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Nationalism and Science in China.

AFTER spending half a million dollars over a period of ten years and the dispatch of five scientific expeditions to the Gobi Desert, the Central Asiatic Expedition of the American Museum of Natural History, of which Dr. Roy Chapman Andrews is the leader, has been refused permission to continue its work in Mongolia by the Chinese authorities. This refusal comes at a moment peculiarly inopportune in the interests of science. The expedition was about to open up a new field of exploration, which would have been of the greatest palæontological and, possibly, of anthropological interest.

Up to 1928 this American expedition had been in most friendly and cordial relation with the Chinese authorities, scientific organisations and individual investigators. Indeed, for some considerable time a proposal to establish a branch of the American Museum at Peking had been under consideration, and one of the palace buildings had even been selected for the purpose by Dr. Kungpa King, director of the Peiping Museum of Art. But in 1928 these friendly relations came to an end, largely owing to the activities of the Chinese Cultural Society, now the Commission, for the Preservation of Antiquities. The entire collection of fossils and other specimens made by the expedition in 1928 was seized by the Commission and released only after prolonged and tedious negotiation. Permission to revisit Mongolia in 1929 was refused, and resumption of work was allowed in 1930 only on the understanding that the work of the expedition would then be brought to a close. Results obtained in that year, however, seemed to justify reconsideration. Entirely new fossil fields of Pliocene age were discovered east of the Kalgan-Urga Trail. In consequence, application was made for a renewal of the permit in order to follow up this new and important discovery in 1931 and 1932.

In a letter under date June 5 last, the Commission for the Preservation of Antiquities has informed the authorities of the American Museum of Natural History that there is no longer any necessity for permitting members of the Museum to make further trips to carry on the work in Mongolia. It adds, however, that in the future every facility will be accorded American scholars to visit Peking for the purpose of examining geological material from Mongolia "to conform with the principles of non-discrimination between nationalities in respect of science". The grounds for the statement that the necessity for the permit

hitherto granted no longer exists, are given in the course of this communication. In addition to the fact that the American expedition has repeatedly declared its intention of winding up its work in Mongolia and discontinuing its trips to that area, the Chinese Government, it is stated, has now organised a Western Frontier Scientific Expedition to proceed to Mongolia, Kansu and Sinkiang "to carry on various scientific researches".

There is a subtle irony in the phrasing "principles of non-discrimination between nationalities in respect of science" which will be appreciated. The achievement of the Chinese authorities in the direction of the attainment of this object merits recapitulation. Action similar to that against the American expedition has been taken against the Swedish expedition in Chinese Turkestan under Dr. Sven Hedin; against the French Trans-Asiatic expedition of Dr. Georges Hardt and P. Teilhard de Chardin; and Sir Aurel Stein, as has been recorded recently in these columns (see NATURE, July 25, p. 144), has been forced to abandon his expedition in Chinese Turkestan after repeated vexatious delays and difficulties raised upon pretexts entirely without foundation. It is sufficiently clear that the Chinese authorities are sincere in the expression of their desire to show no discrimination between nationalities. They propose to exclude them all!

Vigorous, if misleading, not to say untruthful, propaganda by the Commission in the Chinese press has secured popular support for this hostility to foreign expeditions of scientific exploration. It must not, therefore, be concluded that the interest of the Chinese people in drawing a ring-fence around the field of research within their territory, or in the preservation of their antiquities, is greater than it would be in a western population. The agitation has gone beyond the indictment that these scientific expeditions are taking priceless material out of China; it has not hesitated to inflame popular opinion by imputing political motives to them, and accuses their leaders, Sir Aurel Stein, for example, of subversive speeches against the Chinese Government.

A brief survey of the present situation, which Prof. H. Fairfield Osborn, president of the American Museum of Natural History, contributes to *Science* of August 7, gives the text of the letter received from the Commission for the Preservation of Antiquities, and includes in addition a communication by Dr. Roy Chapman Andrews, in which he sets forth the scope, methods and achievements of the expedition in geology, palæontology and archæology

since its inception in 1920. It is a remarkable record, and although already sufficiently well known, it was well worth recapitulation in this context. Between the years 1922 and 1930, it has discovered and developed one of the world's great fossil fields with no less than twelve distinct fauna—Lower Cretaceous to Pleistocene. In addition to the dinosaur's eggs, which attained what was, perhaps, in the circumstances, an unenviable notoriety, and the remarkable series of skulls of the animals which laid the eggs, cretaceous mammal skulls and associated parts of skeletons were found which are the only mesozoic skulls known, with the exception of *Tritylodon* from South Africa. It is unnecessary to pursue further this list which, on one hand, is an almost unique record in the sum total of data new to palæontological science, and, on the other, is a monument to the scientific knowledge, organising ability and powers of endurance of those who were responsible for and took part in the expedition. But what will weigh even more with those interested in the branches of research with which the expedition is concerned, when they reflect on the consequences of this premature ending of its activities, is that it is in this field, if anywhere, that we are, perhaps, most justified in looking for further evidence bearing on the descent and earliest history of man—the main objective of the expedition when it was initiated eleven years ago. No Chinese expedition, however expertly manned and however well-equipped when it takes the field, will compensate for the loss of the experience gained in those five journeys of the American scientific workers to Mongolia.

The claims for consideration of the Central Asiatic Expedition on the ground of achievement are strong. But are they stronger than those of Sir Aurel Stein, Sven Hedin, P. Teilhard de Chardin and others to whom in future China will be closed as a field of exploration? Like the American expedition they have co-operated, or have offered to co-operate, with Chinese scientific organisations and individuals, each in their special field. China has gained, not lost, by the work of these great explorers. By their additions to the sum of human knowledge, she has transcended the bounds of nationality and has entered into the universal realm of science. While men of science of all countries have been looking to China for evidence bearing upon problems of world-wide import, her own horizons have been broadened and her students trained. In other circumstances the organisation of a Chinese expedition to Mongolia might have been welcomed as a valuable and progressive measure in the

interests of scientific research without any thought as to whether it was an encroachment on a field in which America had secured a right.

Notwithstanding the difficulties of the present political situation, China has won, and continues to hold the sympathies of influential elements in the western world for her desire to assimilate what is most suited to her needs in western culture, and to join in the movement for the advancement of science. Is she by her own action to be placed, as Prof. Osborn has phrased it, in "the column of backward, reactionary and non-progressive nations" ?

The Schneider Trophy Contest.

THE eleventh contest for this trophy for marine aircraft was arranged to take place on Sept. 12 at 12.30 P.M., over a triangular course above the Solent and Spithead off the Isle of Wight. Owing to the last-minute withdrawal of the French and Italian challengers, the event resolved itself into a mere flight around the 350 kilometres (217.5 land miles) course by one of the British entrants in order to qualify. The flight was completed on Sept. 13 by Flight-Lieut. Boothman, R.A.F., flying a Supermarine S6B. seaplane, fitted with a Rolls-Royce R engine, at an average speed of 340.08 miles per hour. During the flight he also broke the world's speed record over a measured distance of 100 km. with flying start, at 342.9 m.p.h. The trophy, having now been won by Great Britain on three consecutive occasions, becomes our property, and the Schneider Trophy competition thus ceases to exist.

It has been felt in many quarters that it would have been an act of sportsmanship on our part to have postponed the competition until such time as the French and Italian competitors were ready to race, but it must be remembered that there is much more in this event than the actual race. It is really a competition amongst designers to produce machines capable of flying at speeds greater than those already attained, and engines able to give the necessary power for a sufficient time to complete the distance. The actual flying of the race, with its demand upon the courage, skill, and physical endurance of the pilots, is really only the grand culmination of the whole scheme. The French and Italians were, presumably, confident of being able to do this when they took the initiative in challenging Great Britain. It is known that they have built machines and trained teams to manipulate them, so that their withdrawal at the last moment can only be construed as an admission that the

performance of their products falls so far behind what they suspected of ours that actual participation in the race was merely a waste of effort.

It is also becoming increasingly evident that the regulations governing this competition, which were intended, when laid down, to promote a general advance in the design of a useful sea-going aircraft, are no longer adequate to guard against the competition being won by a freak machine of very little use except for that specific purpose. The closing of this chapter in seaplane development will consequently make an opportunity for some public-spirited person or body to offer a fresh trophy under rules more suited to modern requirements. Newspaper reports have already hinted at the name of M. Schneider's successor.

The figures of the speeds of the winners of the succeeding races give an interesting clue to the phases of development through which the design of aircraft and engines has passed since the inception of this competition.

Year.	Machine.	Country.	Average Speed (m.p.h.).
1913 . .	Deperdussin	France	45.75
1914 . .	Sopwith	Gt. Britain	86.75
1920 . .	Savoia	Italy	107.12
1921 . .	Macchi	"	110.84
1922 . .	Supermarine	Gt. Britain	145.62
1923 . .	Curtiss	U.S.A.	177.38
1925 . .	"	"	232.57
1926 . .	Macchi	Italy	246.49
1927 . .	Supermarine	Gt. Britain	281.65
1929 . .	"	"	328.63
1931 . .	"	"	340.08

The speed of 45.75 m.p.h. in 1913 is misleading, as the pilot did not cross the finishing line correctly, and had to complete another lap. His real flying speed was in the neighbourhood of 70 m.p.h. Thus from 1913 to 1914 there was a small improvement, consequent partially upon improvement in design, but more upon experience in handling machines under racing conditions. The period 1914-20 does not show any great improvement in proportion to the time that elapsed, but it must be remembered that the seaplane was relatively neglected during the War period, the energies of combatants being directed to the improvement of land machines, operating under much different conditions. The step 1920-21 marks a distinct improvement in aerodynamic design of the seaplane, which, although only 3.72 m.p.h. faster, carried only a 200 h.p. engine, as compared with the 550 h.p. of its predecessor. In 1922 the Supermarine flying boat increased the speed considerably, but with a large increase of power, having a 450 h.p. engine. The 1923 Curtiss seaplane marked a decided change