MISCELLANEOUS INTELLIGENCE.

ARTS, &c.

Cylindrical Railway-Carriage.—The following account of a very novel and ingenious description of Railway-Carriage, invented by a Mr. P. Fleming, engineer, at New York, is given by Dr. Jones, the superintendent of the Patent-office at Washington, in a recent number of the Journal of the Franklin Institute:—

"The carriage is a cylindrical body, which may have an axis passing through it, or gudgeons affixed to and projecting from its ends, for the purpose of drawing it. The wheels are iron rims placed about the cylinder so as to encompass it like hoops; these stand at a proper distance from each other, to run upon the rail; they are provided with flanches, or have their faces finished in any form suitable to the rail upon which they are to run. In the inside of the cylinder may be stowed boxes, barrels, bales, or other goods to be transported. When bars of iron, lumber, or other articles of considerable length have to be carried, the traction is performed in a different way; the carriage is then a hollow cylinder, not furnished with ends; the iron bars, boards, or plank, are passed entirely through it, and, of course, do not admit the employment of an axle, or gudgeons. In this case an endless rope is passed round the middle of the cylinder, which is furnished with double rows of pegs to form a groove, or checks, to retain the rope, or band, in its proper place. This rope also passes over a pulley, which is attached to the horse, or other drawing power, so as to work like the large and small wheels of a lathe with their bands. Two, three, or more cylindrical carriages may be made to follow each other, when connected by bands in the same way.

"Under this arrangement it is evident that whatever is carried must roll with the carriage; but in transporting some kind of goods, and particularly in carrying *persons*, this would, to say the least of it, be very *inconvenient*. To obviate this objection, a second cylindrical body is placed inside of the first, and is made sufficiently small to revolve within it. This is suspended upon the axis, or gudgeons, and is weighted on one side; so that whilst the outer cylinder rolls upon the road, the inner one will not revolve with it. It is proposed sometimes to make this suspension by the agency of friction-wheels, so as to leave but little more friction than that which results from the rolling of the carriage. The patentee says—

"'What I claim is the use of a cylinder, or other volume of revolution, on a railway, as a carriage, or vehicle for transportation.

"'I also claim as my invention the use of the endless rope in the manner above described for progressive motion. By means of this use of the cylinder and traction-rope friction is saved or avoided to a greater degree than by any machine now known. The traction-rope may be employed separately from the cylindrical railway-carriage in any other machine where similar progressive motion is required.'"—*Mechanics' Magazine.*

AGRICULTURE, &c.

On Lime-Kilns.—For a sale of lime for agricultural purposes in a limited district, I have found kilns of small dimensions to be most profitable. The construction of a kiln I have employed for many years was of an oval shape, not more than two feet wide at bottom, widening gradually to five feet at the height of 18 feet, and continuing at that width to 28 feet high from the bottom. A kiln of this construction has been found to burn lime in much less time, and with a smaller proportion of fuel, than kilns of large dimensions, narrow at bottom and wide at top, as heat is well known to ascend more rapidly in a perpendicular than in a sloping direction, from which arises the superiority of a narrow kiln, with sides nearly perpendicular, compared with one with sides that slope rapidly.

These narrow kilns admit of there being drawn out of them every day, if fully employed, more than two-thirds, or nearly three-fourths, of what they contain, of well burnt lime, and afford fully three of lime-shells* for one measure of coal, when large circular kilns will not give out more than one-half of their contents every day, and require nearly one of coal for every two measures of lime burnt. In a country sale of lime, the quantity sold every day is liable to great fluctuations, two or three cart-loads will only be required from an establishment which, the day before, supplied forty; and, as lime is known to be a commodity, when exposed to the action of the air, which becomes more bulk and heavy, and in that state does not admit of being carried to a distance without additional labour, it has been an object of importance with me to find out a construction of a kiln which will allow of lime being kept for several days without slaking, and at the same time to prevent the fire escaping at the top of the kiln, if the kiln stands twenty-four hours without being employed, especially during the autumn and winter, when the air is cold and the nights long. I now employ kilns of an egg shape, and also oval. The oval-shaped kilns are divided by arches across the kiln, descending four feet from the top. The object of the arches across the kilns is to prevent the sides of the kiln falling in or contracting, and also circular openings to be formed for feeding in the stone and coal at the mouth of the kiln. Upon this plan, a kiln of any length might be constructed with numerous round mouths.

But it is to be understood, that in whatever construction of kiln lime is burnt, the fuel required to burn limestone must vary according to the softness, or hardness, or density of the stone, and the quality or strength of the coal used. The same measure of coal in Scotland called Chews, when employed, will burn a greater quantity of lime in a given time than the same quantity or weight of what is called Small Coal, the chews or little pieces of coal admitting the air to circulate more freely through the kiln.—*Mr. Menteath in Quarterly Journal of Agriculture.*

On Oleaginous Plants.—Among the articles of vegetable food, the oils which are extracted from plants afford one of the most valuable; nor are they of less importance in affording us light by their combustion. They are employed also in a number of manufactures, such as soap, woollens, varnishes, and perfumery. There are two kinds of vegetable oil, distinguished by the name of fixed and volatile. The latter may be extracted from almost every plant; but it is used only as a perfume or to flavour liqueurs, such as the oil called Attar of Roses. These sweet-scented oils constitute the luxury of the sense of smelling, but are frequently prejudicial, from their effect on the nerves; and some of them are employed medicinally. But the essential or volatile oils are not those most deserving our attention; the fixed oils are of much higher importance, and are extracted from a class of plants, hence called oleaginous. The oil is expressed from the seed of all these plants excepting the olive, in which it is obtained from the pericarp. The greater part of the seeds of oleaginous plants contain albumen, and it is from this that the oil is obtained; but when the seed has no albumen, as is the case with the poppy, it is the embryo which furnishes the oil. In the family of the *Euphorbiaceæ*, all of which have oleaginous seeds, the embryo is of a venemous nature, and the oil extracted from it would be poisonous; while that expressed from the albumen of the same plant, situated contiguous to the embryo, is perfectly innocent. Such is Bancul-nut *(Aleurites Moluccanum)*, which is remarkably mild, and is eaten by the inhabitants of the Molucca Isles, as we eat hedge-nuts in Europe, while oil obtained from the embryo is an acrid poison. The fixed oils obtained by cultivation may be ranged under three heads: 1st, Olive-oil, the produce of warm climates; 2d, Nut-oil, that of temperate climates; and, 3d, Oils obtained from the seeds of oleaginous herbs. The olive-tree originally came from Syria. That plant, as well as the vine, was brought to Marseilles by the Phocians; and, at the present day, it is cultivated in all the shores of the Mediterranean. It is a tree of very slow growth, but of long duration; it can support a temperature as low as eight or ten degrees of Fahrenheit, provided the air be dry; but, if accompanied with humidity, one or two degrees below the freezing point, proves fatal.

* This means not *shells*, but the burnt rock composed of them.—Eds.

The cultivation of oleaginous herbs enters into the course of cropping; they exhaust the soil almost as much as grain, on account of the number of seeds to be ripened; they require, therefore, a considerable quantity of manure. These herbs are generally of the cruciform family, containing azote, an element of the animal kingdom which forms excellent manure; so that, after the oil is expressed, the cake which remains serves to restore the exhausted soil. Rape is a species of cabbage with thin roots, whose seeds yield excellent oil. The poppy is an oleaginous plant, with white, scarlet, and violet flowers, while the seeds are white or black. They yield oil, perfectly innoxious and wholesome, though drawn from the same plant which supplies us with opium. Flax also is an oleaginous herb. It is, however, chiefly cultivated for its stalks, from which linen thread is fabricated; but its seed also yields the oil we call linseed-oil. It is much used in the art of painting. Hemp is of the same description. There are some few oleaginous herbs of the leguminous family, such as the subterranean arachis (*Arachis hypogæa*), a plant we derive from America, which has the singular property of ripening its seeds under ground. This plant requires a loose sandy soil, in order that the lower branches may be enabled to bury themselves in the ground. In a state of cultivation, the earth should be heaped over them, as is done with potatoes. The upper branches, which blossom in the air, ripen no seed; while the lower lateral branches, which burrow in the earth, develope no regular blossom; that is to say, have no petals; but the stamens and pistils bring the seeds to perfection.—*Conversations on Vegetable Physiology.*

The Barberry.—This tree is a native originally of the eastern countries, though it is now found in most parts of Europe, where it thrives best upon light and chalky soils. It grew formerly wild, in great quantities, in the hedgerows of England, but has been universally banished, from a general belief that its presence is injurious to the growth of corn. Duhamel, Broussonet, and other scientific writers, treat this belief as a vulgar prejudice. It should, however, be remarked, that the fructification of the barberry is incomplete, unless the stamens be irritated by insects, when the filaments suddenly contract, in a most remarkable manner, towards the germ. The flowers are, therefore, by a beautiful arrangement of nature, peculiarly attractive to insects; and thus the barberry may become injurious to neighbouring plants.—*Library of Entertaining Knowledge*, vol. ii.

On the Cultivation of Lucerne in Scotland.—I by no means wish to be understood as saying that a very light soil is the best adapted for the cultivation of lucerne, although I am of opinion that it will grow, thrive better, and be more profitable upon a very light soil, than perhaps any other plant. Still, if you want to have it of the best quality you must give it good land. The soil which we have found to suit it best, is a deep soft loam, although it seems to thrive very well on any dry sort of soil, provided it has a loose open subsoil, so that the roots may get down, as they will reach the depth of from three to four feet.

I cannot presume, exactly, to state what may be the best possible preparation of the soil for the cultivation of lucerne, or the best method of sowing the seed; but from the experience we have had for the last three years, the following opinions have been formed:

In no preparation of the soil has it succeeded better than where it was sown in the year 1826 (although a very unfavourable season), after turnips, eaten off the ground by sheep. I would certainly recommend to those who wish to cultivate this valuable plant, to sow it (if convenient) with the same preparation; but under whatever circumstances it may be sown, no trouble should be spared in making the ground perfectly clean, otherwise disappointment will, undoubtedly, be the result. There never should be more sown in one year than can be properly attended to in the cleaning when young; and I think there are few farms that may not have some acres adapted to the growth of lucerne. The only spot where it did not seem to thrive well, was upon a piece of wet hard clay. After the first season, it requires little more attention than to be gone over, perhaps once or twice, with the three-toed pickers, once in autumn, and again in spring, when it ought to be well harrowed. And I should suppose, that it will be found by those who try it, to be a most valuable plant, and a complete substitute for tares, which are both an expensive and a severe crop for the land.

The distance betwixt the rows which we have found to answer best, is from 14 to 15 inches, although it seemed to grow as well at 12 inches. In the latter case, however, after standing for a few years it does not admit of being so perfectly hoed. The most convenient plan that we found for sowing it, is after the ground has laid for about ten days, and the annuals have sprung up, for a man to go over it with a one-horse small paring plough, and form it into ridges as ebb as possible. If the seed is two inches under ground when the drills are levelled, it seems quite sufficient. The seed is put into a bottle, and a piece cut out of the side of the cork, or a quill put into it, so as to allow the seed to run from it fast enough to sow about 25 lb. upon an acre, which quantity we have found to answer well; and one man following the plough, with the bottle in his hand, and properly regulated, will go over an acre in a day.* I have no doubt that a machine might be used which would sow it more expeditiously.

It would not be easy to determine the exact expense requisite for bringing forward an acre, as it would differ so much under different circumstances. The little that was made into hay got rather dry and hard, although the horses seemed to eat it very readily; but the quantity being so small, did not afford an opportunity of ascertaining the effect it had upon their condition. However, I have no doubt that it is more advantageous to use it always as green food, and should suppose that clover and rye-grass make fully as good hay. But in comparing the quantity of lucerne produced upon an acre during the season, with that of clover and rye-grass, I have not the least hesitation in saying, that any acre of lucerne we have produces, at the least, one-third more, either in green food or hay.—*Mr. Cunninghame in Quarterly Journal of Agriculture.*

NATURAL HISTORY.

Dragon Flies.—"Another and a most destructive enemy of the living insect is the tribe of *libellula*, or dragon-fly, a name which they will merit from their voracious habits.

"The French have chosen to call them 'demoiselles,' from the slim elegance and graceful ease of their figure and movements. But, although their brilliant colouring, the beauty of their transparent and wide-spread wings, may give them some claim to this denomination, yet they scarcely would have received it had their murderous instincts been observed. So far from seeking an innocent nurture in the juice of fruits or of flowers, they are (says Reamur) warriors more ferocious than the Amazons. They hover in the air only to pounce upon other insects, which they crush with their formidable fangs; and if they quit the banks of the rivulet, where they may be seen in numbers during an evening walk, it is only to pursue and seize the butterfly or moth, which seeks the shelter of the hedge

"The waters are their birth-place; their eggs are protruded into this element at once, in a mass which resembles a cluster of grapes. The larva which comes out of these eggs is six-footed. The only difference between the larva and nymph is, that the latter has the rudiments of wings packed up in small cases on each side of the insect.

"In this latter state it is supposed that the creature lives at the bottom of the water for a year. It is equally voracious then as in its perfect state. Its body is covered by bits of leaf, wood, and other foreign matters, so as to afford it a complete disguise, while its visage is concealed by a prominent mask, which hides the tremendous apparatus of serrated teeth, and serves as a pincer to hold the prey while it is devoured.

"Its mode of locomotion is equally curious; for though it can move in any direction, it is not by means of feet or any direct apparatus that it moves, but by a curious mechanism, which has been well illustrated by Reaumur and Cuvier. If one of these nymphs be narrowly observed in water, little pieces of wood and other floating matters will be seen to be drawn towards the posterior extremity of the insect, and then repelled; at the same time that portion of its body will be observed alternately to open and shut. If one of them be placed in water which has been rendered turbid by milk, or coloured with indigo, and then suddenly removed into a more limpid fluid, a jet of the coloured water will be seen to issue from

* About ½ morgen.

the anal extremity of the libellula, to the extent sometimes of several inches; at the same time the force with which the column is ejected propels the insect in the opposite direction, by virtue of the resistance with which it meets. Hence it appears that it is by means of its respiratory system that the creature walks—a strange and anomalous combination of functions in one organ.

"If the insect be taken out of the water, held with its head downwards, and a few drops of that fluid poured on its tail, that which was a mere point will immediately open and display a cavity; at the same time the body of the insect, which was before flat, will be observed to be enlarged and inflated, and if held up to the light, semitransparent: moreover, something solid will appear to be displaced by the water, and driven towards the head. This solid mass will shortly descend, obscure the transparency of the lower portion of the body of the insect, lessen its diameter, and, when it does so, a jet of water will issue from the vent. It is clear, then, that the abdomen of the libellula is a syringe, the piston of which being drawn up, of course the pressure of the fluid fills up the vacuum, and, when pushed down, expels the water.

"After the voracious creature has lain in ambuscade devouring the larvæ of the gnat and other aquatic insects, till its appointed hour of change, it leaves its natal element for the shore, to undergo its last metamorphosis: for this purpose it usually fastens itself to some friendly plant, and begins the important process which is to convert an aquatic animal into an inhabitant of the air.

"Any person who should at this period choose to seize a number of them, and, taking them into his chamber, fix them to a bit of tapestry, would be rewarded for his trouble by witnessing the conversion of an aquatic into an aërial insect.

"It may easily be seen by the eyes of the nymph whether it is about to change its form; for, instead of remaining tarnished and opaque, they suddenly become transparent and brilliant. This change is owing to the visual organ of the perfect insect, which is amazingly lustrous, shining through the mask of the nymph. If the eye of the nymph be removed, that of the perfect insect may be seen beneath. As soon as the nymph has fixed itself to any object by means of its claws, the first sign of the commencing metamorphosis is a rent in the upper skin, extending along the corslet to the head. When it approaches this latter part, another rent, perpendicular to the first, runs across the face from eye to eye. These rents are brought about by a power which the insect possesses of inflating its body and head. This last organ, ultimately destined to become fixed and solid, is at this period capable of contraction and dilation, like a membrane.

"The head and corslet being exposed, the legs are drawn out from their nymphine cases. At this period every part of the insect is soft. After having protruded itself thus far, it hangs with its head downwards, and remains motionless, so as to lead the observer to believe that the efforts which it had hitherto made had exhausted its strength, and that it had thus perished in the act of being born. However, it remains in this position just so long as to permit its body and limbs to be hardened by the air, and then reverses it, forming an arch; this enables the insect to draw out its tail from the mask."

Stature of Men in the Department of France.—In the second number of a periodical quarterly work lately commenced under the title of *Annales de l'Hygiène publique*, there is a curious Memoir by Dr. Villermé, *on the Stature of Man in France, and the consequences to be deduced from it for Natural History and Legislation.* Among the curious facts which Dr. V. has demonstrated, is one, that the human stature is more elevated, *cæteris paribus*, in rich countries than in poorer, and in cities than in the country. During the existence of the French empire and the conscription, several millions of men were measured, and from their measurements it results that the richest departments always supplied the tallest conscripts, and presented the smallest number discharged on account of disease. The people of Paris are taller than the inhabitants of the other part of the department of the Seine, and those of Lyons than the inhabitants of the arrondissement of Villefranche. Besides the influence of wealth, Dr. V. recognizes certain local influences; marshy countries produce a stunted as well as a miserable race; mountaineers are not tall generally, except in countries where the people are in easy circumstances.

The deductions which M. Villermé has drawn from these facts are of two sorts:—the first, which apply to the natural history of man; and the second, to statistics and legislation. Among the first the principal is, that persons above the middle size are less liable to infirmities than those that are below it. Of the second sort the following are the most striking:—1. That the conscription presses very unequally on the different parts of the same territory. In the rich districts there is a much greater number of men fit for military service than in the poorer ones. Notwithstanding this, the contingents demanded from both are the same. 2. The age fixed for the recruiting ought to be later in the poorer departments and in the country, than in the rich departments and the towns. 3. In the poor districts the men of the requisite height for the army suffer from the smallness of their compatriots; for they are less numerous to furnish the required contingent. In the department of the Allier, some years back, 55 out of 100 young men were under 4 feet 10 inches, while in the department of the Doubs there were only 8. In the first, therefore, the drawing by lot was confined to 45 individuals, in the second it extended to 92. The chances of the drawing were therefore very different. 4. By requiring men of tall stature for the army, the effect will be in the end that there will be none but little men. It would be much better to admit all capable men, and even where the capacity was equal to take little men in preference It is probable that long-continued wars tend to degenerate the human race. The conscription lays hold of the tallest men and those possessed of the most robust health, and the war sweeps them off in distant countries.

A writer in the *Bibliothèque Universelle* of Geneva, commenting upon these facts, observes, that the difference which M. V. attributes to the degree of wealth, may also be accounted for from a cause independent of wealth, namely, the difference of races; in proof of which he adduces the circumstance, that, in some of the poorer departments of France, the men are taller than their richer neighbours. This is the case in Franche Comté, compared with the Côte-d'Or and the Yonne. In Britanny, the only province where the aboriginal or Celtic race has remained pure, are to be found the shortest men in France; and it is believed that the British portion of the same race, namely, the Scotch highlanders as compared with the lowlanders, and the Welsh as compared with the English, give ground for the same remark.

Notice of the appearance of Fish and Lizards in extraordinary circumstances. By Joseph E. Muse.—In the course of the last summer, I ordered a ditch to be cut of large dimensions, on a line of my farm near Cambridge: the line was a plane, ten feet above the level of the neighbouring river, and at least one mile from it, at the nearest point of the line; a portion of the ditch being done, the work was interrupted by rain for ten or twelve days; when the work was resumed, on examining the performance, I discovered that the rain water which had filled the ditch, thus recently cut, contained hundreds of fish, consisting of two kinds of perch which are common in our waters, the "sun perch," and the "jack perch;" the usual size of the former is from six to twelve inches, the latter varies from ten to fifteen inches long; those in the ditch were from four to seven inches. By what possible means could these fish have been transported so far from their native waters? There is no water communication on the surface to conduct them there; the elevation and extent of the plane in regard to the rivers, utterly prohibit the idea; the eggs, if placed there by a water-spout, could not have suffered so rapid a transmigration: no such phenomena had been observed, and the adjacency of the line to the dwelling, would have rendered the occurrence impossible without notice.

A similar occurrence a few years ago, I witnessed on the same farm: in a very large ditch, cut on lower lands, on a line equally unconnected with any river, pond, or other surface-water, there were, under very similar circumstances, numerous perch, which afforded fine angling for my children. In a diary which I keep, I have entered, that several of them measured as much as twelve inches in length, and that the time since their arrival there, could not possibly have exceeded a fortnight.

While on the subject of mysterious nature, I will introduce, as concisely as possible, a case, where she reconciled animals of the coldest and most

meagre habits, to the enjoyment of the warmth and luxuries of the human stomach; for these facts, though not personally conversant with them, I have the authority of a medical gentleman of unquestionable veracity, to vouch for their rigid truth. In reply to my request to be informed of the habits, food, drink, enjoyment, &c. of the patient, I received the following account:—"On my arrival I found that she (the patient) had puked up two ground puppies, and was labouring under a violent sick stomach, with pain, and syncope: the first was dead when ejected, the second was alive when I arrived, and ran about the room; they were about three inches long. She informed me, that on the road that morning she had thrown up two others. The case occurred in the summer, and had made gradual progress, from the first of April, and as she described it, with a peculiar sickness, and frequent sensation of something moving in her stomach; with slight pain and loss of appetite, which increased till her illness. She was about twenty years of age, and had enjoyed good health. Her employment had confined her in the swamp, during the winter and spring, and she had from necessity, constantly drunk swamp water." The physician administered an emetic in quest of more puppies, but, being disappointed, he gave an opiate; she was relieved, finally, and has been since in health.

These animals have since been shown to me: they are not the ground puppy, (gecko,) as they are vulgarly called. They resemble it very much, but are easily distinguished from it. They belong to the same genus, (lacerta or lizard,) but are of the species "salamander;" their habitudes too, are essentially different. The gecko is found in houses and warm places; the salamander in cold damp places, and shaded swamps, and by the streams of meadows; these animals, though oviparous, hatch their eggs in the belly like the vipour, and produce about fifty young at a birth. The inference is irresistible, that the patient had, in her frequent draughts of swamp water, swallowed, perhaps thousands of these animals in their nascent, or most diminutive state of existence, and a few only survived the shock; but it is matter of astonishment, that from the icy element in which they had commenced their being, and for which they were constituted by nature, they should bear this sudden transportation to a situation so opposite in its character, and grow into vigorous maturity, unannoyed by the active chemical and mechanical powers to whose operations they were subjected. —*Silliman's Journal,* vol. xvi. No. I. p. 41.

A singularly brilliant golden green Light.—When making a tour in Cornwall in the year 1815, I was struck by a "singularly brilliant golden green light," similar to that described in our Magazine (Vol. II. p. 406.) On looking into a small cavern by the roadside, near Penryn, I observed in its recesses a small moss (apparently minute plants of Dicránum taxifólium), which, when seen in some particular positions, appeared of a most beautiful emerald-green colour with a phosphorescent brilliancy. In De Luc's *Geological Travels*, vol. iii. p. 131., is the following account of a similar phenomenon: "Passing, by Botter Rock, Mr. Hill led me to a part of the foot of that Tor, where there are hollows like small caverns; and in these he showed me a vegetable phenomenon, which I had never seen but in the granitic mountains separating the country of Bayreuth from Bohemia. The innermost part of these cavities is lined with a very pretty moss, which reflects the light in the same manner as the eyes of a cat. So little light reaches these remote recesses, that, on looking in from without, they appear quite dark; but, when viewed form a particular point, the part of the rock which is covered with this moss in suddenly seen to shine with a fine emerald green."

Medicine.—We see how much advantage may be derived in the illustration of human pathology from the study of the diseases of animals; and how wrong it is to neglect or despise them.

The experiments which we have described show that we may form, as it were, morbid phenomena of all kinds, and at pleasure, and that we may stop them when we please after they are formed.

We may therefore excite and develope in animals the different maladies which are observed in man, and, what we cannot do upon him, we can study them upon them in all their actions, in all their phases, and in all their degrees, under the comparative action of medicines the most violent and the most diversified.

Buffon has said *that if animals did not exist, the nature of man would have been still more incomprehensible.* This is particularly true of the nature of his diseases, and it would no doubt be worthy of a nation which has set the first example of so many other useful institutions, to set also that of a similar and truly experimental study of the evils which afflict humanity. It would be worthy of her thus to realize the wish of a great physician,—of Baglivi, who, in the 17th century, proposed establishments in which the diseases of animals might be studied with the view of illustrating and bringing to perfection the study of the diseases of man. In order to form an idea of what may yet be done in medicine by experiments on animals, we have only to look at what has already been done in physiology.

Is it not from the experiments of Harvey, Hunter, Haller, Reaumur, Spallanzani, and Bichat, that there has arisen all those discoveries, not less admirable than unexpected, of the circulation of the blood, the course of the lymph, the property of the nerves to transmit sensibility, the property of the muscles to contract, the action of the gastric fluids in digestion, and the opposite qualities of the red and the black blood, &c. I do not speak of twenty discoveries in our own days; for it is well known that a discovery, in order to be admired must be old, and to have, as Father Malebranche, expressed it, a venerable beard.

Every thing should make us hope that the ideas which we have stated respecting the progress which human medicine may expect from experiments made on animals, will not be disdained in our days; for nobody is now ignorant that every thing depends upon another in the living economy, diseases—functions, and organs;—that we cannot act upon diseases but by functions,—upon functions but by organs; and that thus therapeutics is founded upon pathology—pathology on physiology, and physiology upon anatomy.—*Flourens on the effects of Cold, Revue Encyclopédique.*

Plants with white Flowers.—Various lists of varieties of plants with white flowers have been given in your valuable Magazine, and much interest (if we may judge from the numerous correspondents who have appeared) seems to be taken on the subject; but, after all, very little has been brought to bear upon the point, as your correspondents have mostly given bare lists, without stating the *nature or quality of the soil*, or *peculiar habitat* of their plants: so that, from the mere enumeration of varieties of plants, without reference to the circumstances I have mentioned, we gain little advantage, and no conclusion can be drawn. Having myself frequently met with varieties of plants in botanical rambles, I have tried to ascertain what causes operate to change the colour of the blossom, and I find that it is sometimes merely the effect of a peculiar habitat; sometimes the nature of the soil on which the plant grows appears to be the only reason; and occasionally an accidental circumstance has given a richness to the soil, and manuring it has caused an alteration in the appearance of its vegetation; *e. g.* the common bird's-foot trefoil (*Lotus corniculatus*), which in dry upland pastures is of a brilliant yellow, on the red marly banks of the Severn assumes a deep sanguine orange hue; and a friend informs me that he has observed it on the lias marl, a few miles on the western side of Worcester, perfectly white: in this case the soil affects the flowers of the plant. The bluebell (Scilla nùtans) is not uncommon, in the vicinity of Worcester, with white blossoms; but I have uniformly observed, wherever it so occurs, that the spot is uncommonly shady, or that a wood has, at no very distant time, occupied the place. In these cases the peculiar locality has an effect upon the plant; and in a deep shady wood on the western side of the Malvern Hills, where, this summer, I found a number of luxuriant plants of the Pàris quadrifòlia, in one spot of the thicket where a straggling sunbeam was admitted through the trees, and glanced upon one of the plants, the blossom was withered and shrunk, and the four leaves variegated. In illustration of the accidental luxuriance of plants, I may mention that I found the *Orchis mòrio*, in a moist field near Worcester, double its usual height, and with flowers of a delicate light pink; and around the plant, at this particular spot in the marsh, I noticed some swine's dung had been dropped. In the list of plants (p. 161,) I have noticed in this neighbourhood, varying in the colour of their flowers, though I have mentioned the particulars above, yet, in many instances, I cannot satisfactorily account for the variation. I think,

however, the nature of the *soil* should always be examined and noted; and I would suggest to your correspondents to observe this in their botanical communications.—*Magazine of Natural History.*

Interesting Experiments before the Royal Society on resisting the agency of Fire.—Amianthus,* a variety of asbestos, contains, per cent., about 50 parts of sand (*silex*), 25 of magnesia, and 10 of lime, besides traces of clay and iron oxide.—It is usually found in veins, and consists of fibres very flexible, and somewhat elastic Friction readily separates them, and when dressed a little, they bear considerable resemblance to fibres of silk or flax.

This filamentous nature, and the power of enduring a red heat, without any very apparent loss of substance, have long rendered amianthus celebrated among minerals. All its names are in allusions to these properties or their applications to useful purposes.

The Romans called it *Linum Vivum*, both from its resemblance to flax and its indestructibility. It was also named *Linum Indicum*, *L. Montanum*, *L. incombustible*, *Lana Montana*, *Salamandria lapidea*, &c. This last name seems to have arisen from a conjecture that the fable of the salamander originated from a practice among the ancients of purifying by heat the various fabrications of this mineral.

Asbestos and amianthus, are the terms which have passed into the principal European languages.

We have the most positive records, that this substance was in use among the Greeks and Romans for the purpose of manufacturing articles in imitation of linen. The workmanship and quality, if we credit the testimony of Pliny and Plutarch, must have been of a very superior character.

The former writer ranks the amianth cloth next in quality to the byssus, or fine cotton, worn by wealthy ladies.—Plutarch also states, that this mineral was wrought into head ornaments for females. It does not appear, however, that the art of weaving it was sufficiently perfected to render the cloth cheap. Indeed, every circumstance seems to show that this fabric must have been an article of luxury among the ancients; and there certainly was an obvious, though, perhaps, excusable parade of its incombustible properties upon all occasions. The practice in Pliny's time, and which he describes as an eye-witness, was to toss the napkins of amianth into the fire, after a repast or banquet, in order that the grease and dirt might be burnt out. Each guest thus delighted in becoming his own washer. The same vain and clumsy display, we may observe, is recorded of the first dauphin, Charles V., during whose reign, amianthus manufactures seem to have been established at Venice, Louvain, and other parts of Europe. Pliny notices another very important use of mineral cloth, namely, as a shroud or wrapper for the bodies of kings, in order to preserve their ashes distinct from those of the funeral pile. That such a practice existed we have positive proof, independently of the historian's testimony, by the discovery, in 1702, near the Porta Næva at Rome, of a funeral urn, ornamented with elegant *basso relievos*, and containing a skull with some calcined bones—a quantity of ashes was also found enclosed within a cloth of amianthus, nine Roman palms long and seven wide. This relic was deposited in the Vatican Library, by order of Pope Clement XI. The very diminutive size agrees but badly with Pliny's account of its use, and will serve to caution us against confidence in his other exaggerated statements. It is said, that the disuse of burning the dead occasioned the decline of the manufacture of these cloths, until the art became entirely extinct in Europe. The correctness of this opinion will be noticed presently. Threads, net, net-work, head-ornaments, napkins, table and funeral cloths, seem to have constituted nearly all the articles manufactured of amianthus in former times. Bonnets, gloves, purses, girdles, ribands, and even paper, have been subsequently made from it. The process by which the mineral fibre was anciently woven, is not transmitted to us. In 1691, Ciampini, of Rome, published the following plan in his work, "de incombustibili lino;" and it may be considered nearly as precise as the nature of such manufacture will admit. Having steeped amianthus in warm water, divide its fibres, by gently rubbing them together between the fingers, so as to loosen and separate all the extraneous matter; then pour on, repeatedly, very hot water, as long as it continues to be in the least

* Very common towards Lattakoo.

discoloured. After this, nothing will be left but the long fibres, which are to be carefully dried in the sun. The bundles are then to be carded by very fine instruments, and the long filaments thus obtained steeped in oil to render them more flexible. A small quantity of cotton-wool, or flax, is next to be mixed (taking care that the mineral fibre is in every part the principal material, and smoothly adjusted), by means of a spinning-wheel, the whole is to be drawn into a thread.—The cloth being woven, in the usual manner, is placed upon a clear charcoal fire, and made red hot, so as to burn out the vegetable or animal matter, &c. The remaining tissue will consist of pure white amianth. This kind of cloth has also been made, without the assistance of other substances, by rubbing and soaking the mineral fibres until they become so delicate and soft as to admit of being spun at once into threads. This is the process recommended by Madam Perpeuti.

"The very short fibres which separate during the repeated washings, may be subsequently worked into paper. For this purpose, however, they require to be well beaten, until reduced to an impalpable powder, and, subsequently, to be worked up with a large quantity of size in water. These precautions are far more necessary for the amianth than for cotton or linen paper, in consequence of the much greater weight of the mineral paste. After the paper has been formed, the sizing is burnt out.

"We will now briefly trace the decline of the mineral weaving, &c. It is apt to be the most glaring characteristic of the antiquarian virtuoso to lament the loss of certain arts among the moderns, nor does *utility* always constitute an item of his regrets. The ancient process for weaving amianth cloth appeared to be extolled, not from any accurate knowledge of the fact, but because a hint or two about its superior quality may be found among a few writers of antiquity. One of these authorities (Pliny), it is true, compares it with the byssine cloth, obtained from the neighbourhood of Elis, and which was very much esteemed: but while he thus intimates its superiority, he elsewhere bears indirect testimony that the cloth was used merely as a rare and curious article. This writer furnishes three strong reasons why amianth cloth could not have been in common use among the Romans. The first is, the difficulty of procuring the mineral. It is described as occurring on the deserts and parched grounds of India, where rain never falls, and where serpents and other formidable reptiles abound. Secondly, it is stated that the amianthus, when obtained, was very scarce, and commanded a price equal to that of the most costly pearls. Lastly, it is expressly noticed that the workmanship was exceedingly difficult, on account of the shortness of the fibre. These statements are not only in opposition to the belief that the ancients used such articles generally, but the last one goes far to contradict the assertion of Pliny himself respecting the quality. We have, however, a still stronger fact to show, that even in the rich and luxurious times of the Roman empire, the mineral cloth was not so much in use for the purpose of collecting the ashes of the dead. Out of the immense number of ancient sepulchres opened in Italy during modern times, not more than one such cloth has ever been discovered, and that (found at Rome, 1702,) is of very coarse texture, and too small to answer the purpose of a wrapper for the body. In several urns charcoal was found mixed with the ashes, a circumstance indicating no great care.

"The truth is, that the cloth has always ranked as a curiosity, and, not unfrequently, has had bestowed upon it properties calculated for the credulous and ignorant. Pliny, who was ever too partial to hearsay records, has condescended to state, upon the authority of one Anaxilaus, that amianth cloth, merely wrapped round a tree, has the power of depriving the blow of a hatchet of all sound! The same relish for the marvellous, no doubt, induced Marco Polo to state, that the body of our Saviour was in his time, preserved in Rome in a shroud of amianth, or incorruptible cloth. Athanasius Kircher, (a Jesuit of the 17th century,) in his '*Mundus Subterraneus*,' also extols this mineral with all the zeal of a connoisseur. He boasts of having in his collection a paper-screen, and a lady's veil of it, together with a lamp-wick, which had burnt for two years without consuming, and which, he wisely adds, will last for ever, if not stolen. Whether this wick is still in operation, we have not learnt; but may venture to conclude, notwithstanding the testimony of partial advocates, that the decline of the art among the moderns is wholly owing to the insignificance of the articles manufactured.

"Experiment has abundantly proved, that although the amianth fibres are long able to resist a red heat without much change, they soon (even in twenty-four hours) became incapable of transmitting a full supply of oil, owing to an imperfect cohesion effected by the flame. Hence it is impracticable to convert them into perpetual lamp-wicks. Neither is it true that a red heat has *no effect* upon them. Cloth, woven of amianth, actually does lose weight by burning; and, after repeating the operation several times, the fibres become so brittle, as to render it difficult to prevent them from crumbling to pieces. In two experiments made before the Royal Society of London, a cloth, one foot long by six inches wide, and weighing nearly 1½ ounce, was found to lose, by the application of a red heat, more than one-twelfth of its weight each time. It would be considered a very bad piece of common linen that could be worn out in twelve washings!—The only advantage which such cloth seems to possess over the ordinary kind, is the facility of cleansing it by fire; but really soap is so cheap an article, that there could not be much gained, in this respect, by a change in fabrics. The amianth paper has even less to recommend it. It would be curious, no doubt, to return an answer upon the same piece of paper as that which was received from the post-office, merely by *burning out* the original; but it could not be agreeable to find our ink spreading at every letter, an inch wide, upon paper from which the fire has removed all sizing. So, also, it might appear highly important to possess an *incombustible* paper, upon which could be spread all important documents; but (not to mention the thousand methods of getting rid of the troublesome records without burning them) we must bear in mind, that an *unalterable* ink is as important as the paper, and none of those proposed has been found to be sufficient. *Incombustibility* alone must compensate for the article being heavy, coarse, weak, liable to blot, and not capable of taking the full impress of types. Books, it is true, *have* been printed upon this kind of paper, among which may be noticed the work preserved in the library of the Royal Institute of France; but, however highly authors may esteem their own productions, we feel fully persuaded that booksellers would not tolerate such nonsense from them now-a-days. To conclude, it may be observed, that, while it is not, by any means, our wish to interfere with the virtuoso's taste for neck-handkerchiefs and shirts of *stone cloth*, we must take the liberty of hinting, that, if the perfect art of weaving it *does not* now exist, there is not much lost."

Crabs abound in the eastern Parts of Jamaica at all Seasons, but are best in the months which have an R in their names, as April, &c. They are most abundant in May, when they deposit their eggs, or run, as the Negroes call it. At this season it is impossible to keep them even out of the bedrooms, where, at one time scratching with their large claws, at another rattling across the floor, they make a noise which might alarm or startle a stranger. For a few weeks in this season they may be gathered in any number. Even the hogs catch them, though not always with impunity, as a crab sometimes lays hold of one of them by the snout, from which he is not easily disengaged, and the terrified animal runs about squeaking in great distress. At other seasons, and when more valuable, they are caught by torch-light at night, and put into covered baskets. Crowds of Negroes pass my house every evening, with torches and baskets, going to a crab-wood on the other side, and return before midnight fully laden. Their baskets contain about forty crabs, and the regular price is a five-penny piece, our smallest coin, equal to about 3½*d.* sterling, for five or six crabs. A hundred plantains, generally sold for 5*s.* will purchase sixty or seventy crabs. Two of these eaten with plantains, or yams, make an excellent meal. I have seen upwards of a hundred Negroes pass my house on an evening, and return with their baskets not only full, but with quantities of crabs fastened by the claws on the top of the baskets; they must have had at least 3000 crabs. Almost every Negro family has an old flour-barrel, pierced with holes, in which the crabs are kept. They are fed with plantain skins, &c. and taken out as wanted.

There is a great variety of crabs in Jamaica, but only two are eaten. The black is the best, and is one of the greatest West Indian delicacies, hardly less so than the turtle. They live in mountain forests, in strong ground, and feed on the fallen dry leaves of the trees. The white crab, as

it is called (though rather purple than white), principally used by the Negroes, but also by the Whites, is larger, and resembles the lobster in taste. These are amphibious, and are found in the low lands, principally in the woods, where, as I have already said, they are caught at night with torches. They are numerous also in cultivated fields, and in some of the low-lying estates do considerable injury at times to the planters in dry weather, when vegetation is slow, by nipping off the blade of the young canes and corn as it shoots through the ground. In such situations the Negroes catch them in a singular manner. They know from the appearance of a crab-hole, if there is a crab in it, and dig down till they come to the water, say 18 in. or 2 ft. and then close the hole firmly with a handful of dry grass; in this manner one Negro will stop two dozen holes in a morning. About four hours after he returns, and his prisoners being by this time *drunkened* (half-drowned), they tumbled out along with the plug of grass and are caught.

In 1811 there was a very extraordinary production of black crabs in the eastern part of Jamaica. In June or July the whole district of Manchioneal was covered with countless millions, swarming from the sea to the mountains. Of this I was an eye-witness. On ascending Oua Hill, from the vale of Plantain Garden River, the road appeared of a reddish colour, as if strewed with brick-dust. It was owing to myriads of young black crabs, about the size of the nail of a man's finger, moving at a pretty quick pace direct for the mountains. I rode along the coast a distance of about fifteen miles, and found it nearly the same the whole way; only in some places they were more numerous, in others less so. Returning the following day, I found the road still covered with them the same as the day before. How have they been produced, and where do they come from? were questions every body asked, and nobody could answer. It is well known that crabs deposit their eggs once a year, in May; but except on this occasion, though living on the coast, I had never seen above a dozen young crabs together, and here were millions. No unusual number of old crabs had been observed in that season; and it is observable that they were moving from a rock-bound coast of inaccessible cliffs, the abode of sea birds, and exposed to the constant influence of the trade winds. No person, as far as I know, ever saw the like except on that occasion; and I have understood that, since 1811, black crabs have been abundant farther in the interior of the island than they were ever known before. (*Jamaica Royal Gazette*, March, 1829.) —Can you or any of your readers tell how many of the above crabs are described?—*X. Y. June*, 1829.

STATISTICS.

The Influence of Climate on National Character.—In order to eradicate the common error, which induces us to consider nature as the almost exclusive modeller of the character of nations, it is of paramount importance we should carefully keep in view, that even in the physical world, however obvious an influence they may produce, the climate, soil, and natural constitution of a country, are by no means capable of explaining all the appearances which will claim the inquirer's attention. This observation applies with peculiar force to the distribution of the various families of the vegetable and animal kingdoms over the surface of the earth. It is impossible to explain on such a datum, why England and Van Diemen's Land, though similarly circumstanced as to climate, should differ so widely in respect of their animal and vegetable productions; or why the Flora of southern Africa should possess so distinct a character from that of the northern parts of the African continent, or the flowers of New Holland be so essentially peculiar to its own soil. Much less will climate or soil enable us to account for the corporeal distinctions which characterise the several races or families of mankind. We know it is customary to ascribe the dark complexion of the negro to the extraordinary heat of the solar ray in his native clime; but do not the olive-coloured Hindoo and the fairer complexioned tenant of the isles of the South Seas inhabit similar latitudes? or does the negro's skin become *less* sable when exposed to the *less* scorching skies of Jamaica or the Floridas? Though surrounded by the same meteorological circumstances, there is a striking dissimilarity in the complexional characteristics of the

European, the Asiatic, and the aboriginal Indian of North America: the natives of Greenland and Lapland possess a darker skin than their European brethren, and the inhabitant of Van Diemen's Land, though living beneath a temperate sky, is of a complexion not far removed from black. We shall find ourselves at a similar loss in the attempt to deduce other variations from the customary premises to which I have alluded: the woolly locks of the negro, the lofty stature of the Patagonian, the slender frame of the Papu, or the little twinkling eye of the Chinese, can in nowise be charged to the account of the climate, or referred to the nature of the soil. If we follow up the influence of physical causes on isolated individuals, we shall find ourselves equally sinning against every rational assumption, should we venture to deduce the mental attributes of any one human race from such causes. In the same country, in the same spot, nay, under the same roof, we meet with individuals entirely differing from each other in their intellectual features; but it would be ridiculous to ascribe the dissimilitude to the effects of climate, food, or beverage. Intellect does not resemble the anana; it can neither be nurtured nor called into existence by artificial heat.

In looking at the characteristics of nations, it is impossible not to observe the marked shades of diversity which sever one people from another, even where the climate is precisely similar, or not essentially different. The Europeans cultivate the soil, dwell in towns, live under regular forms of government, and, in general, are devoted to the arts and sciences; whereas most of the Asiatic regions, where the circumstances of climate are similar, are tenanted by nomadic tribes, who derive their livelihood from rearing cattle, are entire strangers to social polity, and have no conception of a more advanced state of civilization; whilst the aborigines of North America are untutored savages, wandering from spot to spot, from wood to plain. The feeble, peaceable, thrifty Hindoo lives beneath a climate scarcely differing from that which is breathed by the athletic, fierce, and lazy negro, or the miserable indigines of South America, whose wild exterior and uncouth gestures excite both pity and aversion. The Chinese are, in every respect, strikingly dissimilar from any other nation surrounded by the same natural circumstances; and the proud and ingenious Briton possesses few characteristics in common with the poor, timid inhabitant of Van Diemen's Land. We find the most discordant masses intermixed and living together under the same sky; in the innermost parts of Africa the Arabian dwelling with the negro, and far surpassing the latter in every mental endowment; in its southern districts, the Caffre hording with the Hottentot, with whom he has no earthly similitude; and towards the northernmost confines of Scandinavia, the Laplander hutting with the Swede and Norwegian.

If we weigh the effect of physical circumstances, to which is usually attributed the formation of national character, it will be found to depend neither necessarily nor demonstrably upon the influences ascribed to them; on the contrary, we shall frequently find the closest affinity of character existing where those circumstances wear the most widely diverse of aspects. A clear atmosphere is held to foster gentleness of manners, and give vitality to art and science; and Greece and Italy are cited in proof of the justness of this inference. The surface of the globe, however, will shew us many a country where the atmosphere is more rarefied than in those regions; and such are the islands of the South Seas, or the elevated plains of Peru, Quito, or Mexico: yet in these, where shall we discover the manners and intellectual energy of the olden Greeks? Whilst under the dense and humid sky of England, man has reached a state of intellectual advancement to which few other nations have attained. Again; large rivers are esteemed conducive to the interchange of social relations, and, consequently, to human civilization; and the proofs of this argument are drawn from the Nile and the Indus. Now, the largest streams which exist are those of South America, along whose banks the uncivilized Indian toils for a bare and miserable existence; whilst the Dane, who is scarcely inferior to the most intelligent of his contemporaries, treads a soil unfertilised by a single stream. The Mediterranean is brought forward to exhibit the propitious influence attending large masses of water encompassed by land; yet where shall we discover the minutest traces of civilization along the capacious lakes of North America, around the Caspian, or among the numberless thickly-studded isles of the Indian seas? The coasts of the Cattegat, where social

intercourse is impeded by storms, and sand-banks, and floating fields of ice, are ennobled by those civil institutions and mental energies, which will be sought after in vain among the islands of that ocean, on which the name of "the Pacific" has been appropriately bestowed.

The slender influence derivable from climate will become still more apparent, when it is recollected, that nations which have abandoned their native soil, and sought a home under stranger skies, have undergone no change whatever in their character. Among the colonists who have settled in the interior of the colony of the Cape of Good Hope, there is no difficulty in recognising the Dutchman; yet his dwelling stands upon an elevated plain, which is celebrated for the dryness of its soil and atmosphere, whilst his ancestors toiled in a land, damp as it was flat and low, and enveloped in a dense atmosphere of fog. In India we shall find as little difficulty in detecting the Englishman, as the Spaniard in South America, or the descendant of the Gaul and Briton in the Canadas or United States; whilst the Jews, dispersed over the face of every nation, and scattered beneath every various sky, afford an interesting proof, that the peculiar characteristics of an individual race may be faithfully retained under the most striking dissimilarities of physical circumstances.

The lapse of time will be frequently marked by a deterioration in the national character, though soil and climate remain unchanged. In vain should we seek to discover, among the Greeks of the present day, those traits of character and expressions of intellectual greatness which distinguished their forefathers in the hour of their noblest splendour; and yet the Grecian sky is not less translucent, nor its atmosphere less kindly than they were in former ages; and if ever this unfortunate race should succeed in raising themselves from their present low estate, one circumstance, at least, is placed beyond a doubt,—they will not owe their elevation to any revolution of their climate. The Scandinavian sky has undergone little or no alteration, yet the Scandinavian himself has risen from the deeps of barbarism to a state of civilized prosperity.

Let it not be imagined that we are inclined altogether to deny the influence of climate, and other physical causes. There are regions where these operate with so sinister an effect, that the inhabitants, though incessantly contending against them, are incapacitated from attaining any eminent degree of mental refinement: and such must be the event, where the climate is overcharged with cold or heat, or where the atmosphere is loaded with unwholesome vapours. The Icelanders afford, however, a signal instance of the extent to which the inward powers of man are capable of overcoming such obstacles as these.

The effects of what are termed "moral causes" on national character are beyond the limits of the present discourse: yet we cannot refrain from observing, that in this particular, also, too great a stress has been laid upon isolated appearances. One party will profess to resolve such effects into the influence of legislation and political institutions; another will refer them to that of education; and a third, to the impulses of religion. All these causes are undoubtedly co-operative; nay, they are far more influential than any physical impulses; yet are they of trivial moment, when placed by the side of those powerful agents which exist in the innate qualities of the human mind: for what are called "moral causes" are usually the immediate results of national character; and on this principle, despotism is the consequence of popular depravity and servility.

Under every view of the subject, we are warranted, therefore, in assuming, that God has endued every nation, as well as every single individual, with a peculiar character, the expansion of which is favoured or retarded by external circumstances, though it can never become the subject of direct and unerring calculation.—[*An oration pronounced by Professor Schouw, at the solemn opening of the Winter Session, 1828-29, of the University of Copenhagen.*]

Population of the Netherlands.—The population on the 1st of January, 1827, was, according to the *Jaarboekje*, 6,116,935; and its rate of progression is worthy of much attention, on which account we insert, as the first illustration of it, the following Table, extracted from the official Returns printed at the Hague in 1827.

Movement of the Population for Ten Years.

Provinces.	Population, 1815.	Population, 1825.	Births.	Deaths.	Marriages.	Divorces
Zeeland - - -	111,108	129,329	55,331	42,436	10,645	27
Guelders - -	264,097	284,363	90,862	59,818	19,337	13
North Brabant	294,087	326,617	100,863	69,507	20,380	1
North Holland	375,257	393,916	145,744	121,725	34,789	209
South Holland	388,505	438,202	165,741	143,850	34,942	148
Utrecht - - -	107,947	117,405	41,038	29,928	8,982	30
Friesland - -	176,554	202,530	65,565	38,219	15,327	46
Overyssel - -	147,229	160,937	51,951	37,479	11,629	13
Groninguen -	135,642	156,045	51,673	30,539	11,492	37
Drenthe - -	46,459	53,368	16,723	9,858	3,954	3
Limburg - -	287,613	321,246	101,781	70,549	22,960	5
Liege - - -	358,185	331,101	113,623	82,698	24,387	24
Namur - - -	164,400	189,393	58,690	34,134	12,592	8
Luxemburg -	213,597	292,610	92,242	58,695	18,740	1
Hainaut - -	488,595	546,190	183,198	118,289	39,591	27
South Brabant	441,649	495,455	169,181	119,109	36,423	5
East Flanders -	615,689	687,264	218,830	162,834	43,120	0
West Flanders	516,324	563,826	191,139	141,310	37,882	6
Antwerp, - -	291,565	323,678	101,471	70,623	23,075	2
The Kingdom	5,424,502	6,013,478	2,015,646	1,421,600	430,247	605

An increase to the amount of 588,976 persons is thus shown to have taken place in ten years: and a more recent account proves the average annual addition for the five years preceding 1828, to be at the rate of 10,982 per million, outstripped the more thinly-peopled countries of Russia, Austria, and France, whose annual increase respectively per million, Mr. Dupin says, is 10,527, 10,114, and 6,536; though considerably behind Prussia, Great Britain, and the Two Sicilies, which advance at the annual rates of 27,027, 16,667, and 11,111, per million. The inhabitants of the Netherlands would thus be doubled in 63 years; trebled in 100; quadrupled in 127; and quintupled in 147 years; unless the causes which, according to Mr. Malthus's theory, must have hitherto prevented the population doubling in 25 years, should hereafter put a further check on its growth.

Comparing the births and marriages in the Netherlands with those of their neighbours, they appear to be more numerous; while the deaths are about equal to those of France, and exceed those of Great Britain in proportion of 3 to 2. The account stands thus:—

	Netherlands.	France.	Great Britain.
100 Births to	2,807 Inhabitants	3,168	3,554
100 Deaths	3,981	4,000	5,780
100 Marriages	13,150	13,490	13,333
100 Marriages	468 Births	426	359

It is highly satisfactory to think that if Great Britain gives birth to a smaller number of citizens, she preserves them better; a conclusion which the healthiness and cleanliness of our country readily induces us to adopt, supported as it is by the above calculation, and by the tables of mortality for various countries, which inform us that the probability of life (or the age at which the probability of living or not is the same) is, in the Netherlands, between 22 and 23; in France, between 20 and 21; in England, between 27 and 28; in Brandenburgh, between 25 and 26; and in Switzerland, at 41 years. We may, therefore, as a tolerably safe rule to find the population of the Netherlands, multiply the annual births by 28, and the deaths by 40; for that of France the births by 31½, and the deaths by 40; and for that of Great Britain, the births by 35½, and the deaths by 58.

According to the tables of mortality, it appears that at 40 years of age the probable life is in Holland 26 years—at Amsterdam 22 for males and 25 for females—and at Brussels 24; whilst in Paris it is 21—in Vienna and Berlin

19—and in London but 18 years. To what causes this superior value of life, at Amsterdam and Brussels over other large cities, is owing, we cannot take upon ourselves to determine; but the difference with regard to children is still more striking, for the probable life, in general, which at Paris is between 8 and 9, at London under 3, at Vienna under 2, and at Berlin a little after 2, falls at Brussels at 23 years, and at Amsterdam, for males at 24 and females at 34. Comparing more closely Brussels and Paris, the proportion of children who die within the first three months, contrasted with the remaining nine months of their first year. is in the former as 1665 to 1384—and in the latter as 1764 to 693. Nothing would be more useful and interesting than to trace the reasons of this difference; and if it should be found attributable to the more motherly cares of the Dutch and Belgic women, who always nurse their children themselves, it will be a most honorable national fact, and will confirm the remark of M. Benoiston de Chateauneuf, that for preserving the life of children, care is everything, and climate little or nothing; Switzerland and Holland, the antipodes of each other in that respect, being the two countries in Europe where fewest of them die.

We have one word more upon fecundity, considered, as it fairly may be, as an evidence of a healthy and comfortable state of existence. In the southern provinces there are 5.21 children to every marriage, in the northern only 4.87; both degrees of which are higher than in France, where the proportion of births, legitimate and illegitimate, to the marriages is as 4.76 to 100; and here we have another proof how little the rate of fecundity has to do with the density of the population. The greater frequency of marriages in the Netherlands may at first suggest a higher degree of morality; they are as 1 to 130 persons, and in France only 1 to 138. We are inclined to think, however, that an allowance must be made for the temptation which the facility of divorce in the Protestant part of the Netherlands holds out, whilst the Catholic Church admits it so rarely, that, in the populous province of East Flanders, there has not been one divorce for ten years. The difference in marriages between the Catholic and Protestant provinces is very considerable; they being in the former, one out of 148, and in the latter, one out of 123. The Hollanders are thus shown to be a more domestic people than the Belgians—a fact very consistent with the greater tranquility and phlegm of their temperaments.

Revenue of the Netherlands.—Thus the gross annual produce of the agricultural industry of the Netherlands stands at 1,202,284,000 francs, or £50,095,166 sterling. To ascertain the net return to the cultivators, we must deduct from this sum the charges of production—consisting of the price of seed and manure—of labour—of repairs to buildings and of farming utensils—the annual loss by the decay of strength and mortality of cattle—and the cost of the food of men and beasts, the whole of which have been estimated by M. de Cloet, and other authorities, at two-thirds the value of the gross produce. We have not space to enter into the details of these estimates, but we believe them to be substantially correct, and if they be so, the net yearly produce of the agriculture of the Netherlands is 400,761,333 francs, or £16,698,390 sterling.

Manufactures of the Netherlands.—The sum of the manufacturing industry of the Netherlands amounts to 675 million francs, or £28,125,000 sterling per annum, of which we may state one-third to be composed of the profits of the labourer and the capitalist, according to M. de Cloet's calculation. The artisans in the country are about 13,000, and those in towns about 77,000, in all 90,000; whose wages at 1½ franc a-day (which, perhaps, rather exceeds the average) for 300 days, amount to 40,500,000 francs per annum. Deducting this sum from 225,000,000, the third of the total value, there remains a profit to the manufacturer of 184,500,000 francs, or about 28 per cent. on the gross produce, including the interest upon his capital and stock.

Periodical Literature of the Netherlands.—The circulation of newspapers, though regarded by many as tending to divert people's attention from more important studies, is nevertheless too sure a means of diffusing information, to be passed over unnoticed. It may be ascertained precisely by the stamps, which for the Netherlands were, in 1826, 145,739 florins, and for France a sum equal 165,920 florins. The stamps are the same in both countries, and therefore since France in that year reckoned, according to M. Dupin,

26,420,520 sheets, the Netherlands possessed about 21,900,000, exclusive of literary and scientific journals. In the same year the newspapers published in England and Wales have been estimated at 25,684,003 sheets; in Scotland, 1,296,549; and in Ireland, 3,473,014. The Netherlands have, therefore, a circulation of 60,000 sheets of newspapers in a day; France has 72,380, and England, 70,370; which is at the rate of one to every 100 persons in the Netherlands; one to 437 in France; and one to 184 in England. In reviews and magazines the Netherlands are entirely deficient, with the exception of those they import and reprint, and two or three publications devoted to agriculture and other branches of industry.

Education in the Netherlands.—Tried by the test of education, the position of the Netherlands is equally favourable as it seems from the amount of its printing. In 1826, out of 3938 communes there were only 684 without schools, being about the sixth part; while in France two-fifths of the communes are still without schools. In the latter country the children, who frequent the schools, are as 100 to 2019 inhabitants; in the Netherlands they are as 100 to 947, a proportion exceeded by no country in the world, unless it be Prussia, and one that is the more striking, inasmuch as, comparing the number of children between 5 and 15 years old with the population, the utmost that could go to school would be 100 children out of every 521 inhabitants, which some of the best provinces do, at present, nearly reach. We are not near this in England, even if we count by our Sunday-schools, whose pupils are to our population as 1 to 11; those of the day-schools being as 1 to 21. The ratio in Scotland has been variously stated as 1 to 7, and 1 to 11; and in Ireland both as 1 to 11.5, and 1 to 17, the latter of which is the most probable.

Pauperism in the Netherlands.—Our poor rates now amount to a tax of nearly twelve shillings a head upon the whole population, while the charitable institutions of the Netherlands are about the average of three shillings a head, and are excelled by no other nation in Europe, either in their extent or the manner of their administration. They may be divided into three kinds; the first being designed to distribute relief; the second to diminish the number of poor; and the third to act as preventives to indigence. The first class are composed of the administrations for relieving the poor at their own houses, (above 5000 in number,) of the commissions of distributing food, of the hospitals, and some smaller societies; the second comprise the poor schools, the charitable workhouses, the depôts of mendicity, and the agricultural colonies. It is remarkable that the children educated at the poor schools are in the proportion of 197 out of 1000 to the whole number of poor relieved at their houses, or as about one to five. The indigent class seem, therefore, to participate in the benefits of education more generally than any other—a circumstance which augurs most favourably for their rise in society.

Crimes in the Netherlands.—In 1826, out of 100 accused, there were in the Netherlands 22 for crimes against the person, and in France 28. Examining the great crimes for the same year, such as murder, assassination, poisoning, highway robbery, &c., we find them to be in the proportion of 1 to 16, which, since the population of the two countries are in the ratio of 1 to 5, induces the result that the great crimes are three times more numerous in France than in the Netherlands; and it is remarkable, that in this year there were in France 14 parricides, and 26 poisonings, but in the Netherlands neither one nor the other.

The capital crimes were thus divided:

	Netherlands. (1826.)	France. (1826.)
Crimes against the Person - - -	39	873
Crimes against Property - - -	31	276

Thus the crimes against the person were four times, and those against property twice as numerous in France as in the Netherlands. Crimes against relatives, such as parricide, infanticide, &c., from which the highest degree of depravity may be inferred, were for the two countries as 1 to 11, or, for the Netherlands, twice as many in France, with reference to the population. Forgery was as 1 to 7, which makes it a little less common in the Netherlands; and theft as 1 to 5, or about the same amount.