

SCIENTIFIC AND LITERARY

ROYAL SOCIETY.—June 5.—The Dean of Ely, V.P. in the chair.—A paper was read by Dr. Fownes 'On Benzoline,' a new organic salt-base, obtained from oil of bitter almonds. Pure oil of bitter almonds is converted, by the action of a strong solution of ammonia, into a solid white substance, having a crystalline form, and which was termed by M. Laurent *hydrobenzamide*. The author found that this substance, by the further action of alkalies, became harder and less fusible than before, and not differing in chemical composition from the original substance, but exhibiting the properties of an organic salt-base. To this substance the author gives the name of Benzoline. He finds that the salts which it forms by combination with acids are, in general, remarkable for their sparing solubility, and that many of them, as the hydrochlorate, the nitrate, and the sulphate, are crystallizable; of the properties of these salts the author gives a detailed account.

A second paper was read 'On the Ashes of Wheat,' by W. Sharp, Esq.—The experiments recorded were undertaken principally with the ultimate view of ascertaining with exactness what quantity of inorganic matter is removed from the soil by the seeds of a crop of wheat. The author first inquires what is the average amount of the inorganic, or incombustible, portion of wheat, a question to which no satisfactory answer has yet been given. The result of his experiment is, that wheat yields by slow combustion a residue of from one and a half to one and three-quarters per cent. He then proceeds to determine by experiment the degree in which this result is influenced by previous drying at different temperatures, varying from 230° to 260° Fah., and finds that a heat of 245° is not sufficient to expel all the moisture contained in wheat; for, while the loss of weight is then about 8 per cent., by a heat of 260° the amount of this loss is 10 per cent. When the heat is so great as to occasion decomposition, the saline matter contained in the wheat fuses, and a portion of the carbon becomes so entangled, or firmly adhered to it, as to be incapable of separation by burning. Hence he recommends, in order to obtain greater uniformity in the results, that the wheat subjected to these experiments should be dried at a low temperature, such as that of a room in summer, and be allowed to remain a few days under its influence. The author tried the effect of the addition of nitric acid, with a view to save time, by accelerating the combustion, but found that the results could not be relied upon when this plan was adopted, and he was therefore obliged to relinquish it. He next directed his inquiries to the ascertaining whether the quantity of inorganic matter was in proportion to the specific gravity of the grain; that is, to its weight per bushel, and this he found in general to be the case. The conclusion he deduces from this investigation is, that the mean amount of inorganic matter removed from the soil by the grain of a crop of wheat is exactly one pound per acre.

GEOGRAPHICAL SOCIETY.—June 9.—Lord Colchester, President, in the chair.—The first paper read was a communication from Lord Stanley, being 'Extracts from the Despatches of Capt. Sturt,' containing the last intelligence from that gentleman of the progress of his exploratory expedition in Australia. His last letter, dated Williorara, Oct. 16, 1844, says that on reaching the Darling River about eighteen miles above its junction with the Murray, he found its flats far superior to those of the Murray both in richness of soil and in extent; the seasons, also, appeared particularly favourable, and the periodical flooding of the river left a rich deposit that would greatly facilitate the growth of many of the intertropical productions, as cotton, indigo, maize, and flax; the native indigo he found growing to the height of three feet. Indeed he had no doubt that many a valuable farm might be established upon the banks, while the river would afford a channel of communication for the productions of the region. At Laidley's Ponds, appearances were less favourable, and Capt. Sturt was obliged to return to the Darling. He now despatched Mr. Poole to some heights which were visible in the N.W. On that gentleman's return he reported having seen distant ranges to the N. and N.W.; that from S.W. by W. to 13° E. of N. there was water extending, amidst which were numerous

islands; that there was a distant high peak which appeared to be surrounded by water that showed as a dark blue line along the horizon. The country between the Darling and the hill he had ascended was level and covered with spear grass, of which the animals are fond, and low shrubs—and a country of similar character seemed to extend from Mr. Poole's position to the more distant hills. It is however probable that these appearances of water and high lands are no more than effects of mirage; Capt. Sturt, nevertheless, believes in the existence of an inland sea; but, as he intends turning Lake Torrens by its north-eastern extremity, so as to attain a position due north of Mount Arden, we may expect ere long some more satisfactory account of the nature of the interior.

The second paper read was a communication, by Mr. Windsor Earle, 'On the Physical Structure and Disposition of the Islands of the Eastern Archipelago.' These islands, says Mr. Earle, differ in structure and elevation; some have gently sloping shores with soundings far out at sea, others rise abruptly from unfathomable depths, contain lofty mountains, and, in some cases, active volcanoes, while a third class, comprising some of the large islands, as Sumatra and Borneo, are of a mixed character. From the south-eastern extremity of Asia extends an immense bank of soundings, reaching to the eastern extremity of Java, and near to the western coast of Celebes. A similar bank extends along the whole of the northern coast of Australia and the south coast of New Guinea. These banks have an average depth of from 30 to 40 fathoms. The distance between the Australian and Asiatic banks is about 450 miles, and presents an unfathomable channel. The nature of the land in the Malayan Peninsula, the eastern side of Sumatra, the western side of Borneo, and the northern side of Java, is identical with that of Australia and the southern portion of New Guinea. The direction of the mountain ranges of the Malayan Peninsula and Sumatra is also identical with the ranges of Australia. From these facts Mr. Earle argues the former connexion of Australia with Asia. A connexion disrupted by volcanic action, as evinced by the fact that a great volcanic belt now intervenes between the two. This belt, beginning at the north-western extremity of Sumatra, runs along the western side of that island, then along the southern side of Java, thence forms the group of islands running west and east as far as Timor, after which it is continued through the northern portion of New Guinea, the Louisiade to New Caledonia, Norfolk Island and New Zealand; being in form like the letter S. This volcanic belt is joined at Flores and Timor by another coming from Kamtschatka through the Philippines, the North of Borneo, Gilolo, Celebes, Coram, &c. The existence of the Teak-tree in Java as well as on the Asiatic continent, and the discovery of the kangaroo in New Guinea, are adduced by Mr. Earle, in further proof of the former connexion of these now dis severed lands: and the similarity in the direction and character of the Asiatic and Australian mountain ranges, renders it probable that the latter may be found as rich in mineral wealth as the former are known to be. The paper being concluded, Mr. Murchison, the late President, took a decidedly opposite view of the matter, and maintained that nothing short of the discovery of similar ancient fossils in Australia and in Asia could be admitted as proof of the former connexion of the two countries.

Capt. Grover exhibited a curious picturesque delineation of Dr. Wolff's route from Boxhara to Meshed, executed by a Persian, who accompanied the Doctor, and who has written a history of the journey, which is now being translated. The meeting learned from Capt. Grover, with regret, that Dr. Wolff is now labouring under a severe disease, the germ of which he took in Boxhara, and whose consequences are greatly to be dreaded.

INSTITUTE OF BRITISH ARCHITECTS.—June 9.—H. E. Kendall, V.P. in the chair.—A paper was read, illustrated by models, explanatory of an Improved Mode of Ventilation of Buildings, Ships, &c., invented by Mr. J. Kite. The plan is likewise adapted for the prevention or cure of smoky chimneys, for which purpose it has been successfully applied. The improvement consists in the employment of what Mr. Kite denominates "a deflecting roof, or cowl," consisting of a number of Louvres or de-

flectors, arranged in a peculiar manner at certain angles fixed on the ridge of a roof or on the shaft of a chimney, instead of an ordinary chimney-pot; which, by presenting their oblique surfaces to the action of the wind or external air, a continuous current is produced across the roof or cowl, which occasions a strong upward draft, whereby the vitiated air of a crowded apartment or church may be rapidly drawn off, or the passage of smoke up a flue greatly facilitated, without the employment of any mechanical arrangements that require to be kept in constant motion, and consequently soon worn out, or the necessity for the application of any costly prime-moving power.

A portfolio of sketches made in India and Egypt by J. H. Pillau, Esq., and some drawings of Indian Monuments, forwarded by General Monteith, were exhibited.

HORTICULTURAL SOCIETY.—June 3.—Sir O. Mosley, Bart., in the chair.—The Marquis of Breadalbane, C. C. Cook, F. G. Cox, W. Wood, F. Yates, and J. Rusken, Esqrs., were elected Fellows. Of new plants a pretty fragrant variety of the handsome greenhouse plant *Hindsia violacea* was produced by Messrs. Henderson. The flowers, instead of being of a fine porcelain blue, were white.—A certificate was awarded.—Messrs. Veitch & Son sent a cut specimen of a *Eucalyptus*, bearing little tufts of white blossoms. The latter was said to have been taken from a tree fourteen feet in height, and was stated to have stood the winter, such as it is in Devonshire, without injury for six years in an exposed situation, at Exeter.—From Mr. Jackson, were two plants of *Comarostaphylis*, a nearly hardy Mexican shrub closely related to *Arbutus*. In the fruiting season it is covered with pretty dark purple berries, which give the plant a remarkable appearance.—From Sir T. D. Acland, Bart., was a bundle of asparagus which weighed 11 lb. 13 oz. The heads were from 9 to 10 inches in length, thicker than the thumb, and were eatable nearly all the way down. A Banksian Medal was awarded.—From the garden of the Society a Hyacinth bulb was produced which had been grown in water, and which had had the base all rotted away. On the decayed part being removed, however, and the bulb placed under circumstances favourable to vegetation, nearly all the remaining portions of the scales produced young bulbs; thus showing with what facility such things may be increased by any part of the scales.

CHEMICAL SOCIETY.—May 19.—The President, Prof. Graham, in the chair.—The following papers were read: Lieut.-Col. Philip Yorke 'On the Solubility of Oxide of Lead in pure water.' It is from this property that leaden pipes and cisterns become dangerous, when the water which fills them is soft and pure. The lead, however, which the water takes up may be removed by filtering the water through paper; a circumstance which has been explained by supposing that the oxide of lead is not really dissolved in the water, but merely suspended in it. The author, however, shows that the oxide of lead is taken up by the substance of the paper and combines with it, from an affinity such as subsists between the same metallic oxide and cotton fibre; the last taking the oxide from solution in lime-water, and lead being often fixed as a mordant on cloth for dyeing in this way, according to the statement of Mr. Crum. He finds also that the power of the filter may be exhausted, and that therefore it would be unsafe to trust to the action of a filter to separate oxide of lead from water for an unlimited time.—'Experiments on Ozone,' by Mr. Williamson. The name ozone was given by Schönbein to the substance which occasions the peculiar smell possessed by oxygen gas when produced by the voltaic decomposition of water, and he has made it the subject of much ingenious speculation, concluding that it is a new elementary body, and that it is derived from the decomposition of nitrogen, supposed to be of a compound nature. The last of these opinions, however, has already been disproved by Marignac, who demonstrated that the ozone odour was produced by the decomposition of water free from nitrogen. Mr. Williamson's experiments go to prove that ozone is a compound body, and that one of its elements is hydrogen; for having excluded the last element from any other source, by obtaining the oxygen gas with ozone from the decomposition of a salt of copper, a process in which no hydrogen is generated, and passing the oxygen over