

shed of the Sok and Sheshma, and the Volga, as an island extending from north-east to south-west, and covered on its borders by mottled marls. The former is closely mingled with the latter, as it extends also in the shape of thinner intermediate deposits among the marls; but on the whole it substantially differs from them by its fauna, undoubtedly belonging to the Zechstein. As to the mottled marls, they contain the *Unio umbonatus*, Fisch., the *Estheria* sp. (*Posydonomia minuta*, Bronn.), the *Lingula orientalis*, Golowkinsky, scales of *Acrolepis macroderma*, Eichw., and Calamites. The Post-Pliocene deposits are spread everywhere, and we notice the find of Caspian shells of *Cardium*, together with *Dreissena*, at the sources of the Cheremshan river (left tributary of the Volga, namely, at Balandino, ten miles from the Cheremshanskaya fort). This important find proves thus that the Caspian formerly extended at least as far north as 54° 40' north latitude. As to the Permian formation to the west of Kazan, M. Krotoff, who includes in this formation both the Zechstein and the mottled marls, calculates that it has a thickness of 810 to 860 feet. Showing further that the fauna of the mottled marls but slightly differs from that of the Zechstein (a complete list of its fossils being given by the author), and that the fossils that are characteristic of these marls (*Unio umbonatus*, Fisch., *Unio castor*, Eichw., *Estheria* sp., *Cythere* sp., remains of fishes, and Calamites) were found elsewhere, either in company with purely Zechstein forms or in deposits subordinate to the Zechstein deposits, he concludes—perhaps too soon—that there is no ground to consider them as Triassic.

Anthropology and archæology are represented by several interesting papers:—M. Krotoff publishes his researches into the age of the stone implements found in the basin of the Oka, and M. Ivanoff on the Perm region.—M. Malieff publishes the results of his most interesting measurements of the Old Bulgarian skulls dug out from the Babiy Bugor, at the Bulgarian village situated on the left bank of the Volga, close to Tetushi, and his paper is accompanied by sixteen photographs of four skulls. He measured the best preserved twenty-five skulls, all belonging to full-grown males. They are all much like one another, but could be subdivided into three groups: fourteen dolichocephalic, with indexes varying from 71·4 to 77·1; five mesatycephalic, their indexes varying from 77·8 to 79·8; and five subbrachycephalic, whose indexes vary from 81·1 to 82·1. The average size of the horizontal circumference of the twenty-five skulls is 515 millimetres, with a maximum of 555 millimetres and a minimum of 490; the average capacity is 1381 cubic centimetres. They completely differ from the skulls of other inhabitants of the same region: not only Kalmuks, or Bashkirs, but also from the Russian, Tartar, or Mordovian skulls. Without expressing a definitive opinion until a comparison of these skulls with those of Bulgarians from the Balkan peninsula is made, the author points out that they are very much like those of the Koorgan inhabitants of the Government of Moscow, who seem to be Old-Sclavonic, and certainly are not Finnish, as results from an inquiry made on 120 skulls by Prof. A. Bogdanoff. They are similar also to the skulls of the old inhabitants of Kieff and to those of the Scythes of Southern Russia. M. Malieff's companion in these researches, who gives in the same periodical a sketch of the Old Bulgarian burying-place at Babiy Bugor, adds that the skeletons they dug out had their heads towards the west, and were lying on the left side, looking towards the north (towards the Volga). Masses of pieces of earthenware were found together with the skeletons, and the pottery was of the roughest kind, made by hand, and burned very incompletely. He argues with much probability that this burying-place did not belong to a Mussulman people, but to idolaters, and supposes that its antiquity may be traced as far back as the Stone period. In any case, the customs of burying, as shown by this burying-place, seem to have been very much like those of the Sclavonians before their conversion. As to the burying-places at Chulpanovka and Ukrech, in the districts of Christopol and Laisher, explored by MM. Malieff and Vysotsky and described by the latter in his second "Anthropological Sketch of the Explorations of the Year 1880," and by M. Malieff in his just-mentioned paper, both explorers agree in considering them as belonging to Chuvashes. The craniological measurements which M. Malieff made on twenty skulls show that six of them belong to the mesatycephalic type, the average cephalic index of which is 74·5, and the others are either dolichocephalic, or belong to women and children, or afford a most pronounced asymmetry, and cannot thus give reliable figures.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

THE *alumni* and other friends of the University of St. Andrews have been roused to action by the threat (now withdrawn) of its possible dissolution, in consequence of insufficient endowment. An "Appeal" which has just been issued shows that 2700*l.* (in sums of from 100*l.* to 1000*l.*) has been already subscribed towards the better endowment of the Professorial Chairs; and a scheme has been set on foot amongst the younger graduates for the no less essential object of securing the augmentation of the open bursaries. Upwards of 200*l.* (in sums of from 1*l.* to 50*l.*) has been already promised towards this special fund, and an appeal from the Committee appointed for this purpose will shortly be circulated. There is good reason to believe that the withdrawal of the obnoxious clause has been partly occasioned by the practical shape which the defence of the oldest Scottish University has thus assumed.

SCIENTIFIC SERIALS

THE *American Journal of Science*, June, 1883.—On the nature of the induration in the St. Peter's and Potsdam sandstones and in certain Archæan quartzites, in Wisconsin, by R. D. Irving. The author extends the conclusions already arrived at by Sorby in several important respects.—On the existence of a deposit in North-Eastern Montana and North-Western Dakota, that is possibly equivalent with the Green River group, by Charles A. White. The paper embodies a detailed description of the new extinct genus and species of Percidæ occurring in the Dakota rocks, by Prof. E. D. Cope.—On the peculiar concretions occurring in meteoric irons, by J. Lawrence Smith. These concretions are found to contain sulphuret of iron, schreibersite (phosphuret of iron and nickel), graphite, daubréelite, chromite, lawrencite, aragonite.—On mineral vein formation now in progress at Steamboat Springs compared with the same at Sulphur Bank, by Joseph Le Conte.—Observations on the transit of Venus, December 6, 1882, at the Vanderbilt University Observatory, Nashville, Tennessee, by Olin H. Landreth.—On the fauna found at Lime Creek, Iowa, and its relation to other geological fauna, by S. Calvin. A complete catalogue is given of the Lime Creek fauna which are compared with those of the Niagara, Cinderhook, and other Devonian rocks.—Observations on stratified drift in Delaware, by F. D. Chester.—On the western discharge of the flooded Connecticut, or that through the Farmington Valley to New Haven Bay, by James D. Dana.—Results of some experiments made to determine the variations in length of certain bars at the temperature of melting ice, by R. S. Woodward, E. S. Wheeler, A. R. Flint, and W. Voigt. The experiments are chiefly made with zinc and steel bars, and the authors found that zinc is the least reliable metal for the components of a metallic thermometer and standard of length, while steel, copper, and brass do not vary appreciably at any ordinary temperature.—On Scovillite, a new phosphate of didymium, yttrium, and other rare earths, from Salisbury, Connecticut, by George J. Brush and Samuel L. Penfield.

Journal of the Royal Microscopical Society for April, 1883, contains:—On five new Floscules, with a note on Prof. Leidy's genera, *Acyclus* and *Dictyophora*, by Dr. C. T. Hudson (Plates 3 and 4).—The President's (Prof. P. M. Duncan) address.—The action of tannin on the cilia of *Infusoria*, with remarks on the use of a solution of sulphurous oxide in alcohol, by H. J. Waddington.—Summary of recent literature.—Proceedings of the Society.

Journal of the Russian Chemical and Physical Society, vol. xv. fasc. 4.—On solutions, by W. Alexeyeff; being an inquiry into the mutual solutions of liquids, as depending upon temperature. The experiments carried out on aniline, amyl and isobutyl alcohols, phenol, &c., lead to the following conclusions:—The hypothesis of Person as to the liquefaction of bodies before solution is not confirmed. The solubility depends upon the molecular cohesion, and increases as this last becomes feebler. Thus, at the same temperature, more of liquid than of solid salicylic acid is dissolved. The solutions are quite different from chemical compounds, and the liquid mixtures are different from solutions.—On the specific volumes of elements in liquid compounds; second paper, by M. Shalfeyeff. The conclusions of these valuable researches are:—The compounds of the fat series are derived from the uneven-atomic carbon; and those of the