

# SCIENCE

FRIDAY, OCTOBER 26, 1888.

THE POLITICAL EVENTS in East Africa and the death of Major Barttelot have made the position of Emin Pacha, and probably that of Stanley, very difficult. Since the English have given up the Sudan to the Mahdi, the Europeans have lost much of their influence over the Arabs, who feel that they are able to resist European influence. As at the present time English and German traders are making rapid progress in Central Africa, and as the Sultan of Zanzibar has yielded his political power to Europeans, the Arabs are in fear of losing their profitable trade and of being compelled to abandon their slave-raids. This fear, combined with the consciousness of their power, makes the situation in eastern Africa one of great difficulty. It is erroneous to ascribe the disturbances to oppressive or offensive acts of European, especially of German officials, as the sole fact of their presence and of their progress is a satisfactory explanation. As a matter of fact, the disturbances have not originated in, and are not confined to, German territory. In April severe struggles took place between the Arabs and English traders near the northern part of Lake Nyassa. Since the German East African Company has taken possession of the coast of the mainland, the hatred of Europeans has received a sudden stimulus, and the Arabs, aided by their native supporters, everywhere offer resistance to European travellers. Thus Dr. Hans Meyer's second expedition to the Kilima Ndjaro has been scattered, and all further expeditions starting from Zanzibar have been made impossible. Besides this, new complications have arisen in the lake region. The last news from Uganda was dated June 27. According to it, communication with Emin is again absolutely interrupted. While for a long time Kabrega, King of Unyoro, seemed to be friendly to the whites, he has all of a sudden turned against them; and it would seem that the cause of his change of mind may have been either the fear of Stanley's arrival and the subsequent strengthening of Emin's power, or the advice of Arabian traders. However this may be, he has killed Mohammed Biri, the Tripolitan trader, who, in 1886, opened a trade between Uganda and Wadelai at the instance of Dr. Junker, and was the only one to continue it, and thus keep us informed of what was going on in the Equatorial Province. It would seem that Kabrega has also caused the unfortunate Captain Casati to be murdered, but it may be that this news is not correct. On account of this new interruption, the last news of Emin dates back to Nov. 2, 1887, and it seems not improbable that Stanley may meanwhile have reached him. It must be borne in mind that the news of Stanley's death and of the destruction of his caravan would have reached us from some direction. H. Wichmann, in the October number of *Petermann's Mittheilungen*, reminds us, rightly, that the news of the destruction of Hicks-Pacha in Kordofan on Nov. 5, 1883, was known in Lado in March, 1884; that the capture of Lupton Bey in the Bar-el-Gazal Province was known in November in Khartum. Events of such importance as the destruction of a whole caravan headed by many whites would have been reported and known all over the country within a few months. Undoubtedly both men, Emin as well as Stanley, are in a position of great difficulty. We are unable to know whether they have succeeded in uniting their forces since Nov. 2, 1887. The danger of their situation arises not so much from attacks of petty tribes, as from the general feeling of power and distrust against Europeans among the Arabs, and eventually in Uganda and Unyoro, and from the impossibility of obtaining the necessary ammunition and provisions. If the story of the 'White Pacha' had referred to any important event,

it is probable that we should have had additional information from the Bar-el Gazal region.

## THE INTERNATIONAL GEOLOGICAL CONGRESS.

THE fourth session of the International Geological Congress was held in London from Sept. 17 to Sept. 22. *Nature* gives a full report of its proceedings, from which we take the following notes:—

So far as members go, the congress was a complete success, as it was more largely attended than any previous meeting, both by home and by foreign geologists. The success of such a gathering may, however, be reckoned on other lines, and here opinions on the subject may differ. Those who hold that the first duty of such a congress is to formulate rules and to fix nomenclature may well feel some disappointment; for although excellent discussions took place, and the general feeling was often evident, no formal vote on any such subject was taken. It was generally felt that votes from such mixed assemblages have no value.

Three invitations for the fifth meeting of the congress in 1891 were received from America, — from Philadelphia, New York, and Washington. Philadelphia was chosen. A committee of American geologists was appointed to take such steps as it thought necessary to make the arrangements for this meeting. The committee consists of Messrs. J. Hall, Dana, Newberry, Frazer, Gilbert, Hunt, Marsh, and Walcott.

When the congress met at Bologna, much of the time was occupied with discussions upon the exact meanings to be attached to various geological terms, and upon the general principles which should guide us in geological classification. Certain rules were then laid down, which probably few authors have consistently followed, and which it is unlikely will be universally adopted. At Berlin the discussions turned more upon precise questions of classification, especially those relating to the sedimentary rocks; upon the lines by which various groups of strata should be marked off; and, in some cases, upon the names by which these groups should be known. This change of procedure was necessitated by the progress made with the international geological map of Europe; the material for such discussion on classification having been provided in the shape of reports from various national committees, of which that from England, presented by Professor Hughes, was by far the most complete.

At the London meeting the classification of the Cambrian and Silurian strata was fully discussed; and two other questions, only lightly touched upon before, were here considered in some detail, — the nature and origin of the crystalline schists, and the upper limit of the tertiary system.

In Bologna numerous votes were taken, in Berlin several, but in London none. It was recommended that members of the country in which the congress meets should vote separately from the foreign geologists: if the votes of the two groups agree, the question will be taken as settled; if they disagree, the further consideration of the question will be postponed. The resolution further recommended that votes should not be taken on questions which are purely theoretical (such questions to be simply discussed, and various views obtained), and that decisions of the congress should only refer to the more practical questions.

Two commissions of the congress have existed since the Bologna meeting, — that on the map of Europe, and that on nomenclature and classification. The work of the former is plainly marked out, and much has yet to be done. The other commission has, however, in many respects served its purpose: it has obtained reports from the various national committees, most of which have been ably summarized by Professor Dewalque. The future work of the congress will partly lie in discussing these reports, and in deciding such questions in general classification as may apply to wide dis-

tracts, leaving minor points to be worked out by each country for itself. A commission was therefore appointed with altered and somewhat wider powers. Its functions will more fully shape themselves at the congress in Philadelphia.

The report upon the map of Europe was presented to the congress by Dr. W. Hauchecorne. This stated the progress which is being made. Four or five sheets of Central Europe will be ready for publication during the next two years; and it has been decided to publish the sheets as completed, each with its own title and index, instead of waiting for the completion of the whole of Europe, as was at first intended.

Very little time was given to the map in the public sessions of the congress; but the map commission had three long sittings, the results of which will be printed in the official report. The most important points arrived at were the adoption of the term 'pleistocene' for the index of the map (the German term '*quartär*' to be bracketed with this); the separation of the modern deposits from the pleistocene, and the mapping of the latter wherever practicable, the underlying formations (where known) to be distinguished by colored lines; in modern eruptive rocks (those of volcanoes now active or only recently extinct) the stratified volcanic tuffs are to be distinguished from the cinders and the scoriæ.

M. Karpinski has been the representative of Russia on the map commission. On this occasion he was not present, his place being taken by MM. Nikitin and Tschernicheff. The latter submitted an important note on the crystalline schists of the Ural Mountains, which would have enlivened the discussion upon this question in the public meetings of the congress. He states that the crystalline schists of the Urals contain limestones with a distinct Hercynian fauna, and also that the schists pass horizontally into Devonian strata. It is probable that in cases of this kind (and similar cases elsewhere were referred to in the public discussion) the schists will be represented by the color denoting their presumed age, while their present lithological character will be denoted by colored lines. M. Nikitin raised a point which is important in many parts of Europe, but which is especially so in Russia; that is, the necessity of distinguishing transition-beds. He instanced the Volgian beds, which link the Jurassic with the cretaceous; the Tartarian, between the Permian and the trias; and others, spoken of by M. Nikitin as Permo-carboniferous, which link the Permian to the carboniferous. These transition-beds occupy immense areas in Russia, and cannot well be fitted into the existing classification.

The discussion on the crystalline schists occupied the whole of the sitting on Wednesday, and part of that on Friday. The material for this discussion had been provided by a collection of papers printed in advance and distributed at the opening. A number of these papers were contributed by five officers of the United States Geological Survey, with an introduction by Major Powell; and by Mr. Lawson, of the Geological Survey of Canada.

In the foregoing notes we have not attempted to summarize the discussions. We have preferred to devote the space at our disposal to a general survey of the meeting, and to note some points of importance which could not well be included in a formal report of daily proceedings. The discussions may by some be held to have led to no definite result, inasmuch as no vote was taken, and therefore no formal decision of the congress can in future be appealed to. But the great value of such meetings lies in the opportunity afforded for personal discussion, and the interchange of opinions, not only in the public sessions, but in the more easy and informal conversations over the exhibits in the museum, in the corridors and reading-room, and at the friendly and social gatherings which made so pleasant a feature of the London meeting. We have no doubt that the general result of this meeting on geological opinion and progress will be at least as good as that of any which has gone before.

#### THE DEVELOPMENT OF THE CULTURE OF NORTH-WEST AMERICA.

It is well known that the Indian tribes of the north-west coast of America far excel their neighbors in their arts and industries. This phenomenon is of great interest, and well-deserving a thorough study. What was the origin of this culture? Which

among the numerous tribes of this region proved of an intellect so superior to that of all their neighbors? Is it possible to trace the unwritten history of this culture? All these questions are of interest to the historian, as well as to the ethnologist who tries to solve the psychologic laws of human development.

The north-west coast of America is inhabited by tribes belonging to a great number of linguistic stocks,—the Tlingit and Haida, the Tsimshian, the Kwakiutl, the Nutka, and the Salish. The physique of the northern tribes reminds us of the Japanese. The Kwakiutl are characterized by a comparatively long skull; the Salish, by an exceedingly short one. Our knowledge of the physique of these tribes is too imperfect to trace their genealogy. We may, however, trace their history by studying their customs and languages. It seems that the languages enumerated above represent as many different linguistic stocks, so far as our limited knowledge tends to show. Regarding the logical basis of grammar, we may distinguish three groups: the first comprising the Salish, Kwakiutl, and Nutka; the second, the Tsimshian; the third, the Tlingit and Haida. The formation of words and the grammatical inflection in the first group are effected by means of affixes and reduplication. The languages distinguish between sexes and between present and absent objects. What we call the adverb is the inflected part in their sentences. The second group is characterized by its entirely verbal character, nouns and verbs—if we may use these terms—being treated in the same way. There is no grammatic gender; but the past, present, and future tenses, as well as presence and absence, are distinguished. The plural has the same peculiarity as that found by Major Powell in several Shoshone dialects, different stems being used for singular and plural. The third group, the Tlingit and Haida, is characterized by the lack of inflected forms, juxtaposition of stems being the principle of grammatic structure and of the formation of words. These languages might almost be considered as belonging to the class of isolating languages.

These are the principal facts which we have to bear in mind in studying the culture of these tribes.

The best basis for ethnological comparisons are collections of specimens and collections of myths. The latter are the best clew to the religious ideas of a people, and reveal many remarkable customs which would escape the notice of the casual observer. A full account of the customs of these tribes is not yet available, as no scientific traveller has devoted sufficient time to their study.

The legends of these tribes are of a comparatively uniform character all over the north-west coast of America. This fact is not surprising, as the customs of all the tribes are very much alike. A careful analysis, however, shows important points of difference. It is true that the same elements occur over and over again, in varying combinations; but this phenomenon will not mislead the student, as it is one of the characteristics of myths, that in course of time they are developed by the addition of well-known elements. When we try to separate these elements from the legends, a series of myths remain which we are unable to trace to a common source.

As regards the elements common to all these traditions, their gradual distribution may be traced in studying, for instance, the legend of the 'Visit to Heaven,' which is known all over North-West America. The legend is one of the most important in the mythology of all Salish tribes, the tale being that men and animals made a chain of arrows reaching from heaven to earth, climbed it, and killed the sun. We find this same idea of the ascent to heaven incidentally used among the Tsimshian, only for the purpose of embellishing one of their legends. On the other hand, the tales of the adventures of the raven, which form the basis of the Tlingit mythology, are known on Puget Sound, where they form incidents in certain other myths.

Historical legends prove the correctness of our view that well-known elements of traditions are added to tales, and that their development is exclusively in this line. The Sitka Indians, for instance, have numerous legends referring to the administration of Baranoff. All of them have the same style that may be observed in their myths. Therefore, in studying the mythologies of these tribes, we must assume that each was in the possession of a certain stock of legends, which they carried to the coast. Whether these