
The Maximum of Terrestrial Magnetization

Author(s): John W. Evans

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Motor versus Rail in Persia.

In connection with the paper by Colonel Napier on "The Road from Baghdad to Baku," and subsequent discussion (*Journal*, January 1919), I should like to submit a few remarks on the subject of communications in Persia, which are of vital importance if ever trade on a large scale is attempted in that country. The reason motor transport is commercially possible in England is that we have good metalled roads, which reduce to a minimum the wear and tear on the vehicles employed. Without such roads this means of transport would never pay in any country. But good roads to stand heavy lorries cannot be made without water and suitable material. In the greater part of Persia water is very scarce and in some parts material is not available. The construction of suitable roads would therefore present considerable difficulties.

It is no argument in favour of the employment of commercial motors, which must pay their way, to point to what has recently been done in the matter of military motor transport. In war we are prepared, if necessary, to scrap fifty per cent. of our cars every few months, and think nothing of it. The kind of roads on which they run requires no water to make them, but they would be quite out of the question for paying commercial purposes. It is true that motors have gone from Quetta to Kirman, but I do not think any one ever thought of trying to make and maintain a commercially practicable motor road over the waterless and sandy tracts which separates these two places.

On the other hand the construction of railways presents little difficulty. For that reason I think it would be well to consider carefully the relative merits of both means of developing communications so badly wanted in Persia, and certainly in Eastern Persia the construction and maintenance of macadamized roads would be a difficult and expensive operation.

It is quite possible that suitable roads might be made in the better favoured parts of the country as feeders to railways, but in the desert areas, through which railways could be constructed, they would not be practicable, and you must pass through these to open up Persia, anyhow from the East.

It is sincerely to be hoped that the opportunity now presented to us of securing the trade of Persia will not be lost. We should lose no time in ascertaining the requirements of the people; sending samples of what we can supply and also obtaining samples of articles the people use which they formerly obtained from foreign countries. Goods of European manufacture have naturally become very scarce. I believe there is a great field for enterprise in this direction.

H. L. CROSTHWAIT, Lieut.-Col. R.E.

East Persia, February 1919.

The Maximum of Terrestrial Magnetization.

At the reading of Mr. Reeves's paper on "A Transformation of the Magnetic Dip Chart," printed on pp. 152-165 of vol. 53 of this *Journal*, I remarked on the strangeness of the fact that the maximum of terrestrial magnetization was in the direction of the great continental masses which were believed to be the regions where there is the greatest accumulation of non-ferruginous rocks—that is to say, where the material is least permeable to magnetism.

The explanation is, however, a very simple one. The interposition of a mass of permeable material in a magnetic field tends to concentrate the magnetic force in itself, leaving the adjoining space with fewer lines of magnetic

force. The ferruginous material almost immediately underlying the ocean would act in this way, leaving the surface above it badly provided with lines of magnetic force. The considerable depth of material forming the continents containing, as a rule, less ferruginous constituents, would not have this effect.

The lower temperature under the ocean would no doubt, as Dr. Chapman pointed out, have the effect of rendering the ferruginous material there more capable of magnetization, but susceptibility to magnetization at high temperatures must depend to a considerable extent on the pressure, and therefore on the depth. One would expect that under high pressures the limit of temperature at which magnetization is possible would be appreciably raised.

JOHN W. EVANS.

Imperial College of Science and Technology, 3 April 1919.

MEETINGS: ROYAL GEOGRAPHICAL SOCIETY: SESSION 1918-1919

Fifth Afternoon Meeting, 17 March 1919.—Sir Aubrey Strahan in the Chair.

PAPER: Survey by Air Photographs. Lieut.-Colonel N. M. MacLeod, D.S.O.

Sixth Afternoon Meeting, 14 April 1919.—Sir Aubrey Strahan in the Chair.

PAPER: The use of the Astrolabe à Prisme. Dr. John Ball and Mr. H. Knox-Shaw.

Ninth Evening Meeting, 24 March 1919.—Mr. Douglas Freshfield, Vice-President, in the Chair.

ELECTIONS.—Lieut. W. Scott Bardwell; T. K. Mortimer-Booth; Lieut. Arnold Brougham Candler, R.E.; Rev. William Hodges Elwin, M.A.; Mortimer Epstein, M.A., PH.D.; Captain Frank M. Ford; Norman Edward Freakley; Lieut. C. Swinton Holland, R.N.; Thomas Winter Kennion; Major Edward Lyall, D.S.O.; E. J. Lloyd; T. R. Morgan; N. H. Norton, L.C.P.; Mervyn Grove Palmer; Charles Marisco Pearce; Lieut.-Colonel William J. T. Short-hose, K.A.R.; C. L. Woodhouse.

PAPER: A Contribution to the Geography of Macedonia. Captain Alan Ogilvie, R.F.A.

Tenth Evening Meeting, 7 April 1919.—Mr. Douglas Freshfield, Vice-President, in the Chair.

ELECTIONS.—Captain H. W. Cowling, M.C., R.E., B.Sc.; Carlos H. Davila; Captain Cecil John Edmonds; Sidney Alfred Hall; Captain Charles Harvey Miller; Major Alan Leslie Morris; Captain J. A. Reid; William Arthur Rudd, M.A.; Lieut.-Colonel Charles Aitchison Smith; Captain Frederick John Thorpe.

PAPER: Poland. Miss Czaplicka.