

of Rossini, have seduced us into more paragraphs than we intended. Yet some advertence to them is necessary to a right consideration of his last composition, to which we shall return on an early occasion.

OUR WEEKLY GOSSIP.

THESE are usually weeks singularly barren of matter about which to gossip—Literature is in a lethargy, and no wonder! so long as the unsettlement of the copyright question permits the possibility of such flagranties being enacted as the issue of a new novel, by Sir E. Bulwer, complete in a single number of an American newspaper, a week after the arrival of the sheets from England. Yet an announcement or two of new books may be mentioned: the first, a tragedy, 'Edwin the Fair,' by Mr. Henry Taylor, author of 'Philip Van Artevelde'; the second, from the land of literary pillage we have been just alluding to, announces that the MS. and letters of the late President, Andrew Jackson, are about to be published, with a Life, by Mr. Bancroft. Science, it may be presumed, is holding back her stores for the coming meeting of the British Association; while, as to Art, a paragraph will dismiss the news among the Painters.

On Thursday last came to sale at Rainy's Auction-rooms, the Pictures of Sir William Forbes, Baronet, on which the proprietor seemed to place a much higher value than the public, as one half of them went back to him unsold at the prices demanded. Among those dispersed were two by *Sassoferrato*, of the same subject, a 'Virgin and Child,' for 83 and 50 guineas; the latter, a small, and pretty, and genuine production. A portrait by *Velasquez*, 71 guineas, very indifferent, even if it were authentic. A 'Repose' by *Gian Bellini*, and an 'Old Woman plucking a Fowl' by *Rembrandt*, 66 guineas each, both more than dubious. 'The Madonna and Child' by *Francesco Francia*, 102 guineas; this, although a delicate picture, did not strike us as being by *Old Francia*, but rather by his son and imitator, and many connoisseurs think his equal, *Giacomo Francia*: it has neither the deep expression nor pure outline which distinguishes *Francesco* pre-eminently, yet possesses both to a considerable degree, and would exhibit more, were it in a good state of preservation. 'Portrait of a Portuguese Warrior' by *Moroni*, 155 guineas; admirable for colour, character, and treatment. 'Madonna and Child' by *Luini*, 110 guineas; much more certainly not by *Luini* than certainly by *Credi*, whose style, however, it approaches nearer than his excellence.

In the Musical and Dramatic section of Art, matters are more than usually chequered. The recent knighthood of Sir Henry Bishop, the well-known composer, will by many be thought to give native talent "a lift:" but we lean much more strongly on such manifestations as the second choral meeting, held by Mr. Hullah's pupils this evening, than on such insulated distributions of honour. Meanwhile, the future of both our theatres is said to be in a predicament of more than usual uncertainty, owing to unforeseen changes and events.—The Italian Opera continues its constancy to medical certificates, and consequent postponements, the new cast of 'Il Barbiere' having been not given on Thursday as it had been promised. *Apropos* of this entertainment, *Donnizetti's* last work, 'Linda de Chamouny' is said to have had complete success at Vienna.—The managers of our German Opera are again announcing *Mdlle. Lutzer* to appear in 'Les Huguenots:' but as the lady has been now promised by the play-bills for three years, the incredulous may be excused for not believing in her arrival until they have heard her at Covent Garden. Many difficulties, it is said, have been thrown, by the authorities under whom *Spohr* holds office, in the way of his coming to England to conduct his new oratorio at the Norwich Festival. Meanwhile, *Dr. Mendelssohn Bartholdy* has come, and the lovers of beautiful symphonies may look out for his new work at the next Philharmonic Concert, with more than average expectation. He is announced, too, as one of the many attractions of the grand concert in preparation for the 24th, by *M. Moscheles*, in aid of the Hamburg subscription.—There are some rumours of a musical festival in Dublin, but if such an affair be really in progress, the management is curiously quiet on the occasion.

THE EIGHTH ANNUAL EXHIBITION of the NEW SOCIETY of PAINTERS in WATER COLOURS is NOW OPEN at their Gallery, FIFTY-THREE, Pall Mall, next the British Institution, from 9 o'clock till dusk. Admission, 1s.; Catalogue, 6d. JAMES FAHEY, Sec.

DIORAMA, REGENT'S PARK.

The Two Pictures, now exhibiting, represent THE VILLAGE OF ALAGNA, in Piedmont, destroyed by an Avalanche, painted by M. BOUTON; and THE SHRINE OF THE NATIVITY, at Bethlehem, painted by M. RENOUX, from a Sketch made on the spot by D. ROBERTS, R.A. in 1839. Both Pictures exhibit various effects of light and shade. Open from Ten till Five.

THE ROYAL POLYTECHNIC INSTITUTION.

Dr. PAYERNE will again descend in the DIVING BELL on WEDNESDAY MORNING, the 8th of JUNE, in the presence of several scientific men. The Public will have the opportunity of seeing him ascend at Two o'clock precisely. On the last occasion he remained under water three hours and a half, and could have remained for an indefinite period without any communication with the external air. The Exhibition, Lectures, Colossal Electrical Machine, &c. &c. as usual.

SCIENTIFIC AND LITERARY

ROYAL SOCIETY.

May 5.—The Marquis of Northampton, President, in the chair.

H. F. Link, Dr. G. S. Ohm, J. V. Poncelet, and H. Rose, were elected foreign members.

G. H. Fielding, M.D., and J. Jesse, Esq., were elected into the Society.

'Sixth Letter on Voltaic Combinations,' by J. F. Daniell, Esq.—The purport of this letter is to follow the consequences of the law of Ohm, and the expressions which result from it, relative to the electromotive force, and the resistances in the course of a voltaic circuit: to apply this theory to the verification of the conclusions which the author had formerly deduced from his experiments; and to suggest additional experiments tending to remove some obscurities and ambiguities which existed in his former communications.

'On Fibre:' additional observations, by M. Barry, M.D.

May 12.—The Marquis of Northampton, President, in the chair.

'Barometrical Observations, showing the effect of the Direction of the Wind on the Difference between distant Barometers,' by Lieut.-Colonel Yorke.

The author institutes a comparison between the barometric heights as observed at the Royal Society, and at his house in Herefordshire, in the neighbourhood of Ross, with a view to ascertain the influence of prevailing winds on the atmospheric pressure. The barometers thus compared together were of the same construction, and by the same maker; and the times of observation, namely, nine o'clock A.M. and three o'clock P.M., were the same at both places, the distance between which is 110 miles in longitude, and about twenty in latitude. The degree of accordance in the march of the two barometers is exhibited by that of curves traced on three sheets accompanying the paper. The results are given in eight tables. The author agrees with Schubler in ascribing the currents prevailing in the atmosphere to the variable relations of heating and cooling which obtains between the Atlantic Ocean and the continent of Europe at different seasons: the facts ascertained by the series of observations here presented being in accordance with that hypothesis. If the northerly and westerly winds in England be partly the effect of the expansion of the air on the continent, then the barometer which is nearest to the continent, or in this instance that at London, ought to be relatively more depressed than the one more distant; or if the southerly and easterly winds be regarded as proceeding to the ocean, then, for a similar reason, the barometer nearest to the ocean ought to be relatively depressed; and that both these effects are produced, is shown by the tables. This view of the subject also, the author remarks, is corroborated by Raymond's observations, detailed in his memoir on the determination of the height of Clermont Ferrand, from which it appears that with the north winds, the southern barometer was most depressed; while the reverse occurred with the southerly winds.

'On the Rectification and Quadrature of the Spherical Ellipse,' by J. Booth, Esq., M.A.

GEOLOGICAL SOCIETY.

May 4.—Mr. Murchison, President, in the chair.—The following communications were read:

1. A letter by Mr. Ick on some superficial deposits near Birmingham.—In excavating a canal in the valley of the Rea at Salby, 1½ mile N.E. of Birmingham, a peaty deposit, containing trunks and branches of trees and hazel nuts, was discovered

under five feet of superficial detritus, and in the same bed were also found, stags' horns, apparently of the existing species (*Cervus elephas*), likewise the core of the horn of an ox, one foot in circumference at the base, and one foot eight inches in length. This carbonaceous deposit reposes on the usual marine drift of the district, and is overlaid by a bed of variable thickness, of fine, white, or mottled clay, above which occurs the superficial detritus. At one point, about 250 yards from the river, the place of the peat was occupied by coarse gravel, covered by eighteen inches of light-coloured clay, on which rested a bed of apparently drifted peat, covered by 1½ feet of white sandy clay and gravelly soil. Where the bottom drift has been laid bare, its surface has occasionally exhibited the action of water, the larger pebbles projecting in high relief, in the same manner as in the present river bed wherever a rapid current flows over the gravel. Mr. Ick has traced the peat along the banks of the river towards Birmingham through Deritend, particularly at Vaughton's hole, where it is eighteen inches thick. It has also been penetrated in the lower part of Digbeth.

2. Postscript to the memoir on the Aust bone-bed, Tewkesbury, by Mr. Strickland (*Athen.* No. 741). Since his former communication, the author has determined that the "bone-bed" has a further range northwards of at least ten miles, having ascertained that it occurs in some old salt works on Delford Common in Worcestershire. The shaft of these works, 175 feet deep, was emptied of its brine a few months ago, and it was ascertained that it descends through the lias into the gray marl, which forms the top of the triassic series, but without reaching the red marl. The shaft, as the author observes, consequently intersects the horizon of the bone bed, and, among the rubbish thrown out, he found considerable quantities of the peculiar white sandstone with bivalves, which, in his former paper, he shows, is the representative of the bone-bed; and he further noticed, that the sandstone is occasionally charged with the teeth, scales, &c., which are so numerous in the bone-bed at Coombe Hill. The occurrence of an abundant artesian brine spring, (the water flows over the mouth of this shaft) within the area of the lias, is considered by the author an interesting phenomenon; and he refers for an explanation of it to Mr. Murchison's 'Outlines of the Geology of the neighbourhood of Cheltenham.'

3. 'On the high temperature of Well Water in the vicinity of Delhi,' by the Rev. R. Everest.—If, says Mr. Everest, a line were drawn due west from the Jumna at Delhi to the Indus, a distance of 400 miles, it would intersect no river, brook, or spring, water being obtained only from wells. In Delhi, the depth at which water is reached, is generally about 35 feet, 40 or 50 miles to the westward from 80 to 90 feet, and beyond that distance as far as Hausi, 95 miles, it is found at 150 feet. Mr. Everest did not visit the country further to the west, but he believes that the wells are at least 150 feet deep. The soil consists of a granitic alluvium, but the surface is covered in many places with saline efflorescences, such as the floods of the Jumna now leave behind them. Mr. Everest gives various tables of the temperature of well water, both at Delhi and at points intermediate between that city and Hausi; but as the results, which vary considerably, are stated to be connected with the extent to which the water in some cases is used for irrigation, it is thought advisable to confine our extract to one set of observations, made in a well at Delhi, the depth being 42 feet:—

		Temp. of water.	External air.
1833.	12th Nov.	79	76
	17th Dec.	76	62
1834.	25th Jan.	74.7	68
	2nd March	76.8	84
	29th Do.	77	67
	12th May	78.9	78
	17th June	80	86.5
	25th July	80.9	82.2
	2nd Sep.	81.3	92
	29th Sep.	81.5	80
	Mean	78.61	77.57

4. 'On the Tertiary formations, and on their connexion with the Chalk in Virginia and other parts of the United States,' by Mr. Lyell.—Having examined the most important localities of the cretaceous strata in New Jersey, Mr. Lyell proceeded to investigate the tertiary deposits of Virginia, the Carolinas, and Georgia, and he states as the general results of this

extensive survey, that the tertiary formations which he saw agree well in zoological types with the eocene and miocene beds of England and France; that he found no secondary fossils in those rocks which have been called upper secondary, and supposed to constitute a link between the cretaceous and eocene series, but that all the organic remains of these assumed intermediate deposits are characteristic of lower tertiary beds, without any blending of the fossils, which in New Jersey, Alabama, and other states, occur in true equivalents of the cretaceous system. Mr. Lyell then details the evidence upon which these conclusions are founded.

Virginia.—Good descriptions of the strata bordering on James River have been given by Professors W. and H. Rogers, and by Mr. Conrad in his excellent work on the tertiary shells of the United States. At Richmond, a bed from twelve to twenty-five feet thick, consists of an impalpable siliceous powder derived from the cases of infusoria. It rests on eocene strata of greenish sand, and is overlaid by miocene clays containing *Artemis acetabulum*, &c.; and it has been referred by Prof. W. Rogers to the former epoch. A similar tertiary green sand occurs at Petersburg, 30 miles south of Richmond, and contains a *Venericardium* and an *Ostrea*, undistinguishable from *V. planicosta* and *O. bellovicina*. It is there also covered by miocene marls, which yield a rich series of fossils distinct from those of the subadjacent sands. A collection of 82 species made by Mr. Lyell near Williamsburg, is stated, in the memoir, to bear a great resemblance to series from the Suffolk crag and the faluns of Touraine, several species of Virginia testacea, crustacea, echinodermata, &c. being very analogous to crag and Touraine fossils; but the most important point is shown to be the correspondence which exists in the proportion of recent to extinct species of shells, 16 out of the 82 being regarded by Mr. Conrad as identical with recent shells, the greater part inhabiting the coasts of the United States. This proportion of one-fifth agrees well, Mr. Lyell says, with the results obtained by him in 1840, in different localities of the faluns of Touraine. The total number of American miocene shells known to Mr. Conrad is 238 of which 38 are recent.

North Carolina.—Near South Washington, on a branch of Cape Fear River, the author found, in the dark bluish marls of the cretaceous series, previously noticed by Mr. Hodge in a paper on the Southern States, several fossils characteristic of the cretaceous series of Europe; and he states that the marls very much resemble beds containing similar shells in New Jersey, about 360 miles to the northwards. The marls extend from South Washington to Rocky Point, 15 miles from Wilmington, where they are covered by an eocene deposit, to which has been applied the name of Wilmington limestone and conglomerate. This formation has been considered to be an upper secondary rock, but Mr. Lyell says that he could find no organic remains in it which supported this opinion, and though the specimens he obtained at Wilmington were only casts, yet many of them belong to the genera *Oliva*, *Cypræa*, *Conus*, *Calyptræa*, and *Siliquaria*; and further, two of them appeared to agree with casts of *Pecten membranous* and *Lucina pendata*, eocene fossils; and he afterwards found that a *Pectunculus*, a *Vermetus*, and a *Lunulite*, which he obtained at Rocky Point, occur also in the limestone of the Santee Canal in South Carolina. The Wilmington limestone and conglomerate extend to the town after which they are named, and thence along the coast to the mouth of Cape Fear River, and they are almost everywhere overlaid by a miocene deposit.

South Carolina.—Charlestown stands on a bed of sand, beneath which is a blue clay containing shells of the neighbouring seas, also the *Gnathodon cyrenoides*, which is not known as an existing species nearer than the Gulf of Mexico. Mr. Lyell could not ascertain whether this post-pliocene formation rises above high water mark, but 30 miles to the north, on the Cooper River, he found, beneath the superficial sand, a marsh or swamp deposit, from which Dr. Ravenel has procured remains of a cypress, the hickory, and a cedar; and the author says, as those trees must have grown in that region, although the formation is six feet below high tide, and as the salt water of the Cooper River must now cover much of this swamp deposit, a very modern subsidence along the coast is implied. At the Grove near the mouth of Cooper River, a soft

pulverulent limestone, exposed only in artificial openings, contains fossils different from any known in other localities, but Mr. Lyell conceives it may be an eocene deposit. Between this place and Vances Ferry on the Santee river, is a continuous formation of white limestone, at least 120 feet thick, in some places hard, in others soft, and composed of comminuted shells and corals: Mr. Lyell examined it in company with Dr. Ravenel. It so precisely resembles in aspect the upper cretaceous deposit at Timber Creek in New Jersey, that it has been confounded with the cretaceous group, and Mr. Lyell at first felt no doubt that the limestone belonged to it. The testacea and corals, however, prove that it is truly a tertiary formation, and the author sought in vain, through a distance of 40 miles, for an admixture of organic remains. In consequence of this and similar mistakes, many fossils have been considered to be both tertiary and secondary; and the beds containing them to be transitions from one order of deposits to another. The upper surface of the Santee limestone is very irregular in outline, and is usually covered with sand in which no fossils have been found. At Stoudenmine or Stout Creek, a tributary of the Santee, the limestone is concealed by a newer tertiary deposit of considerable thickness, and composed of strata of slaty clays, quartzose sand, brick red loam, and burr stone. Mr. Lyell is not aware of any published account of this formation, but it occurs also on the Savannah River. The clays are soft when wet, yet when dry, they have a conchoidal flint-like fracture, and even pass into a substance resembling menilite. The fossils collected by Mr. Lyell were only casts, and he does not pretend to fix the age of the deposit, but he believes that it is of the same relative antiquity as that of the burr, or mill-stone series of Georgia. In the brief notice of the cretaceous and tertiary strata of the Southern States, drawn up by Dr. Morton from the notes of Mr. Vanuxem (1828), the burr-stone, sand and clay are included in one group; but Mr. Lyell infers, from the observations which he made on the Savannah river, that the burr-stone is the uppermost of the two formations. In specimens of that rock obtained west of Orangeburg, 20 miles from Stoudenmine Creek, Mr. Lyell recognized *Ostrea sellaeformis*, a characteristic eocene shell. At Aikin, 60 miles west of Orangeburg, a cutting in an inclined plane on the railway has exposed a section, 160 feet thick, of earth and sand of a vermilion colour, mottled clays and white quartzose sand: and included in the sands as well as the clays, are remarkable masses of pure white kaolin. These strata are within ten miles of the junction of the tertiary series with the great hypogene region of the Alleghany or Appalachian range; and Mr. Lyell states, that they have evidently been derived from the decomposition of clay slate and various granitic rocks. They appear to be destitute of fossils, both at Aikin, and at Augusta, where they are well developed, and must in some places be 200 feet thick. Three miles above Augusta, the rapids of the Savannah River are due to highly inclined clay and chlorite schists, surmounted unconformably by tertiary strata; and Mr. Lyell states, that on all the great rivers of the Atlantic border from Maryland to Georgia, the first rapids occur where the granitic and hypogene rocks meet the tertiary, and a line uniting these points, ranges nearly parallel to the Atlantic coast, at the distance of 100 and sometimes 150 geographical miles. Maclure first mentioned this great feature in the geology of the United States. On Rae's creek, near Augusta, the highly inclined clay slates and associated beds are decomposed to the depth of many yards from the surface, and the ferruginous clays and sands which have been thus produced, resemble so precisely a large portion of the horizontal tertiary strata that the altered accumulations might be mistaken for them, if the quartz veins did not remain unaffected. These decomposed materials throw much light, Mr. Lyell says, on the origin of the beds of red and mottled clay, and of the sands usually devoid of fossils, spread extensively over the low lands, and constituting the higher portions of the tertiary series. The only point at which he has seen casts of shells in beds associated with the red earth is at Richmond in Virginia, and they belonged to miocene species; but, as at Stoney Bluff on the Savannah, similar red strata occur beneath the burr-stone, he is of opinion, that the same mi-

eral character belongs to the upper division of the eocene group.

For the purpose of ascertaining the order of superposition of the masses of strata, Mr. Lyell descended the river from Augusta to Savannah, though the country is generally flat, and the structure is exposed only in the bluffs. After passing cliffs of horizontal strata of the brick red sand and loam, the first considerable exposure of new rocks was observed 40 miles below Augusta, at Shell Bluff, 120 feet high. They consist in the lower part, or for about 80 feet in altitude, of white calcareous sand, or comminuted shells, passing into solid limestone containing a few quartz pebbles, numerous casts of testacea, and a bed of the huge *Ostrea Georgiana*. The upper 40 feet of the cliff consists of the red loam devoid of fossils, but considered by the author to belong to the burr-stone formation, and therefore to be an upper eocene deposit. Mr. Lyell concluded, from his first inspection of the organic remains at this Bluff, that the limestone belonged to the eocene series, but it was not till he had had the advantage of Mr. Conrad's assistance, that he was able to identify a considerable number of the species with characteristic fossils of the well known eocene beds of Claiborne in Alabama. A similar section is laid open at London Bluff, nine miles below Shell Bluff, and two miles further, the oyster bed is exposed, the shells standing out in relief. At Stoney Bluff, the calcareous strata have quite disappeared, and beds of siliceous burr-stone or mill-stone, containing casts of shells, rest on the red loam. The same rock is also exposed at Millhaven, eight miles from Stoney Bluff. It is evident, Mr. Lyell states, that the mill-stone is subordinate to the great formation of red loam, for at this point there likewise occur masses of Kaolin. One mile west of Jacksonborough, is a limestone passing upwards into marl, the surface of which appears to have been denuded, as it undulates considerably, and upon it rests a bed of yellow and red sand and clay belonging to the burr-stone formation. The fossils hitherto procured from the limestone are new to American palaeontologists, but Mr. Lyell has no doubt, from their general aspect, that they belong to the eocene period. The limestone and marl, the author is of opinion, constitute the fundamental formation of the region, as proved by the numerous hollows, or "lime sinks," which occur over its surface. All the Bluffs examined by the author below Briar creek belong to the beds above the limestone, and are referable for the greater part to the burr-stone formation, or the red loam and yellow sand. In some white clays a little below Tiger Leap, he found fragments of the teeth of *Myliobates* and *Lamna*, and impressions of bivalves: and in the sections at Sisters Ferry, the clay, in places, passes into a kind of Menilite. In conclusion, Mr. Lyell observes, that the part of South Carolina and Georgia, between the mountains and the Atlantic, is known to have a foundation of cretaceous rocks containing Belemnites, *Exogyra*, and other fossils, and that above them, with the occasional intervention of a lignite deposit, mentioned in the paper, on the authority of Mr. Vanuxem, rest, first, the eocene limestone and marls, and secondly, the burr-stone formation. The remarkable dissimilarity in the eocene limestone, at different localities, may lead some observers to suspect that there exists a considerable succession of subdivisions of the eocene period; and Mr. Lyell is willing to admit, that all the beds may not be precisely of the same age, but he is inclined to ascribe the chief difference, first, to the number of species procured at each place being small, and therefore only a fraction of the entire Fauna of the period, so that variations in each locality may have arisen from original geographical circumstances; and secondly, to there not having yet been formed any great eocene collection from any part of the United States. Some fossils are common to the limestone and the burr-stone formation, and he therefore considers it as an upper eocene division, bearing perhaps the relation to the calcareous beds, which the upper marine sands of the Paris basin bear to the *calcaire grossier*. With respect to beds of passage between the cretaceous and secondary series, Mr. Lyell repeats the remark given at the commencement of the paper; but he says it would require a far more extended investigation to enable a geologist to declare, whether there may exist in the Southern States any intermediate strata. The generic affinity