

increased, and not declined, and from what information I have on the subject, I should say it is perhaps not less than 3,500,000.

In my remarks I have also been led to refer to some of the points connected with the migration of this industry from this country to Germany and the probable influence our patent laws had upon this, to the matter of technical education, and the employment of high-class chemists in chemical work. This latter subject is undoubtedly of great importance, and requires the earnest consideration of our manufacturers. It is found profitable to employ chemists of this class on the Continent, surely it should be found equally profitable to employ them here. In conclusion, I am happy to say there are signs of the coal-tar colour industry returning to our country, in part at any rate, especially in relation to alizarin, for which there are now three large works in existence, and the production of other colouring matters is also increasing.

FAUNA OF TRANS-ALAY

IN the *Izvestia* of the Russian Geographical Society (xx. 6) we find an interesting paper by M. Grum-Grzimaïlo, who has journeyed in the mountains north of the Alay region of the Pamir, chiefly for zoological purposes. The immense cultivated loess-fields of Osh, devoid of trees, yielded poor zoological results. Only a few uncultivated places had in the spring a rich fauna: great numbers of birds, various *Colubridæ*, the *Pseudapus pallasi*, tortoises, immense numbers of *Bufo variabilis* were met with. Here the author gathered a very rich collection of Lepidoptera; also *Zamenis kaufmanni*, *Taphromeloron lincolatium*, *Elaphis diene*, *Eryx jaculuj*, and many others. In the middle of May all these disappeared under the burning rays of the sun. On the way to Vadil several species which were not found later on were met with, such as the *Trigonocephalus halis*, the *Anthocaris pyrothæ*, and several others. The neighbourhoods of Vadil yielded nothing interesting at that part of the season (middle of June). Of vertebrates only two *Eremids* and one *Trigonocephalus hydrus* were found. Shankh-mardan and Jordan, on the contrary, gave a rich crop of insects, and M. Grzimaïlo remained there for ten days. On a rich Alpine pasturage, Artcha-bash, where Kirghizes are in the habit of staying, he found very rich zoological materials. The collections were enriched with a great number of rare species, such as *Pol. tamerlana*, *Colias eogene*, *Arctia erschoffi*, *Hol. jagorum*, which are common almost exclusively to the Himalayas and the South-West Thian-Shan, as also by several new species. On the snow-covered plateaux interesting specimens were found, and among them the *Megaloperdix nigelie* and the *Arctomys caudatus*. On the upper Kok-su, extending to a height of 12,000 feet, M. Grzimaïlo found a number of species which he did not see either before or afterwards during his journey, especially with regard to Lepidoptera. Vertebrates are few at this height; they were represented by the *Arctomys caudatus*, the eagle (*A. fulva*), one species of *Falco*, the *Fringilla graculus*, the *Pyrrhocorax alpinus*?, *Pica*, *Caccabis huckar*, *Megaloperdix*, and *Columba*. On the pass itself the holes of the *Arctomys caudatus* are seen everywhere, as also holes of some *Arvicola*. The Lepidoptera are richly represented at that part of the summer, especially the two genera *Colias* and *Parnassius*. On the Djekaindy Pass it was the same; the *Lycæna* were very numerous, so that on the space of 3 metres the author found fifteen species of them, of which three were unknown to him. Without mentioning localities of minor interest, the plateau between the Kara-su and the Aram is worthy of notice for the brilliant collections of Lepidoptera which were made there. One *Lacerta* was found at a height of 11,000 feet, a species of *Elaphis*, the *Canis melanotus*, the *Lepus lehmanni*, the *Ovis polii*; of birds, the Falconidæ were most usual; also the *Upupa epops*, the *Cuculus canorum*, species of *Columba*, the *Orthyxion coturnix*, *Caccabis huckar*, *Corvus corax*, and many others, this last reaching the highest parts of the region. Another find of great interest must be mentioned. The late Mr. Fedchenko had already caught one female Lepidopteron, which was determined by M. Erschoff as *Colias nastes*. This species having been found formerly only in Labrador and Northern Lapland, the determination remained doubtful, the individual having been but a female. M. Grzimaïlo has happened to catch a number of both males and females, which really proved both to belong to *C. nastes*. It remains now to explain the strange extension of this species.

SCIENTIFIC SERIALS

Rendiconto della R. Accademia delle Scienze di Bologna, 1884-5.—On the geometrical construction of the central axis in a given system of forces, by Prof. F. P. Ruffini.—A fresh contribution to clinico-experimental studies, showing the depressing action of ipecacuanha administered in large doses in pulmonary affections, by Prof. F. Verardini.—On the velocity of the polarised rays in a body endowed with rotatory motion, by Prof. Augusto Righi.—On the physico-pathology of the suprarenal capsules, by Prof. Guido Tizzoni.—On *Perineo melus*, a new genus of parasite observed in the pig, by Prof. Cesare Taruffi.—On the antimoniates of bismuth, by Dr. Alfredo Cavazzi.—Action of gaseous phosphated hydrogen on the trichloride of gold dissolved in ether, in alcohol, and in water, by Dr. A. Cavazzi.—On conjugated conic sections, by Prof. Virginia Retali.—Some researches on the so-called syntomatic carbuncle in cattle, by Prof. Alfredo Gotti.—Observations on Jacobson's organ and on Stenson's duct in the camel, by Dr. Francesco Peli.—On the central termination of the optical nerves in mammals, by Prof. Giuseppe Bellonci.—On the paraboloid surfaces in the selliform rhombohedrals of dolomite and other anhydrous carbonates, by Prof. Luigi Bombicci.—Some general observations on the systems of functions, by Prof. Salvatore Pincherle.—On a monstrous fœtus requiring the operation of embryotomy for its delivery, by Dr. Cesare Belluzzi.—On the question of sex in *Tolyposporium cocconi*, by Dr. Fausto Morini.—On the fossil remains of *Dioplon* and *Mesoplon* occurring in the Upper Tertiary formations in Italy, by Prof. Giovanni Capellini.—Forensic experiments in traumatology with firearms, by Dr. Giuseppe Ravaglia.—Contributions to the chemical study of intestinal perforation in typhoid fever, by Prof. Giovanni Brugnoli.—On the mode of genesis of a polar globule in the ovarium of certain mammals, by Prof. Giuseppe Bellonci.—A systematic enumeration of the funguses in the province of Bologna, by Dr. Fausto Marini.—On the thermal emissive power of electric sparks, by Prof. Emilio Villari.—On the use of curvilinear coordinates in the theory of the potential and of elasticity, by Prof. Eugenio Beltrami.—An analytic method of determining the equation of time, by Prof. Antonio Saporetto.

SOCIETIES AND ACADEMIES BERLIN

Physiological Society, June 19.—Dr. J. Munk gave a brief sketch of the different views put forth respecting the formation of fat in the animal body, and then gave a short account of the now almost universally accepted view of Voit, who, on the basis of his very numerous experiments, laid down the doctrine that the fat in the animal body proceeded either from the alimentary fat, or, when this was not sufficient, from the albumen, which on its decomposition yielded products that by synthesis became transformed into fat, while the carbohydrates never yielded material towards the formation of fat in the animal body. Opposition to this doctrine was raised on the side only of agricultural chemists, who, by experiments on swine and geese produced direct demonstration that the deposition of fat was considerably increased by feeding with carbohydrates. In consequence of these experiments Prof. Voit admitted that omnivorous and herbivorous animals might in certain circumstances form fat out of carbohydrates; such, however, he maintained, was never the case with carnivorous animals and man; in them all fat was derived from the alimentary fat and the decomposition of albumen, both in his own experiments and in all hitherto published, and the fat was seen to be derivable from these two sources alone, even though only 12 per cent. of the decomposed albumen were taken for the formation of fat, and much more if, according to the theoretic calculations of Herr Henneberg, it was assumed that as much as 51 per cent. of the decomposed albumen might be utilised towards the formation of fat. Seeing now that Prof. Voit admitted that, in the case of omnivorous and herbivorous animals fat was produced from carbohydrates, the speaker set himself the task of establishing experimental conditions under which fat might be formed from carbohydrates in the case, likewise, of carnivorous animals. For these experiments he selected a dog, completely impoverished of it all fat by means of long fasting, and then gave it an aliment very rich in carbohydrates. The animal required to be young, or otherwise the loss of fat by fasting could not be complete, and if it were desired to obtain certainty respecting the attainment of perfect