Ltd. The *King Edward* was the first, and at her trial in June, 1901, this vessel obtained a mean speed of 20·48 knots. The *Queen Alexandra* was the second vessel; she was built in the following year, and obtained a mean speed of 21·63 knots. Both these vessels are now running on the Clyde.

A very important feature of these turbine vessels is the economy of coal consumption. In support of this it is of interest to mention that, at the launch of the *Queen Alexandra*, Mr. James Denny stated that if the *King Edward* had been fitted with balanced twin screw triple expansion engines of the most improved type, and of such size as would consume all the steam the existing boiler could make, the best speed that they possibly could expect would be 19·7 knots, as against the 20½ knots actually attained by the *King Edward*. The difference between 19·7 knots and 20½ knots corresponds to a gain in indicated horse-power in favour of the turbine vessel of 20 per cent.

Mr. Parsons, in a paper before the Institution of Naval Architects in Dublin recently stated that "the engining of larger vessels and liners is not a very long step beyond what has already been proved to be successful. The experience with the marine turbine up to 10,000 horse-power in ships of fast as well as of moderate speed, has tended to justify the anticipation, guided by theory, that the larger the engines the more favourable will be results as compared with reciprocating engines. The saving of weight, cost, space, attendance, and upkeep will become still more marked with turbine engines of above 10,000 and up to 60,000 horse-power, for which designs have been prepared."

It may be added that the results of moderately large turbines have shown an increased economy in steam consumption of 10 per cent. to 15 per cent., as compared with the best triple expansion engine.

Among the principal advantages of the steam turbine compared with ordinary engines are the following:—complete absence of vibration from main engines; increased economy in steam and coal consumption; increased accommodation and stability of vessel owing to low position of machinery; increased safety to engine room staff, owing to absence of reciprocating parts; reduced weight of machinery; reduced cost of attendance on machinery; and reduced consumption of oil and stores.

## ANTHROPOLOGICAL NOTES.

TRUSTWORTHY studies on Australian languages are still greatly needed; it is therefore with pleasure that we welcome the elementary grammar, by the Rev. N. Hey, of the language of the Nggerikudi, a tribe of some 400 natives of North Queensland in the neighbourhood of Batavia River. Although Mr. Hey has been connected with the Presbyterian Mission to these people for ten years, he does not yet quite understand all the intricacies of the language. He notes that the aboriginals are fast disappearing. The vocabularies will be of some use to ethnologists who cannot profess to grasp the structure of the language. This study forms the sixth *Bulletin* of North Queensland ethnography that the Department of Public Lands, Brisbane, is bringing out under the editorship of Dr. Walter E. Roth.

The last issue of the *Reliquary and Illustrated Archaeologist* maintains the interest of former numbers. Messrs. Miller, Christy, and W. W. Porteous deal with a selection of Essex brasses that range from the reign of Edward IV. to nearly the end of that of Charles I., that is, almost to the time when the custom of wearing armour and the practice of laying down monumental brasses were both discontinued; the illustrations show clearly the various styles of armour worn during this period, as well as the modifications in the costume of the ladies. Papers of this kind are calculated to form a valuable adjunct to the teaching of history. Mr. J. Romilly Allen describes some late survivals of primitive ornament on wooden spoons, staybusks, and knitting-sticks which were made for the special purpose of being given away as presents from young men to their sweethearts. Mr. Arthur Watson traces the tumbler's art during the last few hundred years; it was an accessory to the banquet in the middle ages; in the sixteenth century it had risen to a position of greater importance and independence; later it entered a new phase as an accompaniment to the drama; in modern times our streets yet retain traces of the ambulatory troups of performers, and acrobatic performances are still in vogue in the circus and music-hall.

The annual report for 1901–1902 of the Field Columbian Museum, Chicago, is a record of considerable progress, even for this enterprising museum. The cost of new installation for that year was about 10,000*l.*, more than half of which amount was spent on new cases. Attention is directed in the report to the unsatisfactory condition of the fabric of the museum, which, it will be remembered, was one of the admittedly temporary buildings of the World's Fair. Judging from a paragraph in *Science* for July 10, this will soon be remedied, as the park commissioners of Chicago have approved the transfer of the museum from Jackson Park to Grant Park, which is on the lake front in the centre of the city. It is understood that Mr. Marshall Field has agreed to give 1,000,000*l.* for the construction and endowment of the museum. In the department of anthropology all the collections, with the exception of two important purchases, have been derived from field expeditions, consequently they are of unusual interest and of great scientific importance; this is undoubtedly the most satisfactory manner of stocking a museum. The zoological collections were also augmented in a similar manner. The report is illustrated with excellent plates, which show that this museum is determined to keep the lead in the naturalistic and artistic excellence of its large animal groups. The Salish house group shown in the accompanying figure is an instructive addition to the many ethnological groups in the museum. Specifications are given of the new geological cases, and the botanist describes the reasons why he has adopted dead black labels printed with aluminium ink. Other educational aspects of the museum are its library, numerous popular lectures, and various publications. There is a very large attendance of school children accompanied by their teachers, and there can be no doubt that the schools and colleges are availing themselves more and more of the facilities of the museum as teaching adjuncts to books.

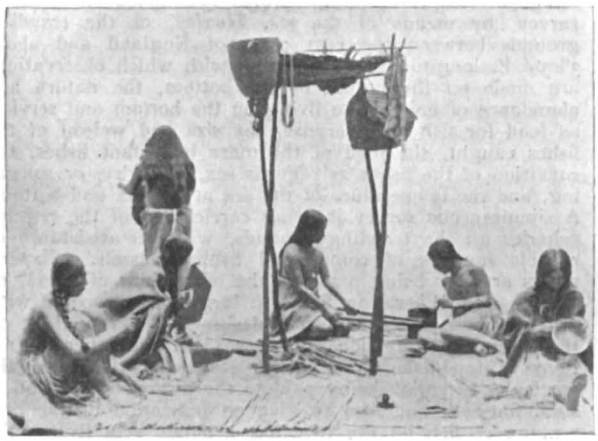

FIG. 1.—Salish House Group, Puget Sound, Washington Field Columbian Museum.

## A BURIED TRIASSIC LANDSCAPE.

OUR older rocks have naturally diversified the scenery during many a past period. Bent and hardened by various processes, and ridged up into hilly ground, some of them have so long withstood the assaults of eroding agents as to have fairly earned the title of "everlasting."

This may truly be said of the buried mountains of Charnwood Forest. Visitors to that picturesque and elevated district will have been struck with the curious rocky eminences that protrude here and there from what otherwise is a somewhat rounded, pastoral region. These isolated



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barren stony tracts, with highly inclined slabs of rock and a fringe of fallen blocks, call to mind descriptions of kopjes.

Prof. Watts, in an interesting essay (*Geographical Journal*, June), shows clearly that here we have the "veritable peaks and arêtes" of a mountain system, formed of slates, hornstones, and agglomerates, with intruded syenites and granites, which jut out from a thick covering of Triassic marls, with basement breccias and sandstones.

Pre-Cambrian in age, these rocks have been subjected to various earth-movements, producing cleavage and jointing, and such intense induration that they appear to be equally strong, and the structures probably were impressed upon them in Cambrian times. Be this as it may, Prof. Watts concludes that they must have formed a mountainous tract in Old Red Sandstone times, and that then the mass was cut up by rapid streams into fiord-like valleys with ever-sharpening ridges. Some features are indicative of marine action, and it is probable that these were formed when the area was submerged in Lower Carboniferous times, and the ridges appeared as islands. After re-elevation in Permian times, subaërial waste contributed the materials of the breccias, and the conditions led on to those of the Trias, when salt-lake and desert, akin to the features of the Great Salt Lake and of Baluchistan, characterised the scene. The landscape which had been blocked out in Old Red Sandstone

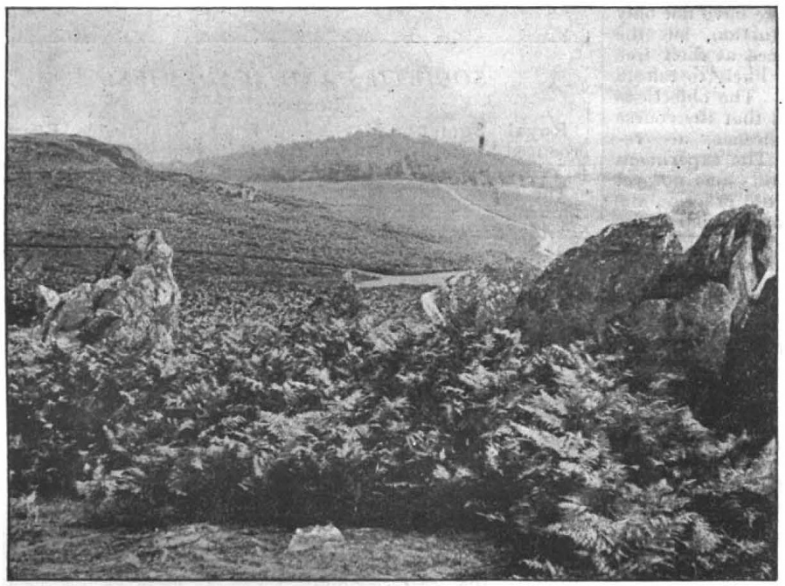

FIG. 1.—Bradgate Park, Charnwood Forest. Crags of Charnian Rock rising from Triassic ground. (From the *Geographical Journal*.)

times, and modified in the Carboniferous period, was now subjected to much weathering, and ultimately the thick deposits of Keuper Marl buried up many, if not all, of the summits, to be partially revealed again by later denudation. Not until the Glacial period is there any positive evidence of the subsequent exposure of the ancient rocks, but blocks from the higher summits do appear in the Boulder-clay of the neighbourhood.

Of the development of the present features Prof. Watts gives an interesting sketch. The Trias appears to have filled fiords which have been revealed by the present streams, and although they have deepened and altered the character of the older rocks when they excavated to them, the main outlines of the old scenery, uncovered by the denudation of the Keuper Marls, belong to the original Triassic landscape. As he points out, the granite of Mount Sorrel, when unbared for quarrying, shows often a smoothed and terraced surface, which was at first attributed to glaciation. More recently these surfaces have been found to extend beneath coverings of Keuper Marl, and the evidence is conclusive that the rounding and terracing must have been due to wind-erosion in the Triassic deserts before the peaks were buried under the Keuper Marl. H. B. W.

## *UNIVERSITY AND EDUCATIONAL INTELLIGENCE.*

CAMBRIDGE.—Mr. Howard Marsh, surgeon to St. Bartholomew's Hospital, London, and formerly professor of pathology and surgery at the Royal College of Surgeons of England, has been elected to the professorship of surgery, which has been vacant since the death of Sir G. M. Humphry, F.R.S.

Prof. Ewing, F.R.S., has sent in his resignation of the chair of mechanism and applied mechanics, to take effect on September 30.

Mr. C. E. Inglis, King's, and Mr. A. H. Peake, St. John's, have been appointed demonstrators in the engineering department.

Mr. W. E. Hartley, Trinity, has been appointed assistant observer at the observatory, *vice* Mr. A. Graham, retired.

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THE eleventh summer meeting of university extension students was opened last Saturday at Oxford, when the United States Ambassador, Mr. Choate, delivered the inaugural address, taking for his subject American university education. After describing how Harvard was founded in 1636, and referring to the rise of the other older universities in the United States, such as Yale and Columbia, Mr. Choate explained that it was found at the beginning of last century that, if American universities were to hold their own, they must greatly increase their numbers, change their methods, and assume new and closer relations with the people. At that time there were only twenty-six colleges and universities in the whole territory of the United States, and many of these were in an undeveloped state. They are now numbered by hundreds, many of them richly endowed, and most of them furnishing an adequate training, adapted to qualify youths for business and for any duty to which they may be called. These new colleges are not all on the same model, but afford a wide choice of courses of study to suit the varied necessities of a diversified community. With the exception of a few of the older States which are already well provided with them by private means, each State in the Union has, by the use of public funds and lands, created a State university; and it has been the ambition of several of their multi-millionaires to create universities by the generous application of portions of their fortunes. By this means powerful institutions of learning have been created in a few years. The University of Chicago, founded in 1892, and endowed chiefly by the generosity of one man, now numbers more than 3000 students. By far the most signal advance in university extension yet made in America is the latest in date—the creation of the Carnegie Institute at Washington—with an endowment of ten million dollars to be devoted absolutely to original research. Another reason for the success of the efforts to improve university education in the United States was brought out by Mr. Choate, who made it clear that the work of the universities, colleges, and technical schools rests on the broad and firm foundation of the common schools, which from the beginning have been the peculiar care of the people, and that educational authorities in America adhere rigidly to the theory that special study for professional or business life should be postponed until a broad and general education has developed the faculties and character. Referring to the Rhodes scholarship scheme, Mr. Choate remarked that it provides that henceforth there shall at all times be at Oxford 100 American youths selected from all the States, there to receive the best fruits of her nurture and instruction. "And now would not some rich American respond to Mr. Rhodes's challenge, and forthwith in his lifetime make a similar and equal provision for 100



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