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TOME II: TERRESTRIAL PHYSICS, METEOROLOGY, NATURAL  
HISTORY.

Section VII. Terrestrial Magnetism.

- \*A. Magnetic Survey of Spitzbergen.
- B. Observations of variations of the magnetic elements.

VIII. Meteorology.

- \*A. Regular observations at the winter quarters.
- \*B. Solar radiation.
- \*Bi. The state of the ice and snow.
- \*Bii. Forms of the ice-crystals.
- \*Biii. Meteorological observations made at the mountain stations.
- \*Biv. and Bv. Meteorological and hydrographic observations made at sea.
- \*C. The aurora borealis.

IX. Topography and Geology.

- A. Topographical description of the region explored.
- B. Geology.

X. Botany.

A number of the Swedish mémoires have already been received in this country, and are marked by asterisks in the foregoing list. While working separately for publication in all else, it has been concluded that the commissions shall work together in the reduction of the final results of the four years' work, involving a comparison of the astronomical and geodetic results.

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THE ANGLO-RUSSIAN AGREEMENT AS TO TIBET,  
AFGHANISTAN, AND PERSIA.

BY

ELLSWORTH HUNTINGTON.

On September 25th, the British and Russian Governments published the text of a convention as to the sphere of action of each of the two countries in Persia, and as to their relation to Afghanistan and Tibet. The convention does not attempt to interfere with the

present degree of independence enjoyed by the three Asiatic states, but the result will almost certainly be a curtailment of the powers of the Shah of Persia. In Tibet and Afghanistan the convention does little more than confirm the status quo; in Persia it formally recognizes the hitherto disputed fact that Russian influence is supreme in the northern two-thirds of the country and British influence in the southern third.

Specifically it is agreed that Tibet shall remain intact and that neither Great Britain nor Russia shall interfere with her internal affairs. Whenever it is necessary to communicate with her they shall not send representatives to Lhasa, but shall carry on all business through the Chinese Government. Nevertheless the British Government may have direct relations with Tibetan officials through trade-agents, as provided in the conventions of 1904 with Tibet and of 1906 with China. Moreover, Buddhist subjects of both England and Russia may enter into direct relations with the Dalai Lama or other Buddhist functionaries in regard to strictly religious matters. Neither of the contracting Governments shall seek any concession for railways, roads, telegraphs, or mining rights. Put boldly, the meaning of the convention is merely this: Tibet is so inaccessible and poverty-stricken that Russia has no interest in her save as a place of pilgrimage for Russian subjects in southern Siberia, and as a vantage-point from which to inflict pin-pricks upon England. Therefore Russia abandons all claims except one in favour of her pilgrims. The British, on the other hand, have little or nothing to tempt them into Tibet unless it be the gold mines; but the advantages of working these are so doubtful that the possibility of utilizing them can be given up without sacrifice. A considerable number of pilgrims and an insignificant amount of merchandise pass between India and Tibet. The safety of these is provided for.

Afghanistan is more important than Tibet. She is independent so far as internal administration is concerned; but the British Government pays the Amir an annual subsidy, and in return therefor exercises suzerainty over the country and controls her foreign relations. In the new convention Russia formally recognizes Great Britain's suzerainty and agrees to have no dealings with Afghanistan except through the British Government. She will cease to fill the country with secret agents, hitherto a source of continual friction; but in return for this she exacts from England the assurance that the latter will not incite the warlike Afghans to take threatening measures against Russian possessions. Great Britain adheres to the Cabul treaty of 1905 and will not annex or occupy any part of



Russia. If against the latter, it might seem to the Russians as if England, though blameless, had broken the convention. Finally, the rivers which water the Transcaspian oases of Tejen, Merv, and various minor places rise in the mountains of Afghanistan. More than once in the past the Afghans have diverted the headwaters of the streams and have thus opened the way for violence. In dry seasons this is almost certain to happen again unless Russia holds Herat and the Afghan mountains north of the main watershed.

The most far-reaching part of the Anglo-Russian convention concerns Persia. That country is at length divided into three parts. The first lies north of a line drawn in a great southward-bending curve from Kars-i-Shirin on the western boundary 100 miles north-east of Bagdad southeastward over 500 miles to include Isfahan and Yezd, and then northeastward nearly 300 miles to include Khakhi, and then still northeastward 250 miles farther to Zulfagar at the corner where Persia is joined by Afghanistan and Russia. North of this line in an arc larger than Austria-Hungary, Great Britain agrees that she will not seek for herself or for her own subjects or those of a third power any political or commercial concessions, and will not, either directly or indirectly, oppose any requests for concessions having the support of Russia. A second line runs from Bunder Abbas at the southern end of the Persian Gulf northward for about 200 miles to Kerman, then east of north another 200 miles to Birjand, and finally 100 miles east through Gazik to the Afghan boundary. In the area to the east of this—only half as large as the preceding, and for the most part worthless desert except at Seyistan—Russia gives a corresponding pledge to regard British rights. As to the intervening portion of Persia—an area of over 200,000 square miles, midway in size between the two preceding divisions, and about equal to France—both countries agree not to oppose the granting of concessions to subjects of either country. Existing concessions are to be maintained. At first sight it appears that Russia has obtained very much the best of the bargain. She has, however, given up Seyistan, the half-way house to India, and—a matter of much greater importance—she has given up her long-cherished dream of a railroad running south near the eastern border of Persia along the easiest of all possible lines to Bunder Abbas, Chahbar or some other port of Makran on the Arabian Sea.

Sir Edward Gray, British Foreign Secretary, in issuing the text of the convention, added a special letter to the effect that the agreement does not affect the regions around the Persian Gulf. These are regarded as not pertaining to the Anglo-Russian frontier problem,

and, therefore, as needing no positive declaration with respect to Britain's special interests in the Gulf which are the outcome of her action in those regions for 100 years. The status quo will be preserved and British trade fostered, but Great Britain does not desire to exclude the trade of any other Power. If Russia really accepts Sir Edward's view, which is extremely doubtful, she has indeed made a great concession. She has relinquished one of her dearest projects, the plan for an outlet to the Indian Ocean.

Assuming that Russia accepts or is obliged to accept the English view, Persia from now on will consist of three divisions. The northern division, forming the Russian sphere, is shaped like a rude, blunt-ended crescent, nine hundred miles wide from tip to tip and 250 miles thick. It contains the best parts of Persia: Azerbaijan, the rich northwestern province, which is the granary of the country, and the only region to be really desired by Europeans; Gilan and Mazanderan, hot, steamy districts of great wealth and beauty on the southern shore of the Caspian Sea, but unfortunately cursed with a most unhealthful climate; and Khorasan, the great northeastern province, next to Azerbaijan in wealth. Besides these more favoured regions it includes a more southerly tract. The western part of this consists of mountains full of Kurds and other nomads and supporting at their base some of the chief cities of Persia, such as Teheran, Hamadan, and Isfahan. The eastern part is for the most part a desert plain, the saline centre of a vast inland basin.

The second division of Persia is likewise a blunt-headed crescent, 900 miles from tip to tip and averaging about 125 miles thick. The eastern half consists of practically nothing except the most inhospitable desert, a place to be avoided when at its best in the late winter, a fiery furnace where all the water is saline and men die of thirst in summer. The western half consists of rugged mountains only to be crossed with great difficulty, dry and barren to Western eyes and yet supporting bands of turbulent nomads, the Suris and others.

The southern or British division of Persia is a little better than the central division. That is the best that can be said of it. In the northern part of the broad eastern end it contains fertile Seyistan, which the natives call "a hell full of bread." In the centre is the dried-up city of Yezd; then, in the narrowing western end, Shiraz, for ages the theme of poetic extravagance; and finally at the far northwest the potentially rich border of the Mesopotamian plain and the Karun River to Dizful. The rest of this division is either desert or trackless mountains, with only a handful of people. Almost the only value of England's portion, aside from possible mineral

wealth, lies in the command of the Indian Ocean which it assures to that country.

It would be premature to say that Persia has been divided, but a long step has been taken towards that consummation. The convention provides that, in case of the non-payment of interest on certain debts already contracted through the official British and Russian banks of Persia, either of the signatory Powers may take over the customs service and administer it in favour of the creditors. This provision, which on its face appears of minor importance, may lead to actual, though unavowed, partition of the Shah's domain. Persia is not in the habit of paying its debts. If the entire customs service, as well as the concessions for railroads, mines, and so forth, is divided between the foreign Powers, small autonomy remains to Persia.

Some one must eventually exercise control over the unassigned "buffer" which England has left between herself and Russia, and the two countries must eventually agree upon a common frontier. It is perhaps not unreasonable to suppose that ere many decades England will concede northwestern Afghanistan to Russia in return for fuller rights in southwestern Persia around the Persian Gulf. When that is accomplished many causes of friction will vanish; for the political boundary will coincide with a somewhat pronounced physical boundary—on the east, the central mountains of Afghanistan; in the centre, the deserts of eastern Persia; and on the west, the high mountains of western Persia.

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## EXPERIMENTAL PHYSIOGRAPHY.

BY

GEORGE D. HUBBARD.

A beginning in experimental physiography was made at Ohio State University\* during the past year. A basement room in the geologic building was fitted up with drains, bins of sand, clay, cement, and various other materials, and river and ocean tanks, for running and standing water. The first problem chosen was that of the aggrading and degrading stream, not so much to discover

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\*The author was ably assisted by Mr. A. E. Moody, an advanced student in the department, to whom thanks are due for many suggestions.