

several occasions. The interim report of a Committee on Geographical education in this country appointed last year was read; the material collected by its Secretary (Mr. Herbertson) is very voluminous, but being still incomplete, its final consideration was postponed until next year. Mr. Herbertson also showed an ingenious piece of apparatus designed to explain the theory of map projections by a shadow of a skeleton hemisphere made up of wire meridians and parallels thrown on a sheet of paper by a candle, the position of which can be varied by sliding it along a bar. Mr. A. W. Andrews, of Malvern Wells, gave a thoughtful paper, from the standpoint of a practical teacher, on the importance of combining geographical and historical teaching in schools. A very similar subject was treated, with philosophic thoroughness, by Mr. G. G. Chisholm, under the title of "the relativity of geographical advantages." In his opinion geographical advantages may be considered: (1) As relative to the physical condition of the surface of a country, e.g. the extent of forests, marshes, &c. The former and present relative importance of Liverpool and Bristol may be explained, in part at least, by changes that have taken place under this head. Also the difference in direction by some of the great Roman roads and those of the present day, and the consequent fact that some important Roman stations in Britain are not now represented even by a hamlet. (2) As relative to the political condition of a country and of other countries. (3) As relative to the state of military science. Under these two heads the difference in the situation of the Roman wall between the Tyne and Solway and the Anglo-Scottish boundary suggests some considerations. Also the difference in the situation of some important Roman towns or stations and their modern representatives (Uriconium, Shrewsbury; Sorbiodunum, Salisbury). (4) As relative to the state of applied science—well illustrated in this country in the history of the iron and textile industries. (5) As relative to the density of population—another important consideration in the industrial history of our own country. (6) As relative to the mental attitude of the people where the geographical advantages exist. Many Chinese travellers and students of China have recognised the excessive reverence for ancestors in that country as one great hindrance in the way of turning the advantages of the country to account.

Taken altogether the proceedings of Section E show that geography, viewed as a science, is in a progressive and healthy condition in Great Britain at the present time. Increased attention is being devoted to the theoretical aspects, while there is certainly no diminution in the enterprise of explorers or in their power of conveying a clear idea of the new lands and seas they visit.

SCIENCE IN THE MAGAZINES.

DURING the last twenty or thirty years there has been a very large increase in the number of insane under detention in asylums. This increase, Mr. Thomas Drapes argues with much force in the *Fortnightly*, is mainly due to accumulation of chronic cases, and does not in itself necessarily indicate any increase in insanity in the sense of increased liability to mental derangement on the part of the community. In fact, the number of insane under care could double itself in the course of a comparatively short period of years without the addition of a single case to the number of those annually attacked. For these reasons, and because lunacy statistics only show a rise of 0.3 per 10,000 (from 4.5 to 4.8) of first admissions in twenty years, Mr. Drapes holds that no alarming increase has occurred in liability to insanity in England.

Twelve months ago, Dr. A. R. Wallace brought together, in the *Fortnightly*, a number of interesting facts which seemed to show that mouth-gesture was the chief factor in the origin of language. He pointed out that a considerable number of the most familiar words are so constructed as to proclaim their meaning more or less distinctly by movements of various parts of the mouth used in pronouncing them, and by peculiarities in breathing, or in vocalisation. Mr. Charles Johnston meets Dr. Wallace on his own ground by asking him, in this month's number of the *Fortnightly*, the purport of a quatrain of which two lines are:—"Jambvámralodhrakhadira—sálavet rasamákulam, Padmakamalapaklaksha—kadambodumbaráortam." This is a part of a highly-coloured description which has been the admiration of centuries, and Dr. Wallace is invited to declare the meaning it expresses. But Mr. Johnston does not confine himself to setting conundrums; he shows how very difficult it is to reach any fixed

principle on the lines laid down, how extremely fugitive and contradictory the expressiveness of words is. It is suggested that more sound conclusions as to the beginnings of language will be derived from the study of "The World's Baby-Talk." Just as embryology has shown that each individual climbs up his own genealogical tree, so, by watching the development of speech in a baby, we can see the first steps in articulate language. Mr. Johnston elaborates this idea, and shows that certain languages, chosen for their extreme phonetic simplicity, exhibit a striking analogy with baby-talk.

A third article in the *Fortnightly* is by Mr. H. G. Wells, and the title is "Human Evolution, an Artificial Process." Starting from well-known biological facts, suggestive conclusions in ethics and educational science are reached. "Assuming the truth of Natural Selection," says Mr. Wells, "and having regard to Prof. Weismann's destructive criticisms of the evidence for the inheritance of acquired, there are satisfactory grounds for believing that man (allowing for racial blendings) is still mentally, morally, and physically, what he was during the later Palæolithic period, that we are, and that the race is likely to remain, for (humanly speaking) a vast period of time, at the level of the Stone Age. The only considerable evolution that has occurred since then, so far as man is concerned, has been, it is here asserted, a different sort of evolution altogether, an evolution of suggestions and ideas." Taking the average rate at which rabbits breed, something like two hundred generations would descend from a single doe in a century, and would be subjected to the process of Natural Selection, whereas only four or five human generations would be amenable to the same process in the same time. "Taking all these points together, and assuming four generations of men to the century—a generous allowance—and ten thousand years as the period of time that has elapsed since man entered upon the age of Polished Stone, it can scarcely be an exaggeration to say that he has had time only to undergo as much specific modification as the rabbit could get through in a century." The difference between civilised man and the Stone Age savage arises from the development of speech and writing, so that, to follow the argument, civilised man represents (1) an inherited factor, the natural man, who is the product of natural selection, and (2) an acquired factor, the artificial man, the highly plastic creature of tradition, suggestion, and reasoned thought. Obviously, then, education should aim at the careful and systematic manufacture of the latter factor.

An article by Mr. W. K. Hill, in the *Contemporary*, may be taken as an expression of the general opinion that the development of the "artificial factor," referred to by Mr. Wells, is not carried out on intelligent lines. "In the secondary school the great Scholarship Steeplechase is the chief occupation. In the university the spirit of examination, like a huge cuttle-fish, is gradually winding its multiple tentacles around every effort at original thought and ideal culture." Geometry is studied, says Mr. Hill, as an abstract concatenation of puzzles, instead of as a means to educate the faculty of reasoning. "We teach always, but seldom educate, and yet 'Instruction,' as Locke truly observes, is but the least part of education. We do not try to develop mind—we only try to stuff brain." But while men of science have regretfully to confess that the indictment has much evidence to support it, they may point, at the same time, to the growth of a better system of instruction in many of our schools and colleges—a system which makes the pupil investigate for himself natural phenomena and laws, and develops his faculties of observation and reasoning.

From mediæval history Mr. Boris Sidis has drawn a number of instances of mental epidemics which spread from one end of Europe to the other, and left thousands of people struggling in convulsions of hysterical insanity, and performing acts as if their voluntary movement had been lost, or greatly limited. To this class of mental epidemics belong the pilgrimage mania, Crusade mania, and dancing manias. These epidemics, and others, are described in the *Century*. In experiments in suggestion made by Mr. Sidis in the Psychological Laboratory at Harvard College, he found that when the attention, in perfectly normal people, was concentrated on one point for some time, say twenty seconds, commands suddenly given at the end of that time were very often immediately carried out by the subjects. Concentration of attention upon one point appears, therefore, to be highly favourable to suggestibility, and Mr. Sidis is of the opinion that—"The mediæval man was in a similar state of light hypnosis. This was induced in him by the great limitation of his voluntary movements, by the inhibi-

tion of his will, by the social pressure which was exerted on him by the great weight of authority to which his life was subjected. . . . Bound fast by the strings of authority, mediæval men were reduced to the state of hypnotic automata." All the conditions were thus favourable for the production and wide extension of mental epidemics. Mr. Sidis thinks that these epidemics, religious manias, political plagues, speculative insanities, financial crazes, and economical panics, from which society in general, and democracy in particular, continually suffer, point to the extreme suggestibility of gregarious man.

Another article in the *Century* is the third paper made up of extracts from the journals of the late Mr. E. J. Glave, and it offers some very interesting glimpses of a part of the journey of this young explorer from the mouth of the Zambesi diagonally north-west across Central Africa to the mouth of the Congo.

The new series of *Science Progress* begins with the October number. Mr. G. J. Symons traces the early history of scientific weather forecasting in the new number; and Mr. Alfred Harker surveys some of the modern aspects of petrology in relation to igneous rocks, only considering in the present paper the distribution of the rocks in time and space. In a paper on recent work upon visceral and allied nerves, Dr. T. Gregor Brodie gives a long account of the present state of knowledge of the subject. Some brief notes on parasites are contributed by Mr. A. E. Shipley. Dr. K. Goebel deals with "Teratology in Modern Botany," discussing in his paper the origin of malformations, and the bearing of these upon the problems of the origin of the organic forms. Prof. Sydney J. Hickson writes on "The Nervous System of Coelentera," and Mr. A. C. Seward on "Palæobotany and Evolution."

Attention may profitably be called to a few general articles in the reviews. Dr. George M. Dawson, Director of the Geological Survey of Canada, writes on "Canada as a Field for Mining Investment," in the *National*. In the *Contemporary*, Mr. J. Allanson Picton discusses the Report of the Vaccination Commission, and the same review contains a narrative of travel in Sumatra, by Mr. Claes Ericsson.

Among the popular articles on scientific topics in the magazines received are the following:—Mr. W. H. Hudson, in *Longman's*, writes enthusiastically on the song of the wood-wren, with the laudable object of attracting more attention to that somewhat obscure bird. *Chamber's Journal* contains an article on after-damp in coal-mines, based upon Dr. Haldane's Blue-Book on the explosion at the Tylorstown Colliery in South Wales.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Prof. Bradbury has been appointed assessor to the Regius Professor of Physic; Prof. Allbutt, F.R.S., an elector to the Downing Professorship of Medicine (Pharmacology); Prof. Macalister, F.R.S., an elector to the chair of Zoology and Comparative Anatomy; Sir G. G. Stokes, F.R.S., and Prof. Darwin, F.R.S., electors to the Isaac Newton Studentship in Physical Astronomy; and Mr. H. M. MacDonald, of Clare, with Mr. G. T. Bennett, of Emmanuel and St. John's, moderators in the Mathematical Tripos of 1897.

Mr. W. S. Adie, bracketed senior wrangler in 1894, and Mr. E. T. Whittaker, bracketed second wrangler in 1895, have been elected to fellowships at Trinity College; Mr. H. S. Carslaw, bracketed fourth wrangler in 1894, has been elected to a studentship of £120 for advanced study and research.

The new regulations for advanced study and research appear to have become widely known and appreciated. Over a score of "advanced students" have already been admitted to the several colleges, and have commenced their post-graduate courses in a large variety of departments, scientific and literary.

A FIRE has destroyed the main building of Mount Holyoke College, including all the dormitories, and involving a loss of 100,000 dollars.

THE lamp of science is to shed its beams (through lantern slides) in East London this winter. The Rev. H. N. Hutchinson will lecture at the Whitechapel Free Public Library Museum, on November 10, upon "Extinct Monsters," and on December 8, Mr. G. R. Murray will discourse upon "The Meadows of the

Sea." Admission to the lectures is free by ticket, to be obtained in the Museum and Lending Library.

THE following awards of entrance exhibitions and scholarships in medical schools have been announced:—King's College: Sambrooke exhibitions of £60 and £40, respectively, to Arthur Edmunds and W. W. Campbell; Warneford Scholarships of £25 each for two years, to J. A. Drake and C. J. Galbraith. Charing Cross Hospital Medical School: Livingstone Scholarship, 100 guineas, Mr. C. Jerome Mercier; Huxley Scholarship, 55 guineas, to Mr. F. B. Pinniger; Epsom Scholarship, 110 guineas, Mr. L. C. Badcock; University Scholarships, 60 guineas each, Mr. H. S. Clogg and Mr. R. J. Willson; Entrance Scholarships are also awarded to Mr. W. B. Blandy, 60 guineas, and Mr. Charles H. Fennell, 40 guineas.

THE following are among recent announcements:—Dr. H. Minkowski, professor of mathematics in the University of Königsberg, has been called to the Zürich Polytechnic Institute; Prof. Erismann has, for political reasons, had to resign the chair of Hygiene in the University of Moscow; Mr. F. B. Loomis to be assistant in biology, and Mr. E. S. Newton assistant in chemistry at Amherst College; Mr. P. C. Nugent to be instructor in civil engineering, and Mr. R. E. Dennis to be instructor in chemistry at Lafayette College; Miss A. M. Claypole to be instructor in zoology, and Miss J. Evans instructor in botany at Wellesley College; Miss M. E. Maltby has been appointed acting professor of physics at the same college during the absence of Miss S. F. Whittinghead.

A PROVISIONAL Committee has been formed to obtain funds and make the preliminary arrangements to establish a county museum for Hertfordshire. Earl Spencer has generously offered a site in St. Albans adequate to the erection of the proposed museum, on the conditions that a representative body of the county and of St. Albans were favourable to the scheme, and that sufficient funds to erect and maintain it were raised. The Committee hope to raise a sum of about £5000, about £3000 of which should be expended upon a building and fittings, and the remainder be invested as an endowment fund. It is suggested that when completed, in order to secure perpetuity to the museum, it should be vested in the hands of the County Council, and its management given to a Committee chosen from representatives of the County Council, the Hertfordshire Natural History Society, and the St. Albans Architectural and Archaeological Society, and other gentlemen interested in the Arts, sciences, and archæology of the county.

THE Cheshire Agricultural and Horticultural School has just been formally opened. The County Council have secured Saltersford Hall, and farm of 100 acres, on a lease of forty-two years, and have spent £10,000 in the requisite alterations and additions, stocking the farm and garden, and furnishing the house and school. The hall will provide accommodation for sixty students with the necessary teaching staff. A schoolroom, laboratory, lecture room, and workshops have been built and furnished with all the essentials of a large educational establishment. Three glass-houses will be devoted to the growth of grapes, peaches, nectarines, and similar fruit. There are also three other detached greenhouses, and these are to be utilised for the cultivation of tomatoes, melons, flowers; while an orchard has been planted to provide instruction in fruit culture. A herd of fifteen or sixteen cows will be kept, comprising Ayrshires, Jerseys, and Herefords, in order to bring under the attention of the students the merits of various breeds. It is intended that the College shall afford means for a thorough practical and technical training for students of agriculture and horticulture.

SPEAKING on Saturday, at the opening of the new session of University College, Liverpool, Sir William Priestley said: "One of the most striking features in the organisation of the several colleges comprising the Victoria University is the great and laudable generosity and public spirit displayed by local benefactors, who have subscribed largely to endow them with appliances for successful teaching. I believe there is latent public spirit in London, but if it exists it does not take so distinct a form. What is everybody's business becomes nobody's business, and great institutions like University and King's College are languishing for want of funds, while the provincial colleges find generous benefactors concentrating attention upon them, and giving endowments and donations which are the envy of their metropolitan sisters. Government aid is urgently needed