effects of sea air.

This campaign, which is based on experimental and objective research work accomplished in the course of periodical expeditions, is carried on by means of lectures in schools, museums, etc., showing, with the help of cinematograph films, the results obtained during these expeditions ; the work is supplemented by the distribution of medicine and of medical pamphlets at the instance of the Ministry of Agriculture, Commerce and Industry.

In the sphere of agricultural hygiene, mention should be made of the campaign initiated against the terrible pink cotton worm, which has wrought tremendous havoc both in Mexico and in the United States. The Biological Studies Bureau has successfully undertaken the preparation of chloropicrine, which constitutes an effective remedy against this plague.

(e) Among the activities of the Bureau should finally be mentioned the construction on strictly scientific principles of a zoological garden and of a botanical garden. Both gardens will be established in the woods of Chapultepec ; the first will have an area of 141,114 sq. metres and, in addition to specimens of the indigenous fauna, will contain representatives of the fauna of other countries. The botanical garden will have an area of 65,912 sq. metres. The construction of this garden should already be well advanced. Professor Alfonso L. Herrera informs us that : "in addition to the work of levelling and laying out the grounds, two lakes and a valley have been dug, two plots have been set aside for shrubberies, and slopes for cactaceous plants have been prepared, a vegetable garden and shelters for animals have been constructed ; moreover, 6,532 botanical specimens have been planted,

including 4,094 cypresses in the Labyrinth ; 165 *pin*es, *thuyas*, *cryptomerias*, *araucarias*, etc., in the Pinetum ; 30 specimens including *cerei*, *echinocacti*, *mamillarias*, *opuntias* and *pereskias* ; and, lastly, in the classified section, 490 specimens belonging to 76 families of phanerogams and 50 families of cryptogams”.

The following details, which, though not of great consequence in themselves, are nevertheless significant, serve to show the importance attached to this biological work by the Ministry of Agriculture, Commerce and Industry.

The building occupied by the Biological Studies Bureau at No. 94, Calle de Balderas, in Mexico City, is valued at 300,000 Mexican pesos (750,000 gold francs), while the furniture, laboratory instruments and apparatus, the books (numbering over 50,000) and the natural history specimens are valued at 42,000 pesos.

The building occupied by the National Natural History Museum at No. 10, Calle Primera del Chopo, in the capital, is alone worth 200,000 pesos without reckoning the value represented by the natural history specimens, books, furniture, etc. it contains, which must amount to a like sum.

Lastly, the Herbarium, which will form the nucleus of the botanical gardens, contains about 50,000 indigenous plants, worth approximately 17,000 pesos.

The staff of the Bureau consists of 62 officials under the direction of Professor Alfonso L. Herrera, and includes a certain number of specialists, both men and women.

The Bureau corresponds regularly with numerous scientific institutions all over the world, including the Department of Agriculture, the Smithsonian Institution and the Carnegie Institution in the United States ; in Europe, the Zoological Society of France, the British Natural History Museum, the Royal Botanical Gardens at Kew, the Botanical Institute at Pavia, and the Royal Natural History Society of Madrid ; and, in Latin America, with the Argentine Medical Association, the Argentine Scientific Society, the National Museum of Rio de Janeiro and the Agricultural Institute at Santiago de Chile — altogether 120 scientific institutions.

Considered from a very general point of view, the study of biology in Mexico presents many different facts since it is pursued by private associations as well as by organisations set up for the purpose of accomplishing some special work or solving some special problem ; but the Biological Studies Bureau may be said to constitute in some measure the centre round which the biological activities of the whole country, actively supported by the State, revolve.

SPECIAL BIBLIOGRAPHY.

The Bulletin of the Biological Studies Bureau, as its title indicates, is the official organ which publishes the memoranda and monographs written on biological questions by the most highly qualified experts on the staff ; the following summary of two of its numbers will give some idea of its contents :

“Botanical Exploration on the South Coast of Oaxaca”, by Professor Casiano Conzatti. — Note by Professor Teodomiro T. Gutierrez on the protection of white herons in Mexico. — “The National Natural History Museum”, brief historical sketch by Professor Moises Herrera. — “Third Memorandum on the Physiology of the “*Cuy*” acclimatized in the Valley of Mexico ; its Development and Growth”, by Dr. Fernando Ocaranza. — “A New Species of *Mamillaria*”, by Professor Isaac Ochoterena. — “The Cuapinole”, by Professor Juan Manuel Noriega. — “Contribution to the Study of the Bacterial Flora of Mexico”, by Dr. Manuel Perez Amador. — “The Mammoth or *elephas primogenius*”, by Professor Aurelio del Rio. — “The Poisonous Snakes in the National Natural History Museum”, by Carlos Cuesta Terron. — Alphabetical Index to “*La Naturaleza*”, Vol. III (Vol. II, No. 3, January 1918).

“Contribution to the Study of the Fresh-Water Pearl-Bearing Oyster”, by Professor Francisco Contreras. — “Special Biological Conditions affecting the Inhabitants of the Municipalities of the Federal District”, by Luis G. Cabrera. — “The Principal Tortoises and their Capture”. — “Special Study of the Mullet Fishery”. — “Contribution to a Monograph on the Erpetological Fauna of the Lower Californian Peninsula”, by Carlos Cuesta Terron (Vol. III, No. 4, March 1920).

We know of about 60 works of this nature ; in addition to the above publications, pamphlets have been brought to our notice on subjects of great interest from the point of view of Mexican biology ; they were published under the auspices of the Ministry of Agriculture, Commerce and Industry. Among these may be mentioned the following, which seem to us the most important : “*Monografia sobre el Elephas Demm*” (a coleopteran), illustrated by engravings, by MOISES HERRERA ; “*Importacion de algunos cérvidos en la alimentacion, y monografia del venado “Bura”*” (illustrated), by CARLOS L. LOPEZ ; and “*La Perforestacion de los medanos en la zona litoral del Estado de Veracruz*” (also illustrated), by Don LUIS G. TORRES.

The two latter authors are at present collaborating with Professor Alfonso L. Herrera, whose monograph entitled “*La Biologia en Mexico durante un siglo*” (Mexican

biology during one century) has been of great service to us ; the following is an extract from this work :

“The study of biology has made great progress in the course of the last century. The early days of attempts at classification, insufficient co-ordination, accumulation of material and lack of perspective have now been left behind, and the various elements of study have been logically combined under the direction of the Biological Studies Bureau, which scientifically explores the ground, makes known its discoveries in regard to fauna and flora and their practical utilisation, and trains the biologists and naturalists of the future, while the University undertakes the theoretical study and teaching of the science.”

Hungary :

The General Situation }
The Universities } by O. DE HALECKI,
Secretary of the Committee.

India :

The General Situation }
The Universities } by D. N. BANNERJEA,
Member of the Committee

Italy :

The Movement for the Renewal of National Culture, by J. LUCHAIRE, Expert of the Committee.

Japan :

The Teaching of Foreign Languages, by Dr. I. НИТОВÉ, Under-Secretary-General of the League of Nations.

Lithuania :

General Report by K. BALOGH, Professor at the University of Kovno, Rapporteur of the Lithuanian Committee on Intellectual Co-operation.

Luxemburg :

General Report by C. CASTELLA, Expert of the Committee.

Mexico :

The Study of Biology, by C. RODRIGUEZ, Member of the Latin-American Bureau of the League of Nations.

Netherlands :

The Studies of International Law, by W. J. M. van EYSINGA, Professor at the University of Leyden.

The Universities, by G. DE REYNOLD, Member of the Committee.

Norway :

The Natural Sciences, by K. BONNEVIE, Member of the Committee.

Poland :

The Activity of Learned Societies }
The Universities } by the MIANOWSKI FOUNDATION
(Foundation for the
encouragement of scientific
work at Warsaw).

Russia :

The Situation and Organisation of Intellectual Emigrants, by G. DE REYNOLD, Member of the Committee.

Switzerland :

Historical Studies in Switzerland }
The Universities } by G. CASTELLA,
Expert of the Committee.

United States :

The Colleges and the Universities }
The Principal Foundations for the Encouragement of Intellectual }
Work } by H. REVERDIN,
Expert of the Committee.
The Principal Academies and Learned Societies }



