

MISCELLANEOUS INTELLIGENCE.

GEOLOGY.

Fossil Bones.—The great cave of Gailenreuth, in Franconia, has a narrow entrance under a large rock, but the passage soon opens into a wide space divided into several cells, apparently produced in part by the decomposition of the lime-stone which is mixed with a great deal of sand. Beyond this every thing is encrusted with stalactites below, above, and on the sides. The first chamber has stalactites of all sizes hanging from its roof, and numerous bones of bears strewed upon its floor; the second has more bones on its floor than the first. From the last a large aperture descends obliquely downwards, and contains cart loads of loose bones. The cave ends with an oven-shaped cavity, which has been excavated artificially by the extraction of bones and skulls from the osséous breccia, and in one of the cavities there is a large mass of compact breccia, composed chiefly of bones cemented by stalagmites.—In some of the lower caverns, the stalactites, when dug through, were found to have been formed upon sea sand.

Fossil Insects.—The following fossil insects were discovered by Messrs. Murchison and Lyell in the tertiary formations of Aix, in Provence, and have been classified, &c. by Mr. Curtis, F.L.S. The bed in which they were found was “a brown greenish or light gray calcareous marl, effervescing briskly with acids, fetid under the hammer, very thinly laminated.” With them were associated an occasional Potamides and leaves of plants.

Order COLEOPTERA.

Fam. CARABIDÆ.—1. *Harpalus*, with punctured elytra, perhaps an *Ophonus*. There is also the elytron of another species. Fam. HYDROPHILIDÆ.—2. *Hydrobius*, nearly as large as *H. fuscipes*, Lin. Fam. STAPHYLINIDÆ.—3. *Lathrobium*. Fam. PTINIDÆ.—4. *Ptinus*, about the size of *P. Lichenum*, Marsh. Fam. MELOLONTHIDÆ.—5. *Cetonia*, resembling the *C. hirtellus*.—6. *Cetonia*, like *C. stictica*, Fab. Fam. CURCULIONIDÆ.—7. *Sitona*? The dark parts shew the corneous covering which actually remains; and when it is peeled off, the impression of the sculpture is very perfect: the wings of this and of another are extended beyond the elytra, as if they had been arrested in their flight.—8. *Sitona*?—9. *Notaris*? underside.—10. *Liparus*, black, somewhat like *L. Anglicanus*, Marsh.—11. Ditto, like *L. punctatus*, Marsh.—13. *Hypera*. Fam. CHRYSOMELIDÆ.—14. *Cassida*, and cast, the size of *C. veridis*, Fab.—15. Ditto, and cast, the size of *C. equestris*, Fab.—16. *Chrysomela*, and cast, scarcely so large as *C. Banksii*, Fab.—17. Ditto, under side.—18. Ditto, much smaller.

Order HYMENOPTERA.

Fam. TENTHREDINIDÆ.—*Tenthredo*, like *Lelandria fuliginosa*, Schr.—Fam. ICHNEUMONIDÆ.—20. *Ichneumon*? the wings are wanting; but from the long oripositor it is probably allied to *Pimpla* or *Bracon*.—Fam. FORMICIDÆ.—21. *Formica*, and cast, winged.—22. Ditto, apterous.—23. Ditto, apterous.

Order LEPIDOPTERA.

24. *Phalaena*; or it may be one of the *Noctuidæ*.

Order OMOPTERA.

Fam. APHIDÆ.—25. *Aphis*, of the middle size, 26, 27 Obs. There are several small insects, some apterous, others with very short wings, which I thought *Threps*; but the apex of the abdomen is too obtuse for that group; and from the shortness of their legs, they cannot, I think, be the larvæ of any of the *Hemiptera*. Fam. CERCOPIDÆ.—28. *Tettigonia*, exceedingly like *T. spumaria*, Lin.—29. *Asirica*; or it may belong to some of the neighbouring genera *Cixias*, *Delphax*, or *Cercopis*.

Order HEMIPTERA.

Fam. COREIDÆ.—30. *Miris*, a small one.—31. *Lygæus*, allied to *L. abietis*, Lin.—32. There are many examples of different divisions of the *Lygæi*.—33. *Corizus*, and cast, not half the size of *C. Hyoscyami*, Lin. Fam. PENTATOMIDÆ.—34. *Cydnus*, the size of *C. Albomarginatus*, Fab.—35. *Pentatoma*; or it may be a *Cydnus*, the corners of the thorax being rounded: in form it resembles *Tetyra*, but it has a smaller scutellum.

Order DIPTERA.

Fam. TIPULIDÆ.—36. *Limnobia*, female, allied to *L. sexpunctata*, Fab. apparently fixed while at rest.—37. *Gnoriste*; either struggling on its back, or in the attitude of depositing her eggs.—38. Another species, or the other sex of the former one.—39. *Mycetophila*: a pale one.—41. Nov. Gen. allied perhaps to *Penthetria holosericea*, Meig. but not being acquainted with the genus, I speak with uncertainty. There are several examples of this insect.—42. Nov. Gen. another species, or the other sex of the last.—43. *Bibio*, male, and cast, allied to *B. venosus*, Meig.—44. Several specimens of a genus between *Bibio* and *Beris*. Fam. STRATIIONIDÆ.—45. Nov. Gen. apparently allied to *Sargus*, but I am not acquainted with any genus of the family having the same nervure in the wings. The antennæ are no doubt distorted by pressure, but they are too robust and short to belong to *Beris* or *Xylophagus*. One of the palpires is discernable of this handsome and distinct insect, of which there is the cast. Fam. EMPIDÆ.—46. *Empis*, a female, and cast.—47. Obs. There are eight species of *Empida*, comprising, apparently, other species.

Fossil Shells.—List of fossil shells in the fresh water formation of Aix and Fuveau, in Provence:—

UNIVALVES.

1. *Potamides* Lamarckii.—2. *Potomides* (*Cerithium* gr. of Deshayes).—1. *Bulimus terebræ*.—2. *B. pygmaeus*.—1. *Neritina* (cast of) *Lymnaeus orum*.—2. *Lymnaeus*, new species, whorls reversed *Physa*?).—1. *Planorbis rotundatus*, coal of Fuveau, and lime-stone of Aix.—2. *Planorbis*, new species, somewhat resembling *P. rotundatus*.—*Melania scalaris*, (new species, Sowerby,) coal of Fuveau.—2. *Melania*, new species, striated, too imperfect to be figured coal of Fuveau.

BIVALVES.

1. *Cyclas gibbosa*, new species, Sowerby.—2. *C. aqua-scatia* new species of Sowerby (very large).—3. *C. concinna*, do. do. of Sowerby, roof of coal, Fuveau.—4. *C. cuneata*, do. do. of Sowerby. High above the coal Fuveau. 1. *Unio*, a new and very large species, roof of coal Fuveau.—*Cypris*, (new species, Sowerby.)

Fossil Plants.—Plants found in the same fresh water formation of Aix and Fuveau, in Provence:—

1. A terminal pinna of some articulated compound leaf. I have no doubt, observes Mr. Lindley, who describes them, "but that it belongs to some *Leguminosa*, either of the tribe of *Lotæa* or *Phaseolice* of M. de Candolle's arrangement.—2. The leaf of *Pedocarpus macrophylla*.—3. Apparently the branch of some *Thuja*, nearly related to *Thuja articulata*.—4. Leaves of *Laurus dulcis*; or if not, of a species of cinnamon that cannot be distinguished from it by these specimens.—5. The fruit of some plant, but in too imperfect a state to be determined.—6. Very like *Buxus Balearica*; but it is perhaps something else, and cannot be determined.—7. A leaf, but of so common a form that it could not be safe to offer even a conjecture about it.—8. The stem of an herbaceous plant, but there is no evidence to shew what it is.

Fossil Botany.—M. Adolphe Brongniart, who has devoted himself with such extraordinary zeal and perseverance to fossil botany, has been obliged to create a new method of ascertaining the nature of vegetable deposits, and has formed it from the surface and composition of the stems, the nerves of the leaves, &c. &c. He has commenced publishing a new work, where he describes more than 500 fossil species, with their positions. By help of these species, he establishes a certain number of successive formations, in which vegetables succeed each other with few changes, and in almost equal numbers of genera; and other formations, where genera and families

undergo the most sudden changes and bear no affinity to each other. By means of these rapid changes, he has fixed certain vegetable geological periods, which he has reduced to four; during each of which vegetation has presented but few remarkable changes, but the passages of which from one to another have been strongly marked. The first comprehends transition earths and coal, the second speckled sandstone, the third extends from the upper part of shelly limestone to the under chalk, and the fourth corresponds with the tertiary formations. These are separated by strata, which contain few or no vegetable remains; as the red sandstone and the alpine limestone, which intervene between the first and the second; the secondary limestone, between the second and third; and chalk between the third and fourth. In the first period the ferns and larger vegetables predominate; in the second is an equal number of ferns, monocotyledons, and Coniferae, but of a smaller size than in the first; in the third the Cycadeæ are most abundant, and there is a dearth of dicotyledons in all three; but in the fourth is a remarkable predominance of dicotyledons, and a similarity to the vegetables of the present day. Thus, as in the animal kingdom, an affinity may be traced between each succession and the state of vegetation in the different zones of the present globe. The Flora of the first period approaches to that of the small islands between the tropics, and far from continents; which induces the author to think, that during this period the temperature of the earth was higher, and that it was formed of small islands, scattered in a vast ocean, and that no great continent existed; a result which, in other respects, agrees with the disposition of coal formations, and at which Deluc and others have arrived by different means. The second and third periods have some of the characters of the larger islands and the coasts; and, lastly, the fourth period, or tertiary formation, is analogous to the vegetables of the temperate zones, especially the forests of Europe and North America. Many of these vegetables have been developed before we find any traces of animals; but, as we advance, we perceive cold-blooded animals; but it is only in the middle of the fourth period that animals with warm blood are found in any number, and their appearance coincides in a remarkable degree with the multiplication of dicotyledons. With such facts before him, the young author has been unable to resist the temptation of trying to account for these wonderful vicissitudes, and he thinks they are owing to the action of these vegetables upon the atmosphere. He supposes that the carbon now employed in organic life was at first, under the form of carbonic acid, an integral part of the atmosphere, from which it was extracted by vegetable absorption. "Being surcharged with this acid," says M. Adolphe Brongniart, "the atmosphere was as favourable to the rapid growth of plants, as it was injurious to that of animals with warm blood; and it is before these animals show themselves, that we find these enormous masses of vegetables. Animals with cold blood do not require so pure an air, and have appeared when much of this carbonic acid has been absorbed; and the animals with warm blood have only existed when the air has been more completely purified by the long continued action of vegetation, and especially vegetation consisting of large forests, spread over vast continents."

BOTANY.

Method of preserving Fungusses.—Mr. Cook, surgeon, Trinity-square, Tower-hill, put into brine a little below saturation, the *Clavaria Muscoides*, suspended by a delicate thread of silk, and closed the bottle by means of glass. It became a little darker in colour, but suffered no other change.—*Philosophical Magazine*, Oct. 1828.

Rice Paper.—Rice paper is the pith of the Tong-t-sao. (*Calamus patens*, Lourier,) as M. Vallot has demonstrated in the *Memoires de l'Academie de Dijon*; 1820, p. 187-190.

Number of Plants.—Known plants are placed in 2,409 genera, and amount to 16,712 species.

ZOOLOGY.

A South American Variety or Species of the Genus Homo.—Mr. Deville exhibited a short time since, some skulls of a South American tribe of the human race, which is, or is supposed to be, extinct.—*Magazine of Natural History*, No. X. p. 456.

Mammalia.—"Mr. Babbage has drawn up a table, to which we direct the attention of travellers and residents in foreign countries, calculated to express in columns all the properties of *Mammalia* capable of indication by number. Similar tables may be easily formed, so as to include the distinctive characters of the other vertebrated animals; and where specimens cannot be transmitted home whole, a correct statement of the particulars mentioned, will enable the Zoologist to determine, with considerable precision, the zoological characters of an animal from stuffed specimens. The particulars detailed, form the titles of columns in which the dimensions &c. are expressed."

OBSERVATIONS.

NAME.		
Length from tip of tail to end of nose,	Male.	Number of inspirations per minute.
Height from ground to top of shoulder.		Number of species known.
Length of tail.		Number of toes or claws.
Length of head.		Divisions of hoof.
Greatest breadth of head.		Facial angle.
Weight of Animal.		Proportion of weight of cerebrum to that of body.
Weight of skeleton.	Female.	Proportion of weight of cerebrum to cerebellum.
Length from tip of tail to end of nose.		Length of intestinal canal.
Height from ground to top of shoulder.		Proportion of intestinal canal to length of body.
Length of tail.		Proportion of intestinal canal to its circumference.
Length of head.		Nature of food.
Greatest breadth of head.		Grinders.
Weight of Animal.	Teeth.	Canine teeth. } Upper jaw.
Weight of skeleton.		Incisive.
Number of Mammæ.		Grinders.
Period of Gestation, in days.		Canine teeth. } Lower jaw.
Period of blindness after birth.	Vertebræ.	Incisive.
Period at which they cease sucking.		Structure of grinders.
Period of maturity.		Total number.
Period of old age.		Number of Cervical.
Number of young at a birth.		Number of Dorsal.
Proportion of males to females.		Number of Lumbar.
Animal heat. Thermometer of		Number of Sacral.
Number of pulsations per minute.		Number of Caudal.

Terrestrial shell animals may be carried alive great distances.—Mr. Guilding has found, that the terrestrial testaceous mollusca will travel to a very great distance in a living state, even in the tropics, if packed in saw-dust. He has lately dispatched tin boxes perforated on all sides, and filled with wet moss and mud, in which he hopes to obtain alive the aquatic mollusca, which swarm in the waters of the mighty Oronooka, and the canals and ponds of the neighbouring colonies. — *Zoological Journal*, No. XIV.

GEOGRAPHY.

*African Geography.**—Half a century employed in almost fruitless attempts to clear up the doubts on the mysterious subject of Africa, and to acquire, at length, a certain knowledge of that country, has by no means diminished the ardour of the first researches. The more the end has seemed to escape our attainment, the more has the curiosity of Europe been awakened on the subject; and even now, that the science of Geography has experienced so many irreparable losses among the intrepid explorers of the African continent, that curiosity has become more eager than ever. In vain have the successive discoveries of travellers revealed the almost insurmountable obstacles opposed by those regions to the most determined

* Extracted from "A brief notice respecting the progress and present state of the Discoveries in the Interior of Africa," by M. Jomard, President of the Central Committee of the Geographical Society of Paris; read by that gentleman at the General Meeting in 1824.

courage: burning deserts, inaccessible mountains, forests infested by wild beasts, barbarous languages, savage population, destructive climates—all have failed in damping the spirit of the successors of those noble victims of science, Lenoir du Roule, Ledyard, Browne, Hornemann, Houghton, Mungo Park, Tuckey, Peddie, Campbell, Burckhardt, Ritchie, Rouzée, Roentgen, Belzoni, Bowdich, and several others, and lastly, the young Tool and the unfortunate Dr. Oudney, who have sunk under their fatigues in the course of this year.* It would be well, at least, before any new efforts be tried, to pause for a moment, to profit by experience, and to proportion the means to the difficulties: for the enterprising spirit of civilized Europe will never be satisfied until the veil which conceals these remote countries from her view be entirely removed, until the immense and unknown tribes which inhabit them are enabled to participate in the advantages of her enlightened genius, and in the goods and evils of her civilization.

In order to draw an exact sketch of the progress and the present state of the discoveries in Africa, we shall in the first place remove from our consideration all those parts which form the skirts of that continent, as they are tolerably well known, even to a very considerable distance into the interior, particularly on the north-east and on the north. In the second place, we shall pay little attention to the recitals of the Arabs, and to the relations of the natives: our sole object is to ascertain the traces left by the feet of Europeans, determined by perfect instruments, and enlightened by the torch of science. If we extend our researches beyond the narrow border which we have mentioned, our knowledge is confined to a few isolated lines and detached points scattered over an immense surface. Egypt, it is true, and even Abyssinia and Nubia, have been explored in a manner sufficiently complete to satisfy the demands of curiosity, and in part those of science: on this side, the border known to us is of greater extent than in any other part, particularly since the entire of the Oasis and the interval that lay between the line of country visited by Brown, and the banks of the Blue Nile, have been explored by M. Frederic Cailliaud. Thus, on the north side, from the 10th parallel of latitude, and from the 25th to the 40th degree of west longitude, we possess exact notions of the geography of Africa; but what a space still remains unknown between Dâr-four and the course of the White Nile, to the east as well as to the south; and in how great uncertainty are we placed as to that course itself, an object of so much importance to physical geography, without mentioning either the interior of the island of Meroë, or the complete description of the Alps of Abyssinia, or even the western shores of the Arabic Gulf. If the above-mentioned region of Interior Africa is the least imperfectly known, we are indebted for it to the united efforts of the English, the French, and the Portuguese travellers, Bruce, Salt, Poncet, Benevento, Burckhardt, and their predecessors, fathers Lobo, Paez, Tellez, &c.

The English nation has the glory of having made attempts upon every point; repulsed on one side, it has directed its efforts to another, and, since the year 1792, it has never allowed three successive years to elapse without returning into the career of discovery. From the Nile the British Travellers passed to the Gambia, from the Gambia to the Gariep, from the Gariep to the Zair, and from the Zair to the Niger. Failing in their expedition on the side of the Congo, they turn to the part of the continent washed by the Mediterranean: they conceive the idea, and never desist until they have executed it, of traversing Africa in a right line from north to south; and, in the present day, Africa (to use a familiar form of expression) after having been for a long time hemmed in by travellers, has at length been pierced through the very centre.

Holland, during her peaceable possession for a great number of years of the southern extremity of Africa, had scarcely caused the courses of the principal rivers to be ascertained.† Since the end of the eighteenth century,

* To the list we may now add, Lieut.-Col. Denham, Capt. Clapperton, and Messrs. Cowie & Green.—*Eds.*

† We cannot pass over this observation of evidently a most fair, liberal, and candid writer, without regretting that he should not have had the means of ascertaining fully what the Dutch had done towards exploring the South of Africa. From the manuscript diaries of journeys made into the interior at early periods, with which we are acquainted, and which we hope

without going any farther back than Mr. Barrow, the state of things is no longer the same. The English missionaries, and private individuals, Trutter and Somerville, Dr. Cowan and Donovan, who were horribly murdered on their road to Sofala, W. Burchill and J. Campbell, have penetrated into the interior as far as the 26th and even the 24th degree of south latitude; and we are now acquainted with the general course of the great river Orange, or the *Gariep*, as well as with the courses of the two lesser rivers of the same name, by the meeting of which it is principally formed, and which are distinguished by the initials *nu* and *hy*: otherwise called the Black *Gariep* and the Yellow *Gariep*; in the same manner as the White Nile and the Blue Nile, in the north-east of Africa, unite to form the Great Nile, which, on leaving the island of Méroë, bears only one name and flows in one bed. These small rivers flow in a basin bounded on the one side by the chain of mountains of Kowp, and on the other by the Long mountains and by those of Kamhanni, which were explored by Mr. W. Burchell to nearly the 26th degree of south latitude, and under the 22d degree of east longitude; thus advancing far beyond the limits of the nations belonging to the race of the Hottentots, and entering in front of a region covered with immense forests. It still remained for him to advance as far as the establishments on the north-west coast, in order to unite the discoveries made by the English with those of the Portuguese, which we shall presently take into consideration: his guides, however, refused to accompany him any farther, and he was compelled to renounce his project.

The small river Zack, on the left side of the basin, and the branches of the river Elephant, farther towards the south, have been visited and their position laid down; and, on the right side of the basin, at the foot of the chain of Kamhanni, an immense number of small rivers, all of which flow towards the west, and sometimes are lost in the sands of the deserts, rendering it impossible to ascertain whether the river Fish is the continuation of one of those which issue from that elevated chain. We here have to the south of the equator, several great currents which are absorbed by the earth, though flowing within a moderate distance of the Atlantic, (only six degrees:) is it not, therefore, probable that a similar phenomenon may take place to the north of the line, at a much more considerable distance from the three seas? Before we leave the more southern part of Africa, let us see how many questions still remain to be resolved, how many positions to be determined: the sources of the two great arms of the river Orange, that of the Fish river; the connexion of the chains of mountains; the issue of the river Zack, and of the rivers of Moshowa and of Makatta farther towards the north, the first of which directs its course towards the Atlantic, and the other towards the eastern coast; which shows that the chain of mountains of Kamhanni continues to prolong itself from north to south under the 22d degree of east longitude, that is to say, upon the axis of southern Africa, and at the same time gives rise to new doubts respecting the pretended spine of the earth, which is placed much more towards the east, at about the 35th degree of longitude. If the line of mountains of Lupatas does really exist, it is only a chain of the second, or even of the third, class, intersected by a multitude of rivers; among the rest, by the Sofala, by the Zambezi and its tributaries, and by the Loffih, which is said to take its rise in the mountains of the Moon. In what great uncertainty are we not placed respecting the great lake of Marawi, which D'Anville has laid down upon his charts to the east of the mountains of Lupatas, and which is made no mention of in the more recent researches!

A great vacuum has been filled up by very recent discoveries towards the middle of southern Africa, between the mouths of the Congo and the Coanza on the one side, and of the Zambezi and the channel of Mozambique on the other, in the direction of the WNW. to the ESE, and from the 4th to the

in time to publish, it will be seen that they had not been inactive in the cause of discovery, and that they actually penetrated farther, in a certain direction, than has even yet been done by travellers of any other country. No instance can be furnished of a more daring, active, and successful traveller in South Africa, than the late Mr. Wm. van Reenen; and if he had lived in the present day, when his value would have been better appreciated, he would, doubtless, have been ranked as one of the most assiduous and meritorious explorers of the age.—*Eds.*

19th degree of south latitude. By what fatality have points of such high interest remained undetermined until the present day? and have we not strong grounds for reproaching the Portuguese for having left the science of Geography in complete ignorance respecting them during the space of forty years? We may date in the year 1785 the commencement of their expeditions into the interior. Discoveries succeeded each other during upwards of fifteen years. Gregorio Mendes, Captain Lacerda, Pereira, and others, followed several oblique lines crossing the meridian, which, without meeting, extend to different distances, by which means we have a continued succession of districts observed and described by Europeans. The report made by the Portuguese travellers rectifies the idea given by Captain Tuckey respecting the course of the Congo, and this rectification is a point of great importance for the physical geography of Central Africa. In fact, if it be true that the Congo or Zair does not take its rise to the north of the Equator, as was supposed previous to the expedition of Tuckey, but on the contrary, at about the 10th degree of south latitude, what becomes of the explanations given by geographers and travellers of the cause of the swelling of the waters of Zair, and respecting the epoch of its increase, compared with that of the swelling of the Niger? Does the general rule relative to the period of the rains, between the Equator and the southern Tropic, absolutely oppose the possibility of a river comprised within that space, assuming a rapid increase before the arrival of that period? It would be vain, therefore, to rest upon the conjecture of Captain Tuckey, to make one and the same river of the Niger and the Zair, and to force it to describe, by an unusual and retrograde course, the three sides of a trapezium of fifteen hundred leagues in extent,—a supposition still less probable than the fall of the Niger into the Nile, and arising like the first, from the necessity of finding some great mouth for the river Niger.

The route followed by Pereira, the Portuguese, in 1796, also sheds new light over the eastern part of Africa. In addition to the great river Zambezi, he furnishes us with information respecting another river situated much farther towards the west, even more so than the source of the Coanza, and which at the same time flows in the direction of the channel of Mosambique—so much so, that in those latitudes the great longitudinal chain of mountains must diverge towards the west, and approach the Atlantic at a much nearer distance than was before supposed.

It will be seen from the above that the science of Geography has made a valuable acquisition relative to this side of the African continent. For this we are almost entirely indebted to the exertions of the late Bowdich, in re-editing these ancient Portuguese MSS., which he procured, translated, and left as a legacy to his country.

The excursions of the Portuguese along the upper course of the Zair naturally lead us to the consideration of the unfortunate expedition of Captain Tuckey. The principal result of his expedition is its having exposed an error in longitude respecting the position of the western coast of Africa, which was placed at least one degree too much to the west; and his statement is confirmed by the Portuguese charts. On the eastern coast there is also an error, but in the inverse sense: according to the same charts, the mouth of the Zambezi has been hitherto placed one degree too far to the east; the continent of Africa is thus diminished in breadth two degrees under the 17th degree of south latitude, and at least one degree under the 6th, at the mouth of the Zair. This latter river, at ninety leagues above its mouth, is at least one league and a half in breadth, and like the Niger, the Upper Nile, and all the rivers of the interior, is peopled by an immense multitude of crocodiles and hippopotami.

Thus, from the 5th degree of south latitude to the Cape of Good Hope, the lines followed by travellers scarcely leave any unexplored vacuum but between the 19th and the 26th degrees of south latitude, with the exception of the north-east part, a space which the chart laid down by Bowdich after the Portuguese, leaves entirely empty, with the exception of the course of a river of Cassau. If we advance farther on, the entire equatorial zone, from the 5th degree of south latitude to the 10th degree of north latitude, is completely unknown, with the exception of its two skirts; and it is in this vast space that an extensive career is opened to the speculations of geographers, and that they trace out, in imagination, great rivers falling into the two seas, and direct their course over the most lofty mountains without the

slightest difficulty!! We should have no point of junction, in this region of the Equator, between the 2d and 31st degrees of east longitude, which were respectively reached by Bowdich and by Frederick Cailliaud, were it not for the bold and fortunate enterprise accomplished by the English travellers in 1823. Before presenting a sketch of their discoveries, we shall complete the tour of Africa on the west and the north-west.

The results of the two expeditions of Mungo Park are too celebrated to dwell upon here. Who knows not that his first journey leads us to Silla, at the further side of Sego, in the 2d degree of west longitude; and that information of a less positive nature, drawn from the account of his second and last journey, lead us as far as Boussa, only three degrees farther towards the east? From thence to the Nile, what an enormous distance?

Between the Senegal and the mountains of Kong, the travels of Adamson, of Winterbottom, of Molien, of Major Gray, of Major Laing, and several other excursions of less celebrity, have given us tolerable information respecting the nature of the country and the probable position of the sources of the rivers; but beyond that district, and until we reach the confines of Morocco, the Europeans are only acquainted with a narrow border of the continent, the interior being guarded against all visitors by the avariciousness and the perfidy of the Moors. We have not forgotten the melancholy end of Major Houghton, nor that of Roentgen, nor the cruel treatment undergone by Cochelet and his unhappy companions, by their having fallen into the hands of the ferocious natives of Soudan. What European, who should attempt to penetrate into that country by the way of Morocco, dare flatter himself with the hope of escaping them? As for the travels of the sailor Adams, of Alexander Scott, and of a few others, what information can be drawn from them? Can we even place credit in them? On this side of Africa, the greatest advances hitherto made into the interior have been by the French traveller Compagnon, who penetrated as far as Bambouk, and by Mungo Park.

All the northern border, with the exception of the ancient Cyrenaica, is tolerably well known; for which we are indebted to the travels of Schaw, Jackson, and several others. We may, therefore, direct our researches towards another direction. Within a short distance of this skirt or border, is the line of country leading from Egypt to Syouah, in the country of Ammon, respecting which we possess considerable information. Brown and Hornemann were the first travellers who visited Syouah. Calliaud and Drovetti have since visited it, and have been followed by others; but Hornemann is the only traveller who continued his researches in the same line of country as far as Fezzan, and the still more remote parts, where death arrested his course. His unhappy fate has not, however, deprived geography of the advantage of his discoveries. Mourzouk has been made better known to us by his relations, and is looked upon by travellers as the entrance-gate of Central Africa. The enterprising Ritchie directed his steps thither, with that ardour which we have all witnessed, and which cost that intrepid young man his life. Capt. Lyon, the more fortunate companion of his enterprise, advanced to a still greater distance, and prepared the way for the English expedition. Hornemann had laid down the position of Mourzouk, and Ritchie and Lyon ascertained the shortest way leading to it. The three English travellers, therefore, reached it without meeting any obstacle; and although situated at an immense distance in the interior, it was only considered by them as a point of departure, whence they were enabled to push their enquiries farther. In this manner it is that the various discoveries are of mutual assistance to each other, and that the smallest acquisition is of the greatest importance to the progress of the science of geography. The two latter travellers quitted Fezzan about the end of 1822, and traversed, without stopping, the great desert which lies to the north of Soudan. On arriving at about the 14th degree of north latitude, they found themselves on the confines of the empire of Bornou, and soon after reached the capital itself, which had till then been placed by geographers 600 miles more towards the north-west than was right; which (as a passing remark) may be taken as an instance of the little faith due to the information given by the natives, as to the exact geography of the country. One of these travellers, Major Denham, with a confidence bordering on rashness, continued his route 300 miles farther, and engaged in an adventurous expedition, in company with the negro mountaineers. In

the hope of extending the field of discoveries, he fought in a cause which was not his own: all around him perished; the entire army was destroyed; he, however, escaped; and, more fortunate than prudent, he rejoined his companions in Bornou, and informed them of the existence of a great transversal chain of mountains, lying between the 9th and 10th degrees of north latitude, and situated precisely in the same manner as that of Kong, and from which flows, in the direction of the north, a river of immense breadth. On reaching the extremity of its course, he was within only 450 miles of the Atlantic.*

Our inquiries on the north of the Equator have been extended as far as the 10th degree of latitude on three different points: on the east, between the two Niles, by M. Caillaud; on the west, in the direction of the sources of the Senegal and the Niger, by M. Mollien and Major Laing; and in the centre of Africa by Major Denham—and in every part their advance has been obstructed by lofty mountains, and impenetrable forests, occupied by tribes of savages who have never been subjected to the yoke of Islamism: mountains which now form a barrier to the introduction of European civilization, as they formerly did to the diffusion of the Mussulman law.

It is known what a brilliant scene here opened itself to the regards of the English travellers: a warlike city on the frontier of the country; a numerous cavalry, both men and horses cased in armour; a profusion of gold and of iron, worked with an art now entirely unknown; flourishing and populous cities, standing at a few miles from each other; an immense commerce, of which they had formed no idea; periodical markets, which were frequented every week by upwards of a hundred thousand people! What a harvest for Geography! what a recompence for the fatigues and perils undergone by the three travellers! They have before their eyes the great central lake, of which mention was made in the relations of the natives, but the existence of which could till then be denied; and they ascertained, by their own observations, that it received within its bosom the waters of different rivers, flowing into it from the north, the west, and the south: the Niger, or at least a river which descends from the side of Tombouctou and Haoussa, flows into it in the month of July, under a form of a moderate stream. This lake was ascertained by them, as far as their researches went, to be upwards of 220 miles in length; its breadth is not yet known, and we are ignorant whether it has any issue—whether, as is the case of the Caspian Sea, the influx of tributary streams is compensated for by evaporation; and finally, whether, on a rise in its waters, it flows towards the basin of the Nile—a question which still remains undecided, notwithstanding all these great discoveries! No wonder, then, that we look with so much impatience for some news respecting the ulterior proceedings of the expedition.

But, at the very moment when learned Europe was expecting with anxiety the new fruits of the English expedition, it learns that its hopes are diminished by an irreparable loss: Dr. Oudney sunk, after a few days' illness, under the severity of this fatal climate. The young Toole, who set out after him from Tripoli, joined the expedition, and had scarcely arrived when he also fell a victim: all our hopes now rest upon the intrepid Denham, on Lieut. Clapperton, and on Mr. Tyrwhit. The rare devotion of Dr. Oudney, and the singular circumstances of his death, are worthy of a few moments' attention: they will serve to show the full extent of the loss that the interests of science have sustained in that indefatigable traveller. He set out from Bornou in December, 1823, (a year after his passage across the Great Desert) and directed his course to the west, in the direction of Kano, accompanied by Mr. Clapperton, with whom he reached the confines of the kingdom. On their arrival at this spot, the caravan was attacked by a sudden and unexpected cold of the greatest intensity; the waters were frozen on all sides; the contents of the skins borne by the camels were entirely congealed; and the Doctor felt seriously unwell: he, however, continued his laborious career for seventeen more successive days. On the 12th of January he again endeavoured to set out at break of day, as was his custom. The camels were already loaded, but his strength failed him, and, in a few moments after, he expired in the arms of his companion, less regretting his death than grieved at not having been able to do more for his country.

* And not at 300 miles, as was said at first, the longitude of Mourzouk having been inaccurately stated.

It has been conjectured that, under the 12th degree of north latitude, in the place where the English travellers then were, water cannot freeze except on those mountains which are from 4 to 5,000 metres (a metre, 39 inches,) above the level of the sea: this calculation is greatly exaggerated. The persons who have hazarded the assertion seem to be ignorant that it sometimes freezes in the deserts of Lybia, at only a few hundred metres above the level of the sea: these deserts are, it is true, a few degrees further towards the north, but they still lie very close to the torrid zone. It is not impossible but that circumstances, peculiar to these regions, may cause a considerable diminution in the temperature, and it would be safer to wait, before we form any decided opinion upon the subject, until the heights of the ground shall have been published; a piece of information which has been very dearly purchased, since it has cost the life of the most enlightened man belonging to the expedition. We may add, that if the mountains that lie at about a hundred leagues to the west of Bornou are really of a great elevation, (a fact which we do not dispute) as, on the other hand, the source of the Niger is situated (according to Major Laing) only at the height of 500 metres, the learned conjecture made by Mr. Walckenaer will be strongly confirmed, namely, that the transversal chain of mountains increases progressively, according as it advances, from the west to the east, until its union with the principal chain, which appears placed under the 22d degree of longitude, and the 8th degree of north latitude.

The same learned observer has judiciously placed Tombuctoo at 2½ degrees farther towards the west than it was laid down by Major Rennell, after the observations of Mungo Park. The positions of Silla, on the Niger, is also laid down upon the maps too far to the east; and it is not improbable that the first of these towns may lie under a more western longitude, since Bakel and Fort Saint Joseph, according to the recent observations of some French officers, communicated by Baron Roger, Governor of Senegal, ought to be placed about 2 degrees farther to the west than they are laid down by Mungo Park. Every thing announces that the cities of Central Africa are situated nearer to the Atlantic than was supposed; and this discovery is a point of no small importance, as far as regards the relations which it is hoped to establish with these countries: a diminution of a hundred leagues in a journey through so difficult a country, is a sort of conquest for the science of Geography.

If we had not laid it down as a rule not to make mention in this notice of the reports of the native Africans, we should cite those of two natives, who were separately interrogated by M. Roger, and who agree in saying that Djenné is situated on the *right* bank of the Diallibâ (or Niger), as also the city of Sego, and that this royal residence is formed of four distinct and isolated towns. Mungo Park knew of the existence of these four towns; but it appears that he stopped upon the *left* bank of the river, without attempting to penetrate into them. The same individuals informed M. Roger, that the great city of Tombuctoo is situated close to the Diallibâ, at only two leagues distance from the *left* bank: it is even still nearer, according to M. Adrien Partarrieu. The town of Kabra serves as its port, in the same manner as Boulaq is the port of Grand Cairo; and the carriers of merchandize make the journey twice, and even thrice, in the course of the day. To conclude; M. Partarrieu only mentions one river, that of the Diallibâ, and says nothing whatever of the Gambarou, except merely that a river of that name flows at a great distance towards the NNE.

Other observations, made by M. Partarrieu, agree with those of the French officers, and those of M. Beaufort, in leading us to conclude that the longitudes, as laid down by Park, are placed too much to the east; and it is even supposed, that he made a considerable mistake in laying down the latitude of the spot where he left the river Gambia.

Such is the state of the last discoveries made by Europeans in the interior of Africa—I speak here of those communicated to us by ocular witnesses. What an immense void still remains to be filled up in the chart, containing these discoveries alone! What a space still remains unvisited, between the twenty or five-and-twenty leading lines followed by travellers! We have calculated the total extent of these lines which have been traced within the last forty years, and we have estimated it at 2,200 geographical miles, even including the excursions of Poncet in 1698, and those of Bruce made from 1768 to 1773. Let us suppose that each traveller constantly embraced

within his view a horizon of three leagues in diameter, which is allowing a great deal, this gives us at most a surface of twenty-eight thousand square leagues: but what is that superficies, compared with that of all Africa, which is computed at 1,400,000 square leagues. It is plain, therefore, that Europeans scarcely possess a knowledge of the fiftieth part of Interior Africa: beyond that, all remains enveloped in confusion and uncertainty. The lines of country that have been visited lie nearer to each other in the south of the continent, and it is to the east of the central meridian, (the 15th to the east of Paris) at about 10 degrees on each side of the Equator, that the distance that separates them is the greatest. From the place where Mungo Park perished, to that where Dr. Oudney sunk beneath the climate, there only remains an interval of 12 degrees to be explored; but from Bornou, to the nearest coast of the Indian Ocean, the distance is estimated at upwards of 30 degrees. It is not improbable but that a chain of mountains may be found in that vast space, which would form a continuation of the mountains discovered by Mr. Burchell, in the 26th degree of south latitude; mountains which overhang the sources of rivers flowing in a contrary direction, and which appear to be farther from the ocean than was supposed until the present day.

N.B.—Since this paper was read at the general meeting of the Society of Geography, information has been received that M. Hey, who accompanied Mr. Edward Ruppell in his travels, had ascended the White Nile to the distance of upwards of 60 leagues above its mouth; and that Mohammed-Bek, one of the generals of the Viceroy of Egypt, had drawn up an itinerary of Kordofan, a country hitherto very little known, and situated between the Sennâr and the Dar-Four. It is said that volcanoes have been discovered there, at upwards of 180 leagues from the Red Sea, and that they bore evidence of being still in full activity at the time they were observed.—*Literary Gazette.*

Training the Vine.—The grapes of Fontainebleau are chiefly raised in the village of Thomery, on a poor, strong, clayey soil, and on the north side of a hill, sloping to the Seine.

Walls and Treillage.—The walls are 8 ft. high, built of clay, plastered or washed over with a mortar of lime and sand, and covered by a coping of boards or straw, projecting 9 or 10 in. on each side. The treillage is formed of upright rails 18 or 20 in. apart, with horizontal rods 9 or 10 in. apart. The south, west, and eastern sides of the walls are employed. The chief peculiarities of the culture are, allowing only two branches to proceed from each vine, and planting the vine several feet from the wall. The spurring system of pruning is employed, and it will be seen that the success depends principally on these three particulars.

The main branches of each particular vine plant assumes, above ground, the form of the letter T, each arm being 4 ft. long, the spurs 6 in. apart, and the upright stem being shorter or longer accordingly as the two arms or horizontal branches are higher or lower on the wall. The horizontal branches are placed 18 in. apart, the lowest being 6 in. from the ground, so that a wall 8 ft. high will contain five lines of mother branches. If the plants are all planted on one side, their stems at the base of the wall will be 18 in. apart; but in very poor situations they are planted on both sides of north walls, and the stems of those on the north side brought through holes in the wall to the south side.

Preparation of the Borders.—The upper stratum of 18 in. is trenched, well manured, and such a slope given as will throw off heavy rains.

Selection of Cuttings and Planting.—Cuttings are preferred, because they can choose them from any plant, or even shoot, which has produced an improved variety of fruit. The cuttings, which are called *croisettes*, are about 2 ft. in length, generally with an inch of old wood attached. In the month of March, they are planted 1 ft. deep, in a row parallel with the wall, 4 ft. distant from it and leaning towards it, and 18 in. apart in the row; three eyes being left on the upper end of each cutting. The young shoots made from the cuttings are tied to stakes the first summer, and the second spring only the strongest shoot is left on each plant. This shoot is shortened to three eyes, and a trench being opened in a direction from the plant to the

wall, 11 in. deep, the whole plant is buried in it, except the three buds on the young wood. This is the first step in the journey of the plant to the wall, and the operation, which is nearly the same as that called *provigner* in some districts, is repeated every spring, till the plant reaches the wall; which at Thomery it generally does in three years.

In some of the gardens at Montreuil, and in that of Decoufflé, in Paris, the cuttings are planted at the bottom of the wall, where they remain two years, and the third spring they are taken up and planted 4 or 5 ft. distant from the wall, and their stems laid down at full length so as to reach the wall at once, much in the manner employed by Mr. Judd (*Encyc. of Gard.*, 6 2261.), but without cutting, instead of which, stones or brickbats are laid here and there on the shoots, which stimulate them to throw out roots. It must be observed that in Mr. Judd's case, and also at Montreuil and other gardens at Paris, the soil is, or is supposed to be, much richer than at Thomery.

"At Thomery," Mr. Robertson observes, "the vines being planted closer have a more limited range for food, and the numerous roots produced by the frequent laying in of the stems, occupy the border so fully as to prevent any redundancy of moisture or excess of nutriment; and instead of a rank luxuriant growth, they are furnished with short, well ripened shoots, closely set with bearing eyes, which, when the ground is well manured, seldom fail to afford abundant crops.

The sort of grape most in repute at Thomery, is the Fontainebleau or Royal Muscadine.

Training and Winter pruning.—"During the formation of the cordons, the spurs on their arms will successively come into bearing, and each when pruned down at the season to two or three eyes, will produce as many shoots with fruit. Of these, at the next winter's pruning, only the lowest shoot is to be suffered to remain, and that at the same time is to be cut back to one, two, or three eyes, according to its strength. The eyes at the bottom of the spurs are very small and much crowded, there are at least six within the space of one sixth part of an inch; when the spurs are cut to the length of one or two inches, these small eyes are robbed by those above them; but when the spurs are cut short immediately above these eyes, they then break, develop themselves, and produce good bunches. Of this the vigneron of Thomery are well aware; they never leave their spurs more than one inch long, and sometimes less: by which means they always keep the bearing wood at home; and, extraordinary as it may appear, spurs that have borne for twenty years are no more than one inch long. Should more than two shoots break from a spur, all above that number are suppressed, and not more than two bunches are left on each of these, for a moderate crop of good grapes proves of greater value than a more abundant crop of inferior quality. When the space of walling allotted to the five cordons is completely occupied, about 8 ft. square or 64 square feet are filled, and the produce calculated on is 320 bunches; for each arm being 4 ft. long, and furnished with spurs 6 in. apart, the two arms will carry 16 spurs of two eyes each; and allowing two bunches to every eye, each tier or cordon should bear 64 bunches, the number on five cordons will consequently amount to 320.

"This precise length of 4 ft. to each arm has been determined by experience to be the fittest; the vigneron found that when the arms were left of a greater length, the spurs in the centre gradually declined, and good bunches were produced only at the extremities of the cordon; but when reduced to 4 ft., the spurs on the whole length were perfect, their eyes well filled, and the bunches of fruit fine and well swelled.

"Training in cordons after this manner affords these additional advantages; every portion of the wall is equally furnished with bearing wood, and when once the cordons are completed, the pruning and training becomes so uniform and simple that it may be intrusted to any intelligent workman. But what renders this practice of still greater value in this country is, that the fruit on these small spurs always ripens earlier than on the stronger wood.

"When vines are trained with more than one cordon, it is evident from what has already been said, that the lower tiers will eventually become enfeebled by the more powerful vegetation and shade of those above them.

but when the vine is limited to one cordon, it maintains that one in vigour under any such circumstances of privation.

"Might not training on these principles, if accommodated to their peculiar natures, be applied with advantage to our pear trees on walls, and apple trees on espaliers; it would probably counteract their tendency to run naked at the lower parts and centre, and bear only at the extremities.

"When pruning their vines, the vigneron avoid cutting close to the eyes, lest they might be injured by the wood dying down to them; the wood of the vine, from its spongy nature and the peculiarity of its alburnum, not healing readily, and being liable to decay at a wound. To guard against this, they always cut midway between the eyes, sloping the cut to the opposite side of the shoot, so that the eye may not be damaged by its bleeding. They are also careful to inflict no wounds unnecessarily, and those they do make they finish off in the neatest manner.

"The season they generally prefer for the winter pruning is from the beginning of February to the beginning of March, before the first movement of the sap takes place. The earliest pruned vines are found to break first."

Summer Pruning or Training.—Cut out weak shoots, unless any should become necessary to replace failures in the spurs.

"As premature summer pruning is productive of the same bad effects as follow late summer training, in occasioning wasteful bursts of sap, it is considered prudent, before the stronger shoots are cleared off, to wait until the wood has acquired some consistence, and until new channels are prepared for the expenditure of the sap by the expansion of the leaves."

Stripping a plant of its leaves and shoots suddenly, always gives a shock to its vegetation, and therefore should be very carefully and gradually performed, until the grapes are set.

Pinching or Stopping the Young Wood.—This accelerates the maturity of the shoots, and swells the buds of the spurs. At Thomery the young wood is pinched after the bud is set. "Should it appear that the shoots of the extremities impoverish those of the centre, the former are pinched repeatedly until the equilibrium is restored.

"When the vigneron of Thomery, before the adoption of the present system, during a period of thirty years, made a practice of planting their vines far apart, their growth was so luxuriant that they were under the necessity of leaving a distance of 2 ft. between each cordon, and even that was found insufficient as they shot beyond it, and could only be kept within bounds by repeatedly cutting in the young wood, though in an advanced state; but since they have adopted the practice of close planting, and by a judicious selection have procured varieties which grow more kindly, pinching alone is found sufficient to keep the plants in order."

Care of the Fruit.—Cut off the extremities of long bunches, for they generally ripen late. Let only two remain on a shoot. Thin the berries of close bunches, and remove insects. When the bunch is three-fourths ripe, take off a few leaves to admit the sun and air to colour the fruit. "In doing this, the leaf is torn off at the extremity of the foot-stalk, which is left behind to attract the sap" [?]. The bunches are frequently put in hair bags, to protect them from birds; but more commonly they are screened with cloths, matting of straw or bass, or with fern, which, late in the season, is removed during the middle of fine days, and which will preserve fruit on the trees till Christmas. [This we saw done in M. Decoufflé's garden in October last, and found some of the grapes still hanging on the end of his house in the first week of January, 1829, which he expected to keep there till February.]

"None but the driest weather is chosen for gathering in the crop, it would quickly spoil if stored moist. The bunches are handled with nicety, and only by the stalk, to preserve the bloom; those intended for keeping are cut before they are quite ripe. Some are spread on beds of fern, others are hung up on hair lines in reverse, with the shoulders down, as that position prevents the berries from lying so close as to rot."

Tillage and Manuring.—The ground is hoed twice a year, after the summer training, and at the fall of the leaf, but never dug. The surface is

always kept free from weeds, and loose to admit the air and dews. Old, light, warm manure is hoed in every three years.

The superiority of the Thomery culture is attributed to the following peculiarities of practice, to which we would add the spur method of pruning.

"1st. To the judicious choice of cuttings, the vignerons never making use of any but such as have borne the best and finest fruits.

"2d. By planting the vines at a distance from the wall, and by frequently laying the shoots until they reach the wall, the vines acquire abundance of roots upon the surface. Also, by the close planting, from which all undue luxuriance is restrained; by this means the branches complete their growth within the bounds prescribed, and ripen their wood early.

"3d. By limiting each plant to only one cordon, with two arms, right and left, the entire extent of both not exceeding 8 ft. The energies of the roots, confined to so small a space, nourish the bearing wood more effectually and more equally, and bring the fruit to greater perfection.

"4th. To the projecting coping, which protects the vine and fruit from frosts and heavy rains, and intercepts the heat radiating from the surface of the wall and of the soil.

"5th. The sloping disposition of the ground also contributes to their success, as it prevents any accumulation of moisture at the roots of the vines, and preserves them sound and healthy."

Mr. Robertson judiciously concludes, "we too frequently err, in making our borders for vines or peaches deeper than the influence of the sun and air can reach. Their depth should always be regulated by the temperature of the climate. In such a climate as that of France, where the summer heat is powerful, and penetrates deeply, if 3 or 4 ft. be necessary, in Great Britain or Ireland, where it is comparatively feeble, one half the depth may be sufficient, and a greater would prove pernicious."—*Gardener's Magazine*, June, 1829.

Beet-root Sugar.—Beet-root sugar is a production which many people in this country never heard of; and which those who may have heard of it, recollect only as one of the ingenious enterprizes of the Emperor Napoleon in 1811 and 1812, when he had deprived the continent of any direct supply of West India sugar. It will awaken an extraordinary interest in the breasts of the people of this country now—it will steal the smile of ridicule from the cheek of the West India planter, to be told that at present the price of refined sugar at Paris is about 11½ sterling per English avoirdupois pound weight; the manufacture of beet-root is profitable, is rapidly increasing, occupies above five-and-twenty large sugar manufactories in Picardy alone, besides others in the Netherlands, and various parts of the continent; and that it is estimated by well-informed French people, that one-half of all the sugar consumed at present in the city of Paris, and one-eleventh of the total quantity consumed in France, is home-made beet-root sugar!—*Vide an interesting article on Beet-root Sugar, in No. 5 of the Quarterly Journal of Agriculture.*

Culture of the Sweet Potato.—The sweet potato is cultivated in several gardens in the neighbourhood of Paris with perfect success, and the tubers sold in the market, and in the fruit-shops. The best crops we saw were in Admiral Tchitchigoff's garden at Sceaux. The tubers are planted in February, or earlier or later at pleasure, in the pine stove, or in a small hot-bed; and the shoots they produce are taken off, and planted a foot apart every way, on dung beds, covered with 15 in. of earth, and protected by hoops and mats in the manner of ridged cucumbers. This may be done any time from April to June, and the shoots are not dibbled in, but laid in only about 3 in. deep, keeping 2 in. of the point of the shoot above the earth. In about two months after transplanting, some of the tubers will be fit to take off for use, and the plants will continue producing till they are destroyed by frost. To preserve the tubers through the winter, the greatest care is required. In the king's forcing-gardens at Versailles, they are kept in a growing state all the winter in the pine stoves. With the exception of this difficulty of preserving the tubers through the winter, the sweet potato is just as easily cultivated as the mealy potato. Though the shoots are naturally ascending and twining like those of *Tamus communis*, the plants are not sticked, and therefore the shoots cover the ground, and form over it a thick matting of

dark green smooth foliage. In the early part of the season, the tubers are taken off as they attain the size of early kidney potatoes; later the whole crop is dug up. If the sweet potato were once fairly introduced into first-rate gardens, we have no doubt it would form an article of regular culture there.

Since writing the above, we observe, in the last edition of the *Bon Jardinier*, that the sweet potato is cultivated in the south of France, where the shoots and leaves are reckoned excellent forage for cows and horses, and that some people eat them as spinach. Directions are given for preserving the tubers through the winter in layers in a box of very dry sand, no one tuber touching another; the box closed and surrounded by a good thickness of straw, and the whole put in another box, and placed under a heap of straw, so as to prevent the tubers from undergoing any change of temperature.—*Gardener's Magazine*, June, 1829.

Canine Madness.—After a brief historical notice of the progress of our knowledge of Rabies, as a department of the veterinary art, and an introductory account of the different alleged varieties of the disease, Dr. Hertwig proceeds to describe it as occurring in two forms, that of Raging rabies, (*rasenden Wuth*), and that of Calm rabies, (*stillen Wuth*): he then details the morbid appearances he has found in the bodies after death; he next draws the distinction between rabies and the other diseases of the dog which are apt to be confounded with it; he afterwards relates in succinct, but comprehensive terms, several cases of the two varieties of the disease; and he concludes with a statement of his experiments of inoculation, and of the general inferences to which they lead. We shall present a short view of what he has brought forward under each of these heads.

Many people, he says, conceive that canine madness is announced by certain precursory symptoms, such as unusual irritability, or sluggishness, increased warmth of the point of the nose, increased sparkling and redness of the eyes, enlargement of the pupils, retraction of the lips, bristling of the hair, and the like. But although he was always on the watch for such warnings, he was very seldom able to observe them. When symptoms of the kind were unequivocally present, other symptoms also existed, and the disease was in reality fully formed.

The first symptom of the *Raging* form of rabies is a change in the behaviour of the animal, sometimes dulness, sluggishness, and peevishness, sometimes, on the other hand, increased sensibility, activity and serviceableness, with a disposition to anger; and the change of temper, whatever it may be, is not permanent but intermitting.—A very common symptom at the beginning is a great disposition to lick cold objects, such as a chain, stones, heads of nails, the noses of other dogs, and the like.—Restlessness is also a very common early symptom. In its slightest degree this is manifested in frequent shifting of the place where they lie, and a tendency to go often towards the door, without an object; in its highest degree it impels the animal to run off to a considerable distance in the neighbourhood, sometimes for a whole day; but it always returns home if permitted, and there takes pleasure in recognizing its acquaintances. The degree of restlessness often depends on the usage which the dog receives at home.—A rabid dog never loses its intelligence entirely till it is near the point of death. All know their master or keeper, and obey him more or less, but less and less as the malady gains ground; and those which have been taught tricks will for some days perform them when told. No mad dog is completely disobedient to his master, but becomes more and more so the more the disease advances, and the more he is irritated.—Loss of appetite is a very early and nearly invariable symptom. A few will take throughout even their whole illness a little soup or a morsel of soft bread or flesh. But by far the greater number refuse food entirely at an early period, and many of them even two days before any other symptom of note would be remarked by a careless observer. This is a striking character of rabies; for in all other diseases of the dog, the appetite does not fail till the disease is fully formed, or at least is obvious to an ordinary observer.—Loss of appetite is almost invariably accompanied with a propensity to eat indigestible substances, such as straw, leather, wool, fragments of wood, turf, and glass, and also to swallow their own urine and dung, as well as those of other dogs. This depraved appetite

is very rare in other diseases, and is an important criterion, since it is applicable both during life and after death.—A few rabid dogs do not suffer from thirst, and therefore do not care for water; but the greater number lap and swallow it during their whole illness, and many of them greedily; some lap it frequently, but cannot swallow it properly, because the tongue or throat is swollen. But no rabid dog dreads water. This is not a new observation; for *Meynel*,* *Blaine*,† and *Grace*,‡ have made the same remark. It does not the less require repetition, however; because not only the vulgar, but also many medical men, and even some late authors, such as *Waldinger*,§ continue to fall into the old error of supposing that canine madness is accompanied with hydrophobia.—Neither does any rabid dog dread the light or the air as some erroneously imagine. A few animals have an increased sensibility to bright light, and on that account prefer an obscure place and wink when the light is vivid; but none can be properly said to have an aversion to light.—All have a tendency to constipation.—The most important and invariable symptom of all is a change in the cry. The tone is sometimes higher, sometimes lower than natural, rough, hoarse, and expressive of anxiety. The animal does not give utterance, as in health, to a rapid succession of short, distinctly separated barks; but to a single short bark, which is suddenly changed to a short howl. The sound is neither a bark nor a howl, but something intermediate between both, and so remarkable that no one who has heard it once can fail to recognize it again. In no other disease does the cry of the dog undergo a similar change; and hence in cases otherwise doubtful, Dr. Hertwig has often decided that rabies was present from the cry alone, and he never was wrong in his decision. Our attention was pointedly called to the peculiar cry of the dogs affected with rabies in Paris, and, like our author, we conceive it is quite peculiar to this disease, and so marked that no one who has heard it once can fail to recognise it again, or to distinguish it amidst those of many healthy dogs barking at the same time. In many cases the animal cries without any apparent cause, in others only when it is irritated.—In most dogs affected with raging rabies a disposition to bite is manifested in a greater or less degree. This disposition is not constant, but occurs only at intervals. It is also very different in degree, according to the race, temperament, and habits of the animal. Mild-tempered and phlegmatic dogs sometimes only snap, or push or pinch with their teeth, without actually biting. Furious dogs, and those accustomed to fight or to kill vermin, exhibit on the contrary an ungovernable propensity to tear and slaughter all living things that come within their reach, or even to destroy inanimate objects, and to lacerate their own bodies. The propensity to bite is increased in all by irritating them. Cats are the first animals they attack, then their own kind, then other animals, and lastly man. When they come in contact with other dogs they first snuff at them, particularly about the snout and genitals, wagging the tail all the time, and then bite quite unexpectedly. The bite is seldom preceded by snarling or accompanied by a growl.—Many rabid dogs snap frequently at imaginary objects in the air.—Their external appearance is at first little altered. On the second or third day the eyes usually become somewhat reddish, and the eyelids are closed from time to time for a few seconds, as also happens with dogs that have the distemper or catarrhal affections. At the same time the skin of the forehead is drawn down over the eyes in small wrinkles. At a later period the eyes are dull and muddy, but never more fiery or lively than at the beginning. In many instances the whole head swells, in others the nose or tongue only. Most have a rough appearance; and all become rapidly very lean.—The muzzle in Raging rabies is generally rather dry than moist, and therefore without froth or slaver, which is commonly supposed by the vulgar to indicate the disease. The surface of the lips and tongue is sometimes very dry.

* Trans. of a Soc. for Med. and Chir. Knowledge, Vol. i.

† Canine Pathology, or Description of the Diseases of Dogs, 1817.

‡ Erfahrungen und Beobachtungen über die Krankheiten der Hausthiere, 1818 and 1821.

§ Ueber die in den Jahren 1814 und 1815 häufiger beobachtete wuth der Hunde. In der Mediz. Jahrbüch, des K. K. Oesterreich. Staates III. iii 80

Salivation is observed only in the rare instances where there is considerable swelling of the pharynx, and consequently difficulty in swallowing.—Another common error is to suppose that the tail is always held down between the legs. On the contrary, it preserves its usual position till the animal becomes very weak, and then it hangs down flaccid.—In like manner the gait is at first unaltered. But as the disease advances, the hinder part of the body becomes gradually weaker and weaker, and at length the hind legs are completely paralyzed.—It is an error to suppose that mad dogs always run straight forward. At first they run about snuffing and following the scent in various directions; and when the biting-fit comes on they turn aside in quest of objects. It is only when the disease is in its advanced stage, and the animal's intelligence blunted, that it runs straight forward.

In the *Calm* form of Rabies a change of behaviour is remarked as in the former variety; and for the most part the animal becomes inactive, listless, and sorrowful. The most striking and important symptom of this variety is paralysis of the lower jaw, so that the mouth is constantly more or less open. The dropping of the jaw has been ascribed by some authors to spasmodic contraction of the muscles which open it. But this is an erroneous idea; the real cause being a paralysis or weakness of the muscles which close the jaw, as may easily be seen from the facility with which the jaw can be raised with the finger so as to close the mouth. The paralysis is different in degree in different cases: some dogs cannot shut the mouth during their whole illness or under any circumstances; while others, when excited, can close it for a few seconds so as to bite. The palsied state of the jaw prevents them from swallowing, so that the fluids which they lap run out by the corners of the mouth, and the saliva also commonly flows out in the same manner. The tip of the tongue often projects a little between the teeth. Animals affected with the calm form of rabies have much less propensity to bite than those who have it in the raging form; and they have also less tendency to change place or run away from their home. Their cry is changed precisely in the same manner; but it is much more seldom heard; and some dogs do not cry at all. In all other respects but those now mentioned, the symptoms of the calm and raging varieties are the same.

The course of the disease differs considerably. Death is commonly preceded by gradual exhaustion of the strength; and it is inevitable. From six to eight days is the ordinary duration; but some animals die sooner and others live ten days. Dr. Hertwig never saw an instance where the animal survived that period.

The history of which we have here given an abstract, agrees in most particulars with an account published a few years ago by Mr. Youatt, a veterinary surgeon of London, (*Lond. Med. Repos.* 1826, ii. 448,) but is much more full and complete.

The *Morbid Appearances* laid down by our author are the result of nearly 200 dissection, in which the precaution was frequently taken of examining at the same time, as a point of comparison, the collateral appearances in a healthy dog. The result is equally unsatisfactory with that at which other observers have arrived in endeavouring to ascertain the pathology of the disease as it occurs in man. "Although," says Dr. Hertwig, "I have witnessed in particular cases every appearance which prior observers have seen and recorded, I must nevertheless confess, that with all the pains I took I have been unable to discover any constant change of structure or one peculiar to Rabies, and that, like the symptoms during life, the appearances after death are very different in their variety, extent, and intensity."—"Notwithstanding all this, however, the data derived from the inspection of the body are of great importance, and it is quite possible to draw from them a correct conclusion on the question as to the pre-existence of rabies."

The subcutaneous veins are full of black, tarry blood. The brain and spinal chord, as well as their membranes, are turgid with blood. The muzzle is sometimes a little swelled about the lips. The tongue in general is not swollen; nor are any vesicles, tubercles, or scars to be seen under it; but its surface is covered with a dirty, dryish slime. The salivary glands are yellowish, not swelled or turgid with blood. The fauces are abundantly covered with tough mucus, which extends into the nostrils; the pharynx contracted, and commonly moist and white, sometimes, however, a little swelled and reddened; the gullet natural. The stomach is in general more

diseased than any other organ. Its outer surface is usually dark red, its inner surface, particularly near the pylorus, dark, sometimes cherry-red, often looser and thicker in texture than natural; and it contains either a yellow, green, or reddish mucus, or more frequently various indigestible substances, both hard and soft, such as wood, stones, sand, leather, wool, fragments of cloth, straw, and the like, but very rarely any food. In the intestines, and especially in the duodenum, are often seen dark spots externally, and red patches internally, as in the stomach; yet not unfrequently the intestines are quite healthy in appearance. The omentum, mesentery, liver, pancreas, spleen, kidneys, supra renal capsules, bladder, blood-vessels and nerves are free of disease. The larynx, and more particularly the epiglottis and ventricles of the glottis, are often red, but sometimes not; the windpipe and its ramifications are in like manner sometimes red from increased vascularity, at other times not altered from their natural state; and the lungs are in general much loaded with blood, sometimes inflamed in patches. The heart is commonly flaccid, the pericardium healthy, and the great vessels also in the natural state. The eight pair of nerves, the great sympathetics, and the phrenic nerves are not affected.—*Edinburgh Medical and Surgical Journal*, vol. 32, p. 380.

Indians of North America.—I had frequent opportunities afterwards during the journey, of conversing with persons well acquainted with the Indians of North America, and I was sorry to observe that faint hopes were entertained as to any permanent improvement being possible in the condition of these poor people. When I described what I had seen at this village, the persons I spoke to could not deny, they said, that by the care of government, and especially of disinterested and zealous people, willing to take personal trouble in teaching them the arts of civil life, they may be brought, apparently, to a considerable state of civilization; but that sooner or later they are always found to relapse when the hand that guides them is withdrawn; I confess I am unwilling to adopt so discouraging a notion, and I still think, after all I have seen and heard, that by some means or other the Indians might be reclaimed. This, however, can be accomplished, as I conceive, only by allowing them to mingle with the whites; to possess individual property as well as political rights, and thence they might come in time to understand the practical value of religious and moral duties; obligations which are manifestly useless to such people, or to any people when preached merely in the abstract.—*Hall's Travels*, vol. 1, p. 260.

Alms-house.—From the report of the trustees of the alms-house for Baltimore city and county, 1827, it appears "that of the 623 adult persons admitted into the alms house during the year ending April, 1826, five hundred and fifty-four were positively ascertained to have been reduced to the necessity of being placed there by drunkenness."

Bushmen.—They have no idea whatever of the Supreme Being; consequently they practice no kind of worship. They have, however, a superstitious reverence for a little insect known by the name of the Creeping-leaf, a sight of which, they conceive, indicates something fortunate; and to kill it, they suppose, will bring a curse upon the perpetrator. They have some notion of an evil spirit, which they imagine produces mischief, particularly the diseases which they endure; and to counteract his evil purposes, a sort of men are employed to blow, and make a humming noise over the sick; which they sometimes continue for many hours together.

Their manner of life is extremely wretched and disgusting. They delight to smear their bodies with the fat of animals mingled with a powder, which makes it shine. They are utter strangers to cleanliness; as they never wash their bodies, but suffer the dirt to accumulate, so that it will hang a considerable length from their elbows. Their huts are formed by digging holes in the earth, about three feet deep, and then making a roof of reeds; which is, however, insufficient to keep off the rains. Here they lie close together like pigs in a sty. They are extremely lazy, so that nothing will rouse them to action but excessive hunger. They will continue several days together without food, rather than be at the pains to procure it. When constrained to sally forth for prey, they are dexterous in destroying the various beasts which abound in the country; but when they cannot procure these, they make shift to live upon snakes, mice, and the most detestable

features they can find. There are some spontaneous productions of the earth, of the bulbous kind, which they also eat; particularly the camp, which is as large as a child's head, and the baroo, about the size of an apple. There are also some little berries which are eatable, and which the women go out to gather; but the men are too idle to do this.

The Boschemen frequently forsake their aged relations, when removing from place to place for the sake of hunting. In this case they leave the old person with a piece of meat, and an ostrich egg-shell full of water: as soon as this little stock is exhausted, the poor deserted creature must perish by hunger, or become the prey of the wild beasts. Many of these wild Hottentots live by plunder and murder, and are guilty of the most horrid and atrocious actions.—*Transactions of the Missionary Society, vol. 2. p. 8.*

Home Colonization.—The number of persons supported under the Home Colonization System in Holland is stated to amount to nearly 20,000, and this great good has been mainly effected by the benevolent zeal and indefatigable exertion of one individual within a period of ten or eleven years. This individual is Major-General Van den Bosch. In the course of military service, he was quartered for a considerable time in the Island of Java, where he purchased an estate, and applied himself to the business of farming. It happened that a number of Chinese emigrants, under the superintendence of the mandarin Tjan-hoeck, an experienced agriculturist, settled near him. General Van den Bosch soon perceived, that, with all his care, the crops of his Chinese neighbours always far exceeded his own, and he was induced to enter into partnership with Tjan-hoeck, in order to become acquainted with his mode of cultivation, and avail himself of its advantages; by this means he so improved his estate as to be enabled to sell it for six times its original cost when he returned to Europe. The General has since published two works on the subject of Home Colonies; the first on the practicability of instituting, in the most advantageous manner, a general pauper establishment in the kingdom of the Netherlands, in which he explains the experiments and the processes tried and adopted by his Chinese friend in Java; and the second, in 1822, on the modes of proceeding introduced by him into the great colony of Frederiks-Oord, which ought to be the hand-book or manual of all future founders of "colonies at home."—"The King of the Netherlands," says Mr. Jacob, "was occupied, in 1817, with an extensive plan for bringing into productive cultivation an extensive district of waste between Maestricht and Breda. His attention was drawn to the communication of General Van den Bosch, and his patronage was extended to the infant project. A public meeting was held at the Hague in the beginning of 1818, when the Society of Beneficence was formed. When the laws of the Society had received the sanction of the King, a public communication was made, and the governors of provinces, with the military and civil heads of departments, and other local authorities, were invited to aid the institution by becoming members of it, with the addition of all other benevolent persons who were disposed to do so. By these means more than 20,000 individuals were added to the Society, and subscriptions collected amounting to upwards of £5830 sterling. The Society, when satisfied that the funds at their disposal would be sufficient to warrant their proceeding with the experiment they had projected, purchased the estate of the Westerbeeck Sloot, near the town of Steenwyk, on the confines of the three provinces of Friesland, Overijssel, and Drenthe. The estate contained somewhat more than 1200 English statute acres of heath-land, about one-sixth of which had been converted into fields, or was covered with bad wood. This estate cost £4660 sterling. A small stream, the Aa, which runs through it, was made navigable for boats; buildings for a store, a school, a spinning-house, and dwellings for fifty-two families, consisting from six to eight individuals each, were speedily erected. The communes sent some indigent families to occupy the houses, who ceased from that time to be a burden on them. All these operations were commenced early in September, 1818, and on the 10th of November following, the colonists entered upon their new habitations. The following estimate of the expense of the outfit of each family was made before Frederiks-Oord was begun to be settled, and by a fundamental law of the Society, the estimate cannot be permitted in any case to be exceeded:—

Building each house, - - - - -	£41	13	4
Furniture, and implements of husbandry, - - - - -	8	6	8
Clothing, - - - - -	12	10	0
Two cows, or one cow and ten sheep, - - - - -	12	10	0
Putting the land into cultivation and seed, for the first year, - - - - -	33	6	8
Advances in provisions for the first year, - - - - -	4	3	4
Advances of other kinds, - - - - -	4	3	4
Flax and wool to be spun, - - - - -	16	13	4
Seven acres of uncultivated land, - - - - -	8	6	8

Total expense of each family for the first year, - £141 13 4

As three families contain twenty individuals, two of them consist of six persons each, mostly at maturity, and one of eight persons, six of whom are youths, from six years old upwards, the expense of outfit for each person amounts to £22 6s. 7d., which is expected to be reimbursed to the society in sixteen years, by the rent to be received from the colonists, and by the labour they afford in its service; whilst the annual rent with which they are charged will be equal to the interest. This rests upon the plain calculation that the annual value of the proceeds of the labour of six persons beyond the value of the produce on which they subsist, will amount to 30s. per year; or, to carry it still further, that the produce of the labour of each of the individuals will exceed their subsistence about five shillings per year, or at the rate of less than one penny farthing per week.

The first principle of the society is, that no colonists shall ever be, even for the shortest period, unemployed. With this view, the population is divided and subdivided into bodies, who work under the inspection of different ranks of officers with military precision. A superior director, at first General Van den Bosch himself, superintended the whole establishment. A sub-director presides over one hundred families. These are again divided into twenty-four families, over whom a quarter master is appointed. This division is formed into two sub-divisions, at the head of each of which is a section-master, a practical man, who is the example and the instructor of those under his command, in the necessary work which they are to perform. Thus the whole mechanism resembles that of an army divided into sections, companies, battalions, and brigades. In fact, most of the sub-directors and quarter-masters are officers. Military men, when properly qualified, seem the best adapted to execute duties which require implicit obedience towards superiors, and firmness in the enforcement of attention and submission on those under their command. The colonists are summoned to rise at five in summer, and at six in winter, by a bell; an hour is allowed for their domestic purposes, when, at the second bell, they must assemble before the door of the quarter-master, the roll is called over, and when they have answered to their names, they are led by the section-master to their various occupations. He who does not answer to his name is entitled to no wages for that day, though every kind of labour is paid for by the piece only. After a few years' experience, it has been found that, on an average, the annual excess of produce over subsistence of each of the first fifty-two families established at Fredericks-Oord, has amounted to £8:2:4. When the society had proceeded with their plan a sufficient length of time to ascertain its stability, and were satisfied of the correctness of the calculations on which it was founded, they naturally wished to extend its influence. They therefore resolved to raise, by loans, to be repaid by instalments in sixteen years, sums equal to the outfit of as many families as should be established in the colony. As each family required £141:13:4 to settle it, and as three families, one of which consisted of six orphans or foundlings, could be advantageously classed into one group, the loans were limited to £425 Sterling. These might be advanced by individuals, by charitable corporations, by communes, or by the King, either in his individual character, or by the government of which he is the head. The individuals or bodies contributing this sum were to have the privilege of sending to the colony three families, two of them to consist of six paupers each, and the third of six orphans or foundlings, not under six years of age, with a man and woman, a married couple, if practicable, or, if not, a woman only, to manage for the children. For the maintenance of each child, the society is to be paid £5 yearly, which is to cover the whole expense, including their education and religious and moral

instruction. School-houses are built, and regular masters provided. Churches are provided for the Catholics, Lutherans, and reformed communions; and a regular attendance on the services of the confession to which the colonists belong is strictly enforced on all of them. From the delicate circumstances in which the kingdom of the Netherlands is placed, owing to the religious difference between the two parts of which it is composed (and, in this particular, the resemblance of the state of *Ireland* is unfortunately but too complete), it has been deemed wise to keep education distinct from spiritual tuition, though both go on concurrently; and hence the school-books are all of a description which none can disapprove. The teachers, one of them from Hofwyl, have introduced the system of instruction adopted by Fellenburg. According to the representations of the clergy, who complained bitterly of the utter ignorance of every religious feeling or idea among those who were first fixed in the colony, but especially among the young, the improvement, in this respect, has been so great as to be highly gratifying to their feelings.—*Quarterly Journal of Agriculture*, No. 7, p. 116.

LOCAL INTELLIGENCE.

Heer Logement.—The following names, amongst others, are inscribed upon the walls of a cave called the Heer Logement, near the Oliphants River:—J. J. Rhenius, 20 Sept. 1721; J. P. Grebeler, 24 Sept. 1739; P. Laubster, 1752; F. Le Vaillant, 1783; K. J. Slosbo, 1712; G. A. Warner, J. M. Lourens, 24 Sept. 1739; L. D. Bruys, Caspar Hemery, 1712; J. A. Lospur, 1741; Jacob Bredt, 1747, ben ik de kopman al; by de Heer Jacob Cloete.—*Dr. Smith's MSS.*

Northern Frontier.—On the 14th November, 1827, the Bushmen stole from Mr. F. Kruger, sixteen oxen, and murdered two men. On the 30th of May, 1829, they carried away 51 head of black cattle from the bastards Piet Schalkwyk and Gert Rooyfonteyn shot one horse, killed William Kapok, and wounded a little girl belonging to the first-named individual. The Field-Commandant, with a Commando, went sometime afterwards in search of the plunderers and found them beneath the Taag Pan, with only the horns and portions of the skin of the cattle in question remaining. Upon the approach of the farmers the Bushmen attacked them with great ferocity, whereby it became necessary to defend themselves, and in the action six of their number were wounded. From the position of the plunderers, which was in a thicket, the Commandant was unable to ascertain their loss, but supposes from the various statement made to him that twelve must have been killed.

Field-Commandant Redelinghuys has re-organized a peace with the Bushmen adjoining the Hantam frontier, and states that no depredations have been committed by them for several months past. He has also recommended Klaas Lynx to be recognized by the Colonial Government as the chief of the District in question, and to have the batton indicative thereof granted to him.

On the 15 January, 1830, the Bushmen stole 96 horses from Louw Erasmus and his Sons, residing in the District of Somerset, and six more from John Neukirk, but with the exception of eleven which they killed, the rest were retaken.

On the same day, but in a different district, they murdered Thomas Denhelie, servant to Hermanus Maarsdorp, and carried away 49 goats and 22 sheep. On the 19th following, they robbed some bastards of a number of horses. Between the 6th and 11th of February, they killed eight horses belonging to Karel A. van der Merwe and Isaac Hermanus Visagie. Four of the offenders were captured and the rest escaped.

Execution.—Willem, a Malay, was executed for the Murder of his wife Sana, on the 1st of December, 1829. On no occasion between the period of his condemnation and execution did he evince the slightest fear of death; he ascended the scaffold with great firmness, and met his fate without any evident agitation or apparent regret. He declared to his religious attendant some time before the fatal day, that he was sorry he had never known what it was to experience fear.