

SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

PUBLISHED BY

N. D. C. HODGES,

47 LAFAYETTE PLACE, NEW YORK.

[Entered at New York Post-Office as second-class mail-matter.]

SUBSCRIPTIONS.—United States and Canada.....	\$3.50 a year.
Great Britain and Europe.....	4.50 a year.
Science Club-rates for the United States and Canada (in one remittance):	
1 subscription 1 year.....	\$ 3.50
2 " 1 year.....	6.00
3 " 1 year.....	8.00
4 " 1 year.....	10.00

Communications will be welcomed from any quarter. Rejected manuscripts will be returned to the authors only when the requisite amount of postage accompanies the manuscript. Whatever is intended for insertion must be authenticated by the name and address of the writer; not necessarily for publication, but as a guaranty of good faith. We do not hold ourselves responsible for any view or opinions expressed in the communications of our correspondents.

VOL. XII.

NEW YORK, DEC. 21, 1888.

No. 307.

CONTENTS:

THE HAUSS ELECTRIC RAILWAY.....	301	NOTES AND NEWS.....	309
THE CONDUIT SYSTEM OF ELECTRIC RAILWAYS.....	302	EDITORIAL.....	310
PHILOSOPHY AND SPECIALTIES.....	303	The fate of Emin Pacha and Stanley. — The Resources of the Mackenzie Basin.	
SCIENTIFIC NEWS IN WASHINGTON.		BACTERIA <i>G. M. Sternberg</i>	310
Causes of Configuration in Trees.....	306	THE GREAT MACKENZIE BASIN.....	314
How Some Eskimo Measure.....	306	BOOK-REVIEWS.	
New Improved Freezing-Microtome.....	307	Memory.....	315
ETHNOLOGY.		Case of Emperor Frederick III.....	316
Tales from Venezuela.....	307	AMONG THE PUBLISHERS.....	316
The Races of the Babylonian Empire.....	307	LETTERS TO THE EDITOR.	
ELECTRICAL NEWS.		Synclinal Mountains and Anticlinal Valleys. <i>W. M. Davis</i>	320
Submarine Boats.....	308		
Another New Storage-Battery.....	309		
Underground Conduits.....	309		

THE RECENT NEWS from the Equatorial Province shows that the Mahdi's successor, Abdullah, has as strong a hold upon the Mohammedan peoples of Egyptian Sudan as had his predecessor. While for some time the impression prevailed that the fanaticism of these tribes had abated, the attacks upon the English at Suakin proved at least that the Mahdi still swayed over the region from Khartum to Berber. It will be remembered that since the unexplained retreat of the Mahdi from the Equatorial Province Emin Pacha had been comparatively undisturbed, but about the end of last year rumors of a renewed attack reached the coast. It was stated that in March the Mahdi contemplated sending four thousand men on four of Gordon's old steamboats up the Nile, in order to attack Emin. If Osman Digma's message to the English be true, and not a trap, this expedition has been successful, and Emin has at last succumbed to the powerful religious movement which centres in Khartum, and with him Stanley, who had joined hands with him since November last year; and both would share the fate of the unfortunate Lupton and Slatin. It is said that a derwish named Omar Saleh returned some months ago from a success-

ful raid into the upper valley of the White Nile. He seems to have encountered Emin in October at Lado, and captured him and Stanley. Undoubtedly Emin would not have been able to withstand the attack of an expedition like the one referred to, and from his former behavior it does not appear probable that he would have retreated south-eastward. While the news is quite probable and credible, we may still maintain a faint hope that it has been merely invented to prevent the English from energetic action at Suakin. It has been stated before that the only real means of helping Emin would have been an attack upon the Mahdi from the north; but this, of course, was out of the question, since the English had given up the Sudan. Stanley's expedition was a failure, as, on account of his long delay and the destruction of his rear guard, he was unable to supply Emin with a sufficient amount of ammunition and trustworthy men. Neither would the planned German expedition have been of great account in a war with the Mahdi, as it would hardly have succeeded in opening a route to Emin, which latter would have been the only means of maintaining the rule over the Equatorial Province.

THE SELECT COMMITTEE of the Senate of the Dominion of Canada, appointed to inquire into the resources of the great Mackenzie basin, has collected a vast amount of information, which has recently been published, and of which we give abstracts in another place. Although much of the information contained in this report is too vague to be of value, the greater part is founded on sound reports of well-informed men, and our knowledge of the natural productiveness of this vast area is greatly increased. In weighing the economic value of the area under discussion, it must be considered that the northern limit of vegetable products and of pastureland does not coincide with the northern limit of profitable agriculture and stock-raising. In the report of the committee, the analogy of those parts of Russia near the northern limit of possible agriculture is frequently emphasized; but it must be borne in mind that the economic conditions of America and Russia are fundamentally different. Up to this time, agriculture in the new West is founded on extensive culture, no attempt being made to make the soil yield the largest possible continuous returns by intensive culture. At the same time a great portion of the immigrants do not settle there to make a living, but with the prospect of becoming wealthy. In Canada as well as in the United States a great number of settlers in the prairie territory are at the same time land-speculators. For these reasons the limit of agriculture will not approach as closely the limit of possible agriculture as it does in Russia, where a native population, loving the native soil, makes a hardy living. It is only when the economic conditions of the Western States shall have undergone a complete change that these northern districts, which are able to support a population, will become settled.

FERIA.¹

As director of the Hoagland Laboratory, I take advantage of this opportunity to congratulate Dr. Hoagland, the city of Brooklyn, and my present audience, upon the completion of this building, devoted exclusively to scientific research, and instruction in certain departments of biology; viz., in physiology, pathology, histology, and bacteriology. Indeed, I may extend my congratulations much further; for such a laboratory as this is a centre from which the rays of scientific learning will radiate to all parts of this great country, and which cannot fail to exercise an important influence upon the progress of knowledge in these fields of research. I do not know when Dr. Hoagland first conceived the idea of building and equipping a laboratory devoted to these fundamental branches of medical science, but it is now nearly two years since he made his first visit to Baltimore for the purpose of inspecting the laborato-

¹ Portion of a lecture delivered by Dr. George M. Sternberg at the Hoagland Laboratory, Brooklyn, Nov. 17, 1888.