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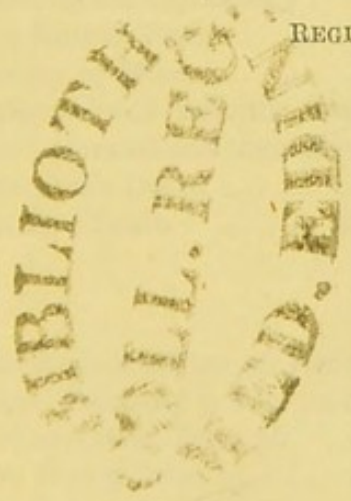
TOPICS OF THE DAY:

MEDICAL, SOCIAL, AND SCIENTIFIC.

BY

JAMES ANSLEY HINGESTON,

REGIST. PRACT.; M.R.C.S.; L.S.A.



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1863.

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PREFACE.

I.—While these pages are passing through the press, two or three scientific questions have arisen, requiring a few additional words in comment on them. Mr. Glaisher, in one of his balloon ascents, was enabled to observe, that two layers of cloud are engaged in producing a fall of rain. This point had already attracted my attention in an article on the subject published as far back as the year 1855, and which is reprinted in the present volume under the title of *Atmosphere in relation to Health.* I have there shown, that not only is there an amorphous or shapeless expanse of cloud *above* the nimbus or rain cloud, when rain is falling, but that there is also *below* the nimbus a stratum of scud, more or less fragmental and voluminous, flying along before the wind. But I apprehend, and this point requires verification, that the upper amorphous expansion of vapour, which is usually whitish, is gyrating in an opposite direction to the lower nimbus, which is usually grey. This grey base, and the white vapour above it, I have described in the following pages. I believe they are in opposite states of electricity. In rainy weather, a fourth stratum of fine cirri, or cirro-strati, may be observed through the breaks of the cloudy sky, floating serenely in the highest regions of the air, so that,

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four distinct layers of cloud, one over the other, are engaged in producing a fall of rain. Mr. Glaisher has also ascertained the existence of opposite currents of wind at various elevations above the earth's surface. These currents ought to have a circular movement of their own, which appears to be, not only the law of storms, but that also of every description of wind, from the strongest breeze to the lightest zephyr.

II.—Sir William Armstrong, in his opening address to the *British Association* at Newcastle, on the 20th of August of the present year, is reported to have said, when alluding to the facility of intercourse conferred by the electric telegraph, —"it is surprising the fundamental art of expressing thought by written symbols should still remain so imperfect as it is." He seemed to anticipate a period when written speech would become as brief as the stenographic signs on the dial of the electric wire. As far back as 1851, I had already proposed the same question in the following words:— "This discovery, *i.e.*, the art of printing, already several centuries old, is only in its infancy—*the condensed alphabet of the electric telegraph already warns us, that a more facile language, and a shorter system of spelling and writing, than the one we at present employ, awaits the schooldays of our more fortunate posterity.*" * In another paper, which was first published in 1856, entitled *Ethnological Psychology*, and is now re-printed under the same title in the present volume,† I have shown that we are living in the midst of the ruins of the primitive tongue, and that the tendency of each change or corruption of language has been to abbreviate every mode of speech, whether written or oral. The architectonic form of the classical tongue, so fascinating to the scholar and the man of

* *Psychological Journal*, Jan. 1st, 1851, p. 7. † p. 187.

letters, no longer exists. The *ore rotundo loqui*, and the *carmina condes*, are out of date. The utilitarian habits of the age are producing their own results—brevity and despatch. The Americans, who so unceremoniously reject every thing formal and prescriptive, have, in fact, abbreviated the English idiom to a degree that would grate harshly enough on the cultivated ears of Clarendon, Addison, and Pope. I doubt, indeed, whether Demosthenes would be any longer listened to. And yet terseness of speech was reckoned among the graceful accomplishments of antiquity. The Spartans were noted for it; and nothing can be more emphatic than the concise history of the Kings of Judah, in Holy Writ. The laconic grandeur of Homer defies translation: what is so charming in his own tongue, becomes poor and insipid in any other. Gibbon aimed at a brevity of expression, which often makes him obscure, and Tacitus did the same. For writing as well as speech may be much too short and abrupt to be agreeable; since they both require a certain air of ease and freedom to render them suitable to the pleasure of social and intellectual intercourse. Perhaps, the best writers are Hippocrates, Thucydides, and Herodotus. In medicine, Hippocrates certainly bears the palm. His clear, aphoristic, and polished style is unrivalled. Should we ever discard long-hand, and take to short-hand instead, the ordinary affairs of business will be expedited beyond all calculation, but refined and elegant literature must be laid aside. Its loss will only be a part of the continual degeneration of language that has been going on ever since the introduction of the Teutonic dialects, between the sixth and eighth centuries. Gibbon, in his autobiography, mentions a curious circumstance relating to the point in question. "As I was waiting in the mana-

ger's box," he says, during the "august spectacle" of Warren Hastings' trial, in Westminster Hall, June 14th, 1788, "I had the curiosity to enquire of the short-hand writer, how many words a ready and rapid orator might pronounce in an hour? From 7,000 to 7,500, was his answer. The medium of 7,200 will afford 120 words in a minute, and two words in each second. But this computation will only apply to the English language." The electric telegraph can scarcely exceed the volubility of the readiest orator.

Yet truth and passion, the inherent emotions of the breast, can never become extinct; and the noblest and loftiest sentiments of the soul will always find their own mode of expression, and maintain the art of speaking at its legitimate elevation of persuasion and command.

III.—The report of the medical officer of the Privy Council upon vaccination, just published, shows that we are still far from attaining the first object of the legislature, "that every infant, its health permitting, be vaccinated within the first few months of its life;" and it appears to justify Mr. Simon in the conclusion, "that the laws now in force for the purpose of extirpating small-pox are not likely to accomplish their object, and that the system established by law for public vaccination, works in an unsatisfactory manner."* It is now exactly ten years since the *Compulsory Vaccination Bill* passed the Houses of Parliament, and, after ten years' trial, it is found to have failed in its object. Ten years ago, when the question was being debated in Parliament, I ventured to predict that it would prove a failure; I gave it in evidence before the General Board of Health, and foretold that Lord Lyttelton's Bill would prove abortive;

* The *Times*, Sept. 3rd, 1863.

and I published my conviction in more than one communication to the medical journals of the day (1853), that, without the means of ensuring a constant supply of vaccine lymph and expert vaccinators, the Bill would become not only nugatory, but ridiculous.* My anticipations have been literally verified; for, after the inspection of more than half of England and Wales, the picture drawn up by the officers of the Privy Council, is very far indeed from being either cheerful or satisfactory. First of all, the registers are a failure; for in some cases it was ascertained that the public vaccinations are as few as 19, 18, 17, 12, and 7 per cent. of the births. Next the universality of vaccination is a failure; for there are instances of districts remaining for long periods—in one case as long as three years—without a single public vaccination being performed. And in private practice it is a failure, since there is no reason to suppose that the private practitioners have ever heartily entered into the provisions of the Act. It may, therefore, be fairly concluded, that the *public* defence against small-pox is insufficient and delusive.

IV.—In the *History and Practice of Vaccination*, I have remarked, "that morbid poisons do not easily pass from animals of one class to those of another—man, indeed, more readily receives the morbid poison of the lower animals than they do of him; but even this reciprocal susceptibility varies so much, and is open to so many objections, that nothing certain can be said of it."† This statement has been most singularly confirmed in the recent outbreak of an epidemic disease among the sheep in the west of England. No one who enquired into the circumstances of the case, or who had the

* pp. 141—148.

† p. 111. pp. 105—113.

opportunity of observing the progress and appearance of the illness, ever doubted the nature of that fatal malady being genuine small-pox among the sheep. But the most interesting point is, that it was incommunicable either to man, or any other living creature. Its ravages were confined to the sheep, of which 1,500 fell victims to it. The shepherds never took it. Horses, dogs, swine, oxen, and other live stock never took it. Even the numerous starlings and swarms of flies, which spent their time on the sheep's backs or among their exuviæ, were never affected by it. Mr. Ceely, of Aylesbury, vaccinated, or more strictly speaking, *ovinated* 25 children with it, but without success, although those same children were successfully vaccinated with current vaccine lymph shortly afterwards. Mr. Marson also attempted to *ovinate* human subjects with the sheep small-pox, but in vain. Nothing seems better ascertained than that man is entirely insusceptible of it.*

As Dr. Budd justly remarks, the *ovine* is not identical with the *human* small-pox. There is the same difference between the two as there is between different species of the same plants—generically the same, but specifically different. It is, however, possible, that the *origin* of the two may be identical, in the same manner as the cow eliminates a different disease from the small-pox, although it had primarily received it from man.

In the *Times*, August 12th, 1863, an advertisement informs the public, that a lecturer on vaccination has been appointed at Guy's Hospital. Ten years ago, when I was so sharply rebuked for drawing public attention to this unaccountable

* Report of the *British Medical Association*. Annual Meeting at Bristol, August 5th, 6th, and 7th, 1863, p. 32.

deficiency, there was nothing of the sort. My published correspondence on this topic will be found appended to the *History and Practice of Vaccination* in the subsequent pages.*

V.—Throughout the article on the *Meteorology of Cholera*, I have repeatedly alluded to the quality and kind of food that provokes and aggravates the disease. I particularly insisted on the noxious effect of stale food, and the bad effects of cooking wholesome food in dirty utensils, which was at that time (1854) looked upon as an over refinement on my part.† I also observed (1855), that "the flesh of cattle suffered in the same proportion as the human health" from the depressing condition of the atmosphere; that "meat was not so red, nor so nutritious as it ought to be," and that "both the beef and mutton were obtained from animals slaughtered too young," in consequence of the great demand for them.‡ This subject has received a much closer attention since then. At the meeting of the *British Medical Association*, in the month of August of the present year, Dr. Budd has all but demonstrated that the sheep in the west of England became infected by diseased sheep brought from the continent; and Mr Simon, in his *Annual Report to the Privy Council on matters relating to the Public Health*, proves, beyond question, that many of the worst illnesses among the people arise from the consumption of the flesh of animals slaughtered while in a state of disease. Mr. Gamgee, Principal and Professor of the *Edinburgh New Veterinary College*, reports that disease prevails extensively in the United Kingdom among horned cattle, sheep, and swine; that in very many instances, the diseased state of the animal leads the owner to have it immediately slaughtered for consump-

* pp. 143—147 † p. 50—57. ‡ p. 35.

tion as human food, and that, in fact, as much as a fifth of the meat of the country comes from animals considerably diseased. Those who eat *uncooked* food swallow meat infected with parasites, which become the source of tapeworms, carbuncular eruptions, and hydatids. Mr. Gamgee is confident that there are between 40,000 and 50,000 measly pigs in Ireland, most of which come to Great Britain for consumption, and that for every measly pig in the kingdom there is at least one human being with tapeworm. It has also been recently discovered that a microscopical threadworm, the *trichina spiralis*, brings the muscular flesh of swine into a state, in which a small quantity of it eaten *raw* will suffice to destroy life. The effect of milk drawn from diseased cows must be most prejudicial. Stall-fed cows become scrophulous, die of phthisis, and are liable to glandular enlargements. The milk from animals in such a state will, in all probability, produce the same condition of health in those who drink it. Aphtha among cattle has produced an aphthous eruption among the human population of the same locality. This was the case in 1862. Sufficient precautions are not taken, or not understood, by graziers and breeders of cattle. Horses, dogs, and live stock generally, are suffered to drink from ponds and troughs, where the water is stagnant and full of impurities. Hence arise parasitic diseases in the cattle, which are introduced into the human system when the meat is eaten in a half-cooked state. The terrible camp-fever that affected our troops in the Crimea during the winter of 1854 and 1855, arose as much from bad, ill-cooked, and scanty rations, as from fatigue, exposure to cold and wet, fœcal pollutions of the air, and the want of pure water. In badly-ventilated hospitals, or dwellings, the putrefaction

of undispersed exhalations must be added to the direful account. These deleterious influences may be conjoined with a peculiar state of the atmosphere, such as I have attempted to describe at length in the following pages.

Hippocrates says, *they live the longest who live the best*,—an aphorism requiring so many conditions for its fulfilment, that only a few can ever hope to enjoy it, while the greater number must rest content with the remotest idea of its felicity.

VI.—In the following pages,* I have mentioned the extraordinary effect produced on men's minds by earthquakes and strange meteoric phenomena. The *Saturday Review*,† by no means a *sensation* journal, but, on the contrary, one whose professed purpose it is to put down whatever is false or extravagant in mind or manners, says, when speaking of the earthquake felt throughout the north-west of this island at three o'clock in the morning of October the 6th of the present year, "a good many people will never forget it,—an earthquake is useful as a hint, at least, of the instability of human greatness." "When the solid foundations of the round world are shaken, the mind may almost be pardoned for thinking that wrath has gone forth," etc. But another journal, much more sober than the *Saturday Review*, speaks of "the weapons of destruction in the arsenal of the Omnipotent," and declares that "many felt it that will never forget the feeling; and many heard it that will carry the *awful* sound in the ear to their dying day."‡ The shock was a very slight one, but, slight as it was, its mental effects had evidently something of the terrible in them. The uniform

* pp. 89-101.

† *Saturday Review*, October 10, 1863, p. 477.

‡ The *Times*, October 8th, 1863.

tone in which so many independent witnesses testify to their peculiar sensations, proves what their fright would have been under more disastrous circumstances. Their minds would have been shaken as much as the earth, and their reason overthrown along with their dwellings. It was, we believe, a favourite theory with the late Mr Buckle, that earthquakes predispose to superstition. The mercury in the barometer stood at 29·786in. on the morning of the 6th; Fahrenheit's indicated 32°, and the air was calm. The moon was in apogee. The electricity was weak. The ozone small in amount. There were magnetic disturbances, and lightning, and thunder, together with heavy rain, on each of the two following days. Seven days previously to the occurrence of the shock, the barometer had sunk as low as 28·700in., after having been as high as 30·200in. five days previously. So decided a fall was remarkable, and indicated to those in the habit of observing its variations, some present or remote disturbance of the elements.

The causes, times, and effects of earthquakes lie deep *beneath*, rather than far *beyond*, our curiosity. Modern observers think that they have reason to suspect a stupendous vault just below that portion of the earth's surface upon which Moscow stands, in bulk equal to a cube of some 2,000 or 3,000 feet. Doubtless, such cavities exist, subject to explosions, fractures, detrition, and displacements, which cannot fail to shake the earth's surface as well as its depths, far and near. Investigators discover traces of past volcanic action all over the globe,—in certain districts more than in others; but chiefly along the range of mountains, where the earth's crust has been broken up by subterraneous fires, and volcanic craters have been established. Close by these spots, the earth

has occasionally fallen in, and sunk into hollows of immense depth, which have been eventually filled up with water from various sources, forming inland lakes and seas, such as those of the Black Sea, the Caspian and Dead Seas, the lakes of Switzerland, Central America, and other regions. The Dead and Caspian Seas are found imbedded in plains much below the sea-level. Polynesia, New Zealand, and Australia, may have been the products of volcanic agency, at a comparatively recent date of the world's history. Since the reign of Justinian, when the whole habitable globe was shaken for forty days, these convulsions of nature seem to have become contracted within narrower limits, and, indeed, have now ceased in many parts which were once subject to them. In the reign of Tiberius, twelve cities were overthrown at the same time, which, according to the best computations, coincides with the afternoon of the Crucifixion, or the morning of the Resurrection. It is supposed that Dionysius, the areopagite, was converted to Christianity, on comparing notes with St. Paul on so prodigious a calamity, when that apostle was preaching at Athens. Our island has, according to trustworthy enquirers, experienced more than two hundred shocks, in historic times; and the cataclysm, which rent England from France, might recur, although it, most likely, belongs to the earliest geodetic epochs.

BRIGHTON,
OCTOBER 25TH, 1863.

PART I.

ATMOSPHERIC PHENOMENA IN RELATION TO THE PREVALENCE OF ASIATIC CHOLERA.

The Asiatic cholera seems to be associated with a particular state of air, in which it finds its nest for being engendered, fostered, and diffused. This state of the atmosphere is indicated by an overcast sky, a high barometer, a torpid mist, and, for the most part, though not invariably, a high temperature. The mercury in the barometer rises up to thirty inches, although, at the same time, the sky, instead of being *Fair*, as the instrument denotes, is, on the contrary, shrouded with a veil of clouds—cirro-strati, strati, or indolent cirro-cumuli, of a dull opaque colour. The wind subsides, a calm prevails, and a moisture bedews everything, both in-doors and out. This state of the atmosphere is so unmistakeable, that, when the disease has once broken out, we may be sure of hearing of its increase during the continuance of this sort of weather, and of its diminution the

moment a change takes place, and the wind rises, and the barometer sinks, and the mist is dispersed. But the overcast sky and a high temperature are not so requisite to the propagation of the disease as the high barometer, the calm, and the mist. This disagreeable mist is most remarkable: it lies low, rolls off the higher places, descends into the vales and hollows, and settles in corners secluded from thoroughfare and draughts of air. Hence it has been inferred that cholera originates from sinks, sewers, etc.; but, as these offensive recesses are generally set apart by themselves in some enclosed spot, they only afford an undisturbed lodgment for the reception of the poisonous element already afloat in the air, where its malignity becomes condensed and concentrated. Accordingly, in tracing the history of the cholera, we find that it has prevailed chiefly in low, damp, confined localities; that it has appeared at all seasons of the year—midsummer, autumn, and spring, and even in the depth of winter, when the ground has been covered with snow; but that its intensity has been the greatest in the fall of the year, when the weather is moist, or in the middle of the year, when the summer has been wet. It was reported at St. Petersburgh, and, I think, at Moscow, during a hard winter; in this country, it broke out in the winter and spring of 1832; in 1849, it prevailed during the summer and the beginning of the autumn; and this time, 1853, it was first reported in the month of September.

As far back as 1832, Dr. Prout remarked the anomalous elevation of the barometer in connection with the presence of Asiatic cholera; and at that time, *i.e.*, more than twenty years ago, he attempted to account for it upon the hypothesis of the air being surcharged with a poisonous element

of a ponderous nature. There was, he says*, a positive increase in the weight of the atmospheric air, similar to what might be supposed to be produced by the diffusion of a very heavy gaseous principle through the lower regions of the atmosphere. His conclusion was, that the cause of the phenomenon in question, as well as of the cholera, was a poisonous body analogous to malaria, whose high specific gravity and feeble diffusive powers kept it near the earth's surface, along which it insensibly crept, particularly in low and damp situations. On the 9th of February, 1832, the positive weight of the air suddenly appeared to rise above the usual standard. The apparatus employed was supposed to be out of order, but no error was detected; and the air continued to retain its augmented weight, with more or less obstinacy, for the space of six weeks longer. Now, on that particular day, when the barometer rose so suddenly, and, as it seemed, without a sufficient cause to explain its rise,—on that particular day, the 9th of February, 1832, the first cases of epidemic cholera were reported in England. The wind, which had been previously westerly, veered round to the east, and remained pretty steadily in that quarter till the end of the month. In the summer of that same year, when cholera raged so severely for the first time in Great Britain, the barometer was high, the sky overcast, and the quantity of rain small. A calm prevailed. And, again, in the fatal summer of 1849, I find, in my diary of the weather, that there had been upwards of sixty misty days between the 1st of January and the 31st of August, *i.e.*, one-fourth of the whole period; and that when the mortality was the highest, the weather was dull, thick, and

* *Stomach and Urinary Diseases*, 3rd edition, 1841, p. 22.

close; the wind from the N.W., with dark masses of clouds, which went out to sea, like the smoke of a large furnace. The elevated position on which I dwell, and my frequent strolls in the surrounding country, gave me ample opportunities of making these remarks with accuracy.

Subjoined is a diagram of the weather during the week that the cholera was the worst at Newcastle in 1853; and what has already been said seems to be borne out, if not demonstrated, by this statistic report.

From August 31st to September 16th, there were 295 fatal cases.

The reports of the fatal cases, subjoined at the end of this paper, are from the *Times*. The account of atmospheric changes is from my private diary. It has been collated with those of the daily papers, and the variations are not great. The same weather seems to have prevailed throughout the country. In reporting the thermometer and barometer, the round numbers alone are stated. The mark + means *above* the average; the mark — *below*.

It has been said, that the velocity of the air is diminished one half below its usual ratio; there is an upper, but no lower current of air; and the electricity of the air is negative, during the presence of cholera. I have no personal knowledge of the truth of these facts; but report them only as I have read them.

In this diagram, it appears that the cholera was the worst when the barometer was the highest and the atmosphere the calmest. There was on this occasion, as on the former ones, a certain grey mist, which painters express by the word *scumbling*. As the barometer fell, and the wind rose, and the lazy scud broke away into clouds (cirro-

1853.	Wind.	Clouds.	Moisture.	Clear.	Storm gale, calm.	Temp.	Therm.	Ordinary mortality.	Barometer.	Fatal cases.
September 16...	N.E.S.W.N.	Bright scud.	Moist.	Hazy; clear.	Breeze.	Chilly.	65°		29.00	101
September 17... (Full moon, 10 A.M.)	W.N.E.	Ditto.	Ditto.	Ditto.	Calm.	Summer-like, but chilly at night.	72°		29.50	101
September 18...	N.W.S.W.N.	Ditto.	Ditto; drying.	Ditto.	Ditto.	Ditto.	70°	209 (below average)	30.00	93
September 19...	E.N.W.S.N.W.	Ditto; overcast night.	Ditto.	Ditto.	Ditto.	Ditto.	71°		30.26	94
September 20...	N.W.S.W.N.	Overcast; grey cirro-strati; overcast night.	Ditto.	Thick; dull.	Ditto.	Ditto.	65°		29.72	109
September 21...	W.N.E.S.W.	Ditto.	Ditto; dew at night.	Ditto.	Breeze; light air.	Chilly.	67°		29.50	80
September 22...	N.W.S.	Broken scud.	Ditto.	Gloomy; light.	½ gale S.W.	Ditto.	68°		29.35	59

cumuli), the mortality fell at the same time from 109 to 80 and 59 respectively, in the course of a couple of days. But, what is most singular, is the fact that, on the present, as on the previous accessions of the disease, the mortality from ordinary causes has been diminished; and, according to the Registrar-General's Report, it has been diminished on this particular occasion one-fifth below the average, *i.e.*, 209 in the 1,000, according to the corrected average. Although it is remarkable that the atmosphere is, during the prevalence of cholera, at once both calm and overcast, and the roads dry if not dusty, yet there is a sticky moisture pervading everything. Housekeepers inform us that articles of diet become more quickly mouldy than usual. The appearance of the air is that of a marshy district, such as I have often witnessed on the low lands of Suffolk and Essex, and the neighbourhood of the Marsh Gate, Lambeth. But this miasmatic atmosphere, instead of being peculiar to those quarters where ague resides, seems to spread universally over the whole land assailed by cholera. The affinity of the phenomena subsisting between cholera and ague is, to say the least of them, very striking. Diarrhœa is the distinctive precursor or concomitant of each; and the collapse, so fatal in cholera, together with the rice-water evacuations, most likely of a poisonous quality, are exaggerated features of its congener, marsh fever. Again, both these diseases haunt damp localities, and exhibit themselves most virulently in the foulest corners; while each has the same tendency to degenerate into low typhus, hectic, and death, or a tedious recovery. This is more than similiarity—it is a coincident eventuality; but repeated coincidence implies a law of connexion, perhaps identity.

One pathological remark of some importance ought not to be omitted. We are all of us aware that, during the blue stage of cholera, the urine is either suspended or suppressed. But, during a choleric period, there is also reigning an epidemic diathesis adverse to the healthy action of the kidneys. It is of the low kind, such as is termed *asthenic:* in plain words, it is a weakness of the kidneys. "The first circumstance that attracted my notice," says Dr. Prout,* "after the prevalence of Asiatic cholera, was the disappearance of these (the common lateritious) sediments from the urine. The absence of these sediments was at first considered to be accidental; but when, day after day, the same occurrence took place, I was induced to inquire attentively into the circumstance, with the view, if possible, of ascertaining the reason. On closer inspection, it was found that the urine of every individual examined, whether in apparent health or otherwise, not only presented the same absence of sediment, but also assumed that peculiar appearance, which I had been accustomed to consider as characteristic of the presence of oxalic acid. I likewise noticed," he continues, "an unusually acid state of the saliva, and of the cutaneous exhalations, such as I had never, indeed, before noticed, except in the last stages of chronic diseases, or in malarious affections."

Nothing can be more correct than these remarks. I should like to learn whether the experience of others, who have paid attention to renal disorders, agrees with mine on the present occasion†; which is, that the present renal dia-

* *Op. cit.*

† The urine is diminished in cholera. Urea is greater in the urine, the higher the animal temperature rises; it is less, the lower it falls. Urea is retained in the blood in cholera. The chlorides pass off by the bowels, instead of by the kidneys, in cholera. Dr. Brattle, *on Changes of Urine in*

thesis is more phosphatic than oxalic? What Dr. Prout says in respect of the condition of the urine being that of malarious affections, is very just. In agueish districts, the urine of most persons is disposed to be pale, copious, and of a low specific gravity; and the absence of the lateritious sediments is so well known, that their reappearance is hailed as a good sign, and looked upon as a criterion of the ague fits having come to their end. This again is another striking analogy subsisting between ague and cholera.

"THE CHOLERA. (FROM THE BOARD OF HEALTH.)

NEWCASTLE, *Sept.* 22, 1853.

Deaths.	Cholera - - - - -	59
	Diarrhœa - - - - -	1

"Thus, the total number of deaths from cholera and diarrhœa in Newcastle during the present outbreak has been 995.

"In the same period (viz., the first twenty-two days) during the prevalence of epidemic cholera there in 1831-32, the number of deaths was 161.

"NEWCASTLE, *Friday Morning.*

"The weather is still most favourable, and our people are becoming more reassured. The deaths yesterday were sixty. In Gateshead only eight. Our local papers this morning give a fearful middle-class obituary. The *Chronicle* has above three-fourths of a column of deaths in Newcastle, nearly all middle-class people. We have had the cholera among us three weeks and one day, and the deaths have been, in Newcastle and the Gateshead Union, the appalling number of 1,318. The following are the statistics of the progress of the disease in Newcastle, made up from the registrar's returns :—

	Cholera.	Diarrhœa.	Total.
"August 31 to Sept. 15 - - -	295 ...	20 ...	315
September 16 - - -	101 ...	4 ...	105
" 17 - - -	101 ...	9 ...	110
" 18 - - -	93 ...	7 ...	100
" 19 - - -	94 ...	6 ...	100
" 20 - - -	109 ...	9 ...	118
" 21 - - -	80 ...	4 ...	84
" 22 - - -	59 ...	1 ...	60
Total - - -	932	60	992

Disease. North American Med. Ch. Review, May, 1859. See also, Mr. Sidney Ringer, *on the Connexion between the Heat of the Body and the Constituents of the Urine in Ague: Proceedings of the Roy. Med. Ch. Society, June* 28, 1859.

"The following table shows the amount of mortality from cholera and diarrhœa in the different parishes :—

	All Saints.		St. Nicholas.		St. Andrew's.		Westgate.		Byker.	
	Chol.	Diar.	Chol.	Diar.	Chol.	Diar.	Chol.	Diar.	Chol.	Diar.
Up to September 15.....	87	3	88	4	46	5	58	8	16	—
On September 16.....	22	—	31	1	16	1	26	2	6	—
" September 17.....	24	2	32	1	18	1	16	3	12	1
" September 18.....	30	—	14	2	15	—	26	4	9	—
" September 19.....	27	2	21	3	14	—	17	3	12	1
" September 20.....	32	—	22	1	17	4	22	6	15	—
" September 23.....	21	—	17	—	13	—	18	4	9	—
" September 22.....	15	—	15	1	13	—	12	—	4	—
	260	7	240	13	142	11	195	30	83	2

"We have lost two medical men, Mr. Irons, surgeon, and Dr. Malcolm, the former gentleman falling a martyr to his duty as a union surgeon. The vicar, the Rev. C. Moody, has opened kitchens for the distribution of beef-tea and boiled rice, in the parishes of St. Nicholas, St. John, and All Saints. They are open to persons of all classes and denominations; and the benevolent throughout the country would serve the cause of humanity and the poor by sending subscriptions to the reverend gentleman. The Ordnance tents will be opened on the moor to-day for such of the poor as are inclined to leave the infected districts. There is also a house of refuge on the New-road. Eight deaths have occurred in the gaol; in fact, no part of the town has escaped. The epidemic has been bad in Hexham. The condition of that town is unwholesome, though its situation is the garden of the north of England. Before the appearance of the cholera, there was a stout fight for the Public Health Act, and the obstructives were beaten. Some of the medical men opposed the introduction of the act. Mr. Fairbridge, surgeon, has died at Hexham. There are thirteen deaths in that town. The cholera has visited nearly all the villages by the side of the Tyne. There have been four deaths at Howdon and Willington; four at Walker; two at Carville; and several at the Felling. A very interesting and reassuring fact was related to me this morning by a gentleman from Jarrow, a considerable manufacturing village by the side of the Tyne. An old woman who had been to Newcastle and got rather tipsy, on reaching the village ate some half-cooked herrings, was attacked, and died after a short illness. Her husband died a few days after. A board of health was immediately formed, under the presidency of the resident clergyman, a "house to house" visitation was instituted, nuisances were removed, etc.; and though there have been between two and three hundred cases of diarrhœa (promptly attended to by the medical officers), there has not been a single death, except those of the two old persons mentioned.

"The epidemic has been very fatal in a village named Whorlotn, near Morpeth. Morpeth seems to have escaped."

The state of the weather during the recent outbreak of the cholera at Leeds, Dublin, and Glasgow, may be shown by the following table.

On comparing my report of the thermometer with that of Mr. Glaisher's, of Lewisham, I find that my average is below his in the spring of the year, and above his in the autumn. This difference is in all probability owing to the proximity of the ocean,—the surface of which is warmer than the atmosphere in the autumn, but colder in the spring. But most likely my means of observation are not so well appointed as his, in this respect. The mortality from ordinary causes was, at this time, quoted as being sixty below the average. There was a very still state of the atmosphere, which was dark, misty, and on one days melling disagreeably. There was a high barometer, although the air was loaded with vapour. Out of twenty-four cases of Asiatic cholera reported at Leeds, there were thirteen deaths.

This state of the atmosphere is so invariably attendant on the outbreak of cholera, that it may be regarded as a necessary condition for the activity of the disease. It would be affirming too much, to say that it is its cause.

I observed one peculiarity at this time which seemed to me a favourable omen, and such at least for the present it has shown itself to be. I allude to the lateritious sediment in the urine, which has prevailed a good deal lately. On former occasions, when the cholera has been rife, the urine has shown the predominance of the oxalic, or even the phosphatic diathesis; but on the present occasion it is just the reverse, the urea not appearing to be retained within the circulation. Its elimination is a sign of health, and contra-indicates the existence or duration of cholera.

1854.	Wind.	Clouds.	Dew and rain.	Moisture.	Force of Wind.	Temperature.	Fah. Therm.	Barom.
March 5	N.E.S.	Morning mist; cloudless noon; overcast.	Dew.	Moist; dry; dusty; and clear.	Calm.	Chilly.	40°—50°	30.50
March 6 ..... (Moon first quarter, 7 P.M.)	E.S.S.E.	Clear night; morning mist; cloudless noon; thick mist.		Dry and dusty.	Ditto.	Cold; sharp white frost; ice.	25°—45°	29.72
March 7	N.W.S.	Dark mist; bright strati; dark mist.		Moist; thick.	Ditto.	Ditto.	29°—50°	29.35
March 8	W.S.W.	Ditto; ditto; strati; dark mist.		Ditto.	Ditto; light air S.W.	Ditto.	45°—57°	29.35
March 9	W.S.W.	Ditto; ditto; ditto; ditto.		Moist Fog, smelling disagreeably.	Ditto.	Raw cold.	48°—62°	29.25
March 10 ...	W.S.W. N.W.	Overcast; strati; cloudless afternoon.	Light rain.	Wet fog.	Wind rising S.W.; squally.	Warmer, but chilly.	50°—54° Night and Day temp.	30.00

Among the meteorological phenomena, it is proper to mention the appearance of a comet on the border of Pisces, near to the star η Andromedæ, on March 29th.

That an overcast sky and damp weather alone are not the only conditions requisite for the developement of the Asiatic cholera, the meteorology of the month of June, just ended, is sufficient to testify; for, with the exception of about ten days, the whole of that month has been cloudy, misty, or rainy, and yet cholera has not prevailed. At the same time, it must be admitted that several indications of the disease being close at hand have not been wanting. Thus, two deaths from cholera were registered, the one at Mile End, New Town, on the 26th, and the other in Limehouse on the 27th of May; showing that a state of atmosphere of a choleraic character had preceded their appearance by two or three days. On referring to my diary of the weather, I find the following entries. (Table I., p. 15.)

About the 31st of May, diarrhœa presented itself in this town. In the preceding table of the weather, it must be remarked that, although there was both rain and a calm, yet the other conditions that usually accompany the outbreak of cholera were altogether absent. For instance, the mortality was *above*, and not *below*, the average; the barometer stood at *change*, instead of at *fair;* and it was *rainy* and *wet*, instead of being *moist* and *dry*, as is the case during the cholera periods. All these indications tend to prove that the particular element, be it what it may, which constitutes the active principle of the disease, and presses up the mercury in the barometer to *fair* in the midst of a cloudy moist atmosphere, was not present on the occasion just quoted, or at least was not present in any degree of intensity.

In addition to the foregoing remarks, I wish to draw the attention of those who study this interesting question to the fact that, besides these remote signals of the proximity of cholera in the atmosphere, there were other symptoms of its being likely to occur observable in the pathology of the prevailing character of disease. Jaundice has been frequent during this spring, and an indigestion in the form of subacute gastritis. The urea, which was obvious in the urine previous to the month of March, has greatly diminished, or it has entirely disappeared. The specific gravity has been low, and once I observed the phosphatic character, which seemed to arise from some unassignable cause, as no disease was present that could reasonably account for it.

But, during the month of June, there were three days marked by all the essentials of the choleraic atmosphere which, had it continued, would quickly have produced the disease in its worst form. The following is the extract from my diary. (Table II., p. 15.)

No cases of cholera were registered in London subsequently to these three remarkable days; but eighteen cases were reported at Glasgow about this time, and a number of deaths. The local authorities imputed the outbreak of the disease to the "removal of a number of wells which had been set up by the police and the water company in the poorer parts of the city." Some cases of diarrhœa presented themselves on the 10th of June, in this town. One element, however, was still wanting to complete the choleraic constitution of the air, namely, the ordinary mortality, which, although much less than it had been, was registered at 83 *above* the average; for it must not be forgotten that, during the ravages of epidemic cholera, the mortality from ordinary

causes sinks as low as one-fifth *below* the average. In the Registrar-General's return (June 12th), we find it stated that "the mortality of London was still high for the season," and "much above what the rate in previous years would lead us to expect at the beginning of June."

A further proof of the fact, that misty weather alone, together with a calm, does not afford the pabulum or excitant of the disease, may be adduced from the circumstance of the 16th and 17th June being particularly foggy and wet, without their giving rise to any of the premonitory signs of the disorder. (Table III., p. 15.)

In this table, we have mist and a calm, along with a barometer properly indicating change and rain, and a variable wind, chiefly south-west, whereas in the time of cholera the wind usually prevails from the north-west. According to many well established observations, the existence of Asiatic cholera is incompatible with this state of atmosphere.

The temperature during the whole of the month of June was below the average, with the exception of four days, 23rd and 26th inclusive, when it was several degrees above it. "The American steamer, on its last passage from Liverpool to Boston, encountered immense fields of ice. On Saturday, the 20th May, she sighted a mountain of ice, about five miles distant, and for the next twenty-four hours there was a deadly chill. It is said, that the oldest voyager had never before seen the same quantity of ice so far south." *(Times.)* Considering the prevalence of south-westerly winds from the 20th May, with a few exceptions, up to the present time, we may by this means account for the chilliness of the month of June; for the Gulf-stream, which usually brings with it both hot air and water to our shores, would under these circumstances

TABLE I.

May	Wind.	Clouds.	Rain.	Clear or dry.	Storm, gale, or calm.	Temperatur.		Fah. Therm.	Barometer.
22	S.W.N.	Strati dark.	Two hours' rain.	Sloppy.	Calm.	Close, but chilly.	Mortality 135 plus.	60°-54°	29.50
23	S.W.N.	Overcast forenoon.	Rainy night.	Thick and damp.	Breeze S.W.	Ditto.		62°—50° below the average.	29.50

TABLE II.

June	Wind.	Clouds.	Rain.	Clear or dry.	Storm, gale, or calm.	Temperatur.		Fah. Therm.	Barometer.
6	N.	Overcast.		Dull and thick.	Calm morn., strong wind; evening N.	Mild day; cold nights.	Number of small black flies.	60°—43°	30.00
7	N.N.W.	Ditto.		Heavy mist in low places.	Wind N.	Ditto.	Ditto.	65°—45°	30.00
8	N.W.S.	Ditto.		Ditto.	Calm.	Ditto.	Ditto.	58°—48° below the average.	30.00

TABLE III.

June	Wind.	Clouds.	Wet or dry.	Clear or dry.	Storm, gale, or calm.	Temperatur.	Fah. Therm.	Barometer.
16	S.W.S.E.N. Variable.	Heavy mist.	Heavy rain E.	Wet and thick.	Calm.	Warm and close.	65°—50°	29.50
17 Moon's last qr. 2 P.M.	S.W.	Ditto.	Rain.	Ditto.	Ditto.	Ditto.	68°—52° below the average.	29.42

be chilled by the melting of the icebergs, and produce an immediate condensation of vapour on approaching the land. The well known gulf weed, the harbinger of summer, has been floating along the coast for some time past.

From the foreign news,* we learn that "accounts received this morning from Genoa, dated Turin, June 25th, give but too much reason to fear that cholera has made its appearance both there and in some of the French Mediterranean ports, though neither Government has thought it necessary to take official notice of the circumstance as yet, as the number of cases certified up to the present moment have been comparatively trifling." It is also said that cholera has reappeared in some parts of Scotland. In Perth several cases have terminated fatally ; in Barrhead there have been four fatal cases ; at Dalry, out of four cases, three were fatal ones. It has reappeared in the West Indies in its worst form. In various parts of Jamaica it is making serious ravages. The last accounts from Bombay speak of its fearful ravages there also.

Our information is so scanty in respect to meteorological observations relating to the spread of the disease in various parts of the globe, that it only makes us long for more accurate intelligence on this head. From the casual conversations I have had with those who have lived in the East when cholera has prevailed there, I am enabled to gather some corroborative evidence of the same state of the atmosphere, as that which I have had occasion to remark in this country. They all agree in regard to the mist and the calm ; but of more than this, they are unluckily ignorant. I make this statement in the hope that some intelligent medical man, in

* *Times*, June 30th.

the more distant quarters of the world, may be induced to make a series of observations, and collect as much local information as he can on this point, so as to enable us to compare notes, and to ascertain with accuracy the main conditions requisite to the spread of so formidable a disease.

During the month of July, 26 cases of death from cholera were first reported, and subsequently 133; while the deaths from diarrhœa increased from 54 to 84. The first 26 cases seem to have occurred chiefly about the 7th, 8th, 9th, 12th, and 15th of the month. The days preceding and accompanying these dates exhibited in a greater or less degree the state of atmosphere supposed to be connected with the prevalence of Asiatic cholera; that is to say, they were misty, overcast, damp, or wet, with a calm or light air, and the barometer at or about *fair*, or 30 in., but generally rather below it. At the beginning of the month, the mortality was as much as 203 *above* the average; but towards its close, at the exact time when the number of cholera cases was reported on the increase, the mortality fell to 108 *below* the average; by the end of the month it was "slightly in excess."

I have not drawn out tables of the weather, as heretofore, for the sake of brevity, but they shall be forthcoming, if required, either entire or in part. It may be stated, that the temperature during the first part of July, was about four degrees below the average; but that on the 18th, it rose above it, and continued to be so till the close of the month. The 24th was the hottest day on record since 1818, when Fah. therm. stood at 79°. This year it ranged on the same day's date between 54° and 84° in the shade. On the 25th, it was 88° in the shade; and, according to the reading at the Royal Observatory, Greenwich, 117·6° in the sun; I ob-

served it here 110° in the sun and 90° in the shade at noon; which is said by Mr Glaisher, of Lewisham, to be the hottest day on record since 1814. Both these days were cloudless, with sheet-lightning at night. For the most part, the nights throughout the month were chilly, although the days were warm and close.

Of the 133 fatal cases, "there were 42 under fifteen years of age; 78 men and women, between that age and sixty years; and 13 persons sixty years old and upwards": so that it appears from the Registrar-General's Return, the principal mortality befell those in the middle of life. "More than half the number of cases occurred on the south side of the river Thames—35 in the east districts; and the remainder in various other parts of the metropolis, as far as its western extremity." In 1849, not more than five fatal cases were reported in the first week of July in that year; although by the middle of August following, the deaths amounted to one in 1,000 in London. Last year the ordinary mortality was considerably below the average throughout the month of July, but above it in the beginning of August.

That cholera is not confined to any particular localities, high or low, terra firma or the ocean, is proved by its geographical history. It may have originated in the jungles of Jessore in Bengal; but we have heard of it in the snowy passes of the Caucasus, along the sea-beach in various parts of the globe, in sandy deserts traversed by caravans, on board-ship frequently, on alluvial plains, such as those on which Moscow stands, or in cities as elevated as that of Mexico*, the loftiest

* Mexico stands at the height of 7,482 feet above the level of the sea; Moscow only at 480 feet.

in the world; in the *fiords* of Norway and Scandinavia, upon the shallow Baltic, the deep German Sea, and the broad Atlantic. But whenever authentic accounts have reached us respecting the state of the atmosphere during its prevalence, they are uniformly the same. It would be exceedingly interesting could we be placed in possession of accurate meterological accounts from Marseilles, visited so fearfully at present by this pestilence.

The overcast sky during the prevalence of the disease has been, as far as my observations extend, of two kinds. One is that of thin cirro-strati, *mackerel sky*, as it is called, through which the sun shines with a pale watery light: these cirro-strati surround and follow the sun in his course. The second is that of dark, smoky-looking cumuli, from N.W., moving up in a lowering manner. There is a calm, but no rain, all the while.

Connected with the approach of the epidemic, there is an advanced guard of indigestion, marked by a disrelish for food, a sense of precordial heat, and headache. It is best relieved by the neutral salts, conjoined with a bitter and the dilute sulphuric acid. This kind of indigestion, thus relieved, and the dark hue of the blood during the collapse, seem to point in the direction of Dr. Stevens' saline treatment. Subacute gastritis, heartburn, pain across the forehead, slight giddiness, offensive breath, and depraved urinary excretion (the urates, the phosphates, or at last their suppression), indicating disturbed assimilation and sanguification, are, account for them as we please, not only the forerunning signs of the epidemic, but also those symptoms most surely relieved, by the neutral salts, a bitter, or the mineral acids. The question turns upon the therapeutics best suited for re-

oxygenating the blood. Four articles of diet seem to be peculiarly obnoxious to the disease ; namely, eggs, fish, wine*, and potatoes—the last in particular.

In putting forward these repeated observations in reference to cholera, I beg to say, that I have no favourite idea of my own that I am making a pet of. I shall only be too happy to be corrected, and to relinquish whatever I have advanced, the moment it can be shown to be erroneous and untenable.

The subjoined extract is from a letter to the Editor of the *Times*, and published in the impression of that paper on August 3rd : it contains some sensible advice.

"With regard to the mode of avoiding cholera, a few suggestions may be available.

"I would recommend that lemon-juice should be taken at least once a-day, either alone or in a state of effervescence with potash or soda. Vegetables in a decomposed state, or meat with any taint, should be altogether eschewed ; and hawkers of bad fruit, fish, or vegetables should have their articles condemned. Cabbages brought to London heaped up in carts are a fruitful source of disease ; and potatoes already showing symptoms of disease should not be consumed.

"Exercise in the open country should be taken almost every day ; and no one ought to remain in-doors twenty-four hours consecutively. The chlorides of zinc are much better disinfectants than the chlorides of lime, and personal ablution should be most freely used, together with constant change of linen. The defective act respecting baths and washhouses should at once be amended, and Government should devote a portion of revenue to the establishment of public baths and washhouses in every available locality ; they would nearly pay their own expenses, if Government would lend a helping hand to erect them. Parishes are too mean and short-sighted to go to the first expense.

"I shall not trespass more on your valuable space. A hecatomb of victims will fall before much is done, I am well aware ; but I am as convinced as

* Wine is obnoxious, but what wine ? Good wine is never unwholesome. A pure Sauterne, such as I have tasted it in the South of France, must necessarily be beneficial ; and those who have stopped at the station of Barsac, beyond Bordeaux, must know what I mean.

that to-morrow's sun will set, that a house-to-house inspection of nuisances alone can remedy a crying evil, and alone meet the exigency of the present time.

"I remain, yours, very respectfully,

"ALFRED EBSWORTH, *Surgeon.*

"11, Trinity Street, Southwark."

I shall, at present, proceed to make use of the Meteorological Observations taken at the Royal Observatory, Greenwich, and quoted weekly in the Registrar-General's Return of Births and Deaths in London, rather than my own private diary, which is not so trustworthy as a public record of the same kind. Occasionally, I shall avail myself of Mr. Glaisher's observations, at Lewisham, and sometimes of information derived from the daily papers. My remarks extend from the 19th of August to the 28th of October, 1854.

The calm that prevailed throughout the worst period of the disease is denoted by the figures in columns nineteen to twenty-two in the Meteorological Observations of the Royal Observatory; on reference to which, it will be seen, that in the second week of September, when cholera was at the worst, it was represented by 195; whereas, in the last week of August, it had been 835; and in the fourth week of September, when "cholera was slowly retreating from London," it rose to 1,045. The calm was the greatest when the disease was the worst; and the disease began to decline as the wind rose. If we examine the columns denoting the pressure of wind in lbs. on the square foot, we shall find that, between August 19th and October 21st, it was, with very few exceptions, at zero. In the same space of time there were thirty-two days marked down as *calm*, which means that it was absolutely so; but if, according to my own careful observations, we were to double that number, we should scarcely be

wrong in the general acceptation of the word; that is to say, nearly the whole period was a calm, or at the most only a light breeze. The exceptions to this oppressive state of the atmosphere were on Oct. 20th, 19th, and 18th, the 8th, 7th, 5th, and 4th ; Sept. 23rd, when the cholera began to decline, the 20th, 19th, and 16th, when there were some stiff breezes for a short time from the south-west. Except these days, amounting in all to not more than ten, all the rest of the time has been a calm, frequently a dead calm, with what sailors call *cat's paws* along the surface of the stagnant ocean.

On reference to the *General Remarks* from the Royal Observatory, we find that September was ushered in with "a dense blue mist," "a thick haze," and "clouds prevalent about noon." The second, or fatal week of that month, was remarkable for "a thick fog," "a fog that prevailed during the day, and also during the night," and "fog" more or less throughout the seven days. From the 16th of the month of September to the 14th of October, we find the words "fog," "misty rain," "a thin misty rain," "fog and misty rain." According to my own observations, the distant country was, during all this time, dim and misty ; small black flies were frequent ; and the cocks seldom crew. Occasionally, the atmosphere was translucent, the Isle of Wight was visible from the heights, and ships upon the horizon were distorted by the mirage. The robin redbreast returned early, and the swallows were less vivacious than usual.

The aspect of the country is most peculiar during the cholera period, and cannot be forgotten by those who have had the leisure to observe it accurately. The sunshine is pale and watery, and of a sickly brightness ; there is a sticky moisture pervading everything ; meat putrifies quickly; and the even-

ings are chilly. The smell of the country has lost its freshness. The same kind of weather seems to have prevailed throughout the world. A writer in the *Times*, of August 8th, from the Baltic, mentions the mist incidentally, and then goes on to say that five fatal cases had happened on board the *St. Jean d'Acre;* and another writer, from Varna, August 26th, says that, while the cholera was raging there, the weather was fine but overcast. That there was a great calm at the same time, there seems no reason to doubt; indeed, it is implied by the information of every correspondent. As to the barometer, we find that from the 25th of August to the end of September, it stood obstinately at 30in., more or less—that is, *fair*.

The disease this year seems to have been of a peculiarly fatal description. In the Dobrudscha,* it came on like a storm; no sooner had the rain passed than our men, *i.e.*, the French, were seized in all directions. It struck them as a ball; and they threw themselves struggling on the ground, tearing their hair and clothes for two or three minutes in moaning agonies, succeeded by convulsive trembling, which left them in the distorted rigidity of death. We lost three hundred men in six hours. The appearance of the dead was horrible; their eyes were sunken, their mouths open, and a slight mucosity upon their teeth gave them the appearance of mother of pearl.

It appears that a specific form of indigestion has been coexistent with the epidemic throughout the entire population. I have heard many complain of the same uneasy sensations in almost the selfsame words. There is a precordial pain, together with heat, extending to the back and down the

* *Daily News*, October 2nd, 1854.

thighs, and some headache, a slight giddiness, and nausea. It is probable that this is the preliminary stage of cholera, beyond which many do not pass; and that frequently it goes off by diarrhœa, and occasionally ends in the hopelessly blue stage. By early medical treatment, it may be cured. Warm aperients, the carminatives, and dilute nitric acid, seem to be the most useful remedies; conjoined with a generous diet, and a small quantity of brandy. Is it not subacute gastritis ? and does it not exhibit the symptoms of poison, inhaled through the air we breathe, or swallowed with the food we eat ? Be this as it may, atony is the prominent characteristic of disease at present.

It is admitted, that the stage of collapse, is preceded by one of painless diarrhœa. This peculiar diarrhœa is distinguished from that which usually prevails in summer, by its being, not bilious, but serous—in fact, by its being the diarrhœa of serous hæmorrhage, which, if long continued, is equally as fatal as red hæmorrhage, or actual bleeding. But this second stage of serous diarrhœa is preceded by a first stage of indigestion, feverishness, lassitude, and broken sleep. The symptoms are very mild, and their progress is slow and insidious. They do not create alarm; no pain, no inability to get about, nothing to lay the patient by. The sense of ailment is more like that which follows some slight deviation from the ordinary course of living, and which usually passes away with a few hours of rest and sleep. Consequently, it is disregarded, or treated as a casual indisposition. It lasts, however, for two or three weeks. The indigestion is accompanied with a sense of heat at the stomach. The whole population suffers from it, more or less, during cholera periods. After a time, the second stage comes on, of painless diarrhœa,

which is again disregarded, for the diarrhœa seems to relieve the indigestion, although it is slowly leading to collapse and death. For *the* cholera, as it is styled, suddenly shews itself, beginning with incessant vomiting and spasms. It is the closing scene: the disease, which has already existed for several weeks, unnoticed and unchecked, proceeds rapidly to its end. The blood, thickened from the loss of its serum, is inspissated. The head, lungs, and liver are congested. Nature exerts all her energies to save life. By the muscular spasms, she endeavours to urge on the blood from the extremities; by the incessant vomiting, she keeps the heart going, for the moment the vomiting ceases, the heart stops. The skin is as cold as a frog's, the visage becomes blue, the diarrhœa increasing, the spasms excessive, and the voice hoarse. In this state, the wonder is, not that many should die, but that any should ever survive; and it only shows what the tenacity of life is under the worst circumstances.*

In continuation of my subject, I resume my account of the weather during the prevalence of cholera from August 14th to October 28th inclusive. The direction of the wind

* INDIGESTION ACCOMPANYING CHOLERA: CLAIM TO PRIORITY OF NOTICE.

LETTER FROM J. A. HINGESTON, ESQ.

SIR,—Dr. Babington, in addressing the Epidemiological Society, claimed the merit of being the *first* to point out a particular kind of indigestion that precedes or attends the prevalence of the Asiatic cholera. I frankly acknowledge the value of his able article on the subject, in your *Journal* of the 6th October. But I had *already* directed the attention of the medical public to this extraordinary fact, in the *Association Journal*, August 11th and July 7th of this year. *Prior Venio.*

I am, etc.,

J. A. HINGESTON.

Brighton, Nov. 22, 1854.

was almost invariably N.W., N., and N.E.S. Its velocity was very small; but so uniform was its direction, that, if the vane veered round to the S.W., it was but for a day or two, and then it returned to the N.W. or N.E.S. directly afterwards. A double current of air frequently moved in contrary directions, particularly on the 23rd and 24th of August; the uppermost being S.W. by W., and the lowermost N.W. by N. The S.E. winds have prevailed along this part of the coast much more than usual; and it is a chilly, damp, and unhealthy wind. In the non-choleraic years, the S.W. winds prevailed, with a good deal of rain; and these years are healthy.

I agree with Mr Glaisher that the *cirrus* clouds have been rare this summer. Between the 14th of August and November 16th, I find, on referring to my diary, that I have noted *cirri* on not more than eight days, separately. The *mackerel sky* has been frequent at noon, accompanying the sun for three or four hours in his meridian height. Occasionally some black smoky-looking clouds have floated up from the N.W., and gone out to sea, dark and lowering. Amber-coloured sunsets have been frequent, such as forerun a heavy gale from the S.W.; which, however, has never arrived. The mornings, whose dawn I am fond of watching, have been highly picturesque, with gilded strati, and a tender light, beaming across the ocean, grey and motionless, as the daylight broke. If anything be sublime, the mornings of the late summer have been so. The temperature has been, as Mr. Glaisher reports, almost invariably above the average.

Out of the seventy-five days between the 14th of August and the 28th of October, rain fell on twenty-one, leaving fifty-four without even a drop of moisture. But the dews were heavy. Rain fell plentifully on Oct. 6th, Sept. 14th,

and Aug. 24th ; and there were showers on several other days between the 13th and 20th of September, from the S.W. or S.E. The quantity of rain-fall is much below the average. There was no hail throughout the whole of this period. There have been many lunar and solar halos ; but upon the coast this phenomenon seldom indicates anything more than the rising of a sea-mist, which is very capricious.

Thunder and lightning have been rare. Sheet lightning was visible at times, and small electric cumuli came into sight, but dissolved as soon as they arose. About the 26th of October, heavy piles of clouds, with lightning and distant thunder, hovered upon the horizon, a long way out at sea ; but nothing came near the land.

When the S.E. wind has been blowing a long time, with a cloudless sky, a small darkish cloudlet forms in the eye of the S.W., and remains stationary there for some hours every day. This little cloud is the forerunner of a gale from the Atlantic. It is most likely the focus or axis of a gyration of wind at the point where the N.E. meets the gale from the S.W., forming a condensed nucleus of vapour. It is the same as the small white cloud which presages the typhoon in the China seas ; which is a cyclone of terrific force and magnitude, except that, judging from the difference in colour, the one in the China seas is *positively*, while this in ours is *negatively*, electric. This little cloud appeared in the west throughout the second or fatal week in September, this year, predicting the decline of the disease as soon as the wind should shift round to the S.W., which came to pass in the third week of September, when it blew a half gale from S.W., and the disease began to diminish.

Though the atmospheric changes do not account for the

fact of the cholera, yet the co-existence of cholera with recognized meteorological phenomena is, to say the least of it, a most remarkable circumstance. Thus, in the third week of September, when both the barometer was falling and the disease declining, the greater number of *fresh* cases bear date on 21st and 23rd of that month, on which day the mercury rose from 29·840 to 30·123. See Registrar-General's Return, selected cases, for the weeks ending 23rd respectively, and compare the dates with the Meteorological Tables at the end.

Throughout the last year, there have been many causes favourable to the developement of disease. A scanty harvest, bad wheat, a scarcity of vegetables, an unhealthy condition of fresh meat, a deficiency of water, owing to the want of rain, numbers of small black flies, mildew, or fungi; add to all this, the dearness of provisions, and a relative deficiency of nutrition among those classes of the population, which need it the most, but have the fewest means of procuring it. These causes must have co-operated in the production of the disease.

It was in the month of March last that I noticed the lateritious deposits; but it was not till this November that I had an opportunity of seeing them again. This appearance and disappearance of the lithates corresponds with the commencement and the departure of the disease. If I am correct, this circumstance is a curious one. I think I have observed the skin to be colder, and the flesh more flabby, than usual. There has been an absence of phlegmonous disease. Erysipelas, scarlatina, debility, and a tendency to sloughing, characterise the autumnal illnesses. Perhaps the aspect of the population has been sickly, with a look of languor and dejection.

In saying that the meteorology of the year 1854 was extraordinary, I am only repeating what has already been testified

to by the returns of the Registrar-General, the reports of Mr. Glaisher, and the observations of Mr. Lowe, of Highfield. I shall bring into one view the remarks of these gentlemen, coupled with some observations of my own.*

About the 11th of December, 1853, a severe frost with a fall of snow set in, and continued till the 6th of January, 1854. It began with a fog so dense, that in Manchester and London some loss of life was occasioned by it. The 2nd and 3rd of January were said to be the coldest days on record for the last eighty-five years; it was 6° below zero, Fahrenheit. But the snow was not so deep this year as in 1814, when the degree of cold was less. The most remarkable phenomenon was, that the frost was ushered in and dismissed by a bright aurora borealis, which was observed at Pembroke, Dec. 7th, and at Tonbridge Wells, Jan. 3rd. The temperature of the whole year was about 1° below the average, although certain parts of the year were unseasonably warm. Thus, immediately after the cessation of the severe frost just mentioned, the temperature rose 7° or 8° above the average, and continued in excess for the rest of that month. It was more or less in excess up to the middle of April. In the month of May, icebergs were met with by vessels in their passage be-

* My meteorological observations have been objected to on account of my barometer not being a standard one. To meet these objections, I purchased one the same as those used at the Royal Observatory, and by Mr. Glaisher. I find my old cheap one at 10s. 6d. tallies exactly with my new and more expensive one, at several guineas cost. In future, I will quote its elevation and depression in numerals. The cistern is 200 feet above the sea level, according to the last Ordnance Survey, which was taken both in the rear and front of my house. My private records have hitherto very nearly corresponded with the quotations of the astronomer royal's at the Greenwich Observatory; but his elevation is only forty feet lower than mine, which is abouth the twentieth of an inch, and is therefore scarcely appreciable. I thought it proper to make this statement, as it seemed to me to be nothing more than what is due to my own credit and veracity.

tween Liverpool and Boston, in America. The summer was cool; June and July were mostly below the average. For a few days in the middle of June, the temperature increased greatly, and the 24th of that month was said to be the hottest day that had ever occurred since 1818, and the 25th the hottest since 1814 ; the temperature being 84°, 89°, Fahrenheit, whereas in the two former years it was not higher than 79°. From August to the end of October, the temperature was almost always in excess. But November was cold, and so was the beginning of December, which, however, became warmer than usual, and remained so till the end of the year. Nevertheless, the temperature of the entire year was 1° below the average.

Three earthquakes were reported during this year. The first was felt as a smart shock at Kingston, in Jamaica, on the 1st of April. The second was a more terrible one at San Salvador, on the night of the 16th of the same month. The city was shaken and damaged, causing loss of life and great alarm. The preceding day had been hot and tranquil. It was on the 15th, the day preceding this earthquake, that the ship *Powhattan* was wrecked and lost with all her crew and passengers in a violent tempest that broke upon the coast of North America, near Barnegat. The storm and the earthquake were separated from each other by the opposite hemispheres, but their parallels of longitude almost correspond. The third earthquake took place at Nice, on the 29th of December, and was felt as far as Marseilles, Cannes, Brignolles, and along the shores of the Mediterranean. It was preceded by a calm, copper-coloured clouds, and a peculiarly dark appearance of the sea.

A hazy atmosphere was frequent, occasionally interrupted

with a singularly translucent state of sky, most remarkable for the nearness it produced in the sight of distant objects, and their distortion by the mirage, which was very discernible in looking at ships at sea, or the Isle of Wight, as seen from hence. Many nights in the autumn were beautifully clear and starlight; there were forty-two cloudless nights in March, April, and September; and the fine days must have amounted to more than one-third of the year. But the chief characteristic was fog, particularly in the forenoons of July, August, and September, which were the gloomy months of sickness and death.

Among other phenomena was that of a comet on the border of Pisces, near the star η Andromedæ, March 29th. Its course was north-west by west.

Most of the year was a solemn calm. The sun rose and set in a pale amber-coloured light, or in the midst of gilded strati. The graceful white cirri of summer were seldom visible; the grey strati of the morning dispersed reluctantly as the sun ascended, and reformed themselves as soon as he declined. A transparent net-work of clouds collected at noon. The prevailing winds were from the north, north-west, east, and south-east; but the force of the wind was small. There was no hail;* thunder storms and the sheet lightning of summer were rare; rain fell sparingly; the

* Hail fell at Brighton, on the 15th and 20th November, but it was slight. There were no thunderstorms throughout the year, which is unusual in this locality. Ozone is said to have been abundant in December.

The subjoined note is from the classical pen of Mr. Haviland, who observed the same phenomena as myself :—*The calm* that prevailed throughout this pestilential year is another epidemical characteristic (ἄπνοια διὰ τέλος). This state of the air has been observed during the prevalence of cholera. Mr. J. A. Hingeston, in his highly interesting paper relative to cholera in the

vegetation suffered in proportion. The deficiency in the amount of rain-fall is said to be about twelve inches, the average being somewhere about twenty-four. The 14th September was a very wet night, which was the night of the allied forces landing in the Crimea; and the 14th of November was stormy, which was the fatal day of the tremendous gale in which so many of our transports were lost in the Black Sea. These two circumstances show the uni-

Association Journal, Oct. 21st, 1853, lays stress upon the fatal *calm* that reigned during the visitation of the cholera in 1832. Conjoined with this fearful atmospheric *stillness* was that seemingly interminable *mistiness* that was suspended for such a length of time over our ill-fated island. Mr Hingeston says, that the weather was *gloomy* and *cloudy*, and this characteristic seems to be intimately associated with the *calm*. Hippocrates observed the same phenomena, and noted them down in his description of this pestilential year. (*Φθινόπωρον σκιώδες, ἐπινέφελον.*) Among many other remarks, Mr. Hingeston observes that, in 1832, "the weather was *gloomy* and *cloudy*," and during the cholera in that year, "the barometer was high, the sky *overcast*;" "a *calm* prevailed." In 1849, he says that "there were sixty *misty* days between the 1st January and 31st August, *i.e.*, one fourth of the whole." And from his observations made this year at Newcastle, he finds "that the cholera was the worst when the barometer was highest and the atmosphere the *calmest*. There was on this occasion, as on former ones, a certain *grey mist*, which painters express by the word *scumbling*;" and further on, he says, "although it is remarkable that the atmosphere is, during the prevalence of cholera, at once both *calm* and *overcast*, and the roads dry, if not dusty, yet there is a sticky moisture that pervades every thing." This graphic description entirely coincides throughout with my own observations made when Bridgewater was visited by the cholera in 1849. Homer, in his short account of the plague with which Apollo afflicted the Greeks, in answer to the prayer of his priest Chryses, remarks that it was ushered in by a *gloominess* resembling night.

ὁ δ' ἠΐε νυκτὶ ἐοικώς (*Il.* I, 47.)
—*Association Journal*, March 3rd, 1854, page 194.

Homer says, "the atmosphere was gloomy, and the rays of the sun as piercing as the darts of Apollo. Disease broke out first among the cattle, the mules, and dogs; and then it attacked the army, which was encamped along the shore and between the shipping, in a confined situation, and necessarily close and offensive." The language of the poet is pathologically correct.

versality of the operations of nature. Gales of wind from the north-west and north-east occurred in the course of the autumn, of which, however, the equinox was calm.

With very few exceptions the mortality was in excess throughout the year. Upwards of 26,000 persons perished from the cholera in the space of less than three months, within the bills of mortality alone; while other diseases of a fatal character, contributed to swell the number of deaths above the ordinary ratio. The year was a sickly one all over the world. Animal and vegetable life suffered severely; and the horrors of war were added to those of pestilence and deteriorated food. An abundant harvest scarcely compensated for the deficiencies of the previous season and the unusual exigencies of the times. Many trees, shrubs, and evergreens were killed by the frost in January, while others were unable to survive the dry weather that followed.

The history of the barometer is soon told. It was obstinately stationary at 30 inches. Mr. Lowe says, "it was very high in February, March, and April, reaching in March 30.928 inches, when reduced to the sea level. In January it descended to 28.982 inches at the sea level, giving a range of pressure in two months of nearly two inches.

RECURRENCE OF CHOLERA.

LETTER TO THE EDITOR OF THE ASSOCIATION JOURNAL,
FRIDAY, JUNE 29, 1855.

SIR,—The present state of the atmosphere is of the same character as that in which the Asiatic cholera has appeared

in former years. The barometer stands at 30, or *fair*, the sky is overcast, the distance is dim and misty, there is moisture without rain, and chilly nights and close days. This state is alternated with a singularly translucent atmosphere, indicated by a powerful refraction along the horizon of the sea. Thus, on the 22nd of June, the high grounds of the Isle of Wight and the low lands of Selsy Bill were visible from the pier head of this borough in the afternoon, a phenomenon which is seldom noticed, except from the high lands, 300 or 400 feet above the level of the sea, the Dyke-road, or the race-course. The wind was S.W., with a dull scud at the time. The dim distance, so peculiar during cholera, has been observable for the last fortnight, and the small black flies showed themselves in numbers about the 26th of May. The wind has been northerly: smoky-looking masses of cloud have, on the present, as on former occasions, moved up from the north-west; and when the wind has gone round to the southwards, it has preferred the easterly to the southerly direction.

The temperature has been below the average by two or three degrees, and the deficiency of rain is most remarkable; not more than 6.44 inches have fallen at an elevation of 200 feet above the level of the sea, melted snow inclusive, since the middle of January this year. The gulf stream, flowing in opposition to the prevailing current of wind, has scarcely reached these shores yet, and the gulf weed *(sargassum bacciferum)* has appeared but lately, and sparingly; even supposing this class of the algæ to be detached from our own shores, it has been late in its arrival: and, as an harbinger of fair and mild weather, it is much later than usual. The vegetation in this part of the world was, in May, about a

month behind its time; the swallows returned equally late; while, owing to the prolonged severity of the winter, redstarts, blackbirds, and wagtails, alighted in the most frequented thoroughfares.

The lateritious deposits are again disappearing from the urine; they returned last October, and their recurrence was accompanied with jaundice, which seemed to be epidemic, especially among young persons. Indigestion, with heat at the precordium, is again complained of. It appears to me, that there is a want of acid in the blood, and that this form of dyspepsia is relievable by the vegetable acids, such as lemon juice.

The present constitutional diathesis is one of low vitality, that calls for generous diet rather than medicines, and the sustaining rather than the depletory remedies. The use of alcohol, which it is at present so much the fashion to decry, is imperative: cognac, rum, port-wine and sherry, instead of small-beer, ale, and the half-finished wines of this country or the continent. The red meats are as requisite as alcohol: but the flesh of the cattle has suffered in the same proportion as human health, from the depressing causes of the last eighteen months, and is accordingly neither so red nor so nutritious as it ought to be; besides which, both the beef and mutton are slaughtered too young, owing to the demand for them being much too rapid.

Diarrhœa is reported to have appeared in the Baltic fleet. There has been real cholera at Constantinople and in the Crimea already. The same terrible disease has been fatal at Venice, and in Spain; and, according to the Registrar's returns, some cases have been reported both this week and the last; and two cases were reported as far back as the 20th

May, which is about the same time that the same kind of cases were reported last year.

All these signs warn us to beware of the coming pestilence again this summer and autumn, and to take such precautions as we know from our past experience are likely to mitigate it, if not to ward it off. Should the wind veer round to the south-west, and bring up plenty of rain upon the face of its welcome gales, we shall in all probability escape; but with a continuance of the drought, with an overcast sky from the north, we had better look the evil in the face, and prepare ourselves to meet the disease once more.

I am, etc.,

J. A. H.

Brighton, June 23rd, 1855.

At the Epidemiological Society, on Monday, January 7th, 1856, B. G. Babington, M.D., F.R.S., President, in the chair, some excellent remarks were made by J. H. Tucker, Esq., on the prophylaxis of cholera by some of the vegetable and mineral acids.

Mr. Tucker alluded to the opinions on the subject which had been published, since the reading of his first paper, by Dr. Aikin in his work on Cholera, and Dr. Headland in the second edition of his work on the Action of Medicines. The author also quoted from a letter by Mr. Hingeston, of Brighton, published in the *Association Journal* for June 29th, 1855, in which that gentleman stated that indigestion, with heat at the precordium, was then complained of; and that it appeared to him that there was a want of acid in the blood, and that this form of dyspepsia was relievable by the vegetable acids, such as lemon juice. Mr. Tucker has found that lemon juice, vinegar, and sulphuric acid, were adopted by

good authorities both as preventive and as remedial of plague. It had been remarked, that when diarrhœa ensued in patients attacked by plague, death was almost certain, whereas costiveness was a favourable sign.

THE WEATHER.

Letter to the Same.

Sir,—The drought which had prevailed through the first six months of this year ceased about the 8th of July. Everything was parched; the cereals were backward, and the lawns burnt brown. Nevertheless, the dew-point had been high, and the hygrometer ranged between 50° and 80°; so that the foliage continued green and luxuriant. On the 23rd of June, the air was very translucent; towards the end of the month, mists arose, and July began with overcast days, though the nights were starlight. Rain fell on the 9th; and, by the end of the month, 3.54 inches of rain had fallen in this locality. The rain continued till the 9th of August, by which time 0.60 inch more had fallen. The direction of the wind has been chiefly S.W. ever since the 1st of July.

The cereals, instead of being injured, were benefited by the wet; and the harvest, which is about a fortnight later than usual, promises to be both rich and plentiful. Last year, the reaping commenced on the 28th of July in this neighbourhood; while this year it has been postponed until the 13th of August.

There have been frequent thunder-storms, both inland and out at sea. They have been magnetic, as the needle has indicated by its declination; and during their transit, the

electrometer has shown the electricity of the air to be weakly positive, negative, or *nil*.

The average height of the barometer has been 29.650 and 29.750; the mean temperature has been 62° Fahrenheit; and the *feeling* of the atmosphere mostly chilly. The nights have been cold, as low as 55° and 43° Fahr.

Town sparrows usually go a harvesting. Last year, they left the town about the 3rd of August; they came back again for a short time about the 14th of September, and finally returned on the 1st of October. This year, they did not go a harvesting till the 10th of August; which gave me to understand that the reaping was about to commence, as proved to be the case.

The Registrar-General's returns show that there is no cholera; but then the meteorology is not favourable to its developement; it is exactly opposed to it. Coryza has prevailed, gastrohepatic derangements, with a sharp pulse and debility. The urine seems to have been oxaluric.

The weather changed on the 11th of August; the barometer has risen to 30.130; and the electrometer shows intense positive and active electricity.

I am, etc.,

J. A. H.

Brighton, August 14th, 1855.

THE WEATHER.

Nov. 23rd, 1855.

After the very long drought, which has characterised nine months of the present year, the rain that has lately fallen, between September 27th and November 7th following, has

amounted, in this locality, which is 200 feet above the level of the sea, to the depth of 7.68 inches. The amount that fell from the beginning of the year up to June 30th, was only 6·28 inches, melted snow included. In July, 3·54 inches fell, and in August, 0·71 of an inch. When the south-westerly gales prevail in the autumn, a great deal more rain falls here than farther inland, owing to the clouds, surcharged with moisture from the Atlantic, depositing their load of vapour in floods, the moment they break along this line of coast.

The temperature has hitherto been high; and the gales from the S.W. account for the warmth, together with the south facing, of this locality. The average range of the thermometer may be stated at from 50° to 55° of Fahrenheit. Sometimes it has risen above this altitude, but it has seldom fallen below it. On the morning of the 4th November, it stood at 38°, and there was some sleet, the wind being northerly.

On the 26th October, there was a hurricane from the W.S.E., which lasted twenty-four hours. It subsided all of a sudden, just at high tide, about 10 a.m., on the 27th. The eclipse of the moon on the 25th was hidden behind the driving scud. The flood-tides, driven to shore by the wind, were very high. The barometer rose before the storm burst, and stood at 30 inches; it then fell rapidly down to 29·048. The thermometer varied between 63° and 50° Fahrenheit. The electrometer was capricious. The magnet undisturbed. After the storm, the thermometer sank to 38° Fah., and the barometer went down as low as 28·900, on the 29th, or three days after the tempest. Between September 27th and November 7th, the barometer has varied between 28·900

and 30.045 inches; its average height being 29·500. During the storm, 0·57 of an inch of rain fell.

On the 21st of October, the magnet, whose declination was 20°, retrogaded 1°, and marked 19°, east of the magnetic meridian. But there was an aurora of a ruddy tint, about 10 p.m., that night. In the Registrar-General's Returns for the week ending Saturday, October 20th, it is stated, page 348 : "A fine aurora was seen at night, 18th October, with coloured streamers; the magnets were much disturbed." On that night, in this locality, the magnet was quiet. It will be noticed that the aurora preceded the hurricane of the 26th October; and the other phenomena were altogether remarkable, viz.: an eclipse of the moon, the disturbance of the magnet, the sudden rise and fall of the barometer, the extreme capriciousness of the electrometer, the height of the thermometer, the quantity of rain that fell, and the force of the wind, which is calculated at 0·4, by Mr. Lowe, of Highfield House Observatory.

The prevailing direction of the wind September 27th to October 26th was S.W.W., but afterwards it blew from N.W.N., occasionally going round to the S.W., with plenty of rain. The storm of the 26th October changed the state of the atmosphere, and the autumn was completely established. Until then, the weather was still summerlike, and fires were scarcely wanted.

To say that cloudy weather is dark, is very indefinite. The Greenwich meteorologists call it "cold and dull," which is the popular expression; but it is not accurate nor precise. During the storm of the 26th, it was only twilight, while on the 4th of November, the sunshine was as bright as in June. I have contrived an instrument of a very simple kind, by

means of which I think I can arrive at the amount of each day's light, proximately, at least. It consists of a box, six inches long by four inches broad and three inches deep, lined with lamp-black, and its floor furnished with a white dial, divided into eight spaces; the light enters through a slit, one inch long and $\frac{1}{8}$-inch broad at one end, while an eyelet hole in the roof permits you to look in and see the number to which the direct ray reaches. The light should be received from a clear north aspect at noon. This little contrivance is open to all sorts of objections, and capable of every kind of improvement; but it is good enough as far as it goes. Thus, I find that—

November	3rd,	marks only	4	a dull day.
"	4th,	"	6	bright days.
"	5th,	"	6–7	
"	6th,	"	6–4	
"	7th,	"	5–6	
"	8th,	"	3	the twilight of a gale.

THE METEOROLOGY OF 1855.

Compared with the fatal year of 1854, the weather of 1855 was both fine and healthy. The commencement of January was warm, the temperature being as much as 12° Fahr. above the average; but it was followed by severe cold, which lasted from the 18th January to the 21st of February. There was a good deal of snow and ice; and on the 18th of February, which was the coldest day of all, Fahrenheit's thermometer fell as low as 9°. The feathered tribes suffered severely; the thrush family sought shelter in the public

thoroughfares of towns and villages, and both land and water birds were driven instinctively to the more southern parts of England. Many shrubs and perennials were killed by the frost.

From March to November the weather was fine. The summer was mild and pleasant, and the autumn warm. There were six months of continued fair weather, and the number of fine days throughout the year amounted to 196. The mornings were particularly beautiful, and the starlight nights in the autumn most enchanting.

On comparing the climate of the Crimea with that of the south coast of England, a great similarity will be observed between the two countries. They are both upon the same isothermal line.* Troops encamped on the open downs near Brighton, far removed from their supplies, and harassed with the slow operations of a siege, would not have suffered less during the winter here than the allied armies did on the plateau between Sebastopol and Balaklava; and the hurricane that broke upon this coast on the 25th of October last would not have proved less disastrous than that which wrecked so many of our transports against the rocky coast of the Crimea on the 14th November, 1854—particularly so large a craft as the steamship *Prince*, heavily laden, a lee-shore close astern, and nothing but a stream anchor to hold her head against the fury of the storm.

From the 25th of March to the 5th of May, a drought prevailed, relieved only by a few light showers. In May, 1.50 inches of rain fell, but the drought returned, and continued till the 7th of July. The grass was burnt up, or its growth checked. But the dews were heavy at night. The

* See *Kaemtz's Meteorology*, plate vi.

harvest time was good. September was dry until the equinox. The remainder of the year was wet, but agreeably so, the rain falling in showers, with intervals of open weather, highly favourable to every kind of agricultural operation.

The same drought extended throughout Europe. It was severe at Malta; and the springs at Broussa, in Asia Minor, were dried up.

The amount of rain-fall, melted snow included, was, in this locality, 21.40 inches, of which two-thirds fell between the 9th of July and the 31st of December.

Earthquakes were frequent throughout the year. Constantinople was shaken by one on the 1st of January, and shocks were felt occasionally in that capital till the middle of April. Broussa was overthrown by one; and Mount Olympus emitted smoke like a volcano. Vesuvius was in action in the month of May. In July, there was an earthquake that extended along the valley of the Rhone, the south coast of France, and reached as far as Piedmont and Italy. On September 17, there was a shock at Melbourne, in Australia; on the 29th of the same month, a very severe one, with a sudden rising and sinking of the sea, upon the coast of Japan; and a severe shock was felt, on the 8th of November, at Malta. Earthquakes are most likely always recurring; only, from our present rapid mode of communication with the rest of the world, we hear more of them, and they are also more accurately reported now than formerly.

The cholera threatened to break out again in this country in the spring of the year, but it declined after May, and only a few cases have been since reported. Upon the whole, the health of the population has improved, and the mortality has been low. But this terrible pest has not forsaken Europe; it was

at Constantinople, and in the Crimea, in March, April, and November; at Florence and Genoa, in July; and at Palermo, Naples, the Ionian Islands, St. Petersburg, and Poland, in the month of December.

The barometer averaged 29.700 from January to June, and 29.800 from July to December. Fahrenheit's thermometer was as much as 13° and 17° below the average in February, and from 3° to 6° below the average for the first six months. The second half of the year was warmer than the first. From July to November, it was about 2° above the average; but December 6th it was 5°, and December 22nd as much as 17° below the average; whereas, on the 28th December, it was 10° above it.

As to the direction of the wind, the S.W. prevailed over the N.E., in the proportion of thirty to twenty weeks, or three-fifths of the whole year.

The year closed with very cold weather, preceded by a thick fog November 17th. On the 2nd December, a severe frost set in, and went on increasing in intensity till the 22nd of the month, on the morning of which day, an hour before sunrise, the mercury fell as low as 16° Fahrenheit; but on the following day it thawed, and, on the 26th of December, the thermometer rose as high as 50° Fahr. The ice was four inches thick, and snow covered the ground.

This cold weather was ushered in and dismissed with meteors. One was visible at London, Oxford, and Worcester, on November 30th; and, just before the frost broke, two others were seen, the one, December 15th, at Gateshead, in the shape of a pillar of pale light; and the other, like a fire-ball, on the 19th December, at Barnsley, Leeds, and Bedford. These meteors, if they be not aërolites, are most

likely modified auroras; for they trouble the magnet, and excite the electrometer.

On the 25th of October, there was an eclipse of the moon, visible in England; and the earth was not far from the shadow of the moon at its next change to new, November 9th. The deprivation of reflected solar light occasioned by the eclipse, and the subsequent proximity of the moon's shadow, may help in accounting for the very severe cold weather that followed in December.

THE CHOLERA WEATHER.

AUGUST 2ND, 1856.

For a long time past the weather peculiar to the Asiatic cholera has most happily been absent. The autumn of last year was healthy, the winter mild, and the spring of the present year, though both long and cold, by no means unfavourable to the public health. The mortality has been much below the average. But there have been transient intervals when the epidemic has threatened to show itself again. Thus, for the week ending February 16th, 1856, at p. 50, the Registrar-General makes the return of a fatal case of "English cholera (forty hours), mesenteric disease;" and, in the weeks ending March 15th and 22nd, at pp. 82 and 90, respectively, two more fatal cases are reported, the one of "destitution and diarrhœa," and the other of "choleraic diarrhœa;" but these cases are only the indexes of the

prevailing character of disease, not included within the Registrar's returns of deaths, within the bills of mortality. Now, it was at this very time, when the fatal cases of cholera in a modified form were reported, as just stated, that the atmosphere presented the phenomena peculiar to the cholera epidemic. The 23rd of February was, meteorologically, the most remarkable day of all; the wind was from the north-west, the sky covered with cirro-strati, particularly at noon, and the electricity negative, while a calm prevailed. The air was moist and chilly, the thermometer rose to 46° Fahrenheit, and the barometer stood exactly at 30 in., or *fair*. There was also present that peculiar mistiness, of a dim grey colour, which obscures everything, and makes it feel sticky. All these signs I have already pointed out as peculiar to this epidemic, and they are described in several of the preceding numbers of the *Association Journal*, particularly in No. xlii., October 21st, 1853, and No. lxxxiv., August 11th, 1854, and page 2, of this volume. Every subsequent observation confirms me in the truth of these statements, and my mind has been directed to this particular investigation ever since the year 1832, or more than a quarter of a century. The same kind of atmosphere may have prevailed before, but I apprehend not, for I consider it as the cause or coincidence of the cholera itself. The Asiatic cholera is a peculiar disease, and the accompanying condition of the air is peculiar also. The blood is poisoned, or carbonised. It is deprived of oxygen, or acid. The organic life is suddenly exhausted, and the exhalents are patulous. Death ensues from asphyxia. But what is called the cholera is most likely only the last stage of a disease which has been proceeding for several days, without

having been observed. It is not at first noticed, because it is painless. It begins silently, with indigestion, slight jaundice, absence of the lithates from the urine, chilliness, nausea, præcordial pain and heat, deranged alvine dejections, languor, and broken sleep. Next comes on the precursive diarrhœa, and, last of all, that which is called the cholera itself, but which is nothing more than the final stage of collapse and death. I think it will eventually be found that the prevalence of this singular epidemic is connected with the amount and kind of daylight; for the sky is always shrouded with a veil of thin clouds, the light is dim, and not unlike that which is observed during a partial eclipse of the sun. What if it be polarised light? or the sun's disk exhibit some of its large spots? or the air be charged with vapour that powerfully refracts and weakens the solar ray? These questions are not beneath our enquiry. Magnetism, electricity, heat, and vitality, are closely associated with them.

The *Times'* special correspondent, writing from the Crimea, May 27th to 31st, says, "The thermometer is at 60 degrees, the sky black and overcast, the air hot, and the plateau like a dirty Aldershot." "It is strange," he adds, "that when the wind blows from the north the thermometer rises; when it veers round, and comes from the south, the mercury falls. This can only be owing to the wind being reduced in temperature when it passes over the sea, instead of the heated steppes." The thermometor then rose to 85°. He also mentions "a murrain, or some sort of epidemic, among the cattle of several divisions, caused either by the water, or the grass on which they live." "I fear, indeed," he proceeds, "that the few cases of cholera of which we hear may become many;" and on June 3rd he reports "two cases of Asiatic

cholera," but subjoins that the disease had not "as yet shown signs of an epidemic character." At that time the weather was "broiling hot" in the morning, but was soon afterwards "cooled down by a strong breeze from the sea." This graphic description not only tallies with the usual character of the cholera and its atmosphere, but also shows its proneness to resume its virulence if its specific conditions are prolonged, and its pabulum of tainted air and susceptible vitality be duly fomented.

The foreign news, under date of June 21st last, informs us that the cholera has again appeared in the western and southern suburbs of Vienna. There have been cases in the Gumpendorff, Schottenfeld, and Alser suburbs, where the disease was very prevalent this time last year. Nothing is said about the kind of weather, but it would be very interesting if those who are acquainted with Vienna would give us some account of the nature of the suburbs where the disease is said to have prevailed.

In the week ending June 28th, 1856, the Registrar-General reports four fatal cases of cholera, or choleraic diarrhœa, in London, and there were sixteen fatal cases of diarrhœa besides; but this "is less than the number that usually occurs in the last week of June." Now, the meteorology of June was exactly such as is favourable to the developement of this disease. There have been sea mists, a dark sky, and flights of small black flies. A dark sky is one of the signs noticed by the *Times'* Crimean correspondent, and another remark he makes is the same as that made here, viz., thick mists. In this locality there have been thirty-three misty, foggy, or hazy days between the 1st of May and the last day of June, or more than half the number of days

of the two months taken together. At p. 212, June 28th, the Astronomer Royal inserts in his *General Remarks* under the *Meteorological Observations*, that on the 24th "the greater part of the sky was covered with thin cloud;" that on the 26th there was "a dense blue mist," and, on the other days, that "the sky was generally overcast." All these signs are but repetitions of what I have observed, recorded, and published, often before this.

It is not my wish to raise unnecessary alarm on the present occasion; but the first indications of the epidemic were not greater nor earlier than these in 1854 and 1849, on both of which years it proved so fatal in the end, and there is no doubt of our liability to another outbreak of the pest. Should the wind continue to blow from the west instead of the north-east or north-west, with plenty of rain, we may escape it; but should the northerly winds prevail, with a drought, and a dull sky, we may most surely prepare ourselves for another irruption of it. The best means of mitigating or avoiding its infection are the general rules of health, *i.e.*, personal cleanliness, fresh air, simple but generous diet, moderation in all things, regularity, composure of mind, and early hours of rising and retiring to rest. Much too rigid an attention to particular articles of diet was practised by many from a motive of terror, which aggravated the chances of evil instead of abating them. The ordinary diet is the best. It is stale or bad food that is pernicious. Stale fruit, stale vegetables, stale fish, and stale viands of any sort, are the noxious ingesta that favour its accession. For the most part, the fresh fruits are wholesome. Most of the vegetable acids are anti-choleraic, such as lemon juice, lime juice, cider, good vinegar, pickles, if properly prepared, or cooling drinks,

such as butter-milk, sour milk, sherbet, orangeade, etc. Such remedies as these are well known in South America, where choleraic diseases are frequent, and they are there made use of with great success. In this climate, cognac, genuine port wine and sherry, and sound hock and claret, may be added to the bill of fare. They are agreeable remedies, and as wholesome as they are agreeable. But, after all, it is the *freshness* and *purity* of the food that is chiefly requisite, rather than its kind and variety. Provided it be but pure and good, a mixed diet is perhaps the best. But, above all, the culinary apparatus must be clean; for, next to good food, a good cook is the first of requisites; and a good cook consists, not so much in knowing how to serve up a repast, as in preserving all her utensils in the strictest cleanliness and order. Show me your kitchen, and I will tell you your health. Tell me of your constant indigestion, and I will predict the quality of your cook. Can you have good health from sour food? or anything else than an acid stomach from a foul saucepan? Commonplace as this caution may sound, it nevertheless prescribes one of the first principles of domestic management, without which every other precaution is useless.* It is the grand secret of health and cheerfulness,

* THE EFFECTS UPON HEALTH OF DIRTY COOKING.

LETTER TO THE EDITOR OF THE ASSOCIATION JOURNAL.

SIR,—In some practical remarks offered in a letter to the Editor of the *Association Journal*, for the week ending August 9th, Mr. Bloxam, of Newport, Isle of Wight, thinks lightly of what I said in my article, published in the *Journal*, August 2nd, respecting the necessity of clean utensils in the cooking of food.

About fifteen years ago, my attention was first drawn to this subject, while investigating the predisposing causes, or the concomitants, of that very fre-

and the best preservative there is against the infection of epidemic diseases.

As if to counterbalance the loss of life occasioned equally by war and pestilence, 1854, and 1855, not only is the mortality constantly below the average, but the births also are as constantly above it. This has been the case for the last six months at least, and presents a curious subject of inquiry to our notice.

In the cholera epidemics of 1849 and 1854, the mortality reached its maximum in the second week of September. "In

quent ailment, known as indigestion, or an acid stomach; and I was gradually led to the conclusion, that it chiefly depended on stale food cooked in dirty utensils. I was not aware until then of the carelessness with which the greater number of cooks treat their culinary apparatus. I availed myself of every opportunity to examine as many kitchens as I could, and of comparing the health of the inmates of the house with their mode of having their meals served up to them. The result was, that where the utensils were the cleanest, and the choice of food the most carefully attended to, there the health was the best. But not only was the health in general the best, but the complexions were the freshest, and the cheerfulness was the greatest.

I sent the substance of my observations in this respect to one of the medical periodicals of the day, about twelve years ago, but it was never published, and the reason assigned for its suppression was, that it was a puerility. In spite of this rebuff, I proceeded in my inquiry, and am now convinced that it is not a puerility, but a serious and mature truth.

The heated state of the alimentary canal, may be traced to a dirty manner of cooking the food quite as often as to excess of nourishment. Indeed, I think it must be allowed that overfeeding is not the besetting sin of the present generation; but, on the contrary, a disposition to abstinence and parsimony of diet.

I have known the diarrhœa of children checked and cured simply by *seeing* that the vessel in which its nourishment was cooked was kept perfectly clean and bright. I have *seen* the stale food of yesterday dried up and crusted round the inside of the utensil just about to be used for the food of to-day, put upon the fire without being first cleansed and polished. Can this be anything but noxious? It is the same with the cooking utensils employed for children of a larger growth. I leave the enquiry to rest on its own merits.

I am, etc.

J. A. H.

Brighton, August 11th, 1856.

both eruptions," says the Registrar-General, in his return for the week ending September 16th, 1854, p. 357, "the mortality was the highest on nearly the same days of September, and its decline commenced in the corresponding week." In the corresponding week of the present year, the Registrar-General, in his return for the week ending September 13th, 1856, reports that four deaths are returned as caused by cholera in London, two of which are those of infants, and two of women aged respectively 42 and 81 years." So that there were four deaths from this disease in the second week of September in 1856, while there were 2,050 deaths in the corresponding week of the same month in 1854. What is the cause of this difference?

Concerning the weather of 1854, the Registrar-General reports for the week ending September 9th, p. 325: "The sun has great power, but clouds and fogs have intervened; no rain has fallen; the wind has been very dry and languid; the electricity positive," etc. Let us compare this report with that for the corresponding week of the present year. The Registrar-General, in his weekly return of the meteorological observations taken at the Royal Observatory, Greenwich, under the superintendence of the Astronomer Royal, p. 296, reports the temperature as being 1 deg. below the average; in 1854, it was above it. The movement of the air in 1856, as being denoted by the figures 420, while in 1854 it was only 195; the rain as being 0·09 in 1856, while in 1854 it was 0·00, or zero; the sky in 1856 as being variable with thunder-storms and rain-clouds, but, on the contrary, monotonous and motionless in 1854; and the electricity, which was positive but weak in 1854, as being both active and positive, with strong tension and volleys of sparks in 1856. Now,

no contrast can be greater than this, and yet this is not all; for the barometer furnishes a still stronger contrast than anything else. For the six weeks extending between August 26th and September 30th, 1854, in the Registrar-General's returns of the meteorology at Greenwich, the barometer is quoted at 29·915 in., 30·202 in., and 30·166 in., when the disease had reached its height; and at 29·857 in., 29·972 in., and 30·076 in., when the epidemic was declining; giving a mean height of 30·031 in., according to Mr. Glaisher's computation, quoted in the Registrar-General's Quarterly Return for July, August, and September, 1854, page 30. On comparing the corresponding six weeks extending between August 23rd and September 27th of the present year 1856, the barometer is quoted at 29·472 in., 29·821 in., 29·847 in., 29·852 in., 29·905 in., and 29·241 in., according to the several weekly returns of the meteorology at Greenwich, giving a mean height of no more than 29·591 in. The contrast presented by these numerals is so self-evident that it requires neither remark nor comment, since it speaks for itself; it is, in short, the difference of nearly an inch in the height of the mercurial column.

It may be objected that this is pressing the value of figures too far, and playing with arithmetic for the purpose of enunciating a favourite opinion of one's own. But they, who have recorded the foregoing observations on the weather, and returned them in their reports, have been entirely uninfluenced by any preconceived notions on the subject. Their statistics are official data stamped with the seal of public authority and credit, and as documentary evidence they are of the highest value, if not entirely incontestable.

In an article published in the *Association Journal*, for the

week ending August 2nd, 1856, I ventured to predict that there was this year "no doubt of our liability to another outbreak of the pest, but should the wind continue to blow from the west, instead of from the north-west or north-east, with plenty of rain, we might escape it; but should the northerly winds prevail, with a drought, and a dull sky, we might now surely prepare ourselves for another irruption of it." What I predicted has literally come to pass. The atmospheric conditions peculiar to the prevalence of Asiatic cholera have been absent, and the disease has been absent also. In March and June, the atmospheric conditions were present for a short time, and so was the disease. The atmosphere changed for the better, and the disease ceased. Allowing for these two slight exceptions in June and March, the weather has been just the reverse of the cholera atmosphere. Instead of a drought, there as been rain; instead of a calm, frequent storms of wind; instead of an overcast sky, white cumuli on the alert throughout the summer. September, 1854, was almost devoid of rain. September, 1856, has been wet. Above all, instead of a barometer obstinately fixed at 30 inches, it has, on the contrary, been fluctuating between 30·120 and 28·520 inches. If the movement of the air was represented by the figures 185 in 1854, it has, in 1856, ranged between 420 and 1020; or, the movement of the air has been five times as rapid in 1856 as it was in 1854.

Another singular feature in the history of this plague is the one which is being slowly brought to light respecting the most successful treatment of it. The weight of testimony decidedly preponderates in favour of the mercurial treatment. It brings us back to the old and acknowledged system of therapeutics, and strips the disease of much of its anomalous and

mysterious character. In its early stages, the mercurial treatment, judiciously employed, seems altogether successful, while even in its last and worst stage, the greater number of cures seemed to be justly attributable to its prompt employment. This practice corresponds with that which we heard so much of from India, before we became acquainted with the disease in this country, and gives us a clue to its pathology, which is akin to that of congestive inflammation, arising from contaminated blood.

THE METEOROLOGY OF 1856 AND 1857.

The meteorological phenomena of 1856 and 1857, so far as they relate to the public health, may be grouped into a single tableau, comprising a consecutive chain of events. As the fatal year of 1854 was not less remarkable for its epidemic than for its atmospheric peculiarities, so the three following years, from 1855 to 1857, were no less remarkable for their salubrity; and, with a few exceptions, the regularity of their seasons. During their course, cholera was absent altogether as an epidemic; the south-westerly winds prevailed, the temperature was normal, and the rain-fall sufficient. The meteorology of 1854 was published in the *Association Medical Journal, No. CXL*, February 16th, 1855, p. 151; and that of 1855, in the same *Journal, No. CXL*, January 26th, 1856, p. 66: and I now proceed to draw up a summary of the years 1856 and 1857, from daily records of my own as well as from those of the Astronomer Royal, at Greenwich, published in the *Registrar-General's Weekly Returns of Deaths, etc.*

The winter of 1856 was generally mild. Snow fell on three days in February, the 20th, 23rd, and remained upon the ground for only one day, the 21st. Upon the quarter ending March 31st, the temperature was somewhat in excess; the air was very moist, though the barometer indicated dry weather; and the equinox was calm. The spring was cold and wet. April, indeed, was congenial, and suitable to farming operations; but May set in with rigour, being 4° Fah. less than its average. The nights were chilly, and the grass and young crops suffered in consequence. The 31st was 9° Fah. below the average of the season. Thunderstorms were frequent, as well as strong gales of wind and rain; and the spring, which had opened with such excellent promise, closed unfavourably to the haymakers, gardeners, and florists. The apple trees and wall-fruits were utterly blighted. The bees were unable to set the blossoms. There were dark mists, and flights of small black flies. Between January 1st and June 30th, there were as many as fifty-six days of fog, mist, or haze, or about one-third of the whole period. July was also dark, misty, and cold. There were some short intervals of excessive heat; the thermometer standing at 102° Fah. in the sun, and 75° Fah. in the shade, on June 27th and 28th; and there was another scorching interval from July 30th to August 11th, when the thermometer rose to 113° Fah. in the sun, on the 2nd of the latter month. But August closed with mists and a damaged harvest.

But at this time the weather cleared up, and the next sixteen months that followed were uninterruptedly seasonable and pleasant. From September, 1856, to December, 1857, everything proceeded well. The temperature was at the average of the respective seasons. The autumn of 1856 was fine

and open. The winter began early with a fall of snow on November 26th, and ice formed upon the ponds to the thickness of three or four inches. The greatest cold in the night was 26° Fah. There were some interruptions to the frost and snow. The end of the year 1856, and the beginning of 1857, were mild; but the frost set in again on January 16th, and the snow lay upon the ground from the 24th of this month till February 11th. The greatest cold in the night was 22° Fah. The weather continued wintry and frosty, with occasional falls of snow, till the middle of March, when the spring suddenly opened, and the winter disappeared. The trees budded, and the swallows returned early; and from April 29th till November 29th following, there was not a single frosty night, so frequent in this country, even at midsummer. The sky was blue, and chequered with clouds .The cirri were numerous. The mornings and evenings were delightful. The nights were starlight, and the temperature was equable. Though June was remarkable for its intense heat, the 28th of that month being the hottest day we have experienced since July 6th, 1846; yet the heats of summer were not oppressive, and we were allowed to enjoy the splendour of a tropical climate, without being exposed to the imminent perils of the tropics. The fruits were abundant, the cereals excellent, and the cultivation of the land propitious. The autumn was particularly pleasant, and the close of the year mild, bright, and cheerful.

The amount of rain-fall in 1856 was 12·06 inches in the first six months, and 15·20 inches in the last six; which was rather above the average. In 1857, the rain-fall measured 25·81 inches, or about the average. The last six were, as usual, wetter than the first six months. The driest were

February, June, and December. August was amongst the wettest, and October the wettest of all.

The S.W. winds blew one hundred and sixty-four days in 1856, or more than half the year; and in 1857, for two hundred days, or nearly two-thirds. In 1854, the year of the cholera, the prevailing winds were N., E., S. But, storms apart, the movement of the air, although continual, has not been strong during the past year; for the millers inform me that they have been able to work their windmills less this year than in most others. On the 7th and 8th of October, there was one of those severe storms, from the S.W.S., which Humboldt calls magnetic. The magnet was disturbed several days previously, and a long streak of cloud passed from S. to N., in the line of the magnetic meridian, before the storm burst. The barometer fell to 28·790 inches. The force of the wind, as estimated by Whewell's anemometer, at Greenwich, was represented at the rate of 205 miles in the day.

The harvest of 1856 was late, and badly got in, owing to the dampness of the weather; but in 1857, the crops were universally good and abundant, and the reaping unusually early and complete.

The meteorological conditions appear to have been generally favourable to health. The mortality during the first half of 1856 was below the average in the proportion of 21 to 23 per 1,000, and the births were at the same time unprecedentedly high. The natural increase of the population from diminished deaths and increased marriages in the first quarter of 1856 was, according to the Registrar-General's *Quarterly Returns*, no fewer than 66,044 in England alone; and in the last quarter of 1856, the mortality sank as low as 20 per 1,000

per annum. In the first quarter of 1857, the natural increase of the population of the United Kingdom was calculated to be at the rate of 1,000 a-day; while in the second quarter it probably exceeded 1,100 a-day; and the same ratio of increase was recorded till the close of the quarter ending September, 1857.*

During these two years, there have been several atmospheric and telluric phenomena deserving of notice. On January 6th, 1856, there was a meteor, at sunset, visible at Rouen, in France, and at Knolles Park, in Wales, giving a base-line of 250 miles, and, by triangulation, its proximate altitude was found to be sixty miles at least above the earth's surface; and on December 17th, 1857, another meteor was visible at Durham and at Brussels, giving a base-line of 400 miles, and consequently an enormous elevation of the fiery globe above the earth, probably not less than 150 miles. The size of these two meteors must have been something prodigious.

On October 12th, 1856, there was an eclipse of the moon. As the earth's shadow passed over her surface, the darkened portion of her disk became of a reddish tint, with a pale green edging. An unpleasant twilight pervaded the land and sea, and the stars shone with a faint and sickly splendour through the gloom. It was on this night that the shock of an earthquake was experienced at Malta.†

Several earthquakes were reported in these two years. The

* See *Quarterly Returns of Marriages, etc., published by authority of the Registrar-General*, 1857, No. 33, p. 2; and also No. 34, p. 2.

† "—— Earthquakes, like oceanic tides, have a certain connexion with the moon's age, and with the time of her passage over the meridian."—*Arago, Popular Astronomy, book xxiii., c. xxv., vol. ii., p.* 466. *Longman*, 1858.

Punjaub was visited by a succession of them, and the first shock was felt at Lahore, on Sunday, May 9th, 1856. It caused a feeling of sickness. The weather was sultry. On Wednesday, June 25th, there was a shock at Adelaide, in South Australia; and Last Island, in the Gulf of Mexico, was submerged and entirely covered with the sea about the same time, and seventy-five lives were lost. On October 12th, a very severe one was felt in the Mediterranean, extending from Calabria, in Italy, to the island of Rhodes; and its focus seems to have been about Rhodes and Candia; at the latter place, 500 mangled corpses were dug out of the ruins, and not more than fifty houses remained uninjured. It was felt at Macri, on the coast of Asia Minor, opposite Rhodes, and at Beyrout, in Syria. It stopped the pendulums of the Royal Observatory at Palermo. The barometer stood at 30·201 inches. There was a fog at the time. The English steamer, *St. Andrew*, felt the shock at sea, 300 miles from Rhodes, and sprung a leak. A deluge of rain followed. The sentries at Malta reported a red glare in the heavens, and the dogs howled previous to its occurrence. On the night of December 17th, 1857—the night of the meteor seen at Brussels and Durham—a violent earthquake shook the kingdom of Naples. Its focus seems to have been at Salerno. It extended as far as the coast of Africa on the south, Croatia on the east, and Bavaria and Sweden on the north. The shocks were repeated for several days afterwards. Many other towns, Polla, Polenza, and Sola, besides Salerno, suffered greatly, houses being thrown down, and the earth rent in twain. It destroyed 14,000 lives, at the lowest computation. Lesser shocks were felt at sundry places: at Constantinople, in February 1856; at Sedge Hill, Wilts, in England, in March,

1857; and at Aix la Chapelle, and Coire, Grisons, about the middle of June, in the latter year.

Vesuvius was in action throughout 1857, but chiefly during the summer and autumn. In the beginning of 1856 there was a volcanic eruption of some violence from a mountain called the Mauna Loa, 1,200 feet above the level of the sea, in the Sandwich Islands. Near the Azores, the master of the British schooner, *Estramadura*, of Glasgow, reported an eruption of hot vapour from the sea, on a clear day, November 25th, 1857. In Central America, as well as along the mighty chain of the Andes, and also in the volcanic groups of islands in the Southern Ocean, the volcanoes have been continually at work.

That the action of internal fire, thus manifested by volcanoes and earthquakes, powerfully modifies the temperature of the air and its barometrical pressure, there can be no doubt. It is not possible that a large funnel, such as that of Vesuvius, should continue emitting vast bodies of flame and red hot lava, without diffusing a very great amount of heat extensively throughout the upper regions of the atmosphere; and the heated gases that escape from fissures in the rocks produced by earthquakes, or the boiling vapours forced from the depths of ocean by the same stupendous agency, cannot fail to help in producing the same effects. From some observations that I have made, but too long to be narrated here, it appears to me that changes of temperature are due as much to the earth itself, in its capacity of a globe charged with caloric, both latent and free, as to the air we breathe, or the sun's rays by which we are warmed and lighted.* Certain it is that the heat, measured by a thermometer, with its ball

* Humboldt, Cosmos, vol. v., p. 441, et seq.—Bohn's Ed. : London, 1858.

two feet below the earth's surface, by no means corresponds with the variations of the air above; indeed, its variations seem to be influenced by causes of its own; and such may be the case. For the earth, besides being the magnet in chief, is the largest of electrical bodies; while its interior is evidently a laboratory alive with elements perpetually undergoing their electro-chemical changes on a gigantic scale, and producing results of which volcanoes and earthquakes are but partial, though enormous, phenomena. The magnetic and electro-chemical action of the earth itself, on the health of mind and body, must be as powerful as it is constant and immediate.

Spots appeared in the sun in March, and gradually increased in number and size as the year went on. They recur about every eleventh year in a century, and are supposed to be coincident with a hot summer: 1846 was hot, so was 1835, and so were also 1824 and 1813.

The Asiatic cholera was reported from the Crimea and Vienna in the spring of 1856, and a few solitary cases were recorded in the Registrar-General's returns, but it was not rife in the United Kingdom throughout the whole of that year. It was the same in 1857. A few cases were reported in August and September, but the disease never gained ground, and in each case it might be attributed to local causes or infection from the Continent: for it prevailed in Hamburg, on the Elbe, as at Glückstadt, for instance, and along the shores of the Baltic, from Finland and Denmark, to St. Petersburg, in August and September; but the British isles were entirely free from it in its epidemic form. The second week of September, hitherto its worst period in this country, showed a gradual diminution of cases, which had been on the increase

during the two preceding months; and it must be observed that the weather, peculiar to the cholera, had been altogether absent both in 1856 and 1857; thus affording a negative proof of the coincidence of atmospheric peculiarities with the rise, progress, and decline of the disease.

Should the morbific condition of the air, which seems to be its efficient cause, cease altogether, there is every reason to suppose that the disease would cease also, and that the Asiatic cholera, the dreaded pest of recent years, would, like former epidemics, at length vanish from the earth, and be remembered only among the data of the past. Should the north-westerly winds from the Baltic and the north of Germany, which have always prevailed in cholera periods, loaded as they are with chilly vapours, snow, or drizzling mists, give place to the more genial gales from the south-west, warm from the gulf of Mexico, for several summers in succession, I cannot forbear from expressing my conviction, that the Asiatic cholera would not recur during such favourable seasons, but would, were such seasons continued long enough, at last disappear from Europe, and, in fine, never be heard of again in the western hemisphere. Seven years have elapsed since these observations were made, and the Asiatic cholera has not reappeared. Scattered cases may have been reported throughout the whole of that time, but the disease, in its epidemic form, has been entirely absent. But, then, the westerly winds, which I calculated upon, have continued to blow, and the conditions of the atmosphere, favourable to the epidemic have not once prevailed. Can any proof be more conclusive than a negative evidence, like this, which amounts, in fact, to the character of a proof positive ?

In each year in which the cholera has broken out in this

country, the barometer has invariably stood at 30 inches, a little more or less, throughout the whole period of its continuance. This was the case in 1832. My attention was drawn to the circumstance from observing a high barometer with a cloudy sky, although I was not aware of the eventual importance of the observation I was then making. In 1853 this was remarkably the case: the disease was at its worst when the barometer was at 30 inches, and it declined in exact proportion as the mercury sank to 29·500 inches, or thereabouts. I published an account of it in the *Association Medical Journal, No. XLIII.*, October 21st, 1853. It was again the very same in 1854, according to a series of very careful observations that I made in that year, as well as from all that I could gather from the observations of others published on this interesting point. At p. 33 of the Registrar-General's returns for the quarter ending September 30th, 1854, it will be seen that, at forty-seven stations in England, Wales, Jersey, and the Isle of Man, where authentic observations were taken, the barometor stood at 30 inches, a little above or below, but chiefly at 30 inches, during September, when the disease was at its worst; and that subsequently, when the disease was declining, the returns from the same localities for the quarter ending December 31st, 1854, showed the barometer at a mean elevation of 29·740 inches, and occasionally as low as 29·600. But last year, 1857, which was so remarkable for its salubrity, the barometer oscillated between 28·500 inches and 30·578 inches—a difference of two inches or more, as may be seen by referring to the Registrar-General's returns for the three first quarters of that year, giving the observations taken at the same places as those already quoted for 1854. My own observations agree entirely with these

returns. In the *Association Medical Journal*, No. cxlviii., October 18th, 1856, I published an account of the barometer for that year, when cholera was absent, in comparison with that for 1854, when cholera was present; and the contrast was as striking as it was complete and conclusive. It showed the barometer obstinately at 30 inches in the year of the cholera, and oscillating considerably above or below it when the disease was absent or declining.

As to the electricity of healthy and unhealthy years, the results are less satisfactory, because the subject in a medical point of view, is a recent, if not a new one; and yet my observations, such as they are, supply data by no means insignificant, and which, when coupled with those of the Astronomer-Royal at Greenwich published in the Registrar-General's weekly returns, furnish matter of no small value and interest. Thus, during the cholera of 1853, the terrestrial and atmospheric electricity was generally considered negative; while, during the cholera of 1854, it was reported positive, but weak. In 1832, I had not thought of connecting electricity with pathology, nor am I aware of any published records on this subject of that date; but, judging from the kind of sky which prevailed, the stillness of the air, and the debility that characterised disease at that time, I should, on comparing it with what I now know of the question, have no doubt in regarding it as negative, weak, or *nil*. My opinion is problematical, and open to correction by those fortunate enough to possess any authentic remains on this point, and which would be most acceptable were they recovered and brought to light. In 1854, my private observations led me to conclude that the electricity was negative, certainly weak, and frequently inert. In 1853, when the cholera was so severe at Newcastle,

in the month of September, the prevailing electricity was negative.

We do not yet know the precise meaning of *positive* and *negative*, as applied to electricity. They are conventional terms used to express opposite scientific relations, but not significant of any acknowledged quality or state. Neither is it possible to designate either the one or the other with the same exactness as we describe an algebraic quantity, a mathematical axiom, or a medical fact. We rather imply conditions, the extent and nature of which are indefinite. This ambiguity is unavoidable, but not irremediable. The subject is still *sub judice;* and an approximation to the truth is preferable to no knowledge of it. To me it appears all but incontestable, that what is called negative electricity goes with diseases called asthenic, while the positive belongs to such as are sthenic or inflammatory. Negative electricity is coincident with mild and moist weather; the positive with the cold and frosty, or the hot and dry. In the summer, the electricity is considerably less energetic than in the winter; but then, in the former season, its energy is restored by lightning or gales of wind. In 1857, when the temperature was high and dry, the electricity was for the same space of time (270 days) positive and generally active, with strong tension; and the negative was limited to a very small number of days. (See the Astronomer-Royal's observations in the Registrar-General's weekly returns for 1857.) Now, that year was a singularly healthy one. More extended inquiries may show many of these notions to be erroneous or nugatory; and, on some future day, electricity itself may stand on a new and firmer basis. My mind is open to conviction, and I am ready to consider the question in all its bearings.

Be this as it may, the kind of electricity is certainly connected with the amount of daylight. There is less light on those days on which the negative electricity prevails, than on the bright, when the electricity is, with a few exceptions, positive. In cholera periods, the light is diminished. I have already described this kind of atmosphere in the *Association Journal*, August 2nd, 1856, and p. 2 of this volume. Of the two years 1856 and 1857, the latter, though much fairer than the former, was darker by one-eighth. This diminished daylight was owing to the greater amount of clear blue sky in 1857; for blue sky gives back no reflected light. Large white-headed clouds were numerous, and there was a good deal of snow, in the winter of 1856, both of which increased the reflected light greatly. But reflected light contains polarised rays, which are reasonably supposed to be less favourable to health and life than the direct solar beam; and the insalubrity of the moon's ray is thus accounted for. The year 1857, although somewhat darker than 1856, was illumined by the direct solar beam, which may help in accounting for its greater salubrity.

The returns of health are seldom favourable when the sky is grey, the air moist, the daylight diminished, and the electricity negative. The cholera atmosphere is a case in point. On the contrary, the public health is good when the season is open, the clouds distributed in masses, the moisture condensed into showers, and the electricity positive. A large amount of solar beam is as essential to the human as it is to the vegetable creation: hence the insalubrity of cities enveloped in smoke, the northern aspect of dwelling houses, barracks, and hospitals; and the short lives of miners, clerks, and artisans, shut out from the daylight at noon.

By a small contrivance, an account of which was published in the *Association Journal*, Nov. 23, 1855, and p. 41 of this volume, I have been able to measure and record the amount of daylight for the last two years and upwards. I regret that I had not found out the means of doing so twenty-five years ago. I find that February is the darkest month in the year, August the brightest; the last six months are brighter by one-fourth than the first six, the atmosphere seeming to have acquired a luminosity of its own, which it does not lose till the end of January. If carefully prosecuted, it is an inquiry intimately associated with health and longevity; and it would be most interesting, were it applied to town and country, high and low situations, sea and land, northern and southern latitudes.

The years following an outbreak of cholera have been hitherto marked by an increase of human life, shown by the returns of a diminished rate of mortality. This phenomenon has been prominently exhibited in the last three years, succeeding to 1854. It has been variously accounted for. The epidemic was supposed to have carried off the sickly, and left only the strong; but this is contrary to the fact, for it was the mature and strong that were the most obnoxious to the disease. Others have surmised that cholera occupied the place of other diseases; and that, when it had attacked and carried off its particular victims, it left a healthy population behind. This is so far true, as that, in 1853, the rate of mortality from the ordinary causes was one-fifth below the average. Again, it has been conjectured that the better habits of hygiene adopted by the public, impressed with a dread of infection, tended to improve the general health; but can this improved moral and hygienic discipline be shown

and vouched for? In 1855 and 1856, the natural increase of the population was ascribed to the return of the army and navy from the seats of war; but this infusion of fresh life does not serve to account for the singular absence of fatal disease throughout the rest of the population. It is evident that the phenomenon remains to be explained upon principles of which we are not yet cognisant. During the past year, the number of persons who have died at a very advanced age is some proof, as far as it goes, of the old being able to survive the deleterious influences of a prevailing epidemic and a malarious atmosphere conjoined. Of more than 200 nonagenarians recorded in the Registrar-General's weekly returns for 1857, a large proportion is stated to have been living not only in unhealthy localities, but among the lower classes of society. Of 123 women, the greater number were widows. Thirty-five only were men, of whom a scanty few are designated as *gentlemen*. Seven had reached the verge of 100 and upwards. This return of extreme old age is only for one year, but it is sufficient to show that the old escape the pest as well as many of the young. How, then, shall we account for the extraordinary phenomenon of the increase of life, if not of longevity, after an outbreak of cholera? The answer to the question involves the consideration of a wide range of circumstances, pathological, social, and atmospheric; and the results of experience extended over a large portion of the globe, and continued uninterruptedly for a great length of time, are requisite for arriving at a definite conclusion.*

* THE CHOLERA IN FRANCE.—The *Journal des Débats* of yesterday has a short article on the cholera in France. The number of victims to this disease in 1854 is estimated at 150,000 only, but this is considered to be far below the real number of deaths. The deaths in the urban or town districts averaged 57 out of every 10,000 inhabitants, and in the rural districts 34 out

THE METEOROLOGY OF 1858.

The year 1858 was a remarkable one, both in a meteorological and sanitary point of view. There was an eclipse of the sun and moon in the spring, and a brilliant comet in the autumn; the mortality of the year was above, and the marriages and births were below the average. Indeed, during the last two weeks of November, the deaths were in excess of the births, and the natural increase of the population, which has been constantly progressive for so many years past, was, during this short interval, suddenly reduced below its steady and customary ratio. The natural increase of the population for the United Kingdom in 1858, was not more than six hundred and forty-two daily (Quarterly Return, 40, December 1858, page 2), whereas it had been throughout the preceding year 1857 as high as one thousand and twenty-one a day (Quarterly Report, 38, July 1858, page 2). The last three months of the year 1858 were particularly unhealthy; and the Registrar-General declares (Quarterly Return, 40, page 1), "that it has never before happened that so many

of every 10,000. The mortality of the two sexes was pretty nearly equal in the towns, but in the country the number of female deaths exhibited a remarkable excess. The ravages of the disease throughout France were strikingly less in the first two "invasions" than in that of 1854; thus, in 1832, the deaths from cholera are reckoned at 102,735 only, and in 1849 at 110,110, while in 1854 they rose to 150,000, but it is shown that the disease gains in extent what it loses in intensity. Another remarkable fact is that the mortality increases in the direct ratio of the age of the patients—thus, above the age of 20 years the number of deaths exhibits a striking increase. —*Times*, June 3, 1858.

deaths were registered in any autumn quarter, as in this last.") The mean mortality for 1857 was less than twenty-two in a thousand (Annual Summary of 1857, page 4), but the mean mortality of 1858 was twenty-three in a thousand (Quarterly Return, 40, December 1858, page 5). The year 1858 may, therefore, be regarded as a very unhealthy one.

The year began at the usual temperature of the month of January, the first and third weeks of which were as much as from three to four degrees below the average of the season. February was cold nearly throughout. Snow fell on the 2nd, and lay upon the ground; and it continued to fall occasionally till the end of the month. On the night of the 26th, there was a partial eclipse of the moon, and the thermometer sank as low as 23° Fah.; the frost was severe, and the ice two inches thick. March was still colder than February, and the temperature of the first fortnight was as much as 8° Fah. below the average. Snow fell, and lay upon the ground, from the 1st to the 6th of the month. The frost then gave way to a partial thaw, with hail, rain, and sleet, followed by a heavy snow storm; and the ground was again white from the 11th to the 13th. This hard weather again ended in hail, rain, and sleet, and, finally, in a complete thaw. On the 15th, there was an almost total eclipse of the sun at 1.10 o'clock, p.m., of which I published a scientific account in the *British Medical Journal*, No. lxviii., New Series, April 17th, page 308. Previous to the eclipse, the electricity had been positive, and the weather cold, but subsequently it became negative, and the air warm, the temperature averaging about 3° in excess. The mean reading of the barometer throughout the first three months of the year was nearly half an inch in excess; and for the first fortnight after the eclipse it stood

above thirty inches, and on the 22nd rose as high as 30·422 inches. April and May were both of them cold, perhaps about 1° lower than the average; but June was hot throughout, and was said to be hotter than any month of June since 1771, except the June of 1846. The barometer stood unusually high, being scarcely less than thirty inches all the month. The weather was bright and pleasant. July was cold, and it was in the middle of the month about 5° in defect. August was fine, and September warm, and at one time 4° in excess. The air was remarkably dry, clear, and luminous. The harvest began early. Wheat was cut on July 17th, or nearly three weeks earlier than usual, although the yield of corn was not great. There were several thunderstorms in July and August; and the aurora was seen at Liverpool on July the 16th.

A singularly brilliant comet appeared in the N.W. in September and October. Its right ascension, September 28th, was 12h. 46m. 30s.; its declination 32° 19′ 9″ N.; and its time of setting in London, 9.53 p.m. On October 10th, when it was nearest the earth, its right ascension was 15h. 7m. 5s.; its declination 4° 38′ 2″ N.; and its time of setting in London, 8.15 p.m. In a letter to the editor of the *Times*, dated September 28th, Mr. Hinds calculates its distance from the earth, on October 10th, at 51,000,000 of miles, and the apparent length of its tail about 12°, corresponding to a real length of 16,000,000 of miles. Arcturus was visible through it. In the transparent atmosphere of the continent, I had an opportunity, not often met with, of enjoying the splendid sight of this inexplicable meteor or eccentric planet, as I travelled from Montpellier to Dijon, and from thence to Fontainebleau, Paris, Dieppe, and home.

October was fine. It began with the aurora, and strong gales. A few cold, fresh days excepted, it was nearly 2° above the average. November, on the contrary, was extremely cold; the mean temperature of the 23rd and 24th was reported at Greenwich to have been lower than any two consecutive days in November during the last forty-five years. On the 24th, the thermometer sank 12° below the freezing point of water. The mean temperature of the month was not more than 39.6° Fah. In Paris the thermometer was 10° lower than in England, and in Austria it was reported 10° lower than that. There were heavy falls of snow in the north of Great Britain, and also in Belgium and France. At Lyons the streets were nearly blocked up with it. The same weather occurred in Italy. In England, thick mists prevailed throughout the quarter, and November was particularly remarkable for several very dark fogs. On the 15th of this month, there was a severe storm of wind that did great damage to life and property, both by sea and land; and then the weather suddenly became warmer, and was nearly 6° in excess of the season. December was likewise warm; there was thunder on the 18th; and the year closed at a temperature of 1° warmer than usual. There was a great deal of illness everywhere; and the death-rate was higher than in any autumn quarter upon record. It is very remarkable that, during this sickly period, from November 14th to December the 31st, little or no terrestrial electricity was exhibited by the electrometer, and that what little showed itself was, with the exception of December the 22nd, uniformly weak and negative. At the same time, the humidity of the air was almost *plus*, as it was denoted by the figures 81 or 92, complete saturation being 100,

No state of atmosphere could be more adverse to health and life than this.

The wind blew from the S.W. for about two hundred days; all the rest of the year, it was from the N.E., with some few exceptions from the N.W., and still fewer from the S.E. The mean horizontal force of the wind was about five hundred and fifteen miles a week, according to Whewell's anemometer, Greenwich; which is considerably stronger than in the preceding year, 1857, which averaged scarcely more than two hundred miles a week. The first week in December was the calmest of the year; and the third week in December, and the second in May, the most blustering. The vernal equinox was calm; the autumnal, tempestuous.

The amount of rainfall in the twelvemonth did not exceed eighteen inches, the annual amount being about twenty-four or twenty-seven inches. It was a dry summer; and, in many parts of the country, the wells were exhausted, and the pasturage burnt up. It was a good season for wall-fruit, and the orchards were very productive. I am old enough to remember the comet of 1811, and can distinctly recollect the parched state of the ground in the autumn of that year. This summer I was in the south of France, and can bear testimony to the universal satisfaction expressed at the excellence and abundance of what is called a *comet-vintage*.

While travelling, I noted the weather; and, in comparing notes on my return, I found that the wet and the fine days on the continent corresponded almost exactly with those in England. Thus, the 24th of July, which was wet in London, was the same in Paris. The 28th was wet at Poictiers, and also in London. On Sunday, August 5th—a very hot day at Angoulême—the thermometer stood at 100° Fah. in the sun;

at Greenwich, and at Bordeaux, it was 80° in the shade. Between August 8th and 16th, I was at St. Nicolas, near Sarlat, in the Dordogne, while the weather, which was so hot here, was the same there; and on the 14th, as I was looking at a sketch just drawn from Nature, "a great and unusual darkness," to quote the very words of the Greenwich reporter in the Registrar-General's weekly returns, under that date, p. 264, "prevailed about 4 p.m.; the wind changed from N. to W.; rain fell heavily; lightning was seen; and thunder frequently heard." On the 18th of August, it was rainy at London, as well as at Bayonne; and, while we were exposed to the *mistral*, that "scourge of the south," at Nimes, a strong gale was blowing from the E. at Greenwich at the same time—viz., September 23rd. The apophthegm, "*Cœlum, non animum, mutant qui trans mare currunt*,"* is, as far as my experience goes, just the reverse of truth.

Shortly after my visit to Bayonne, that fortress was shaken in the autumn by an earthquake, which extended as far as Biarritz on the coast, and St. Jean de Luz at the foot of the Pyrenees. In October, there was a severe shock of an earthquake at Lisbon and its neighbourhood, the most violent since the great one of 1775. Five persons lost their lives, and many were injured by it. At the close of the year, a third was reported from Venice and the coasts of the Adriatic. Most likely shocks are always happening, although not always reported. Strabo, who, in his day, considered Vesuvius as an extinct volcano, and describes the vines and flourishing verdure that reached almost to its top,† gives a long catalogue of the volcanic eruptions that had repeatedly altered the face of Nature, in the Archipelago, in the old times before

* Hor., lib. i., epis. xi, 27.

† Lib. v, c. iv, § 8.

him ;* and the venerable Humboldt has recently treated of the same subject in a more masterly and scientific manner, though certainly not in a more emphatic and pleasing style, than that of the celebrated Greek naturalist and geographer, eighteen centuries before him.†

The inner life of the earth affects the health, happiness, and prosperity of mankind, as intimately as the external agencies of light, heat, and electricity, as well as the more dazzling meteoric phenomena, such as lightning, solar or lunar eclipses, volcanic fires, mephitic emanations, and those enigmas of astronomy, comets and candescent aërolites, are supposed to do. Their noxious influence on both mind and body is ancient and proverbial. The past year is a case in point. They are electro-galvanic operations, increasing or intercepting the solar beam, the degrees of heat, and the several combinations of the air we breathe, on so extensive a scale that they cannot fail in modifying the highly sensitive nervous structure of the human frame, whose delicate machinery is set in motion by a current of chemico-vital dynamics, that excite, suspend, or abolish animal existence, at a touch as fine and decisive as it is permanent and gigantic.

The foregoing observations and remarks formed a series of articles that appeared at intervals in the *Association Journal*, between 1853 and 1858, and were intended to explain and illustrate a peculiar condition of atmosphere incidental to a particular disease. I had some thoughts of rendering them more pleasing and attractive, by drawing them up in the form of a narrative, but, by so doing, they would have lost much, if not all, of their real value, which consists in their

* Lib. 1, c. iii, § 16, et seq. † Cosmos, vol. i, p. 199, et seq.; vol. v, passim.

being laid before the scientific reader, *al fresco*, just as they were put to paper at the moment of observation. Hence they may seem to be desultory and unconnected, although the leading idea is never lost sight of from first to last. Repetition and delay are unavoidable. Time and patience are requisite, if certainty be the object of pursuit. Facts must be considered under every variety of circumstance, and viewed in every degree of light and shade. Arago, whose minuteness and accuracy are proverbial, is a pattern in this respect; and his excellent Essays on Meteorology are simply a fasciculus of so many separate phenomena carefully reproduced in their nascent state. As for myself, I do not pretend to anything more than the merit of having brought together a number of data, to be corrected or confirmed by subsequent examination and research.

THE ATMOSPHERE IN RELATION TO HEALTH.

That health depends upon changes of the weather, is a household aphorism, coeval with the earliest traditions. Hippocrates gave a large share of his attention to this circumstance; and his treatise on air, water, and places, is one of the choicest morsels of medical antiquity. At present, the inquiry is receiving an attention still more minute and exact than the physician of Cos had it in his power to bestow upon it. He knew nothing of the barometer and thermometer; of the composition of the sun's rays; of polarised light; of electricity and magnetism; or of the chemical mixture of the atmosphere with which we are surrounded, and which we

breathe; and yet, considering how little he knew then, compared with what we know now, it is marvellous that he should have done so much with his scanty information, and that we should not do more with our intimate and increasing knowledge of the laws of nature. It would seem that science, whose data have the exactitude of mathematical demonstration, has rendered us idle in that faculty of the mind in which the ancients so particularly excelled; and has rendered us disdainful of those more vulgar qualities of hearing, sight, and touch, which constitute the united virtues of attention to, and the outward observation of, the outward phenomena of the world. Our fondness for intellectual abstractions confines us to our studios, instead of sending us forth into the open spaces of air and daylight for the purpose of *seeing* the multiform changes that are proceeding around us. The sight of the clouds that decorate the sky, and the varying aspect of the ocean, as capriciously beautiful as the clouds which it reflects, are not the sole property of the painter or the poet, but belong to the domain of science, and supply materials of study as profoundly philosophic as they are practically useful in unfolding the requisite conditions of life, health, and disease.

Every one, who has paid any attention to the subject, must be acquainted with the classification of clouds, viz., the cirrus, cumulus, and stratus, with their several subordinate combinations. It is not our present intention to enlarge upon these well-known forms of vapour, but only to say a few words on one or two of their peculiarities relating to hygiene.

In saying that clouds are electrical machines, like Leyden jars, for instance, it is not meant to lay it down as an axiom

that they are absolutely so, but merely to express what, upon the most attentive observation, they appear to be. They seem to be charged with positive and negative electricity, just like a glass rod excited by friction with silk. A negative and a positive pole seems to exist in each separate cloud—each being positively electric in its front, and negatively in its rear, or tail; and the small round cumuli, that follow each other successively on a clear fresh noon, are so many electric jars, or batteries, the positive front of the one being opposed to the negative tail of the other. It is not easy to *prove* that this is the fact: it is offered only as a fair presumption, and the present conclusion of the writer's mind. The proper motion of these clouds is rotary, each cloud revolving on its own axis, while the whole group or herd of them is proceeding forward with one common movement in the direction of the wind. It seems probable, that they are continually exchanging their electricities, one with another. If watched attentively, they will be seen to approach each other as it were by attraction, and then as suddenly to be repelled. But that which is incontestable about them is their circular movement.

After many years' observation, I am convinced that all clouds rotate on an axis of their own, the small as well as the large, the strati as well as the cumuli; and that this rotation is from left to right. The great tornados are known to be cyclonic, and so are the severe gales that blow up from the S.W., and sweep the agitated bosom of the Atlantic. The whirlwinds of sand in the desert, and the little whirls of sand that dance along the dusty road on a windy day, are instances, sometimes terrific, sometimes pleasing, of the rotary law of storms.

When these clouds are seen, the wind is from the west. They seldom, if ever, occur with a wind blowing from any other point of the compass. The electrometer is mostly negatively electric, or it is silent, or weak. The mortality is low, but illness is frequent, although of a curable and transient nature. Virulent epidemics do not prevail. The greatest epidemics that have passed over Europe between the years A.M. 1348 and A.D. 1850, have been accompanied with a wind blowing, with more or less force, from the N.W., E., or S.E., together with thick, heavy smelling fogs; swarms of locusts in the East, or small black flies in the West. The great plague, that was so many years travelling from China, A.M. 1348, was marked by an east wind, along with terrestrial commotions. The sweating sickness, A.D. 1551, was from the S.E. to N.W., and each time attended with a rainy, moist atmosphere. The influenza, A.D. 1729, passed over Europe from S.E. to N.W., with a moist, cloudy, foggy season; and the spotty fever of A.D. 1847, passed from E. to W. over the north of Europe, across Great Britain and Ireland, till it finally reached America in its westward progress. We have no means of knowing the electrical state of the air during the prevalence of these epidemics; but, judging by analogy, we should presume that the amount of electricity must have been very small, or none.

The electricity of the air and of the earth does not correspond. Sometimes the amount of electricity is aërial, while at other times it is telluric. Dark clouds are said to be negatively, and white clouds positively electric; always supposing they are not darkened by some accidental shadow. During the passage of white-headed cumuli, the electrometer is very active; in mists, the electricity is negative, feeble, or *nil*: but

during the fall of rain, it is positive, and often very active. Sometimes the electrometer gives no sign of electricity, and yet the clouds may be exchanging their opposite electricities with each other, with the quickest vivacity. There may be incessant flashes of lightning, with or without thunder. At Brighton, on the night of 23rd of August, 1855, both sheet and zigzag lightning passed from cloud to cloud, without any audible thunder, and the electric gleams answered to each other from one extremity of the same cloud to the other, without ever descending to the earth. In this case we beheld a kind of demonstration of the problem, that clouds are electrical machines in opposite states of electricity.

During "*thundery weather*," as it is called, head affections and bowel complaints are noticed. In highly sensitive constitutions, the coming on of a storm is presaged by vomiting, fainting, and a feeling of alarm. There is a peculiar symptom analogous to that which arises in cases of injury to the spine, viz., the colon being greatly surcharged with wind: it is an evidence of direct exhaustion of the nervous centres. When this state of atmosphere is prolonged, biliary congestion ensues, or, speaking more generally, venous congestions take place in the head, the chest, or the abdomen.

The large, white-headed cumuli that collect in clear bright days, and look so much like snow-capped mountains in the distance, are rotatory storms of hail, rain, or thunder, gyrating from left to right. If attentively watched for some time, this circular movement may be clearly perceived. The central void of this gyration of cloud is a calm, while the wind is blowing briskly or sharply round in the direction indicated. The hail or rain falls in the round of the circle, and sometimes lightning flashes from the opposite sides of its diameter.

During the passage of one of these storms along the horizon of the sea, I have seen the lightning drop from one of its extremities into the ocean, and at the same moment a counter-stroke ascend from the sea to the cloud at its opposite extremity. In the intermediate space, beneath a magnificent cupola of clouds, a brilliant corruscation of electricity darts both ways at once, connecting the negative with the positive pole of the voltaic pile, in a twinkling. But, not only do these clouds form gyrating storms in themselves, whirling from left to right, but they are also moving, together with each other, in mass straightforward in the direction of the wind, which, when these clouds appear, is generally from S.S.W., the direction of the storm being N.N.E., although this is not invariably the case. At the same time, in distant and opposite quarters of the horizon, other masses of the same sort of cumuli may be observed, all of them distinct and wide apart from each other, the intervening portions of the sky being singularly clear and blue. Indeed, the whole prospect of the sea or land is very distinct, vividly coloured, and the outline of the distances beautifully fine. Several of these gyratory storms keep marching onwards in alternate spaces, marshalled in a vast circular array, and rolling round a circumference comprising an area of some fifty or a hundred miles or more, the centre of this circumference being a bright translucent calm. Thus, this vast gyration is composed of many rotatory storms moving *en echelon*, in grand round.

In the midst of the cold weather of the spring of 1852, the sultriness on the 22nd and 23rd of March was probably caused by our being suddenly in the centre of one of these cyclones; for the foreign news informed us that about this

very time, an unexpected tempest swept the Adriatic, and did great mischief. In this case, the Gulf of Venice felt the circumference of the storm, of which we formed the centre. The westerly gales which blow up from the Atlantic, with so much violence, are very extensive rotatory storms, that advance up the channel with a right shoulder movement from west to east.

On the approach of one of these masses of vapour, the mercury, both in the barometer and thermometer, first falls and then rises, with great rapidity. For the most part the barometer stands at 29·500 inches: although nautical men are practically acquainted with the fact, that as the storm is collecting the barometer rises very considerably. Thus, it will go up as high as 30·370 inches, and then suddenly drop down to 29·170 or 28·900 inches, in the course of twenty-four hours or so. This statement is made from the records of direct observation. The mean height of the thermometer varies with the season of the year; but there is a sense of heat and oppression on the approach of these storms, and of a negative feeling of chilliness as they pass away. They chiefly appear in the spring, autumn, or midsummer.

The accompanying and residual state of the atmosphere is congenial to health. Vegetation freshens, animals are brisk, the cocks crow, and the swallows, those blithe associates of a summer day's ramble, skim along the lawn or the pond with the most delightful alacrity. These are the days when the garden looks and smells the sweetest, and the foliage is at its best. All nature revives; and the air we breathe at this moment is antagonistic of disease. Cases of debility experience a favourable reaction, and even the moribund re-

claim a few short delusive intervals from the inevitable collapse of death.

One of the causes which may influence the nature and growth of the present generation of man, is certainly the predominance of a town life, which excludes both the enjoyment and benefit of fresh air and sunshine; and that the stature of the population is below the average height, common observation can assure us, without the indisputable evidence of statistics. Shut up within close apartments, removed from the direct rays of the sun, hidden from the sight of the blue sky and the white clouds, and immured beneath a canopy of smoke and lofty buildings, how is it possible that the functions of life can develope themselves at large, with their natural energy, and in their due proportions? It is evidently impossible; intra and extra-uterine vitality are equally arrested and deformed; the blood loses its full measure of oxygen, and is deprived of its ruby tint, so characteristic of health and vigour; the limbs are small, the joints large, the chest narrow, the forehead hydrocephalic, the teeth irregular, the eye wan, the hair lank, the mind morbidly keen, and the passions perverted or depraved. The happiness of the mountaineer is a felicity utterly unknown to the denizens of the great metropolis, the artisan, the clerk, the menial, the pauper, and those more exalted mortals who but half exist in the courts of law, the counting house, the midnight dust of the House of Commons, or the brighter purlieus of Downing Street and St. James's. No fame, however laudable, can equal one hour spent in watching the morning break along the ocean, or in inhaling the fragrant breeze that whistles across the plain in the noon-tide hour.

But to return:—The vertical height of these large cumuli

is very great. I once triangulated the depth of one that gathered over London several years ago, and thought I had reason to conclude that it was three miles deep; which, if I was correct, would give a body of vapour almost as high as the top of Mont Blanc. Arago, in his Meteorological Essays, just published, by Colonel Sabine, mentions that the vertical height of the clouds in which thunder and lightning are produced, was found by De l'Isle, member of the Academy of Sciences, to attain the enormous elevation of 8,080 metres, or 26,510 English feet!—a calculation which I believe is by no means exaggerated. Peytier and Hossard, two French engineers, stationed on the Pyrenees, found the thickness of some *ordinary* clouds more than half a mile;* but the vertical height of these large cumuli is very considerably more than this. They are also very dense; and their density, coupled with their vast height, accounts for the darkness during their transit.

Arago, in the same Essay just mentioned, says that Captain Hossard had remarked, that there take place suddenly, at several points of the lower stratum of clouds, upward rushings, extending vertically like rockets—a precursive sign that does not appear to have been mentioned by any previous meteorologist. Nothing can be more exact than this description of a storm-cloud in process of formation. As far back as 1835, I had observed the same thing, at Hurst, in Sussex, while watching a thunder cloud forming above the downs facing me. A centre, or core of vapour descends to the ground vertically beneath the upward rushings, and forms the pivot on which the storm rotates. The upward rushing above, and the pivot below, seem to be produced by a vacuum of heated air in the centre of the mass. The pivot on the

* Brocklesby's Meteorology, New York, 1851.

ground is grey, but the upward rushing is as white as wool, and as dense as a volume of smoke from the explosion of a powder magazine. Beccaria, the Italian meteorologist, observed and described the dark central tint that touches the ground, connecting it with the vapour above.

Another peculiarity of these large cumuli takes place just before they break up and dissolve. A kind of table-land, of white or yellowish white amorphous vapour, stretches itself high up in the sky above the peaks of the cloud, while, at the same time, below the white-headed summits, a sheet of neutral tint is drawn horizontally athwart the mass. Then this neutral tint expanse breaks forth here and there into long dark strati, which, after a time, soften and melt away in rain. As the rain is falling, arms are thrown out from the neutral tint expanse; they approach, almost touch, and then repel each other. The arms turn away, are twisted up or down, and dissolve in floods of wet. It is an electric action; opposite electricities are exchanged, and most likely an explosion, more or less loud, ensues, just as the vapour is being condensed into water.

The entire atmosphere changes, and the sky, but now so clear and resplendent with majestic cumuli, is obscured by a low scud. Everything is dull and grey. Beneath the scud ragged fragments chase each other in horizontal lines several miles in length. There are usually two or three lines running parallel one above another; but at last they approach and coalesce. The hurry with which these fragments speed along is not a little remarkable; and not less so, is the manner in which they suddenly halt, reverse their action, meet, mingle together, and vanish from the sight.

It is in damp weather that dyspepsia chiefly prevails—the acid indigestion of gouty habits and valetudinarians, the scrofulous, the indolent, and the pitiable host of "*never-wells.*" Exercise and manual labour in the open air is the legitimate panacea. The skin suffers from cold and moisture, which active exertion alone can obviate; and the bronchial tubes suffer along with the skin. This is the primary condition of rheumatism, which some have supposed to arise from a sudden loss of electricity, and have proposed, as a cure for the disease, insulating the patient by letting him sleep on a bedstead with glass legs, like the insulated stool of an electric machine. This supposition is so far true, that rheumatism occurs in damp weather when the amount of animal electricity is the smallest, and the most readily parted with.

Another peculiarity of the large cumuli is that, instead of breaking up and dispersing as the day declines, they halt, and one of them settles against the setting sun, who sends out his beams from behind its shadow, and tips its edges with gold. As the rays dart upward into the evening sky, they appear all the brighter from being contrasted with the dark mass in front of them. They are called "*Moses' horns,*" and indicate rain, by showing how much the air is surcharged with vapour held in solution.

The sound of rain may be heard a long way off, even though the nimbus from which it is falling be out of sight. It may be heard out at sea by a person listening on the shore, or inland as it rustles across the fields and copses. Elijah bade Ahab to make haste, because of the sound of an abundance of rain. Before rain, the sea makes a noise, and scoops the beach into hollows.

In the spring of the year, when the N.E. wind has been blowing for a long time, with a cloudless sky, a small darkish cloudlet forms in the eye of the S.W., and remains stationary there for some hours every day. This little cloud (I am writing from Brighton) is the forerunner of a gale from the Atlantic. It is most likely the focus or axis of a gyration of wind at the point where the N.E. meets the gale from the S.W., forming a condensed nucleus of vapour at this spot. It is the same as the small white cloud that presages the typhoon in the China seas, which is a cyclone of terrific force and magnitude, except that, judging from the difference of colour, the one in the China seas is positively, while this in ours is negatively, electric.

During the prevalence of cholera, the cirrus cloud is rare; but the cirro-strati, which occupy a lower stratum of the atmosphere, are frequent at noon, and accompany the sun for three or four hours in his meridian height. Occasionally, black smoky-looking cumuli (negatively electric ?) float up from the N.W. A calm prevails. Indolent cirro-cumuli lodge over the hills. The distance is dim, and a sticky vapour, charged with small black flies, pervades everything. The barometer stands obstinately at 30 inches, and the wind is from the N.W. to S.E. During the cholera of 1564, it was from the S.E. to N.W.; and so it was in 1832 and 1849.

In the first volume of his *Cosmos*, Humboldt directs our attention to the variation of the needle during the prevalence of thunderstorms. He calls them magnetic storms, announced by perturbations of the needle, even when no trace of their luminous manifestations are seen in the celestial vault. But we are not sure whether the seat of the disturbing cause is to be sought for in the atmosphere above, or

in the earth beneath. Some observers have remarked that the declination of the needle is very great during the prevalence of the Asiatic cholera, and that it also corresponds with certain changes in the vegetable kingdom, as, for instance, the potato rot. These curious observations require very extensive confirmation, before they can be relied on as data in the history of disease; but there seems no reason to question the main fact, that electro-magnetic agency plays an important part in the production and propagation of maladies, both in the animal and vegetable kingdoms.

We have some facts to show cause why we should connect disease with the greater or less amount of electrity, signified by the electrometer. It would seem that, in the non-electric state of the air, diseases of a low type prevail. Thus, in the Registrar-General's return for the week ending July 14th, 1855, we find it stated, at p. 232, "weak positive electricity throughout the week;" and, on referring to the mortality of the same date, at p. 225, it is there recorded that the chief deaths were from small-pox, hooping-cough, scarlatina, diarrhœa, and typhus. And thus, on the contrary, in the week ending September 8th, at p. 296, the electricity is stated to be "positive," and the mortality, at p. 289, to be "not high for the season." During the prevalence of Asiatic cholera, the electricity is weak, or nothing: thus, in the week ending September 16th, 1854, on the 13th and 14th September, when cholera was at its maximum, the electricity, p. 377, is stated, "none was shown." Thus, again, for the week ending September 22nd, 1855, at p. 305, the mortality "shows a decrease of about 100 in each of the three previous weeks, and indicates a satisfactory state of the public health," while, at p. 312, it is recorded that the electricity is "positive," "strongly

positive," and "active throughout the day." Were we to connect health with positive electricity, as a settled thing, we might point out a curious connexion between the deaths of the young, and the continuance of a highly electric state of the atmosphere; but, as coincidence is not the same as cause and effect, we can only mention the isolated fact, that, in the week ending October 13th, 1855, it is stated, p. 333, that out of 870 deaths (or 225 below the average), 449 (or about one-half) were in persons under 20 years of age: the electricity (p. 340) being both positive and strong, as it had been for several weeks past. It would be pushing the facts too far, and laying ourselves open to the imputation of forcing a favourite theory to suit a particular purpose, were we to enlarge the number of our examples; but they are endless, and we disclaim any theory whatever. Let the medical enquirer make his own references, and judge for himself. Does positive electricity, long continued, predispose to inflammatory ailments? For, in the week ending October 27th, 1855, the electricity being, as it had been, both strong and positive, we find, p. 349, three cases of peritonitis particularly reported.

If we consider that every living creature is as much an electrical machine as each cloud; that the earth itself is the largest and most powerful electrical machine of all; and that all things are always exchanging their electricities with each other; and, furthermore, that a strong electro-galvanic current passed from the nose to the tail of a living mouse, can kill it on the spot; that a simple electric stroke will abolish the life of a fly; and that lightning destroys myriads of insects, as well as some animals and human beings, at a single flash, it is past contradiction that electricity must be a grand

actor in every form of life, whether of health or disease. If we take an electrometer, and pass a powerful stream of electricity into it from a large electrical machine in full play, the gold leaf within the electrometer is whirled round with violence, shivered into atoms, and sent flying in fragments to the inside surface of the glass, in desperate haste, to escape and distribute the excess of electrical fluid to the nearest non-electrical bodies. It is, in fact, a tornado within the bottle; like the tornados of the tropics, which are, most likely, nothing else than convulsive equalizations of unequal electricities on a gigantic scale. The violence of the winds, if not their directions, seem to be electro-magnetic. There are storms that disturb the magnet, or the electrometer, or both at once. And the partial rarefaction of the air by heat, and its condensation by cold, hitherto employed for explaining the force and current of the winds, are, most likely, only striking parts of terrestrial electro-magnetism. The tornado within the bottle is a practical exemplification of this supposition. Moreover, the sensorial effects of the electric fluid are proof paramount of its pathological energy. The tingling produced by a shock from an electrical machine in action, and the blindness, or loss of consciousness, or death, produced by lightning, exhibit the developement of morbid phenomena too plainly to be mistaken. We have, therefore, every possible reason for regarding the kind of clouds as indications of the kind of atmosphere in relation to health; and the various forms assumed by the vapours condensing or dissolving in the air may be considered, not only as picturesque beauties in the landscape we are occupied in watching or sketching, but also as criteria for judging of some of the most potent effects resulting from the operation of an experiment, silently and

delicately performed upon the functions and sensations of animated beings. These signs only require reducing to some familiar characters, in order to render them practically serviceable; and then, when once recognized, they might be read off at a glance, and brought into daily use, as easily as the dial-plate of the electric wire, the gauge that indicates the steam pressure of a locomotive, or the minute hand of our watch in counting the pulse at a patient's wrist.

THE SOLAR ECLIPSES OF 1858 AND 1860.

The variations of health and disease in relation to light, heat, electricity, and the magnetic force, is a subject that is every day acquiring fresh interest, from the investigation of their several phenomena. Meteorology is no longer a science apart from hygienic considerations of the utmost importance. The value of daylight is at last receiving its proper attention in the statistical reports of the public health. Electricity, not many years ago looked upon as a recondite matter of philosophical theory and experiment, is at length regarded as one of the chief agents of vitality. Even magnetism takes its place among the intricate actions of life; for some observers think that they have good reason for concluding, that the greater or less intensity of the oscillations of the needle is in correspondence with certain pathological changes and morbific conditions of the air. These are facts or doctrines of the highest signification. Their indications are invaluable; and time alone is wanting to verify, correct, or cancel them, as data by which we may either act or reason.

The solar eclipse offered a rare opportunity for observing them all upon a grand scale; and as such, I have drawn up a statement of all the information I could gather on this point, and have reduced it into as condensed a form as possible, for the purpose of present inquiry, and future reference and research. (See next page.)

The foregoing observations are entirely meteorological, and such as could be accurately taken without the aid of astronomical instruments. They describe the condition of the atmosphere, the amount of clouds, the degree of daylight, moisture, barometrical pressure, and thermometrical temperature (Fah.), as well as the kind of electricity, from nine o'clock a.m. till two o'clock p.m. The several instruments employed are of approved character, and such as I have been in the habit of using for a long time past. They can, therefore, be perfectly relied upon. The amount of daylight was never less than that of a grey evening in November. At the darkest moment, there was nothing particularly unpleasant in the twilight; and I was able to read off the gradient of my barometer (which is under cover, in a room with a northern aspect) throughout the whole of the time. The birds did not go to roost; for the sparrows were chirping, and some pigeons were flying about, during the darkest period of the eclipse. Perhaps, if the public had not been alive to its occurrence, the darkness might have passed by without its being particularly noticed by any one, except as a dark hour or so, more than usual. Owing to the overcast sky, the stars were, of course, invisible; but it is doubtful whether they could have been seen, even had the sky been clear, at the maximum of the occultation.

I had strong reasons for supposing that both the magnet

MARCH 15TH.

1858.	Hour.	Amount of daylight.	Hygrometor.	Electrometer.	Fah. Thermometer.			Barometer.	Sky. Wind N.W.
					Night.	Shade.	Sun.		
March 15	9	3—4	80	act. pos.	37	47		29.270	fair morn.
,,	10	4—6	,,	act. neg.		48	67	29.728	light clouds.
,,	11	3—4	,,	act. pos.		49	55	29.748	hazy.
,,	12	2—3	70	wk. pos.		51	57	29.750	hazy clouds.
,,	12.30	1—2	,,	act. pos.		49	55	29.760	grey clouds.
,,	1.10	1—2	80	nil.		47	47	29.760	dark clouds.
,,	2	2—3	,,	act. pos.		48	48	29.774	overcast.

200 feet above the sea level. The assumed maximum of daylight is 8.

and the daylight would exhibit some peculiar phenomena; and, from the authentic reports of others, it appears that the magnet was considerably disturbed, and deviated from its true meridian, and that the daylight was polarised at the extreme moment of obscuration. At 1.10 o'clock p.m., I found the electricity *nil;* I had no doubt that the light was completely polarised; and it now appears that the magnet lost its true meridian. If this were actually the case, then it may be concluded that the magnetic force, the atmospheric electricity, and the solar beam, were extinct at the centre of the eclipse. So that the electro-magnetic agency that sustains the material world, and the sun's ray that vivifies the animal and vegetable creations, were, *pro tanto*, extinct together at that critical moment, which, had it been prolonged, would have finally extinguished the present order of nature, and brought both animal and vegetable existences to their close.

On further inquiry, I learn that the ozone—the presence of which in the atmosphere is at all times uncertain—was, on this day in particular, reduced to zero, in strict accordance with the transient polarization of the light, and the cessation of the electro-magnetic force. No state of atmosphere could be imagined more insalubrious than that described in this account, which renders the sublime ideal of an eclipse "shedding disastrous twilight on half the nations," no longer a poetic fiction, but a scientific expression of the truth. Up to the centre of the eclipse, the electricity had been *positive*, and the weather cold; but, subsequently to that point of time, it became *negative*, and the air warm, the electric current being instantly reversed. March has been, as I have ascertained by exact admeasurement, one-third darker than it usually is, arising, in all probability, from the greater or less

proximity of the moon's shadow to the earth's surface, both before and after her passage across the sun's disc. The purple and yellow light, noticed at the darkest moment, was owing to the distant sky being seen far beyond the depth of the obscuration, showing emphatically that *colour* was absolutely lost at the maximum obscurity ; while the sudden return of daylight, so startling to some observers, was nothing more than the restoration of the prismatic elements, that had been destroyed as the solar beam was polarised. Nature resumed the order of the day with an electric flash. So that colour, light, electricity, magnetism, ozone, and, of course, heat also, were extinct, or suspended, along the mathematical line traversed by the darkest point or apex of the moon's shadow.

In the present state of our knowledge, it is difficult to speak definitely on the nature of ozone. After a careful observation of its phenomena, it appears to be a correlative of electricity in its positive or negative condition, and to hold a close connection with the amount of death-rate. Certainly, a diminution of ozone in the atmosphere, is usually followed by an increased mortality, and, conversely, a diminished mortality usually follows an increase of ozone. During the absence or suspension of ozone, the electricity becomes decidedly active both in its negative and positive states, but weakened when ozone shews itself in abundance. Whether their co-relations amount to more than accidental concurrences, instead of cause and effect, is the point in question.

THE SOLAR ECLIPSE OF 1860.

The phenomena on the present occasion were not so striking as those on the 15th of March, 1858, when the eclipse was a total one. At the height of the eclipse on Wednesday, the 13th of July, 1860, not more than four-fifths of the sun's disc were obscured, or, according to Mr Hind's computation, 82-100ths. This difference left a portion of the sun's diameter sufficiently exposed to carry on all the operations of daylight without interruption, only at a very reduced ratio. The electricity did not become extinct, as it did on the last occasion, at the maximum obscurity, but, on the contrary, was most energetic at the centre of the eclipse, and extinct just before the commencement and just after the close of the obscuration. The average height of the barometer was nearly the same on both occasions ; its mean height on the last having been 29·790 inches, and on the present, 29·741 inches. This time the sky was almost clear ; last time it was cloudy. At that time the wind blew from the N.W. ; this time it was from the S.W. On each occasion the wind fell at the maximum obscurity. The kind of daylight, as it gradually darkened, was such as would have startled most persons, had not the occurrence been expected, and the reason known. There was something particularly chilling and unpleasant in it. Its colour was that of a twilight, pale, and suffused with a sickly greenish hue. The horizon of the sea was clear, but sombre. Rooms with a northern aspect were decidedly dark ; and the shadows cast from objects by the diminished orb of day were peculiarly opaque. The birds

disregarded it, for a sparrow was chirping near me part of the time. It was not so dark by one-eighth this time as the last. The amount of daylight was then represented at its minimum by the figures 1 and 2; this time by 2 and 3 : 8 being the maximum. The brightest period of the day of that eclipse was 4 and 5 ; of this, 5 and 6. The first seventeen days of the present month were about one-third darker than the average daylight of July in ordinary years ; or, strictly speaking, 8·006 being the full daylight of July of other years, and 5·10 of this year. This failure of the daylight is owing to the proximity of the moon's shadow to the earth's surface, as she approaches the moment of her passage between the earth and the sun. A similar observation was reported at the former eclipse, when the daylight of March was found to be one-third darker than usual, and ascribed to the same cause. The eclipse had no sooner passed by, than the wind fell and went round to the north-west, the sky became overcast, and the evening was calm. The same happened on the last occasion. (See next page.)

There is no question that our lives depend on telluric, meteoric, and astral influences, to a degree rejected by the dull philosophy of the last century, and received with attention and scientific exactness, but tardily, by the present. It is impossible to exclude sidereal phenomena from playing a chief part among the operations of what may strictly be denominated vital dynamics. Indeed, the shock imparted to the mind, both individually and collectively, by the mere occurrence of strange appearances out of the course of nature, is no trifling ingredient to help us in accounting for the political, moral, and sanitary condition of the world; evolving, as it does, in bold and decided attitudes, inherent

JULY 13TH.

1858.	Hour.	Amount of daylight.	Mason's Hygrometor.	Electrometer.	Fah. Thermometer. Night.	Shade.	Sun.	Barometer.	Sky.	Wind.
July 18	9.0	5—6	57	wk. pos.	57	60	70	29.749	broken clouds and sunshine ...	S.W.—fresh breeze.
„	10.0	4—5	58	„		65	83	„ .750	hazy clouds and sunshine.....	„ „
„	11.0	4—5	59	act. pos.		63	92	„ .754	white clouds and sunshine ...	„ „
„	12.0	3—4	57	„		62	95	„ .746	partial haze and blue sky	„ „
„	1.0	4—5	59	very wk.		63	100	„ .762	„ „ „ „ ...	„ „
„	1.30	3—4	59	nil.		63	98	„ .730	„ „ „ „ ...	„ „
„	2.0	3—4	60	wk. pos.		63	92	„ .752	„ „ „ „ ...	„ „
„	2.49	2—3	57	very act.		60	65	„ .756	thin, white clouds	„ „
„	3.0	2—3	56	„		59	60	„ .730	„ „ „ „ ...	„ —light wind.
„	3.30	3—4	57	wk. pos.		60	68	„ .738	thin clouds and scud	„ —fresh breeze.
„	4.0	4—5	57	nil.		61	86	„ .726	clouds and scud	„ —calm.

200 feet above the sea level. The assumed maximum of daylight is 8.

energies of the soul, which would, like the hidden elements of the terrestrial globe, have remained, under ordinary circumstances, latent, invisible, and unknown. For a comet may, as the poet says, "shake from its horrid hair both pestilence and war," by altering the electro-chemical affinities and barometrical pressure of the atmosphere, and thus excite the sensorial and sanguiferous functions of our frames to the last degree of national frenzy. A solar eclipse, too, refrigerates that portion of the earth's surface over which the lunar shadow passes; earthquakes disturb, if they do nothing worse than disturb, the accustomed direction and velocity of the winds and currents of air; and volcanoes emit mephitic vapours and dust and sheets of flame, poisoning at once and overheating vast districts of inhabited countries, in a manner as inimical to life as subversive of that diurnal and regular routine of health, so essential to animal and vegetable organizations. The mind corresponds to the vigour or debility of the body—excitement, superstition, and fear, are the invariable coincidents or consequences of particular ailments, or physiological conditions. Multitudes may be staggered by an apparition or visual change in the aspect of things, and their blood may be curdled or inflamed by the invasion of an epidemical panic. All classes are merged in the common evil. Princes and rulers alike sympathise with the crowd; and, instead of riding on the whirlwind and directing the storm, may be, like the meanest of their subjects, hurried away by the vulgar impulse, and lashed on instinctively to the strange, unnatural, incontrollable issue of events. Viewed in this light, the history of mankind is, in its final causes, nothing more than the natural history of the universe, of which man constitutes an integral part, equally with every

other organic and inorganic substance, and submits to a destiny in accordance with the revolution of the planets—of which this globe is one—around the sun, and in compliance with appointed changes, proceeding at a giant's stride among stars, and systems of stars, infinitely remote in the boundless region of space,—where comets wander with amazing and perplexing precision, and constellations appear and disappear in a mode that baffles the wits of the most refined philosophy. That man, made of clay, with a soul full of celestial aspirations, should, for the short term of threescore years and ten, be doomed to a lot little above that of an earthworm, is an enigma only to those who have not studied the discoveries of science in their moral relations, nor turned to behold with the eye of faith the works and wonders proceeding in the deep.

HISTORY AND PRACTICE OF VACCINATION.

I.—VACCINE LYMPH.

When Jenner broached his opinions concerning Vaccination, in 1798, his idea was by no means a new one. It took most of his countrymen by surprise, and, for the time, provoked against himself the most unfounded suspicions. But a ray of light had already dawned upon this obscure subject: for, as early as 1770, nearly thirty years previously, his Majesty, George the Third, had directed the attention of his Parliament to this point in a speech from the throne, in which he mentioned with deep concern the spreading of a

fatal disease of an eruptive character among the horned cattle; and it appears, from the debates which arose on this curious political topic, that the previous existence of the disease was not unknown to some of the members of the House of Commons. Indeed, it had been observed in this country as far back as 1745; and its ravages continued till as late as 1780. It was known, likewise, that the same eruptive disease had infested distant parts of Europe; and that in 1711, between eighty and ninety years before Jenner appeared on the field, a pustular disease of this description had broken out in Italy, spread with astonishing rapidity, and in a few months carried off in Piedmont no less than 70,000 head of cattle. Ramazzini, Lancisi, and Lanzani, who describe this epidemic, do not hesitate in regarding it as true variola, or small-pox. Vicq d'Azyr noticed a mild form of the same malady in Picardy. What Jenner saw in 1798 was the remains of this terrible disorder.

These historical facts seem to have been unknown to the discoverer of vaccination, whose genius has shed so lasting a lustre on the title of the British physician. He evidently acted on his own sagacity, the results of which are consequently so much the more valuable, as they are the products of an enquiry the most original of its kind. But while Jenner was thus pursuing his investigations by himself, Dr. Layard, in his second paper read before the Royal Society, mentioned inoculation from cow to cow as being employed to mitigate the disease in these animals, with as much success as inoculation was practised among human beings for a similar purpose. At this period, small-pox was attracting the attention of the world. It was making great havoc everywhere; men and cattle suffered alike from its ravages;

and it was remarked, that during the prevalence of the small-pox, in a given locality, several dairies would become affected with cow-pox at the same time. Horses, as well as cows, suffered from it. Jenner imputed the origin of the vaccine virus to the horse's greasy heels, which he regarded as the real source of the variolous disease in the cow. He lived to correct this erroneous notion, which, however, he had his reasons for entertaining. He remarked the disposition to grease in the horse, occurring chiefly in the spring and autumn, when the cow-pox also occurs in the dairies. He imagined that it was conveyed by the man who groomed the horse to the cow, which he likewise milked, and that in this way the cow became infected with the variolous disease. There was some truth in this supposition. For it is now ascertained that the horse, like the cow, is liable to the variolous disease, and suffers from its attacking that part of the heel, apt to become greasy, where the skin is the thinnest and most favourable to the formation of the vesicles. Hence the pardonable mistake into which Jenner fell. He was never quite satisfied with his own conclusions. His sagacity pointed out to him the want of identity in the two diseases, and some facts led him to suppose at last that the greasy heel might be a modified small-pox—an idea not far from the truth. It must have staggered his contemporaries to be told, that from the horse's heels the cow contracted a disease, which, when transferred to man, proved to be a protective against the small-pox; and yet such was the fact, although not according to Jenner's interpretation of it.

But this is not all that relates to the variolous disease among cattle; for there is information of a much more recent date than this, and not less interesting in its character. The

cows in Bengal suffer from a disease, the same as ours, and the natives call it by a name significant of the word variola. Mr. McPherson, in India, vaccinated a child in 1832 with virus taken from an Indian cow, and the true variolous vesicle was produced. Mr. Wood, of Gowalpara, 1839, produced the same phenomena in the same way; only the symptoms were in his case severe and threatening. The intensity of these symptoms might have arisen from an accidental intensity of the disease in the cow; although, when first transferred to man, its effects are usually the more intense, in exact proportion as they approach nearer to their source from the cow.

The small-pox has been conveyed from man to the cow, just as it has been communicated from the cow to man; and Dr. Waterhouse, of Massachusetts, in a letter to Dr. Jenner, gives a case in point.* This experiment is said to have succeeded in Berlin in 1801. M. Viborg, of Copenhagen, declares he has communcicated the disease to dogs, apes, and swine. Dr. McMichael informed the College of Physicians, in 1828, that vaccine matter having failed in Egypt, the medical gentlemen were led to institute certain experiments, by which it was discovered, that by inoculating a cow with the small-pox from the human body, fine active vaccine virus was produced, from which children were vaccinated with complete success. Professor Sonderland, of Bremen, wrapped cows in sheets in which small-pox patients had slept, and thus succeeded in infecting those animals. Gassner had already variolated the cow in Germany, as far back as 1807. Dr. Basil Thiele, of Kasan, in South Russia, succeeded in similar experiments. He appears to have been successful in

* *Prov. Med. and Surg. Journal*, vol. viii., p. 23.

1836, at a time when Mr. Ceely was fruitlessly engaged in endeavours to make arrangements for some experiments of his own in this country. In 1838, Dr. Thiele was again successful. He fixed upon some milch cows, and operated upon them in the spring, maintaining the cow-house at a temperature of 66° Fahrenheit. The udder was the part he selected for inoculation, and the animals on which he succeeded were precisely such as Mr. Ceely rejected. Many punctures were rewarded with the result of only a few vesicles. It will be seen, that the chance of success is very uncertain, and that different operators, in different quarters of the globe, unanimously acknowledge the difficulties with which variolation of the cow from the human subject is surrounded. Perhaps we do not yet know the precise conditions under which it must be undertaken; nor are we yet sufficiently acquainted with the laws of animal poisons, to enter on the investigation with the facility proper for scientific research. Although more than half a century has elapsed since the time of Jenner, vaccination is but in its infancy, and calls for the combined energies of pathologists all over the world for its further elucidation and pursuit.

In this country, Mr. Ceely, of Aylesbury, has been distinguished for accomplishing this object. He produced vesicles on the cow, from which he vaccinated several hundred patients, who exhibited all the phenomena of vaccination in the most complete degree: there was no attendant eruption, nor anything else that could lead him to suspect that he had not in this manner propagated the genuine variola vaccina. This virus was tested by other practitioners, whose experience in vaccination left no room for doubting the just weight of their testimony; and these gentlemen affirmed that it pro-

duced regular vesicles, exactly like those so beautifully delineated in Jenner's first publication. Others, who saw these vesicles without being aware from whence the virus that produced them had been drawn, acknowledged their correctness. Nothing could be more conclusive than experiments such as these, which, in a practical point of view, established the identity of the two diseases. The cow had been inoculated with virus taken from man, and the virus taken from the cow had produced the usual phenomena of vaccination. The fact was self-evident, and reasoning was at an end.

Moreover, since Mr. Ceely vaccinated the cow from man, it has been effected at Passy, near Paris; and the lymph found there among the cows, in 1836, has since then been passed through the animals again; and this is called retro-inoculation. The human lymph, when transmitted in this manner, loses some of its activity, rises later, and produces smaller vesicles; but it recovers its activity by successive inoculations on man again. This, again, is one of those delicate tests, which speaks for itself.

It would seem, then, that cow-pox and the small-pox are identical diseases, and that the vaccine disease is not the preventive of small-pox, but the small-pox itself—the substitute, rather than the antidote; so that the person who has been vaccinated, has had the small-pox in a mild form. Cattle are liable to the small-pox, which co-exists with the same disease as an epidemic among men. When severe in cattle, it produces by inoculation a similar severity in man; and, as man may have it from the cow, so the cow may have it from man. When a mild small-pox is taken from the cow, and conveyed by vaccination to the human body, it produces a mild disease, such as Jenner first described it; and

proves to be, in the greater number of instances, an effectual protective against the infection of small-pox. No one of any experience can pretend to contradict this substantial statement of facts; nor dare to deny that vaccination, properly performed, is a positive safeguard against the small-pox pestilence. This datum is irrefragable, and forms a fixed point in the history of medicine, from which a new era commences.

Subsequently to Jenner, nothing new has been added to his original discoveries. What he saw, we continue to see, such as he described it. The inflamed point of the third day; the small pustule of the sixth; the areola, sometimes extensive and erysipelatous, of the eighth; the dark scab of the twelfth; and the black, dry crust, of the fourteenth, are the same now as they were then. He said the virus was most potent while it was lymphatic, that is, on the seventh day; and so it now is. He said that deep incisions in vaccinating, or inoculating, were injurious; and that puncturing or wounding the cuticle alone was the safest and most effectual mode of performing this little operation; and we find it to be so still. He remarked, that cow-pox was not infectious, but only contagious, which every one is aware of. He considered that the areola or inflammation took place sooner in cases disposed to reject the specific action of the virus; and, in second vaccinations, we find the inflammation rising on the sixth day, instead of on the eighth. In his time, when persons performed vaccination with imperfect virus, it of course failed as a protective agent; and what happened then, happens now, and is one of the reasons why the public have lost their implicit confidence in its protective power. He declared, that vaccine virus loses none of its characteristic properties by passing through successive generations; and his declaration has

proved itself correct; for, if it has failed in virtue or aspect, the failure is owing, not to successive transmissions, but either to the virus having been badly selected, or to the constitution from which it was taken being disordered at the time. There is a proper time, as well as a proper state of health, in the progress of the vesicle, when the lymph is ripe and active; but in default of this, it proves effete or immature. Jenner stated the time for taking the lymph to be from the fifth to the eighth day, just before the areola forms; and what he stated is true. Dr. Bryce, of Edinburgh, advised testing the efficacy of each vaccination by a second, performed a few days after the first. This is a beautiful illustration of the secondary vaccination running through its stages with accelerated speed: it is called "Bryce's test." The vesicle from which lymph is taken ought to be a perfectly correct one; otherwise, failure is likely to ensue in propagating virus from it. A deviation in the character of the cow-pox may be perpetuated by vaccinating from a devious vesicle. It is to be regretted, that sufficient attention is not always paid to a contingency so important as this. The presence of eruptive diseases modifies the true character of the vesicle; and of these cutaneous affections, herpes is said to be the worst. One vesicle ought never to be touched, but left to run its course unmolested. It serves as a criterion of the validity of the vaccine virus. The presence of a cicatrix cannot be relied on as a proof of the vaccination being protective, although its absence is very nearly proof positive against it. A second vaccination will sometimes take effect, close by an old cicatrix of the most approved appearance. Idiosyncracies are beyond our calculation, and there is no end to them. Some resist vaccination or inoculation at one time, and then take it at another; others

take the natural small-pox a second time; some never take it at all; some take it after inoculation; and others, again, have taken it as often as three times or more in the course of their lives. In some persons, the protective power of vaccination is lost or weakened by age; in others, it is never lost; and in a very few, it is not even the slightest protection. These anomalies form no ground of argument either for or against its efficacy as a protective agent, but remain to be considered apart as individual elements, the relative values of which are unknown.

We are now prepared to consider the importance of the experiments, performed by Mr. Ceely, of Aylesbury, and Mr. Badcock, of Brighton, both of whom have given their minds to this inquiry. It does not appear that any others have done the same in this country.

Variola was long known in the Vale of Aylesbury, as a disease infesting the cows in the autumn, winter, and spring of the year. Sometimes it would be generally prevalent, but at other times there were only solitary cases. Forty years would elapse without its making its appearance in a particular dairy; while, in a neighbouring farm, it would break out as often as twice in the space of five years. A fresh cow might bring it, or it showed itself no one knew how. Milch cows alone were not the subjects of it, neither were the uplands or lowlands its favourite haunts. It was milder in some seasons than in others, and more severe in one animal than in another. The teats of a healthy cow would become tender and hot, and the milk would diminish. Vesicles formed on the udder, round the base of the nipple: their numbers would vary, but pendulous udders had the most. The dark-red and spotted cows suffered more than those of

a lighter colour. The attack lasted four or five weeks. Some of the animals escaped the disease, though it was highly contagious. The vesicles rose in size from that of a pea to a horse-bean. They were broken in milking, which left an irritable ulcer. Each vesicle had a central depression, with a hard margin, and, if it were opened or torn, a thin amber-coloured fluid oozed out. Then a dark brown oval crust formed. On the eighth day, an areola of inflammation appeared, chiefly discernible in the light cows. Lymph burst from under the crust on the eleventh day, and on the fourteenth there was a decidedly black scab. The peculiar odour of small-pox attended the last stages of the eruption. The black crusts hung about till the third or fourth week. Twenty-one days completed the disease; the last, or crusted stage, being the most protracted.

In cows, the malady is modified by circumstances not incidental to man. The rough-handling of the milkers breaks the vesicles, and disturbs the natural order of the disease; while by milking one cow after another, they go on vaccinating and re-vaccinating the whole stock, until the several phenomena, usually so distinct when left to themselves, are all mingled in one. Thus, the primary and secondary vaccination—Jenner's vesicle and Bryce's test—are coupled in the same animal; broken vesicles are blended with whole ones; the first stage is conjoined with the last; old crusts and fresh lymph are huddled together on a single udder. Besides, the cows are liable to spurious pocks, which are not a little puzzling; for the cow-pox is not so frequent an occurrence in the dairy as to render it an easy thing to be decided on at a glance, without running the risk of mistaking a spurious eruption for the genuine disease. And, indeed,

milkers catching the false pocks, fancy themselves vaccinated, and only discover their error by being unexpectedly seized with the small-pox, from which they had imagined themselves exempt.

Mr. Ceely considers mere contact sufficient for vaccination, without any visible abrasion of the skin. The milkers contract the disease simply from handling the teats while milking, and suffer from it on their hands and face: the men, between their fingers, on the back and palms of their hands, on their eyelids, cheeks, and forehead; the women, wearing short sleeves, on their forearms and wrists, from contact with their own hands, or the animal's body. Abscesses and sinuses sometimes follow these eruptions, as well as axillary swellings. Occasionally, those who have already been vaccinated, re-vaccinate themselves from the cow; and the symptoms of the latter are sometimes more distressing than those which they remember of their former vaccination.

There is some difficulty in procuring the primary lymph, owing to the difficulty of finding a cow properly infected with a vaccine vesicle just ripe for transfer; for the vesicle must not have been broken, nor must the matter it contains be taken away earlier than the fifth, nor later than the ninth day. And when the primary lymph has been at length procured from the cow, it is not always quite so easy to vaccinate human beings with it; because it happens that morbid poisons do not easily pass from animals of one class to those of another, as from the cow to man, and the converse. Man, indeed, more readily receives the morbid poisons of the lower animals, than they do of him; but even this reciprocal susceptibility varies so much, and is open to so many exceptions, that nothing certain can be said about it.

Mr. Ceely owns* that one half of his attempts to vaccinate with primary lymph failed, although vaccination from the human subject succeeded in the same persons; or else, that, if he did succeed, his success did not prevent secondary vaccination from taking effect. A small number vaccinated with primary lymph, presented vesicles of the highest degree of beauty and correctness, after more or less delay; but even then not every one of the punctures took effect. Similar results ensued with lymph taken from the hands of the milkers, or from early removes of the primary lymph. The symptoms of primary vaccination direct from the cow, are more intense and protracted than in that from man to man. Some patients need preparation before being vaccinated with primary lymph, as they used to be for inoculation for small-pox. Vaccine lymph becomes milder by transmission from man to man: more *humanized*, though its generic character and properties remain the same. Constitutional disturbance is not necessary for the efficacy of the vaccine virus, for the finest vesicles arise with the smallest amount of disturbance to the general health.

Unlike man, the cow may be vaccinated (not *inoculated*, but *vaccinated*) without abrasion of the skin; contact alone being all that is requisite for effecting it.

It is a most singular property of the vaccine virus, that, by having passed through the economy of a lower animal, it comes out with nothing more of the small-pox pestilence in it than exactly so much as is innocuous as a morbific, and yet thoroughly efficient as a protective agent. This transmutation of an infectious into a contagious disease, is as re-

* *Prov. Med. and Surg. Journ.*, vol. viii., p. 343, 1840.

markable as it is inexplicable, and stimulates our curiosity to the last degree of earnest inquiry and research.

There is a good deal of expense attendant on inoculating cows with the small-pox, as well as a great deal of difficulty and uncertainty in obtaining the required results. Obstacles such as these deter others from entering on experiments likely to clear up points that are still doubtful; but they enhance the value of the data already given, and reflect the greater credit on those who have alone stepped forward to explore the question.

Mr. Badcock, of Brighton, has gone over the same ground as Mr. Ceely. In his opinion, the cows used to suffer from the small-pox much more frequently years ago than they do now, since vaccination has become general, and helped in diminishing the disease. His attention was first drawn to this subject by the frequent occurrence of small-pox after vaccination. He himself was attacked by it; and it was this misfortune which led him to doubt the efficacy of the vaccine lymph, then in vogue. He looked out for cow-pox among the cows, but found the malady, such as Jenner described it, scarcely known in the dairies. He then inoculated a cow with the small-pox virus, in 1840. A pamphlet, published in 1807, by Mr. Pruen, entitled *A Comparative Sketch of the Variolous and Vaccine Virus*, first awakened his mind to this idea. He invited several medical men to inspect the vesicle which he had thus produced on the animal, and they agreed as to its genuine character. By means of matter taken from this cow, he vaccinated one of his own children, and produced the true vaccine vesicle. His expectations were answered. Other children were next vaccinated with the matter taken from his own child, as well as with that from the cow; the

results were equally favourable. More than twenty medical men inspected his child's arm during the progress of the vaccine vesicle, and many of them requested supplies of lymph from it, in order to ascertain its effects on others under their care. It did not dissappoint any one of them. It was beyond question, that Mr. Badcock had succeeded in engendering and propagating a fresh supply of primary vaccine virus.

Soon afterwards, Mr. Ceely's similar experiments became known to him, which encouraged him to persevere in his pursuit. Residing in a populous town, where the small-pox is not unfrequent, and possessing cows of his own, which he appropriated to this particular purpose, he was enabled to inoculate some of these animals; and, out of three hundred attempts, at different times, on two hundred cows, he succeeded in infecting about thirty of them with the small-pox virus. The result of the operation is very uncertain. The most susceptible are those with calf. He never succeeded on a barren cow:* he was once successful on a cow-calf, three weeks old.

Mr. Badcock has vaccinated upwards of twelve thousand children himself, with matter drawn from this source. The medical men of Brighton have frequently used the same matter, as is very well known. During one month, Mr. Badcock furnished above eight hundred charges in this town alone, besides more which he distributed to the medical

* Sterility in man as well as in animals offers some singular phenomena to our notice. Eunuchs are seldom bald. The sterile are long-lived. Actual disease apart, women, who have passed their critical period safely, frequently live to be very old. The barren, of either sex, enjoy a remarkable immunity from disease, infection, and casual ailments. Indigestion is almost unknown to them. They are often gouty, obese, and indolent, or skinny, thin, keen, and active. They are cautious and miserly.

practitioners resident elsewhere. It does not appear that any of the medical men have ever doubted the genuineness and efficacy of the lymph thus obtained. Children, after being vaccinated with it, have slept in the same bed with those sick of the small-pox, without catching the disease. Mr. Ceely, of Aylesbury, submitted it to the very trying test of subsequent inoculation with the small-pox, but without effect. One of the parish surgeons of Brighton has continued his vaccination from a stock of lymph originally drawn from one of Mr. Badcock's cows a long time since, nor would he willingly give it up. From those competent to form a just estimate of its value, it would appear that there is good ground for believing this new vaccine, or modified small-pox, to be superior to the old in the intensity of its action as well as in its certainty as a protective agent.

Mr. Badcock, who has watched its progress and effects with the closest attention, is convinced of its superiority. As far as his observation has extended, he has not known of a single failure. But then he is a clever vaccinator, and never neglects any one of those rules so indispensable to success, and to the omission of which may be imputed most of the miscarriages alleged against vaccination. When revaccination is practised, the primary lymph, such as Mr. Badcock's, is of the utmost value, on account of the intensity with which it acts, and the certainty of its taking effect, supposing the constitution unprotected by previous vaccination.

Against vaccination with primary lymph, it has been charged that it causes extensive inflammation, sloughs, etc.: and cases are quoted in illustration. But the same objections may be urged against vaccination with Jenner's lymph, and even against inoculation with the small-pox

virus. The same matter which vaccinates one child in the best and safest manner, will, in the same family, give rise in another child to disagreeable, if not alarming symptoms. But these cases are rare, and may be regarded as exceptions depending on peculiarities of health, over which we have no control. The scrofulous habit is most obnoxious to penalties of this sort: and the presence of eruptive diseases, or of general ill-health, for the time being, contraindicate the propriety of vaccination, as all the world is aware of. No one ever maintains that the introduction of vaccine virus into the system is something to be desired; on the contrary, it is, at the best, but a matter of choice between two evils—the lesser one, or cow-pox, which is harmless, and the greater, or small-pox, which is always hideous, and sometimes fatal.

The old lymph of Jenner's is supposed to have become less potent, from the length of time it has been in use, and therefore the less to be relied on. A new lymph, producing the genuine vaccine vesicle, has been obtained from the cow afresh, by previously inoculating the animal with human small-pox; and this new lymph, thus produced, is believed to be more efficacious than that of Jenner's original stock. The question is not easily settled; but the amount of combined evidence and experience speak loudly, as far as they go, in favour of the new lymph thus recently obtained.

Mr. Badcock's experiments, next to those of Mr. Ceely's, are of the highest practical importance. In this county they stand alone. Not many are likely to start up as rivals in the same pursuit; for the task involves more trouble, time, expense, and disappointment, than most people are willing or able to incur. Remuneration there can be none. The love of science alone can be the motive: and yet it is evident that,

in the execution of a work, costing the continual outlay of capital, something more substantial than the best individual zeal is clearly requisite. What yields a common advantage might be maintained at a common expense. It is an undertaking that merits the general attention of the nation, and is not only not beneath the serious consideration of the legislature, but is one of those chief items of sanitary reform that concern the millions of this vast empire.

Whatever may be the cause assigned, the decline of the old lymph is acknowledged. It has been pointed out by competent observers in every quarter of the globe. In a letter to Dr. Golding Bird, in the month of December, 1851, Mr. Ceely remarks: "that vaccine lymph can be and has been deteriorated by a variety of causes, is indisputable. The fact is notorious in India ;* it has been proved in Paris ;† it has been demonstrated in London.‡ That it may be rendered weak and inefficient by accident or carelessness, by ignorance, or something worse, every experienced vaccinator will readily allow." The inefficiency of vaccine has manifested itself in America. Application was made to Mr. Badcock for a fresh supply, and his new lymph was introduced into the United States by Dr. Coale, of Boston, where it was so much approved of by Dr. Clarke and the other medical officers of the Massachusetts General Hospital, that it has entirely superseded the old lymph previously employed at that institution.

In the foregoing remarks, my object has been to bring the subject of vaccination before the notice of the medical pro-

* *Quarterly Journal of the Calcutta Medical and Physiological Society*, April 19th, 1837.

† *Notice sur le Cow-pox découvert à Passy*, par M. Bousquet, 1836.

‡ *Report on Small-pox*, by Dr. Gregory, *Med. Gaz.*, February 24th, 1850.

fession. My materials have been drawn from various sources; and, though I have not quoted my authorities, yet, as I disclaim anything like originality, every one will feel himself entitled to appropriate whatever is properly his own. I have neither the intention nor the wish to be anything else than a copyist. The inquiry is a deeply interesting one, and is becoming more and more so every day. It is already attracting the attention of the legislature. In the army, it is an indispensable requisite; in private practice, it is of paramount importance, because the validity of vaccination depends on the skill and care of the vaccinator.

II.—FAILURE OF VACCINE.

The frequent failure of vaccination is now so generally admitted, that statistical proofs are not requisite to establish its truth. People look upon it as an equal chance, whether those who have been vaccinated shall be able to resist an attack of the small-pox or not, should they be exposed to it; while some go so far as to surmise, hastily and rashly enough, that vaccination is all but useless. A few vote for a return to the old variolous inoculation; and a few, still more inconsiderate, boldly declare themselves in favour of the small-pox itself, as the only and the surest guarantee of their safety. There is a great deal of exaggeration and misrepresentation in expressions of this sort; and much more is affirmed against the non-protective agency of vaccine lymph, than a dispassionate inquiry into all the circumstances of the case will justify or imply. The broad and undisputed fact of the actual diminu-

tion of small-pox since vaccination has been introduced, is alone sufficient to contradict these wild notions, and to refute the prejudices afloat upon the subject. For, even during an occasional outbreak, the disease is nothing now to what it used to be formerly, when the old inoculation, which is itself not free from risk, was the only obstacle opposed to its incessant and alarming encroachments. At that time, it was a real plague of terrible malignity, whereas it is now a comparatively mild and transient epidemic. This well-known fact is a satisfactory answer in favour of the protective influence of vaccination, which, if not universally, is at least extensively serviceable and effectual.*

To medical men, the occasional failure of vaccine lymph presents itself in a very different light from that in which it is viewed by the public at large; and with vaccinators in particular it is a topic of the deepest interest, which they endeavour to explore to the best of their abilities, and in every possible direction. The various points of inquiry offered to their notice, may be reduced to the few following items.

I.—A chief cause is the capital oversight on the part of the vaccinator himself, in transferring lymph from an imperfect pock. There is no doubt that this oversight or carelessness is a copious source of the quantity of bad lymph in circulation, as well as of the ultimate failure of vaccination as a

* During the recent outbreak of small-pox, the number that proved fatal was, according to the Registrar-General's Returns for the week ending July 4th, 1863, 788 cases, in the thirteen weeks that ended on Saturday, 27th June; and out of 43 fatal cases, not more than four occurred to the vaccinated in the course of seven days, shewing, beyond all dispute, the protective power of vaccination in infancy—the population of London being, June 30th, 1862, 2,859,778.

protective agent. For it is a maxim in vaccinating, never to transfer lymph from a pock in the slightest degree abnormal, nor from a normal pock in a constitution evidently disordered or unsound; because, if it be so transferred, the inevitable result will be abnormal pocks and inefficient lymph. It is impossible to restore contaminated lymph to its primitive purity; no subsequent care in its propagation can ever recover its lost or defective virtue. Having once become devious or degenerate, it continues to descend both degenerate and devious, until its power becomes extinct, and it fails to propagate itself, even in a degenerate form. This glaring fact is so unquestionable, that it is necessary to bring it forward, and place it first and foremost among the causes of the failure of the vaccine lymph.

II. Another main cause of failure is, we must candidly own, carelessness in the act of vaccinating. Not only is the good quality of the lymph used not strictly inquired into at the outset, but, what is more unpardonable, the mode of operating is not exactly performed. There is a right and a wrong way of vaccinating, just as there is a right and wrong way of amputating, bleeding, or tying an artery. Every surgeon knows the value of performing an operation rightly, and the evil consequences to be apprehended from operating wrongly. It is the same with vaccination, which, in its vital results, takes rank among the capital operations of surgery, and requires, for its proper performance, an intelligence as clear and a hand as dexterous as ever fell to the lot of the best of surgeons. By neglecting, or by not being aware of, the precise way of operating, it happens that so many vaccinations turn out, either eventually or immediately, inefficient. The puncture is made too wide or too deep, or irregular; each

of which faults materially affects the shape and character of the vesicle; or else, if it have been properly performed, and the lymph effectually inserted, it is not punctually watched from day to day throughout its progress. Success demands constant vigilance. In performing the operation, the cuticle alone must be raised, and the cutis beneath exposed, but not wounded, or wounded as little as possible. The cutting, or rather the scratching, of the cuticle, should be done lightly and delicately, with the least possible irregularity, and over the smallest extent of surface consistent with the application or insertion of the lymph. Its course must be watched and noticed on the third, eighth, and fourteenth days in particular; and no case can be pronounced safe, unless every step in its progress have shown itself to be regular, critical and complete.

It is very necessary to point out these causes of failure; chiefly because they are frequent, and seem, in a great measure, to have lost of late years something of their due weight and importance in the estimation of medical men.

From the medical pupil never having been hitherto distinctly educated on the subject of vaccination, he is naturally liable to fall into mistakes through inexperience, which can only be overlooked out of tenderness to his unavoidable ignorance, in consequence of his never having been taught, *ex cathedra*, how to proceed with scientific precision. But, upon public grounds, inexpertness is inexcusable, and cannot be too severely censured and condemned.

III. Owing to a want of attention to the proper time for taking it, the lymph is transferred too soon or too late, and the obvious consequence is, that unripe or effete lymph is procured and propagated. Such lymph is weak, or altogether

inefficient. It ought never to be taken away earlier than the eighth, and sometimes not before the ninth day. At too early a day it is ichor rather than lymph. Again, it may be taken away too late; that is to say, after the ninth day, when it is becoming purulent, and the vesicle is turning into a pustule. The exact time is eight times twenty-four hours, dating from the hour of the day of vaccinating. The lymph will remain genuine till the ninth day is over, and sometimes even till the tenth; for occasionally the whole course of the pock is stage by stage a day after its time: thus, the inflamed point of the third day is delayed till the fourth, and the inflamed halo of the ninth does not reach its climax till the tenth, and so on. This delay in the progress of the symptoms is regarded as a favourable prognosis; and certainly, in cases disposed to reject the specific action of the virus, the inflammation and vesicle, besides their being abnormal, arise and disappear much too quickly. Lymph taken after the tenth day is universally reprobated; and none but such as are ignorant or indifferent would ever think of transferring it at this late epoch.

IV. It is advisable never to transfer lymph that has become purulent. A prudent vaccinator never does. Not that pus *per se* invalidates the lymph any more than blood does; for it may appear on the ninth day mixed with the genuine lymph: nor would its accidental presence alone weaken or destroy its efficiency: but it indicates more inflammation than is necessary for the production of the true vesicle, and it moreover signifies the co-existence of an inflammation different in kind from that which produces the genuine lymph. After the tenth day, pus is sure to be mixed with the contents of the vesicle, which is thenceforth rapidly declining,

and ceasing to be prolific. A blow or injury of the vesicle will hurry on the appearance of the tenth day, and consequently render the lymph unfit for transfer. Sometimes the first stages of the pock are suppressed, and then it breaks forth all of a sudden into its normal appearance of the eighth day; but such a pock is invalid.

V. Many parents, especially in the upper classes of society, object to lymph being taken away from their child's arm, lest, as they fancy, it should weaken its ultimate effect. A prejudice of this kind would extinguish vaccination altogether. Nevertheless, there are not wanting acute observers who consider that, if all the vesicles be exhausted of their lymph, the prognosis is thereby rendered unfavourable, and, moreover, that such exhaustion causes local irritation and disturbance. Indeed, it is affirmed that convulsions and death have ensued from such a proceeding. Be this as it may, it is certain that every one concurs in the propriety of leaving one vesicle intact, for the express purpose of judging of the normal progress of the pock from first to last; and no one would, we should suppose, be so imprudent as to irritate the exposed surface with the lancet or an ivory point, merely for the sake of draining it of every drop of its lymph. Yet it may be well to bear in mind, that one of the causes of the failure of vaccination as a protective agent, is imputed to thus draining the exposed vesicle—an error which, if it be one, it is easy enough to avoid.

VI. Lymyh should never be taken from any but a primary pock. The pock resulting from a re-vaccination is not to be relied on. If there is any reason to doubt the vesicle being a primary one, it ought to be rejected.

VII. The actual or suspected presence of scrofula,

syphilis, porrigo, etc., is quite sufficient to condemn the subject of it as a legitimate source of fresh lymph. A vesicle on such a subject, however perfect, should be allowed to die out by itself. Indeed, any eruption of the skin is a barrier against vaccination, except under the immediate risk of catching the small-pox; but as for transferring matter from such a constitution, it is out of the question.

VIII. The sudden accession of constitutional disturbance during the pock, or the increase and extension of the inflammation around it, should render the validity of the operation more than doubtful. A second vaccination should be attempted within six months from the first, and the sensitive feelings of mothers opposed to such a proceeding should be steadily overruled. Many a vaccinator not satisfied with a first pock, would wish to repeat it until he felt confident in the normal character of the last produced. But he is seldom permitted to adopt this wise precaution; and this may be numbered among the causes of failure in vaccinating. The forms of society tie our hands, and force us to comply with its own conventions.

IX. The number of vesicles is said to modify the result of vaccination. Some maintain that one alone is sufficient, while others declare that several are requisite, to insure efficiency. There is no proof to support either the one or the other of these two assertions. Pathologically speaking, it would seem, *a priori*, that the existence of a single good pock manifests the saturation of the system with the virus as entirely as any multitude of them would do. But as a matter of fact, there is nothing to help us in arriving at a decisive conclusion respecting it.

X. The most popular notion concerning the failure of

vaccine, is that derived from its supposed contamination by passing through so many successive generations of mankind. This is the most popular belief, and the one which appeals most readily to the greater number of minds. Nevertheless, of all the different reasons alleged for accounting for the acknowledged fact of deteriorated lymph, this would seem to be the most untenable. It is an hypothesis built up in the face of facts that directly contravene it. For genuine lymph dating from the time of its first introduction, continues to produce a genuine vesicle from a genuine vaccination performed on a subject in a genuine state of health, as exactly now as it at first produced it under the hands of Jenner himself. Lymph, fresh from the cow, is certainly more energetic than such as has been long ago in use; but the pock that it produces is identical, and its immediate and ultimate effects upon the constitution are the same. This hypothesis, likewise, fails in explaining the failures that happened even in persons vaccinated by Jenner. We must look for the cause of deteriorated lymph in other sources than this.

XI. Dry lymph is said to be another cause of failure, and the use of liquid lymph is enjoined. No doubt, liquid lymph, and vaccination from arm to arm, is always preferable, but it cannot always be obtained. Besides, there is no solid ground for supposing that the virus, when dry, upon points, between glasses, or in a crust, is not equally as active as when it is still moist and quite new. Every vaccinator is aware of this. Lymph may be taken to India and brought back again, and still prove energetic and effective.

After all that has been said, the most apparent cause of failure is that of vaccinating with lymph taken from an

irregularly formed vesicle, or from an unsound constitution, or at a wrong date of the pock. Independent of all other causes, this inadvertence or carelessness cannot be overlooked.

The signs of an obnoxious or doubtful vesicle ought to be closely studied. They are both constitutional and local. The health may be cachectic, the child suffering from debility, or some congenital infirmity or malformation. In these instances the pock is worthless. Regular vesicles may co-exist with an irregular one, which alone is sufficient to invalidate the integrity of all the rest—unless its irregularity can be accounted for by something purely accidental.

The following eight points should be impressed on the memory :—1. Irregularity of form throughout all stages of the pock. 2. The vesicles not being round. 3. The colour of the inflammation not being fresh and rosy, and that of the vesicle not of a pearly whiteness. 4. Its fluid contents being straw-coloured, instead of colourless and transparent; or else being purulent on the eighth day instead of the tenth. 5. The areola, or surrounding inflammation, not being defined and circular, but, on the contrary, irregular, confused, and, as it were, blended with the vesicle, whereas it ought to be distinct from it. 6. The crust forming prematurely, looking pale or yellowish-brown, and being friable and gritty, instead of dark, round, and compact. 7. The vesicle forming on the fifth day, and rising up of a conical shape, or festering like a small pustule. 8. The areola becoming efflorescent, or scurfy, or shooting out into a figure like the margins of a map. All such cases should be rejected without hesitation, and a second vaccination should be earnestly advised. It is by vaccinating from vesicles, more or less imperfect according to this description, that so many failures are recorded.

Laxity of practice in this respect is owing to vaccination not being hitherto included within the pale of legalised medicine. Any one may vaccinate as he pleases. There is no recognized authority to guide or check him in his pursuit, and no one is responsible for the lymph he uses, nor for what he thinks proper to circulate. Vaccination has slipped out of the guardianship of Jenner's learned successors, and has been allowed to pass into the custody of a so-called inferior grade of the medical profession.

Few know the criterion of a perfect vaccine vesicle—"The pearl in the rose,"—as Jenner admirably defined it. The practised eye alone can descry it. Too often it is looked upon in a loose way: a pock more or less perfect, runs through its course in fourteen days; and this is reckoned a sufficient evidence of its authenticity. Far from it: much more accuracy than this is called for, before a certificate of its completeness can be justly drawn up and signed. It must have been minutely correct in each step of its progress: it requires attention the most refined in the practice of medicine; and the superficial haste with which vaccination is sometimes conducted and dismissed, is enough to recall its great discoverer from the grave.

The manner, likewise, with which the lymph is preserved on points or glasses, is not more praiseworthy. It is carried about in the waistcoat pocket, or laid aside in a warm room, or left in a damp corner where it spoils or turns putrid. And who can expect that, after being treated in this way, the lymph should take effect, or that, if effective at first, it should prove eventually genuine? It is folly to suppose it.

My father, who was a careful vaccinator of the old school, vaccinated from crusts that had been allowed to form and dry

up unmolested. He was very particular in his selection of crusts; for after rejecting a great many, he would retain but a few for his private practice. He kept them enclosed in a covered box in a dry place, in the dark, for he had a notion that light and air were prejudicial to them. They were round, blackish crusts, indented in the centre, and greyish on the inside. When he intended to vaccinate from them he mixed up a drop of distilled water, or of water that had been boiled, with the point of his lancet, in the hollow of the inside of the crust, until he had stirred it up to a thickish fluid. With the lancet, thus armed, he vaccinated confidently. He used to say that, though it was matter apparently taken on the fourteenth day instead of the eighth, yet the crust comprised the virtue of the entire pock, and that the centre of the crust contained the lymph of the eighth day, undisturbed, and in its utmost vigour. This was the reason why he preferred the crust to matter drawn from the vesicle. Jenner preferred catching the lymph as it oozed out of a vesicle perfectly ripe; and Dr. Walker used to remove the epidermis altogether, and take the matter upon glasses from the exposed base of the ulcer, without any ulterior damage that I can remember; for Dr. Walker was an excellent vaccinator, and most punctilious in all his observances, and I attended and watched his vaccinations.

There are certain signs of a genuine vaccination which are pathognomic. The microscope reveals a small vesicle within forty-eight hours after the insertion of the lymph, while the unaided eye can as yet discern nothing but a tiny scar with a faint blush. By passing the finger gently over it, a small elevated point is perceptible. On the fourth day, the redness, which is more decided, ought to have a dark

central point in it, over which forms a small vesicle of a dull white colour. As the surrounding inflammation extends, it should be circular, or only slightly oval, in correspondence with the long axis of the puncture. Its margin must be well defined, and the inflammation itself full, red, and shining. The vesicle ought to be quite round, with rounded edges, and a central depression, as if the finger had pressed it down; but it becomes more elevated on the eighth or ninth day—the centre rises up and the circumference sinks.

The constitutional symptoms ought to be trifling. Adults complain of headache and lassitude, and the pulse becomes quick. A gland may become tender in the axilla. In adults, too, the vesicles are thinner and more easily torn, and the lymph is more yellowish, and the areola broader, than in children. The tendency to the erruption, called lichen, however, is not so great.

The areola should develope into a halo of erythematous character. It should itch, and the adjacent skin should sympathise beyond its margin. Its diameter is one or two inches. A number of little vesicles, filled with an amber-coloured serum, sometimes arise upon it. The areola is the discriminative sign of a laudable vaccination. On the eleventh day it declines, its colour fades, and, as it passes away, it leaves behind it one or two concentric rings of a blueish light grey colour. It is almost gone on the thirteenth day; the vesicle hardens, and a circular dark brown crust remains. Beneath this crust the fluid dries up, beginning at its centre. At the end of twenty-one days the crust falls off, leaving the skin beneath clean and entire, but at first reddish, the site of the pock being marked with a scar, which eventually becomes flat, shining, and colourless. Its shape is zig-zag,

and its area exhibits a number of depressed points corresponding with the cells of which the vesicle had been composed. For the vesicle, resulting from each puncture, is made up of little cells intercommunicating with each other, and secreting a perfectly transparent colourless lymph, which on the seventh, eighth, and ninth days is at its full maturity, and ripe for transfer. After this crisis, the lymph becomes thicker, less transparent, at last purulent, and unfit for transfer.

These signs are as important as those which indicate a dislocated joint, or a strangulated hernia; and they are as indispensable to the correct diagnosis of its nature as they are to the scientific application of the rules for treating it.

There are, however, some deviations incidental to an efficient vaccination, which do not invalidate its protective quality. The local inflammation may transgress its limits, extending upwards and downwards, from the wrist to the shoulder and thorax. It may become erysipelatous, and an open ulcer may form in the place of the usually fair and placid vesicle; a papular eruption may break out and spread over the extremities and trunk. Such things may happen without damage to the specific action of the virus; and it has been affirmed that an eruption of this sort is a favourable sign, by showing the system to be thoroughly imbued with the lymph. It may be so, and the vaccination may be complete; but it weakens our confidence in its results, and certainly the lymph is not the most approved of, if transferred.

In the foregoing short remarks, I have confined myself exclusively to the consideration of the means proper for the transfer of genuine lymph. I have likewise attempted to point out a few of the characters of genuine lymph itself, without which

success is impracticable. The main object in view is that of directing attention to an accurate knowledge of the true vesicle, without which all hopes of keeping up a constant supply of good lymph are delusive and pernicious. The stock from which we derive it may be the most authentic in the world; but only let it fall into the hands of a careless practitioner, and it will be sure to disappoint our reasonable expectations in the second or third removes, and will not fail sooner or latter to cease altogether in taking effect, or else go doggedly on in engendering any thing but an approved and perfect pock. Hence it arises, that so many false or imperfect pocks are observed, that the protective power of the lymph is weakened or lost, and that vaccination itself has fallen into so much disrepute and neglect.

III. REVACCINATION.

Of those who have been once properly vaccinated, an indeterminate number become again susceptible of vaccination at a subsequent but indeterminate period of their lives. It is said that this susceptibility never occurs within six months after an effective primary vaccination; and this interval of protection has been extended to seven or even ten years; but there are no proofs to warrant our implicit confidence in this assertion. The scar of a genuine vesicle is no evidence of insusceptibility; for those without a scar will remain insusceptible both of the small-pox and revaccination all their days; while others, with a scar of normal character, will take the small-pox or revaccination, notwithstanding this apparent

testimony in their favour, and contrary to our most sanguine expectations of their security. Some vaccinators say, that about half the number of those vaccinated are susceptible of a revaccination; but this computation, though it may depend on statistical calculations, gives no assurance of its positive accuracy; for, out of this susceptible half, there may be justly reckoned a great many who have been imperfectly vaccinated at the beginning, and therefore have never been thoroughly protected at any moment from the first.

The question has arisen, Whether the protective agency of vaccination does not wear out with age? Perhaps this is the most popular notion entertained upon the subject; but it is, nevertheless, an entirely gratuitous one. There is nothing to prove that this is the case. It has been proposed to repeat vaccination every seven years in each individual; but this, like the foregoing opinion, is taken for granted, and nothing actually certain is ever advanced in support of it. To adopt a measure from some vague sense of precaution, is as unphilosophic as it is likely to prove illusive.

If one half of the vaccinated are safe, as some suppose, what signs are there to indicate the particular kind of constitution comprehended within this fortunate moiety? It is evident they exhibit no premonitory signs by which we may recognize them. It is mere guess work. If, as it is generally admitted, a first genuine vaccination do occasionally prove unprotective, what reason have we for concluding that a second genuine vaccination should prove more protective than the first? There is neither reason nor evidence to enable us to form any satisfactory judgment respecting it. And, even supposing the patient to be unprotected by the first, we have no test to assure us that he will not be liable to take the

small-pox, in spite of his remaining insusceptible to the virus of a second vaccination. The value of a negative proof is very precarious.

The varieties and degrees of susceptibilities and insusceptibilities constitute a problem which no one has hitherto attempted to solve. Our information respecting vaccination in general is scanty enough, and practical writers have not thought it worth their while to bestow more than some passing thoughts upon it. The result has been, that theories have been broached, and allowed to pass current without challenge, inquiry, or remark ; opinions have been mistaken for facts ; and, excepting on a few rare points (such as the variolation of the cow), vaccination is now almost just where it was upon its first discovery.

A foreign writer, of the name of Wendt, recounts, that out of 275 revaccinated in the Danish army, more than half succeeded. But vaccination has succeeded, it is declared, in persons already deeply pitted with the small-pox, to the amount of one half, which is the same proportion. Jenner himself at last perceived and owned, that the susceptibility to cow-pox is renewed in some constitutions—an admission which only shows that vaccination is neither universal nor infallible. Our just confidence in a remedy is weakened by overrating its value. Of the deaths from small-pox in some of the largest cities and towns of Great Britain, four-fifths occur in the first five years of life. If this account be authentic, then these children were either not vaccinated at all, or else, if vaccinated, they took the small-pox at the precise age when vaccination ought to be the most protective.

The question of revaccination is embarrassed on on all sides. In times of danger from infection of the small-pox, it is un-

questionably proper. For the most part, a genuine scar is the sign and seal of protection; and most vaccinators will feel confident that, in such a case, revaccination will in all probability produce nothing more than a spurious pock, running its course in five days; or that, if small-pox supervene, it will only be a mild form of it, terminating favourably in a week, and seldom proceeding so far as the fourteenth day. Should the attack, however, turn out a severe one, the medical man will be inclined to suspect the normal character of the primary vaccination; for he has a firm conviction, derived from experience, that a genuine vaccination, carefully watched and approved of throughout all its stages, never deceives him. It is in his estimation, proof impregnable against the small-pox infection, and of strength sufficient to resist the specific virus of revaccination. We may appeal to those who have been attentive observers of what has transpired within their own sphere of practice, and ask them whether this declaration does not express the unshaken conclusion of their minds? Testimony of this sort is of no trifling weight, and supersedes the nicest arguments that can be opposed to it. In a court of law it would be decisive. Many a doubtful point, however, would be cleared up and settled by the return of extensive statistical reports on vaccination, such as those of the Registrar-General's respecting births, deaths, etc.; and an arrangement of this kind might be provided for in a new Vaccination Act.

The proper age for vaccinating has been determined by necessity rather than by choice. The usual time is about the third month, nor does there seem to be any good reason against it. At this period, the pock usually succeeds very well, without interfering with dentition, weaning, or the change

of dress, which is generally made lighter towards the eighth or ninth month. Indeed, there is no time when the nursing and warmth are more carefully attended to than at this period, nor when the infant is more susceptible and less irritable than then. About this time, also, healthy children are plump, and they sleep a good deal, both of which are favourable conditions for vaccinating. The spring and autumn are the best seasons for obtaining fully developed vesicles. The winter checks the action of the skin, and the summer overheats and exhausts the surface. The one hurries on, while the other delays the progress of the pock. It is best to postpone the vaccination altogether in very cold weather, and to wait for a more congenial temperature.

Dentition by no means hinders the virus from taking effect; and every vaccinator is aware of vesicles being produced as perfect, and as much approved of, at this time as any other; only the liability to secondary eruptions is greater, and the constitutional powers are engaged in the formation of the teeth, which is an important process, making a great call upon the strength, disturbing the regularity of the nervous centres, and occupying the chief activity of the system almost exclusively in its own operations. On this account, it has been recommended to postpone vaccinating until after the formation of the first teeth, or at least until after the expiration of the first twelve months. Except in some particular cases, there does not seem to be any good ground for giving way entirely to such a scruple.

No one would ever think of vaccinating during the existence of feverishness, sleeplessness, diarrhœa, catarrh, etc., in children; nor in adults during menstruation, an attack of indigestion, jaundice, excessive fatigue, care, grief, or any

other accidental circumstance interfering with the general health.

The fourth month used to be the age at which the old inoculation was practised, and the child's health was prepared for its reception. Under the most favourable conditions, it was not free from risk; for sometimes the small-pox eruption came out over the whole body, and occasionally children died in consequence of it. During the incubation of the small-pox, that is to say, between the moment of infection and the appearance of the eruption, vaccination may be attempted. Its success will depend upon its being performed nearer the moment of infection than that of the eruption. Some say that, if vaccination be effected within six days from that of the infection, the vesicle will arise, and anticipate or intercept the appearance of the small-pox. Others affirm that, even though vaccination should be attempted as early as the moment of infection itself, yet it will not do more than modify the character of the small-pox; while others, again, declare that if vaccination take place consentaneously with the small-pox eruption, then the small-pox eruption will proceed *parri passu* with the vaccine vesicle. Nay, it is even asserted, that a confluent small-pox will proceed along with a genuine vaccine vesicle. It is evident that these are abstruse points beyond the reach of private experience. Nothing but extensive reports, spread over the space of several successive years, could furnish us with anything like positive data for working by. In the case of imminent exposure to infection, we are forced to vaccinate without delay, and trust to chance for its succeeding.

It is stated that, when a child has been vaccinated and inoculated at the same time, and almost on the same part, so

as to allow of the vesicles uniting, the virus taken from this compound pock will produce either cow-pox or small-pox, no one can foretell which; and that inoculation with vaccine and variolous virus mixed will give rise either to the one or the other of the two diseases indiscriminately. These curiosities in pathology scarcely bear upon practice; perhaps they may be adduced in proof of the identity of the two affections; but their importance does not extend much beyond the limits of their own intrinsic value. Like many other phenomena, they begin and end in themselves, because we are ignorant of their exact relations.

As the greater number of children who die from small-pox, die between their birth and the second month of their existence, it is advisable to vaccinate the poor as early as possible. Their means do not enable them to isolate themselves, and live apart from the sources of contagion and infection, like the rich. Moreover, they are disposed to be negligent in this as in all other matters; and it is difficult to make them see the importance of being vaccinated at all, or, if vaccinated, of bringing their children to be inspected on the proper days throughout the progress of the pock. The consequence is, that, when seized with the small-pox in after life, they are said to have been vaccinated in their infancy; whereas the vaccinator had never been allowed to watch the vesicle, and therefore could never vouch for its protective quality. When I resided in London, I vaccinated many poor children; but, owing to the necessities or ignorance of this class of people, the vaccinations were desultory, and a great number departed or disappeared, without rendering any account of themselves. In instances like these, the appearance of small-pox after vaccination cannot be surprising.

The fault does not rest with the medical practitioner, for he cannot control the caprices of the public. The wealthier classes contract small-pox through the indiscretion of their domestics, who visit infected places and bring it back with them.

A child, on the eve of sickening for measles, etc., may happen to be vaccinated, and in this case the vaccination may not appear, but lie dormant until after the measles have passed away, and then come forth, and pass through its stages with apparent regularity. Every vaccinator is, I believe, aware of a genuine vaccination being delayed for two, more, or several days; and in some seasons the best virus fails in taking effect, no one knows why. The insusceptibility to vaccine is more frequently to be imputed to defective lymph, than to any constitutional peculiarity in the patient. Good lymph seldom fails in taking effect.

Hooping cough was at one time supposed to be cured by vaccination, but subsequent experience has not confirmed the theory. Some have considered that vaccination has cured eruptive diseases, while others affirm that it has produced or aggravated them. These notions most likely turn upon the old difficulty of distinguishing between the sequence and the consequence of events.

The secondary lichen after vaccination is urged as a strong reason against its practice. The virus is supposed to have conveyed something prejudicial into the blood, and thereby provoked scrofula, etc. But it is not easy to determine what is the immediate and exciting cause of scrofula, which may be attributed to many other causes besides vaccination. Anything may awaken it from its latent state, and render it active for a shorter or longer period, if not for the remainder

of life. Be this as it may, the constitutional ailments which are said to follow upon vaccination, may be avoided by the use of mild aperients proportioned to the patient's age and strength. All eruptive diseases require this treatment at their close, and the vaccine pock among the rest. In scarlet fever, the train of awkward symptoms which manifest themselves in the throat and kidneys may be thus prevented. In measles, the lippitudo and diarrhœa that threaten to supervene may be averted by the same means. It is especially the case with small-pox, which requires repeated laxatives on its cessation. Variolous inoculation, and its congener vaccination, call for the same treatment. The cachexy following eruptive diseases, fevers, inflammations, etc., may be traced up to the neglect of this wholesome practice; and the eruptions spoken of as occurring after vaccination may be ascribed to the same omission.

Lichen is apparently an inflammation of the nervous structure of the skin—a true hyperæsthesia, and the eruption is but an accident; for in many cases of prurigo there is no eruption at all. In plethoric subjects, salines, laxatives, and antimonials, together with the use of warm bathing, are the proper remedies; but in cold constitutions, and debilitated persons, the opposite treatment is called for, and stimulating the skin is the best practice. It is analogous to that asthenic conjunctivitis, which is curable by stimulating lotions, but which is aggravated by depletion. The prurigo senilis, so vexatious and obstinate in advanced life, yields to the popular remedy of brine. These observations respecting the nature of lichen, may not be out of place.

The foregoing account is not a very satisfactory one; and it is for this reason that I have reserved it to the last, and

been at the pains of drawing it up thus succinctly. It is surprising how many loose opinions are afloat upon vaccination, and pass current for truth among the public. But if we deduct the few facts that are really known, we shall find the absolute data are only three: viz., 1, the source of genuine lymph, *i.e.*, the cow; 2, the natural history of the vesicle; and 3, its power of protection, when rightly performed. Other points, of not less vital importance, meet us at every step; but they are enveloped in doubt, elude our grasp, and escape from sight. They remain as subjects of investigation for the philosophic student; and it only requires a school, regularly organized, appointed, and authenticated, to bring them within the focus of enlightened research. The cow might be variolated from time to time, so as to procure a genuine supply of fresh lymph whenever it is called for; vaccine wards might be opened; vaccinators, as well as a lecturer on vaccine, might be officially installed; and pupils, accurately educated, might be sent forth, capable of discerning between a true or false pock, as well as skilful in the art of keeping up a constant succession of approved vesicles. *At present (1853) we have nothing of the sort.* The legislature may shift the scenery for us; but the chief and real actors of the drama must be those who preside over the destinies of the medical profession as its preceptors, guides, and friends.

CORRESPONDENCE.

GENUINE LYMPH MORE IMPORTANT THAN A COMPULSORY VACCINATION ACT.

To the Editor of the Association Journal.

Sir,—Will you favour me with the insertion of the few following lines in the next number?

I find, by a letter from Mr. Ceely, that I have not represented Dr. Thiele's experiments accurately in my article on *Vaccine Lymph*, in your impression of the 1st of April. Mr Ceely's words are :—"In the article (vaccine), page 270, I do not think the phrase used, in speaking of Dr. Thiele's experiments, quite expressive of the fact. Dr. T. *selected* milch cows; *rejecting* others, which I was *compelled*, from circumstance, to *take*, and did *succeed* on such as *he rejected*. So I have stated in a note at the conclusion of my paper in the eighth volume of the *Transactions of the Provincial Medical and Surgical Association*."

I will take this opportunity of saying a few words on the subject of vaccination, in relation to Lord Lyttelton's Compulsion Bill in the House of Lords. The question is not whether vaccination shall be compulsory, which may or may not be advisable; but whether the vaccine lymph shall be genuine; in default of which, compulsory vaccination, good, bad, or indifferent, as it may be in the abstract, would become practically nugatory. If his Lordship would enquire into the circumstances of the case, he would learn that the chief want among medical men is that of genuine lymph. During the present week, I have received two letters, one from Mr. Wilson, of Runcorn, Cheshire, and the other from Dr. John Grigor, Nairn, N.B., both complaining of the inefficiency of the lymph they use, and begging for a more effective supply of it from Mr. Badcock's stock. These cases are not solitary, and they exclude the idea of any advantage being derived from compulsory vaccination.

I am, etc.,

Brighton, April 9th, 1853. J. A. Hingeston.

VACCINE LYMPH.

To the Editor of the Medical Times and Gazette.

Sir,—In the report of the Epidemiological Society, in your impression of the 15th inst., Dr. W. Lewis is reported to have said, that "those results," viz., of Mr. Ceely's, on vaccination, published in the *Provincial Medical*

Journal, "had not yet been verified by subsequent experiment." It may be interesting to your readers to learn, that Mr. Badcock, of this town, has gone over precisely the same ground as Mr. Ceely, by performing experiments on the cow inoculated with the small-pox virus, and then transferring the virus from the cow to the human subject, by which means he has succeeded in producing the vaccine vesicle from a fresh stock of lymph. I have vaccinated with lymph thus obtained, and produced the genuine vaccine from it. A gentleman, of much experience in this town, both in small-pox and vaccination, kept up a supply of this lymph thus obtained from Mr Badcock's cows, and never had the slightest reason to doubt its efficacy and genuineness; other practitioners have done the same. These are facts worth stating. Dr. Finch is reported to have said, that he relied on the negative evidence rather than the positive; the negative being, in this case, the opinion expressed or entertained by the Indian practitioners against the validity of the fresh lymph obtained from cows inoculated with the small-pox. The experience of Mr. Badcock, an expert vaccinator, is however on the positive side, for he has vaccinated above 1000 children with lymph originally taken from cows of his own thus inoculated, and his lymph, thus obtained, is in use by many practitioners in this part of the world.

I am, etc.,

Brighton, May, 1853. J. A. HINGESTON.

COMPULSORY VACCINATION.

TO THE EDITOR OF THE MEDICAL TIMES AND GAZETTE.

SIR,—There are four points of interest relating to the subject of vaccination, recently brought into notice by Lord Lyttelton's Bill in the House of Lords, which seem to have hitherto escaped the attention they deserve.

1. If the Bill should pass in its present printed form, the practical result would be to throw vaccination into the hands of the lowest and most necessitous members of the Medical Profession; for it is not likely that the best practitioners would ever become the medical officers appointed according to the provisions of the Act.

2. The Bill nowhere provides for insuring the means of a constant supply of genuine vaccine lymph, in default of which compulsory vaccination would, in many parts of England, become, not only nugatory, but ridiculous.

3. The Bill does not recognise those who are in fact the only vaccinators in England, namely, the General Practitioners. Although Jenner was a physician, yet all the world knows that pure physicians of the present day, not only never vaccinate, but would disdain doing so. It is the same with pure surgeons. The most delicate, as well as one of the most vital, operations

in its ultimate results, does not fall within the surgical province of the hospital staff of surgeons in London. Like the physicians, they never vaccinate. The only vaccinators are the General Practitioners.

4. The Bill seems to be framed in utter ignorance of the fact, that there is no school in England in which vaccination is taught, either directly or indirectly. There is not one of the examining boards in medicine, surgery, or pharmacy, which recognizes it as a requisite part of the education of the medical student. In the theory and practice of vaccination he is turned adrift on the world with no more knowledge of this important item of public health than such as he may have acquired from his associates or his books, according to the proportion of his good sense or the necessities of the practice in which he finds himself engaged. The pure surgeon and physician care nothing about it. At least, this is my experience.

I am, etc.,

Brighton, May, 1853. J. A. HINGESTON.

NEGLECT OF VACCINATION BY TEACHERS.

TO THE EDITOR OF THE LANCET.

SIR,—It is a most singular fact, suddenly brought into notice by the proposed legislation on the subject, that there is no such thing as either authoritative teaching or requisite examination on the theory and practice of vaccination—the pupil is not called upon to make it a distinct and indispensable part of his studies. There is no vaccine ward in any of the London hospitals; there is no lecturer on vaccination; there is no appointed vaccinator; there are no drawings, diagrams, preparations, or illustrations, of the true vaccine vesicle; or, if such there be, it is a curiosity entirely accidental, but not in the slightest degree accessory to the stated course of his medical and surgical instructions. Vaccination may be appended to the lectures on midwifery—it may be, at present, but it used not to be formerly; even if it be so at present, it is quite gratuitous, and is never mentioned or alluded to in the printed advertisements, published in the journals and daily papers at the commencement of every session. Indeed, if such an announcement should be made for the ensuing summer, it would be a novelty taking every one by surprise. It is not mentioned in the advertisements of the summer session either at St. George's or Guy's, published April 15, 1853, for instance.

Again, it is a most singular fact, that until very lately the pure surgeons and the pure physicians never took any interest in vaccination as an essential part of the practice of medicine and surgery, for it is a combination of both. They seemed to think that the art of vaccinating properly came into the pupil's mind by a sort of intuition, just as they not long ago, seemed to consider midwifery as a part of practical medicine and surgery, requiring no better wits than those of an old nurse. In truth, a thorough knowledge of

midwifery, and particularly the profession of it, disqualified its professor from any very high consideration in the upper ranks of his profession. I am not sure that vaccination was thought much better of. But now, since vaccination has attracted the attention of the House of Lords, the tables are turned, and the pure surgeons and the pure physicians step forward with restless agility to show "the powers that be" how deeply interested they are in the legislation of a most important part of medicine, which they have never hitherto condescended to teach their pupils, or to practise publicly themselves. Sir, this exhibition is one of the most amusing pieces of by-play that I ever had the pleasure of witnessing since it has been my good fortune to belong to our liberal profession.

Hitherto, vaccination has been left altogether unguarded and unheeded in the hands of surgeons in general practice, or of those physicians who practise midwifery, vaccination, &c., like the general practitioner. It has been left unguarded and unheeded in their hands. No one is responsible to any recognised authority for the manner in which he vaccinates, nor for the lymph he thinks proper to circulate. He has no warrant to show the public that he is capable of knowing the precise difference between a genuine and a spurious vaccination, or that he has ever been taught the first principles of a discovery, the nature of which is at once so original and astounding, that it has earned for Jenner the extravagant and transcendent epithet of "Immortal!"

Sir, it is high time to speak the truth, and to make some attempt to place vaccination on its proper basis. The legislature should know—only there is no way of letting them know, except through the public press—that practical vaccination rests in the hands of surgeons in general practice; that the real vaccinators have taught themselves, but have never been taught *ex cathedrâ*, how to vaccinate; and that, considering the singularly unaccountable neglect of this part of their education, the wonder is, not that genuine lymph should now be failing, but that any creditable supply of it should have been kept up till the present time. The National Vaccine Institution has fully done all it could to effect the object for which is was set on foot; but no pupil is bound to attend this establishment, nor is it authorized to supervise the vaccinators of Great Britain. In short, vaccination has been mainly supported throughout the kingdom by the unaided good sense of the surgeons in general practice alone.

I am, Sir, etc.,

Brighton, May, 1853. J. A. HINGESTON.

VACCINATION AT GUY'S HOSPITAL.

NOTE FROM DR. LEVER.

TO THE EDITOR OF THE LANCET.

SIR,—A letter appeared in your widely-circulated journal of Saturday last, May 28th, headed "Neglect of Vaccination by Teachers," signed J. A.

Hingeston, and dated from Brighton, in which he states that at the schools of medicine in this metropolis, singling out St. George's and Guy's, there are no means of acquiring a knowledge of the method of vaccination, or of discriminating between a genuine and spurious vesicle.

Now, Sir, I will leave the St. George's professors to speak for themselves, but I will endeavour to rebut the broad assertions of your correspondent with regard to Guy's.

Mr. Hingeston states, "There is no vaccine ward in any of the London hospitals; there is no lecturer on vaccination; there are no drawings, diagrams, preparations or illustrations of the true vaccine vesicle, or, if such there be, it is a curiosity entirely accidental. Vaccination may be appended to the lectures on midwifery."

Sir, it would be impossible to have a vaccine ward in our large metropolitan hospitals. Women with nursing children could not leave their homes and their domestic duties for the sake of having this supervision of the rise, progress, and decline of the vaccine vesicle; but to show that the matter has not been altogether neglected, I may mention that at Guy's Lying-in Charity, established nearly twenty years, every patient attended therefrom is told she may have her children vaccinated on a certain day and at certain hours, so that the pupils have the opportunity of seeing the mode of operation and witnessing the result, if the patient returns. A book has been kept from the commencement, recording name, residence, date, and results; but the statistical data are far from satisfactory, as many women do not re-appear. This plan was commenced by myself at the establishment of the Lying-in Charity, and continued to 1844, from which time the duties have been performed by Mr. W. H. Pettigrew. It is true we have not now so many cases, as the parochial surgeons are paid, and deservedly paid for the operation.

But surely drawings or engravings of the genuine appearances of the vaccine vesicle are to be found in all the libraries attached to our schools, and to which students can at all times refer. With respect to preparations, it is absurd to suppose that we can have arms placed in jars for the purpose of inspection. It is rare for children to die during the developement of vaccinia, and if affected by disease its progress is arrested, or its natural appearance changed.

Before making this sweeping assertion with respect to the want of illustrations in the museums attached to the schools, Mr. Hingeston should have visited Guy's Museum. He would have been shown by its curator, Dr. Birkett, the following illustrations, modelled by Mr. Towne, a most accurate imitator of nature, viz.:—

Prep.	2727^{30},	arm of child showing vaccinia	3rd and 4th days.
,,	2727^{31},	,, ,,	5th and 6th days.
,,	2727^{32},	,, ,,	7th and 8th days.
,,	2727^{33},	,, ,,	9th day.
,,	2727^{34},	,, ,,	10th day.
,,	2727^{35},	,, ,,	15th and 18th days.
,,	2727^{50},	arm of adult showing secondary vaccinia	6th and 7th days.
,,	2727^{51},	,, ,,	8th day.
,,	2727^{52},	,, ,,	9th day.

I append the numbers, that any of your numerous readers may test the truth of my assertions without trouble.

But is there no lecturer on vaccination at Guy's? Why, Sir, for years has my able and eloquent teacher and friend, Dr. Addison, given demonstrations on cutaneous diseases to a crowded theatre, consisting not only of pupils but of many medical practitioners. These demonstrations he has illustrated by plates and by the models in the museum, and the subject of vaccinia has not been neglected. Of late he has, in addition to his demonstrations, produced before his audience patients, described the peculiarity of the disease, its diagnosis, &c., and prescribed for it, and this has been continued week after week.

The subject of vaccination need not be, nor is it, alluded to by the lecturers on midwifery, except in giving certain directions for the choice of a wet-nurse.

Trusting you will permit these remarks to appear in an early number of your journal, allow me to subscribe myself,

Yours respectfully,

JOHN C. W. LEVER, M.D.,
Physician-Accoucheur to, and Lecturer on Midwifery at, Guy's Hospital.

VACCINATION AT GUY'S HOSPITAL.

TO THE EDITOR OF THE LANCET.

SIR,—If I understand Dr. Lever's letter rightly, it means that Dr. Addison is the professed teacher of vaccination at Guy's Hospital, but that the lecturer on midwifery and the physician-accoucheur has nothing to do with it.

I remain, Sir, your obedient servant,

J. A. HINGESTON.

Clifton-terrace, Brighton, June 6, 1853.

VACCINATION AT GUY'S HOSPITAL.

[NOTE FROM DR. LEVER.]

TO THE EDITOR OF THE LANCET.

SIR,—It is stated in a good book, "He who runneth may read." Your correspondent, Mr. Hingeston, in answer to my *facts*, gives three lines and a a half in reply: "Dr. Addison is the professed teacher of vaccination at

Guy's Hospital." Sir, Dr. Addison is not a "professed" or professing teacher; he is an earnest and practical lecturer. He lectures on vaccinia, variola, rubeola, scarlatina, urticaria, &c.; and in his Demonstrations, on Mondays, at one p.m., he is assisted by my able friend and colleague, Dr. Hughes. On Monday, June 6th, he had a most interesting case of vaccinia, complicated with other skin eruptions, upon which he lectured for nearly half-an-hour. This will, I think, convince your numerous readers that vaccination and its accompaniments are *not* neglected at Guy's. There is a model of a child's arm in course of preparation, and when in the museum, (if you permit me,) I will send you the number of the cast and model.

During a conversation with Mr. Towne, the Hospital modeller, than whom I believe no one more faithful ever existed, I was told that twenty years ago I vaccinated his child, at the house of Mr. Browell, steward to Guy's Hospital; and from that child's arm models were made to show the progress of the vaccination, and these were placed in the museum; but not content with that, Mr Harrison, the late respected treasurer, had duplicates made, and these are now to be viewed in the office of the Lying-in Charity, a place I trust that Mr Hingeston will some day visit.

Sir, your personal knowledge of Guy's Hospital I am certain has convinced you that everything is there done to promote the welfare and stimulate the industry of the student.

Your correspondent, Mr. Hingeston, forgets one sentence uttered by that illustrious statesman and immortal orator, Burke: "He who circulates an untruth without taking pains to prove it to be untrue, is as culpable as he who manufactured it."

Yours very respectfully,

June, 1853. JOHN C. W. LEVER, M.D.

VACCINATION AT GUY'S HOSPITAL.

TO THE EDITOR OF THE LANCET.

SIR,—As I expected, it appears that Dr. Addison is not the professed teacher of vaccination at Guy's Hospital; but Dr. Lever has already informed the public that the physician-accoucheur need not, and, in fact, does not, even so much as allude to this most important topic in his course of lectures; there is therefore no appointed teacher of vaccination at Guy's Hospital—*quod erat demonstrandum.*

I beg leave to close the correspondence.

I am, Sir, your obedient servant,

Clifton-terrace, Brighton, June, 1853. J. A. HINGESTON.

Parliamentary Papers relating to the History and Practice of Vaccination. Evidence taken before the General Board of Health, p. 69, 1857.

		I. *Have you any doubt that successful vaccination confers on persons subject to its influence, a very large exemption from attacks of small-pox, and almost absolute security against death by that disease?*	II. *Have you any reason to believe or suspect that vaccinated persons, in being rendered less susceptible of small-pox, become more susceptible of any other infective disease, or of phthisis; or that their health is in any other way disadvantageously affected?*	III. *Have you any reason to believe or suspect (a) that lymph, from a true Jennerian vesicle, has ever been a vehicle of syphilitic, scrofulous, or other constitutional infection to the vaccinated persons; (b) or that unintentional inoculation with some other disease, instead of the proposed vaccination, has occurred in the hands of a duly educated medical practitioner?*	IV. *Do you (assuming due provisions to exist for a skilful performance of the operations) recommend that, except for special reasons in individual cases, vaccination should be universally performed at early periods of life?*
273.	HINGESTON, J. A., (Brighton).	I have no doubt that successful vaccination confers almost absolute security against small-pox; but I believe that successful vaccination is not the rule. Impure or weak virus, carelessness in vaccinating, inattention to the course of the vaccination, conspire to render many cases nugatory.	I do not think, nor have I ever known vaccination to be the cause of other diseases in the person vaccinated. I think that, in persons predisposed, it has, like any other exciting cause, provoked the appearance of latent struma; but this is not the fault of genuine vaccine virus. An accidental wound would have done the same. The vesicle would cease to be Jennerian if alloyed with any other virus; it would not maturate properly.	I have seen eruptions, certainly of a doubtful character, follow vaccination; but the same virus has not produced the same eruption in other subjects. I have seen erysipelas of the whole of the arm from vaccination; but this is very rare. I never saw, nor can I suppose that, in the hands of an *educated* practitioner, "unintentional inoculation with some other disease" could possibly occur.	Cæteris paribus, the earlier the better. I published my notions on vaccination in the *Association Journal*, 1853; and I predicted that Lord Lyttelton's Bill for *compulsory vaccination* would prove abortive, and so it has. The fact is, the question does not turn upon compulsion; the chief point is to secure genuine lymph and careful vaccinators. This can only be done by a Public Board, such as the National Vaccine Institution for securing genuine lymph; and by the compulsory education of medical pupils in the practice of vaccination: *at present, it is not taught.* I have not room to write down all I could say upon this most intricate, extensive, and interesting topic. It is more than a national—it is a universal truth, which has reached a crisis in its existence that tends to its extinction or its perfect revival—I believe, the latter.

With this part we conclude an outline of the history of two of the worst diseases that have ever afflicted mankind,—the Asiatic Cholera and the Small-Pox,—the one at last found to be remediable by means of a palliative artifice, the other hitherto appearing to be incurable almost from the first. By the aid of a sanitary police rigidly enforced, if such a proceeding were feasible in a free community like that of the United Kingdom, the Small-Pox might be absolutely extinguished, in the same manner as the intensity of the Asiatic Cholera has, during each successive outbreak, been more and more ameliorated and diminished by the sanitary measures so skilfully adopted and brought into play by every local authority throughout the land. In proportion as the public attention is drawn to this consideration of the question, and the popular mind enlightened respecting its nature and the most rational as well as the most scientific means of guarding against it, the progress and ravages of the disease may be gradually arrested and effectually brought to a close. In this, as in every other emergency, prudence and accurate information carry the day. Even the pernicious influences of atmosphere or climate, infection, and contagion, may be ascertained by observation, counteracted by intelligence, and averted by foresight and vigilance. The use of essays of this kind is that of throwing a strong light on an enquiry in which both national and individual interests are alike engaged.

PART II.

HYPOCHONDRIASIS.*

Hypochondriasis, the poor man's scourge and the rich man's plague, cowers beneath the cloak and cowl of self-loathing and disgust of life. It is an egotism both mental and bodily, languishing in a sphere of its own creation, apart from the busy bustle of the crowd strolling along the pleasant plains of earth, and averse to everything except the bitter consciousness of its own all-absorbing sense of perpetual solitude and woe!

The melancholy that weighed upon the disgraced premier in Gil Blas and wore away his spirits, presented itself in the shape of a frightful spectre that was never absent from his Grace's disordered vision. It was the forerunner of his end; and though, as Le Sage somewhat maliciously insinuates, his death was inevitable from the moment that the two celebrated physicians from Madrid (who had the merit of

* "Confessions of a Hypochondriac; or, The Adventures of a Hyp. in Search of Health." By M. R. C. S. Saunders and Otley. London. 1849. Pp. 310. Small 8vo.

curing their patients *quelquefois*), together with their two obsequious executioners, the surgeon and apothecary, set foot upon the threshold; yet the spectral illusion alone was sufficient to signify the nature of his malady, and give warning of his approaching dissolution. We were once acquainted with a Baronet in a distant part of England afflicted in the same mournful way. The village doctor was puzzled, and the ablest heads from the metropolis were baffled by these unwelcome visitors, who took their departure only upon the decease of their helpless victim. In such cases the nerves are unstrung, and their tone and harmony have been disturbed by a long-continued abuse of the great business or pleasures of the world; for melancholy is one of the penalties paid by "vaulting ambition" for the much envied liberty of being allowed to scale the difficult *itur ad astra*. A friend of ours, of an habitually melancholy mood, was once, in a fit of absence of mind, walking up and down a room, at the bottom of which was a large plain mirror. Suddenly raising his eyes, he beheld his own full-length portrait, and, mistaking it for that of his brother, whom he strongly resembled, reached forward in haste, and shivered the glass in the thoughtless attempt at shaking hands with the image reflected before him. He was roused from his trance by the blow, and taught by a painful reality that there was no one present but himself. Little children are sometimes melancholy, although Heberden affirms the contrary; but they are scrofulous subjects, and so are melancholy young ladies, the Rosa-Matildas of Lord Byron, himself a prey to the most inveterate sadness. Genius is generally melancholy, but what if there is no genius without scrofula? Johnson, the philosopher of Fleet Street, was atrabilious, Milton amaurotic, Grey gouty, and

the interesting Cowper a coward almost to madness. The inimitable Pope, the poet, had a crooked spine, and Torquato Tasso, whose splendid vision of the *Jerusalemme Liberata* ranks among the first of epics, was the sport of a temper tinged with a sadness of the deepest die. It was the same with Dante, and if Shakspeare was not melancholy himself, he at least felt with delicacy the full meaning of the words that he has so appropriately placed in the mouth of Jaques.

But what is genius?—a supernatural gift; sublime because it is perpetual, and enchanting because it embodies in music, verse, bronze or marble, the everlasting beauties of nature. It is ethereal, because it is ideal. The discovery of America, or the conception of a Parthenon, the passage of a Mount St. Bernard, or the *Agnus Dei* of a Mozart, are the creations of a single mind incapable of propagation, and energetic only during the life, or it may be during part of the life of a solitary individual. Homer, who addresses himself to a universe, holds no commerce with any generation of poets; and a Rafaelle or a Carlo Maratti paint in an atmosphere where meaner talents can scarcely draw their breath or handle their brush with freedom and effect. The flame of genius burns alone, the envy or admiration of others, if not an exhausting ecstasy to its hapless possessor. Meteoric in its essence, it shines by fits and starts, appearing on a sudden, flashing for a while, and then expiring.*

* The birth-place of mere scientific genius was Greece. Rome procured from thence her physicians, architects, painters, musicians, etc., whom she paid and despised. The Gauls, Germans, Spaniards, etc., were, like the Greeks, her subjects also, but then those barbarians knew the use of the sword, and the Romans respected them for it. *Græculus* was the stinging word of contempt applied to the Athenians, who, with all their wit, could not manage to retort a similar insult on their masters.

Modern sentimentalism, the mimic of genius, is a form of hypochondriacism ; and much of the mawkish literature of the day, surcharged with love-tales, melodramatic escapades, and the wild career of ill-regulated passions, argues a condition of nerves in the writers of such popular nonsense little short of softening of the brain, or at least of some vicious degeneration of the nervous tissues. It leads to the worst of consequences. For, physically speaking, it is a symptom of national or personal decay ; and, morally speaking, it inflicts a judicial blindness in the exalted perception of truth, virtue, and every kind of heroic action. To benefit, not only the individual in particular, but society at large, and to afford a substantial means for carrying forward every practical purpose in the regulation, the amelioration, the consolidation, and, indeed, the absolute happiness of an entire community, requires a vigorous and well-governed mind depending upon a temperate, healthy, and strictly disciplined habit of body.

Heberden, who has drawn a faithful picture of this malady, considers hypochondriasis and hysteria as different forms of the same disease. Few persons are so blessed as to be entirely ignorant of it, or not to have sometimes felt languor and despondency without any manifest cause. It may be of short continuance, and pass away without being noticed by others. But in its severer forms it is a sort of dream, which, though a person be otherwise in sound health, makes him feel symptoms of every disease ; and though innocent, yet fills his mind with the blackest horrors of guilt. These lackadaisical people are a sort of timid lambs with the propensities of a bear—*moutons enragés*, according to the facetious expression of a French writer.

The causes of hypochondriasis are as various as they are inexplicable; while sometimes, in direct opposition to the rules of logic, the disease seems to be an effect without a cause. Debility, or a deeply-seated scrofulous taint, appears to reside in most instances at the root of the evil. It precedes and accompanies gout, and is cured by podagra in the great toe. It is observable among the members of the same family, who sometimes become maniacal instead of podagrous. It is a symptom of rachitis, and those who suffer from disease of the bones of the spine, are constantly more or less *hyp'd*. A person, whom we attended in his youth for several obscure ailments, was seldom otherwise than melancholy. To mend his fortune he went to Australia, where he succeeded beyond his expectations; but at length died paralysed and comatose. On the examination of the body after death, a spiculum of bone was discovered growing from the inside of the calvarium, piercing the dura-mater and penetrating the brain. Stagnation in the functions of the liver is proverbial for giving rise to the vapours, spleen, melancholy, or black bile. The jaundiced eye is said to look at all things with a sour visage. Excessive fasting as well as eating to excess, like all extremes, produces similar results; and you may starve your victim into sadness on a bare board, as surely as you may over-nourish him with despondency from the enticing viands of too fat a repast. Repletion and hunger are equally the authors of crime, animosity, ill-temper, and an invincible disgust of life.

The mucous membrane of the stomach alone will, when slightly inflamed and acid, prove an obstinate source of hypochondriasis; and, perhaps, sensitive people who can never look another in the face, nor utter a word of their

own without being covered with blushes, are the subjects of habitual dyspepsia. A gentleman who lived freely was advised to relinquish his wine and become a teetotaller: he did so, and went to Paris, where in a fit of despair he cut his throat. On a *post-mortem* inspection, an ulcer was found in his stomach. Deranged or abused generative function is another very frequent cause which blanches the cheek, renders the eye wan, exhausts the brain, fixes a sullen sadness on the brow, and tempts almost irresistibly to suicide, or to the perpetration of some of those enormities that every now and then harrow the feelings and shock the good sense of the world. The abuse of mercury for the cure of specific disease is another direful infliction that produces the very worst description of mental suffering, and has, ere now, instigated many a mutilated reprobate to fill up the measure of perdition by cutting short with his own hand the forlorn remainder of his days. Solitude does the same; and so does an incessant round of dissipation, in company with the giddy throng who waste the fleeting moments of their time in the restless, vain, and insatiable pursuit of sensual enjoyment. Pleasure begets remorse, remorse despair, despair woe.

Among the many other very learned definitions so scholastically explicated and charitably bestowed upon our fallen race, man is *par excellence* said to be a social or gregarious animal. Few, if any, have ever dared to live alone, any more than they have ever wished to live continually with others without occasional loneliness. Parent-du-Chatelet says, that in the *Maison du Bon Pasteur*, the deaths were 1 in 10, whereas the mortality in Paris was, at the same age, 1 in 75. Persons who, like these unfortunate inmates, had been

accustomed to a gay and unrestrained manner of living sank beneath the comparative solitude and monotonous regularity of a more virtuous and religious *régime*. Habit is everything: and the sudden relinquishment of the worst of vices is likely to bring about the worst of consequences. The *juste-milieu*—the *via media*—the golden mean—where is it?

Actual vice apart, there is nothing in this world worthy of either joy or grief; for, strictly speaking, success and failure are equivalent terms; and the last state of experience is to receive all that happens without emotion, and to regard events with a cool, deliberate, and dispassionate eye. Too serious a reflection on the transitory nature of earthly goods, is more than enough to drive any one crazy, unless he be blessed with a constitution congenitally apathetic, stoical, or extremely religious. But religion itself is, when abused, a powerful source of hypochondriacism. For either it is believed and disobeyed, which gives rise to reproach of conscience; or else it is believed in a wrong sense, whereby the terrors of Divine justice are made to supersede the promises of mercy and forgiveness; although, when received in its true sense, according to the rule of faith, religion is a charm that sweetens everything. *O potestas, quid non præstas homini?*

The confessions of a hypochondriac, which we have placed at the head of this article, is a humorous description of this unhappy and ignoble class of personages. Fortunately, it has the merit of being written in a pleasing style of narrative, which renders the book so enticing that you cannot lay it aside until you have finished it. Light as it may appear at first sight, it is, however, deep enough; for if its surface

be sparkling, you may at the same time see to the bottom of it, simply because its depth is clear. The buffoonery is indispensable to its success, since it would be impossible to treat the subject in any other way than that of the burlesque —aiming a random shot at folly as it flies.

The hypochondriac himself, the poor descendant of an affluent family, is restored to wealth by the good luck of a will made in his favour. Without occupation, or rather without the necessary "bore" of earning his daily bread, he quickly becomes tired of himself, of everybody, and of everything. Collecting his bag and baggage, which consists of his own dear self and a very sinister waiting man, or gentleman's gentleman, he resorts to Malvern to try its invigorating air and celebrated waters. Driven from thence by an odd but amusing accident, he undergoes the Hindoo shampooing, and consults a prosperous homœopath at Brighton. The fresh sea-breezes and the fragrant downs are, in his morbid estimation, nothing to be compared with the infinitesimal doses of the one and the scalding manipulations of the other. Hydropathy next has its turn—wet sheets, a crystal beverage, the cool diet, and the presumptive hopes of a water-cure. From these delusive remedies he rushes away in disgust, and recklessly flings himself into the arms of a mesmerizer or mesmerizess—for we believe that as yet the necessary gender is not determined. This, perhaps, is the most *piquante* scene of the whole, and it is told in a very animated and effective manner. Wishing to be put *au fait* of the *science* or *séance*, he abandons himself without reserve to the truth or falsehood of this black or lucid art. Allowing no scruple to hinder him, nor the intrusion of any preconceived idea to bias his sentiments, he

frankly delivers himself up, bound hand and foot, to the magic demonstrations of the animal magnetizer; and the penalty he pays for the thorough conviction of his credulity is a public exhibition of himself, if not by name, at least in *propriâ personâ*, within the fashionable saloon of some celebrated person devoted exclusively to mere obscure, recondite, and questionable experiments. Unluckily for the cause of mesmerism, the hypochondriac being convicted of *clairvoyance*, departs full of the gifts of this inward perception which dreams of truisms when fast asleep, but is in fact asleep to the truth when wide awake. "I could not," he says, "repeat the ceremony. The audience were both pleased and astonished; and as they filed off in a crowd, some one, I fancy a duchess, with more money than sense, put a guinea in my hand, and being taken by surprise, she slipped away before I discovered her folly, consequently I was under the painful necessity of putting this gratuity into my pocket. She had, probably, mistaken me for a respectable adventurer —a beggar, exhibiting for the company's entertainment."

It being seldom that time is lost by such patients as these in the pursuit of health, the hypochondriac found out a new magician for the restoration of his jaded nerves. He arrived at an enchanted mansion, where, after being introduced to its mysterious owner, submitted to sundry unintelligible operations, and swallowing a copious draught, perhaps of *hachish*, he seemed to be conducted through apartments of Eastern magnificence, until he reached its inmost recesses. Vatheck and the Halls of Eblis are summoned again from the realms beneath—Narkes and Cafour, with waving torches, and Carathis pronouncing her barbarous incantations. Monsters, with one accord, thrust forth their unsightly snouts, and,

finding themselves constrained by the potency of charms, open their hideous mouths, and say—"We are yours—what seek you?" "Fiends," answers the hypochondriac, "I conjure you, by your fiery forms—tell me where is health?" "Out yonder," replies the crew in full chorus: "will this content you?—if so, let us depart." "It will," returns the besotted patient, stretching forward to the corridor through which they were pointing with their sinewy claws,—"it will —begone!—I dismiss you—I cannot tarry, for I am bound in the pursuit of health!" The scene changes, and he awakes and finds himself quietly in bed at his hotel.

What has occupied in our pages a few short paragraphs, is in the original drawn out *in extenso*, and charged with the details of a highly entertaining description. The mask is stripped off the mendacious quack, while even the regularly educated physician is compelled to lay aside his cap and gown, and appear in his real character of adulation, pedantry, or tact. Be this as it may, the poor hypochondriac candidly confesses everything he saw and suffered from a designing valet, no small number of out-of-elbow M.D.'s, and a host of unprincipled impostors, quacks, and mountebanks.

The medical man's office is ministerial, not executive. He waits upon death, alleviates pain, and assists in the recovery of health. As soon as he pretends to do more than this, he compromises his character for the sake of a little temporary advantage, or sacrifices his patient's welfare to some views of private interest or ambition of his own. The elements of medicine, when applied in practice, according to the approved rules of experience, are sufficient for all the purposes of life; and if an impatient public be prone to transgress the prescribed limits of reason, it is because they

cannot brook the notion of death being the ordinary termination of disease in the same sense as old age is the inevitable result of youth and manhood. Consequently, the professors of the healing art can never hope to escape the shafts of satire, nor have charlatans ever been wanting to lend their countenance to the vulgar prejudice prevailing against them—from the recent days of St. John Long, back to those of Dr. Sangrado, and from the era of the Sangrado of Gil Blas, as far back as the times of the Roman Emperor, Hadrian, whose dying words were, *Turba medicorum Cæsarem perdidit.*

When the nervous system is healthy and highly organized, as it is in some favoured individuals, it is scarcely possible for the disease called hypochondriasis to ruffle its imperturbed placidity. Life is, under such delightful circumstances, an enjoyment of itself. The sensations conveyed from without, impinge upon the sensorium a faithful and correct image of all that passes around it, while the feelings from within are disturbed by the troubles of no deranged viscus, nor jarred by the disorders of functions imperfectly discharged, or by local vitality worn out, effete, and verging to decay. On the contrary, the machinery of life moves on in smooth and equal pulsations, like the flowing melody of some eminent composer touched by the hand of a master accomplished in his art. Such a refined character, indeed, is but little understood by men of the world, still less appreciated by the lovers of what is styled "the great and the extraordinary," and, above all, absolutely disrelished by the vulgar, whose tastes are gratified by nothing except by what is startling, exaggerated, rapid, loud and imposing. The nerves, in this their highest state, are more remarkable for

calmness and composure than either for greatness of manner or productiveness of fancy. In youth and maturity it evinces an almost childlike simplicity of behaviour, terribly liable to fall an easy prey to the wicked and the designing, while in old age its chief attribute is wisdom, in the true sense of the word, whereby the world is weighed in the balance of its nothingness, and the happiness of others is most nobly preferred to its own ease and pleasure. Ethereal and unearthly as such beings are, their occurrence is by no means unfrequent in the circles of domestic life, and the moral grandeur of their comparatively perfect innocence, which is the chief security for their own peace of mind, rises up as an impregnable barrier against the aggressions or desires of depravity, malice, and vice.

History, private and public, sacred and profane, teems with instances of the joyless mood, from the faintest tinge of blue to the darkest stain of inky blackness. It is not easy to account for Domitian's petty passion for spiking flies with a needle, which gave rise to the witticism of Vibius Crispus, who, being asked if any one was with the Emperor, replied, "No, not even a fly!"—any more than we can account for the abominations of Heliogabalus, when a buffoon was præfect of the prætorium and signal vice was the grand recommendation to honours and dignities. Perhaps, they are nothing more than some of the trifling particulars set down in the reckoning of human folly, the items of which are interminable. That Egyptian king who built a pyramid procured by his daughter's infamy, could scarcely have been otherwise than broken-hearted; neither could he who sacrificed two children, as Herodotus tells us, to appease the winds, have had a much easier conscience; for human

nature is always the same, and iniquity is sure to leave its sting behind. Queen Elizabeth, it is recorded, never smiled after the execution of Essex; and the Protector Cromwell, after having beheaded Charles I., wore a breastplate beneath his hauberk, in consequence, as every one knows, of a pamphlet published at that time, entitled "Killing no Murder." Cleomenes, that *mauvais sujet* of a Spartan, played so many odd tricks in so very excited a manner, that his best friends agreed to place him in the stocks; where, however, in defiance of his discreditable position, he contrived to possess himself of a sword from the hand of a helot, with which he hacked his flesh in pieces till he died. His fate was attributed to various crimes that he had committed, but chiefly to that of sacrilege. The rage of Crœsus upon the death of his son Atys from the wound of a spear prefigured to him in a dream, implies a loss of self-control tantamount to a total loss of reason; and so, likewise, the remorse of Œdipus in tearing out his own eyes, and the infuriated agony of Orestes for matricide, affecting as they may be when exhibited in a classic or tragic point of view, are only excusable on the ground of pagan darkness and unqualified infidelity. But even in the twilight of the world, such punishments were imputed to their proper origin, for the ancients beheld in the fate of these great actors nothing more than the reward that was their due. Hence the poetic justice, so much extolled by the learned, is only true in fiction because it is first of all true in the critical affairs of life. The Greek Emperor, Constans, who from motives of political jealousy put his brother to death, was incessantly pursued, night and day, on land and at sea, by a phantom sprung from remorse of conscience, presenting to his lips a cup of blood, saying, "Drink, brother—drink!"

The spiritual dryness so often mentioned by ascetic writers, and experienced by religious enthusiasts themselves, is apparently a very severe form of hypochondriasis. St. Theresa relates of herself in the third person, that for forty years she had not passed a day without anguish and various kinds of sufferings. St. Catharine of Sienna confessed that she laboured under so heavy a darkness of spirit, that no one could possibly imagine it—she saw herself a hundred times on the brink of a beetling precipice which she was prevented from toppling over by the agency of an unseen hand. In the life of St. Benedict, there is an anecdote told of a certain monk who was tempted to renounce his profession by the spectre of a little black urchin continually beckoning him away from his duties. St. Francis of Assise was always displeased at the sight of religious sadness, as being the sign of a will much indisposed and a body ill at ease. Drive away sadness, says the wise man, for it hath killed many, and there is no use in it.

Antonio Estanez, a physician at Pelonna in Spain, relates that in 1727, a furious delirium prevailed in that neighbourhood, of an epidemic character ; and Dr. Weithrecht, physician to the hospital at Vesovia, makes mention of an epidemic madness that broke out in 1767, and attacked no one but foreigners, or strangers to the locality. Epilepsy appeared as an epidemic in Carinthia, in 1717, in the interval between a lunar and a solar eclipse ; many sank under it, and those who recovered owed their cure to antispasmodics, or a miliary eruption. The lycanthropy of Avicenna, described by Ovid in the Metamorphosis of Lycaon, king of Acadia, reigned epidemically at Alkmäest, in 1572. These maniacs ran about barking furiously and aiming blows at

every dog they met; and Silimachus (A.D. 100), a follower of Hippocrates, recounts an epidemic nightmare that attacked everybody, and seemed to be contagious. If not treated antiphlogistically, it degenerated into epilepsy. The madness of Nebuchadnezzar is supposed to have been a chronic lycanthropy. Hippocrates, in the fifth book of his Epidemics, mentions a curious nervous affection in a person named Nicanor, who was so terrified at the sound of a flute, that he lost the power of deglutition, particularly at festivals in the night, or evening parties; and he also gives another instance of a similar sort in one Democles, who dared not venture near the edge of a precipice, nor pass over a bridge, nor indeed walk by a dike, lest he should come to some harm. We knew a gentleman who was afraid of passing beneath the shadow of a certain steeple in London, lest it should fall upon him. Lenhopek, according to Feuchsterleben, mentions a woman whose entire body turned black upon being accused, by her daughter, of a heinous crime; and a philosopher is said to have gone grey in a fit of grief for the loss of a manuscript in a storm at sea. Terror makes the hair stand on end, but sorrow makes the hair straight. Its turning suddenly grey indicates extreme prostration of the vital powers, and the depressing emotions that produce it have been chronicled of old for inexorably bringing down the grey head with sorrow to the grave. Some melancholics have passed their lives in collecting toys, whilst others have squandered their fortunes in designing and constructing figures of a monstrous and ridiculous shape.

Do you see yonder luckless wight, motionless in his chair, with his eyes fixed on the fire, where he is building ideal castles among the smouldering embers before him? He is

conversing with himself; and were Dr. Wigan here, he would declare that it was a decided case of duality of mind: one side of his head is larger than the other, and, consequently, one cerebrum is smaller, less energetic, and the lest conceptive of the two. Who is he? Nobody; or, at least, in the language of the great world, he is a cipher without a name. And yet the thread of destiny is interwoven with as many various colours in the low as in those of high estate; for each one's life is a novel of its own. Dr. Wigan may be right, for upon the hypothesis of the brain being a two-fold organ, his history is two-fold throughout its course. One brain has always been weaker than its fellow, and the better of the two has had the greatest difficulty in overruling the errors of the worse. When quite a boy he meditated suicide, and selected a deep pond with steep banks for the purpose of drowning himself. He fixed upon the day, and walked to the spot with the deliberate intent of so doing. But when he arrived there, the sun was shining, and the deceitful water looked so clear that he could see the ooze and sludge at the bottom of it. He thought he could have jumped in and have done the deed had the water only been turbid and the day dull. As it was, his stronger brain, or perhaps his good angel, held him back and bade him return. Twice, in after years, he seriously meditated a murder which would have rivalled in horror the atrocities of much more recent date. But again his good angel, or his better brain, interposed and stayed his murderous aim. For years, suicide was never absent from his thoughts, and often did he soliloquize upon the edge of his razor, as he felt its keenness and examined its fitness for the dreadful purpose. Such was the fiery trial of his inward life; but his outward was just the

reverse,—steady, regular, frugal, and industrious; till at length his guardian angel, old age, or his better brain, obtained the mastery over his evil propensities, and released him from his lot. See! there he sits, gazing on the fire, wherein he descries, among the ignited coals, a yawning chasm, within which is a glowing cavern leading to a brilliant vista full of diamonds. The crumbling cinders have fallen in and crushed the image,—he starts from his reverie. He rises and looks out upon the scene before him. The brief autumnal day is setting on the dim moors,—there are storms of wind and rain,—the swallows are leaving, or have left,—and the year is on the wane. In the distance lies the gloomy and troubled outline of the sea. "Ah!" he murmurs to himself, "that world of waters! a few years more, and I shall be like the undulations that rose and sunk this morning on the bosom of the deep, and are now lost and forgotten among the countless billows of the ocean! *Pensa, che questo di mai non raggiorna.* Consider well, this day will ne'er return.

"Life's not to be dated by years,
There are moments that act like a plough,
And there's never a furrow appears
But has torn up the soul and the brow!" *

—*Byron.*

Saul, the king of Israel, and Alexander the Great, were men of melancholy temperaments, and the wry-neck of the one as well as the extraordinary height of the other, indicates

* "*Si trapassammo per sozzo mistura*
Dell' ombre e della pioggia, à passi lenti,
Toccando un poco la vita futura."

—*Dante, Inf., Cante* 6.

So pass'd we on thro' the dizzling mist,
Thro' the shade and the gloom with a wand'ring ken,
Talking the while of the life that's to come.

—J. A. H.

a scrofulous diathesis in both. The moody jealousy of Saul when he sought to transfix David to the wall with a spear was soothed by the means of music, and the dire remorse of Alexander for having slain his friend Clytus with a javelin at a feast was the deleterious effect of wine. They were both of them men of incorrect lives,—the one was a drunkard, and the other a wilful transgressor of the Divine command. Each was a great man in his way; although the dignified reserve, humble birth, regal address, and national policy of the son of Cis surpassed by far the haughty demeanour of the son of Philip of Macedon, as, with admirable military skill, he penetrated the ghauts or passes of modern Affghan, and descended into the plains of the Punjab, or rode in splendid panoply along the ranks mounted on his fierce Bucephalus. Saul was a hypochondriac to the last, for in a desperate fit he went and consulted a proscribed witch at midnight. To-morrow, said the disturbed shade of the prophet, thou and thy sons shall be with me, at this time; and the next day, as the sun went down, the enemy pressing in hot pursuit on the king's discomfited troops, Saul, together with his armour-bearer and his three sons, was left among the dead on the field of battle. Racked with the paroxysms of an ague, too mighty for cure, Alexander, as he issued his last commands from the banks of the Euphrates at Babylon, counted out the few scanty weeks, days, and hours that still remained to him of all his earthly glory. Melancholy had marked them for its own; and the stories of their lives are left like lofty columns standing alone in the midst of the desolation of ages, in order to admonish a reluctant world that mental disease of the worst description is the invariable result of intemperance, wilfulness, and the indulgence of excessive desires. One is almost tempted

to conclude with the idiot, that the world is a large madhouse, and a private madhouse is the world in miniature.

The more deeply we dive into the mysteries of the mind or spiritual being, the more completely do we find ourselves involved in the darkness of a shadowy atmosphere through which are flitting past us phantasms that have no existence in the external world of daylight beyond. Within the wide aerial halls of the soul all is ghostly. Solid things of sight are gone, and nought remains save what material-minded men of earth stigmatize and reject with scorn as visionary, ideal, or unreal; until, as it occasionally happens, they are taken by surprise on the sudden breaking down of the fragile wall of flesh, which unexpectedly exposes to their sight, and perhaps lets loose upon their astonished senses, some of those unreal visionary elements of thought in the substantive shape of hypochondriacism, hysteria, ecstacy, cataleptic somnambulism, or trance; and then they close their eyes against the unwelcome vision, and cry out madness! Little do they imagine that they themselves are such as they behold. A very slight alteration in the equipoise of the nicely-balanced moral and intellectual faculties would easily disarrange their own understandings and transmute them, beyond the power of their will, into monsters of crime or folly*—such as, in fact, they are apt to hear of or regard with pity in the well-regulated cells of Bethlem, or within the careful precincts of a more secluded asylum. Many a culprit at the bar of justice is the

* "L'homme a beau vanter dans son orgueil, la supériorité de son intelligence, sur celle des animaux: les maladies mentales qui viennent l'affliger mettent souvent, non pas même au niveau, mais au-dessous de la brute; puisqu'alors sa vie et ses actions sont hors de sa sphere d'existence, au lieu que celle des animaux sont conséquentes à leur manière d'être et ne s'écartent point de l'état dans lequel ils furent créés."—*Histoire des Epidemiques, par Ozanam. 2nde edit. Paris.* 1853. *Tome* iv., *p.* 255.

victim of disease much more than the condign felon of an impartial verdict; and a medical philosopher with the lantern of a modern Diogenes might, among the convicts at Portsmouth, or in any one of our penal settlements, read a tale in the history of each of those unhappy outcasts, so pitiful and pathetic, that, according to the apt hyperbole of the dramatist, "our tears would drown the wind" at the recital of it. We are the prey of circumstances—our usefulness and happiness, nay—our very characters and influence depend upon events over which we have not the slightest control. Our birth, name, lineage, country, epoch, fortune, age, and place, we must receive such as they are bestowed upon us—we must take them, such as they are, for we cannot choose. A misshapen skull, a hump back, a clubbed foot, a defective liver, a weak stomach, and a degenerate set of nerves belong to our family ancestry and descend to us either as a collateral bequest, or as our patrimony by right; and if they prove themselves to be heir-looms or legacies which fail to help us forward in the path of life, we must submit to the failure and abide the consequences of our innate errors and defects. Society must protect itself; and the *forum judicii* cannot pretend to draw the precise line of demarcation between *actual* transgressions and *possible* imbecility which belong alone to the casuistry or moral theology of the *forum conscientiæ*. Time, the father of experience, has no leisure for deciding subleties so delicate as these. He divides and swallows down the good and the bad, and—*the world goes on!*

ETHNOLOGICAL PSYCHOLOGY.

Ancient tradition has proceeded from the East, and travelled from the rising to the setting sun. Asia was the cradle of prophecy, the nursery of wisdom, and the garden of fable, parable, and supernatural inspiration. From thence issued the most venerable writings extant, whether they be the Bible on the one hand, or Homer on the other,—the Hindoo Vedas, the Persian Zendavest, or the maxims of Confucius. Learning and fiction, divine revelation and human invention, appeared together, and flowed in a mingled, if not a turbid stream, from the Altaï and Himalaya mountains, the plains of Mesopotamia, the forests of Lebanon, the banks of the Jordan, the Lake of Gennesaret, and the coasts of Tyre and Sidon. The infancy of the world was the age of proverbs, and the spiritual apophthegms of the post-diluvian epochs are now the handmaidens that wait upon the wonders of modern science. For the west and the east are two different worlds, in direct contrast to each other. Their respective voices echo and re-echo from their opposite shores, without ever blending into harmony, or even so much as becoming confused. The intelligence of the West disturbs the apathy and stolid repose of the East. The Sphynx in the sands of Egypt, and the ponderous palaces of Sennacharib at Mosul, are emblems of the mind of the people that built and beheld them. Their silence, magnitude and monotony, smile with an air of sublimity on the fleeting generations of man and the inexorable lapse of centuries. No accordance subsists between the Asiatic and the European ; no sympathy

unites the energy of the one with the lethargy of the other; neither skill nor artifice can ever combine the march of intellect with the perpetual stagnation of ideas.

The notion of the three races of mankind is met with in the traditions of every people, not even excepting that of the Negroes. The first family, they say, was composed of three brothers, one of whom was black, and the other two were white. The white brothers robbed the black one of all that he possessed, and left him nothing but a little gold-dust and a few elephant's tusks. Under the names of Shem, Ham, and Japhet, the Bible rehearses the more authentic account of the three primitive stocks, and ethnology confirms the succinct narrative of the scriptures.

The Hindoos and Persians are the twin nations that first attract our notice. Like migratory birds, fresh fledged from the tree of life, they quit their nests and fly to fairer lands that offer them a more tempting and agreeable resting-place. Thus, the Hindoo wanders along the winding beds of the Indus and Ganges, leaves the lofty mountains that hide their sources, and seeks beneath the burning sun of India those local fastnesses where he may securely indulge his love of contemplation, alone and at his ease. Listening to the rushing waters of the Ganges, Brahma ruminated in the midst of the jungles through which that river flows. But, on the contrary, the Medes and Persians flung themselves down the precipitous heights of the Taurus, seized the territories where they first alighted, and made them their own. The land grew beneath their martial footsteps, the horizon enlarged in proportion to their bold advances. It was against Ahriman, the eternal enemy of their god, that they drew their swords and conquered; and, as they marched along the highways,

the women quenched their thirst with a quaff from the waters of immortality. From the Persian Gulf to Armenia, and thence to the Halys, they spread themselves in battle array. Bactriana, Susa, and Persepolis, are the milestones of their journeys. Arrived at the Caucasus, they pushed onwards, until at length, under new names, but with the same spirit, they descended upon Europe. Behold the race of Japhet, as various in sentiment as in affection; armed against its own children as often as against those of others; exploring each place and thing with the strictest scrutiny, and threatening to occupy the whole globe under the well-known titles of Celts and Germans, the two-fold genius of the West!

Close by the side of the Persians and Hindoos, but almost entirely unknown to either of them, dwelt Shem in the mountainous regions around the Tigris and Euphrates. No nation ever conjoined the spirit of religion with that of industry in so remarkable a degree as the Shemites. The Chaldees, the Phenicians, the Carthaginians, and the Arabians, are of this stock, as well as the Hebrews, the peculiar people of Jehovah; and Babylon, "the Lady of Kingdoms," was the heart of the vast body of which all these several tribes were the members. The sandy desert and the ocean, the simple tent of Abraham and the ships of Tarshish, belong exclusively to this illustrious progeny, from whose sanctuary went forth in the fulness of time the gracious or appalling vocation of the Gospel.

More to the South, we perceive the race of Ham, with their black skin, curly hair, squab features, and filthy habits. They dwelt towards the centre of Africa, in those remote confines of earth where the men were said to have dogs' heads,

monkeys' faces, and the ferocity of the wolf. Their spirit was as abject as their bodies. They worshipped the lion or the serpent for their god. Their social deformity shut them out from the great family of the world. Outcasts and aliens, they stretched their wigwam on the arid plains or the pestilential swamps, beneath the scorching rays of the tropics. It is supposed, that a sacerdotal mission of Hindoos brought to these wretched beings some proper notions of life and happiness; that they emigrated from Ethiopia, descended from Meroé to Thebes, and from Thebes to Memphis; that, reinforced from Arabia and Nubia, they proceeded forwards till they reached the Mediterranean Sea, and that there the superstitions, the laws, and the Gods of Egypt arose and multiplied on the mud that formed the delta of the Nile.

These are the three actors that open the scene. The history of Asia is nothing more than the battle of races—Assyria, Persia, and Egypt contending for the prize. Their symbols are sculptured in relief upon the walls of Persepolis or those of Nineveh, in the forms of winged bulls with men's heads, or griffins crouching to pounce upon their prey. But the conquerors did not so much establish themselves among the vanquished, as they trod them down, till they in their turn were trodden down by the vanquished, who sooner or later rose up against them. A new feature was thus produced by these revolutions and counter-revolutions, namely, that of castes, which is the earliest sign of social inequality among men.

Another epoch of mental development occurred. Asia, teeming with her excess of population, sent forth the shepherd kings to seize upon Egypt and hold it under her sway. They modified the barbarity of the first Ethiopian colonists for awhile, but were soon expelled, and forced to seek their

fortune anew elsewhere. They quitted the desert for the sea, and founded Tyre. Another emigration still more important ensued—the exodus of Israel from Egypt. Every one knows how Moses led them through stony Arabia into Palestine. The overthrow of the horse and his rider in the Red Sea was the song of triumph that still commemorates the emancipation of the soul from the thraldom of sin, and its glorious entrance into the Land of Promise. The Passover is the leading idea of the Jewish mind: it penetrates all their schemes, and peculiarizes their institutions, their habits of life, and their modes of thought. They are to this day engaged in celebrating this sublime feast, with their heads covered, their loins girded, and their staves in their hands, eating in haste, and ready to start on their mystical journey. This sentiment of transition or progression becomes a motive of action apart from the rest of mankind. They are sedate, though vagrant; a definite community, though without a settlement; merchants of wealth and credit, though destitute of a policy or emporium of their own. Of old, they were shepherds and agriculturists at one and the same time. They encamped in the wilderness; they dwelt in cities; they pitched their tabernacle in Mount Moriah, where Solomon afterwards raised the Temple, and thus rendered the worship of Jehovah no longer erratic, but fixed and concentrated in the heart of Jerusalem. In that centre were deposited the Tables of the Law, and close beside it was enacted the condign tragedy of Calvary, which sealed the fate of the Jews, and from thenceforth became the turning-point of the world. These singularities render them the most remarkable people on the face of the earth, and account for the perpetual identity of their features, their manners, and their minds.

At the same time with the exodus from Egypt took place the invasion of Greece, which was overrun by a powerful emigration from the East. It was the race of Japhet, to whom had been promised the isles of the Gentiles, as the tent and the desert had been given to Shem. The Phenicians landed in Attica, and some Egyptian adventurers crossed over to Argolis. The mysteries of Eleusis and the superstitions of Memphis lodged themselves in Parnassus. It reminds us of the Spaniards landing in Peru, or the Romans scaling the heights of Dover; only the Romans and the Spaniards were military oppressors, whereas the early Greeks were the professed friends of all they met with. They peaceably surrounded themselves with their Cyclopean walls, and marked out the site of the future city of Minerva. These marine settlers were quickly followed by others on land—a promiscuous troop that arrived at the threshold of Europe from the Taurus. But the Caucasus was the beaten path by which the main body advanced; and Prometheus is represented as being perched on the top of one of its highest peaks, and holding the east and west in either of his outstretched hands. The Danube was then, as in later times, their line of march; although, like the Goths, the greater number preferred the cheerful skies of Attica to the dreary wastes of the North. The gravest, the strongest, and the noblest of them all, were the Dorians, who debouched between Œta and Olympus, forced the isthmus of Corinth, and possessed themselves of the Peloponnesus. They drove the aborigines for shelter to the adjoining archipelago, while they strenuously closed the entrance against any further inroads on themselves.

But there was this difference between the Greeks and the

Jews—viz., that the Hebrews shut themselves up within the enclosure of the Holy Land, from which they were carried off by the terrible Assyrians; and that the Greeks, after affiliating themselves with everything around them, shouted aloud, like Achilles going to battle, and aspired to the conquest of the earth. They loved the world, and the things of the world; the beautiful and the sublime were the fruits of their own genius; and they claimed glory for their own share, without a partner or a peer. Opposite as the fortunes of Shem and Japhet have been in their posterity, it is difficult to decide which of the two has produced the more lasting effects on the temporal destiny of mankind. For a time the drunken festivals of the Olympic games carried the day in a rhapsody of success, while Judah, with his hands tied behind his back, stalked as a slave in front of Nebuchadnezzar on his return to Babylon. Nevertheless, at this moment, Greece with its idols lies level with the dust; its language alone remains to attest the perfection of its intellect; and its philosophy has retired from the sight of all except a learned few. But the wisdom of captive Israel survives the wreck of time, and lives in the spirit of one who has imparted his ineffable name and title to the greater portion of the living world.

It is worthy of notice, how little Egypt either advanced or retarded the progress of affairs. With a mind cast in a particular mould of its own, it began and ended in itself. Sesostris, the Pharaohs, and the Ptolemies or Lagidæ, reflected a passing ray of light on its immutable grandeur, and the victories of Cambyses ruffled for a moment its phlegmatic calm. But nothing disturbed its mental and physical stillness. Originating in Ham, or Ammon, it ceased with Cleo-

patra, and was silently merged into a valuable proconsulate of the Roman Empire.

The affinities of nations may be traced in their traditions and languages, but the most striking instances are those presented by their religions. Each people alters its god to suit itself. The lusty Dorians invoked Hercules for theirs, and the Doric alliance with Etolia was the marriage of Hercules with Dejanira. If Thrace civilized Lesbos, it was to the sound of Orpheus' lyre. The colonization of Cyrene was typified by Apollo's leading a damsel in a car drawn by swans to the barren coasts of Libya. The adventures of the gods increased with the increase of popular incidents; and the Ammon, Osiris, Phtha, and Isis of Egypt became the Jupiter. Bacchus, Vulcan, and Ceres of the Greeks. The celestial staff was a small one; but its titles were numerous, and its offices unlimited. The Ionians adopted Neptune, the god of the sea, and the vagabond Pelasgi left nothing behind them but sacred blocks of unhewn stone to mark their itinerary, The Persian fire-worship was rekindled in the adoration of Apollo, the ruler of the sun; the sombre credulities of Egypt were resumed in the revels of the Dionysia; and the sensual mysteries of Phenicia were fostered anew in the more elegant and still more dissolute rites of Aphrodite. The genius of Asia revived in Greece; oriental dogmas, embellished and refined, sprung up in the West, and flourished in fashions as various as the dialects, the customs, and districts they formed or found. The variations of Paganism were the tests of its falsity; but the uncompliant worship of Jehovah by the Jews was the stubborn demonstration of the truth of the Mosaic dispensation.

The Greek populations were complete. Let us pass over

to Tuscany, whither the tide of emigration next rolled. That country was even then inhabited by the Umbrians, a Celtic people, who had descended from the north by way of the Alps; and some Caucasians also had already arrived at the top of the Adriatic, from Illyria, and proceeded along the valley of the Eridanus or Po. The Etruscans, chisel in hand, took the same route. Half Asiatic, they sculptured the forms of birds, trees, vases, and utensils, till then unknown in Europe, and sat themselves down between the Arno, the Apennines, and the Tiber. The Sabines, the Œnotrians, and the Ochri, knew nothing of their own origin; the Dorians and Ionians never went further than the coasts; so that Italy preserved its purity of blood from the first. The East and the West met each other in the streets of Rome. The Pantheon contained the gods of every nation; and profane antiquity, which had entered within its precincts and closed its portals on itself, was transmuted into a petrifaction beneath its capacious dome.

On returning to the present state of the world, we behold three distinct races of men—the white, the tawny, and the black—as different from each other in the character of their minds as they are in the colour of their faces. Of these three, the black and the tawny are governed by the white; and of the white, the Saxons and Anglo-Normans reign supreme.

In their wild and primitive condition, the Negroes have always been an inferior order of mankind. When allowed to indulge their *natural* propensities, they are filthy and naked, painted or smeared with grease, dirty and lazy, treacherous and cruel. Some of them are cannibals, all of them heathens, and none of them trustworthy. The Papuans,

tawny rather than black, are the highest in the moral scale among them, and yet the Papuans cannot but be classed with the savages. Nor is this lack of civilization owing to fortuitous circumstances, for it is their innate lot. They have always been savages in all ages; and the *wild* Negro of Africa and South America is the same now as he has always been. They hold no position whatever in universal history: the curse of Canaan has not yet been remitted—"the servant of servants thou shalt be unto thy brethren," remains unabsolved. The devoted nations of the promised land were descended from Canaan, and so were the Phenicians and Carthaginians, who were so ruthlessly destroyed by the Greeks and Romans; and the Africans, who have been bought and sold like beasts, were also his posterity. The finger that wrote upon the wall at Belshazzar's feast points out the doom of Ham.

The blacks have, indeed, their redeeming qualities, in the possession of physical if not national virtues. Their sight, their senses of smell and hearing, their touch, their fleetness of foot, their dexterity in handling the bow and lance, their sagacity in hunting their prey, and their craftiness in catching it, are bodily endowments far more acute and perfect than are ever met with among the white or even the tawny races. They are gay and cheerful towards those who show them kindness,—gloomy and revengeful towards their real or supposed enemies; and their filial and parental instincts are both strong and exemplary. But, for all this, the Negro, the NATIVE Negro, is decidedly inferior to the European in body as well as in mind. The natives of Van Diemen's Land are absolutely unreclaimable; the Bosjesmans are dwarfish; the pigmies of Africa are as old as Homer. Pliny mentions

their battles with the cranes for the sake of their eggs; and Strabo ironically remarks they built their cabins with the egg-shells. At one time, 60,000 blacks were annually exported from the coast of Guinea, never more to return to their native land; and had they but had a spark of the spirit of the whites within their servile breasts, so vast a number might, in the course of two centuries, have successfully revolted, and in their turn have overrun and disputed the whole of Europe, or at least a very large and valuable proportion of the European colonies.

But time, which in most instances is but a sorry artist, "who makes whate'er he handles worse," has done much in ameliorating the forlorn fortunes of this despised and neglected portion of the human family. Christianity, also, that subtle principle that leavens the mass of human corruption, is slowly penetrating the mind and senses of the blacks. Instances are being quoted of their improved intelligence, manifest piety, and the increasing aptitude of their talents for the finer arts, such as music, painting, and poetry, as well as for the more exact sciences, such as arithmetic and mathematics. The social virtues of order, regularity, and cleanliness are reported of those who have been trained by the labours of the various missionaries to adopt the manners and customs of civilized life. And, although many of these instances are particularized as the special gifts of individuals rather than the privileges of the tribe to which they belong, yet, upon mature reflection, we are led to conclude that their moral and intellectual welfare have changed for the better, and that the prospect of their being still more greatly improved as they continue to be more intimately mixed with the white populations is as certain as it is encouraging.

Their emancipation must to some extent have operated most favourably on their instincts and habits, in the common course of events; and their proximity to or affinity with those who were once their taskmasters or tyrants, must tend to transform the wild man of the woods, the prairies, or llanos, into a human being of some pretensions to propriety and decorum. But the process is a slow one. European vices retard the noble undertaking. Ardent spirits have destroyed their tens of thousands in soul and body; and so cruel has been, on many occasions, the conduct of the whites towards the blacks, that the Negro implicitly regards the white Christian as his bitterest enemy—a murderer and a robber. These moral difficulties, which are of our own creation, embarrass the hand of charity and mar the countenance of truth. The liberation and recovery of the Negro-slave is one of the most interesting questions of the present day. We cannot suppose that so intelligent a people as those of the United States of America should persist in the use of slavery in opposition to the voice of the world against its practice, except from some very serious necessity, social or political, which they cannot overrule; and we await with confidence the happy moment when they shall feel themselves capable of obeying the dictates of humanity, and of proclaiming the freedom of those whom it would, if possible, have been much more prudent never to have enslaved. (1856.) In the Northern States, they are free without independence—in the Southern, they have independence without freedom. In either State, they have proved themselves to be the *quæstio vexata* of the present struggle. For having violated the eternal precept of charity, the Americans experience the *lex talionis* of inexorable justice. And yet, when this terrible crisis

shall have passed, the continent of North America, so superbly situated between the Atlantic and Pacific Oceans, will eventually become the theatre of a polity, stretching far, far into the futurity of nations. What a literary treasure laid up in store for another Thucydides, Livy, Tacitus, or Gibbon! (1863.)

The tawny races which cover more than half the globe, and are characterized by their broad shoulders, large heads, high cheek-bones, flat noses, long arms, and thin hair, constitute the Mongolian variety, that has figured so largely in the history of nations. Zenghis Khan, Tamerlane, Attila, and the Tartars, belong to this division. The conquest of China by the Moguls took place at the same time with their expeditions to the opposite quarter of the globe, which spread terror and desolation over Russia and Poland. The fierce Zenghis, the so-called lord of the nations, had been predicted, and was sent upon his dreaded mission of destruction by the tutelar genius of his race. He traversed the world with his countless hosts. China, Thibet, Japan, the Mussulman empire of Carizmé, fell beneath his exterminating sword, which was stretched as far as the Caspian Sea. For several centuries Russia was incorporated with the government of Zipzak, Hungary was conquered, Silesia ravaged. Each of these countries still betrays its Mongolian cross-breed; but Russia, in her rapacious policy, exhibits the strongest tinge of her tawny blood. After these barbarous hordes had spared the rest of Europe, they returned upon Asia, and put an end to the Arabian Caliphate at Bagdad. The Saracens, imbued with a tawny taint, alarmed Europe from the South, and the Western powers have always watched, with the most vigilant jealousy, the restless temper of their tawny neighbours.

Their psychological character is that of unrelenting and indiscriminate bloodshed—unmitigated by any political changes or popular institutions beneficial to the human race, unmingled with any acts of generosity or kindness to the vanquished, and destitute of the slightest feelings of regard for the rights and liberties of mankind. Inflexible cruelty, selfishness, a disposition to cheat, and an absence of the tender affections, have everywhere marked their progress, and left an indelible blot upon their name in all ages. The Malays, and the greater number of the natives of the Indian Archipelago, are instances in point at this very hour. Barbarity, brutality, and even cannibalism, are their well-known qualities—the infernal instincts of their untamed nature. Their intelligence is greater than that of the blacks; but their morals are worse, and their dispositions equally savage. The empires, indeed, of China and Japan prove them to be susceptible of a high degree of civilization, and even of pre-eminence in the useful and elegant arts of life; but their political and social institutions, already between 2,000 and 3,000 years old, remain stationary, and incapable of exercising any act of internal improvement and growth, or of external progress and aggrandizement of their own. Such as they were originated, so they remain: history informs us that Japan and China are the same now as they were at first. Their bloody commotions within, and their obtuse behaviour beyond, the limits of their empires, are proverbially unaltered and unalterable. They are obstinately opposed to the spirit and teaching of Christianity; and they are puzzled, as much as they are conquered, by the learning and science, the arts and arms of the whites.

The American Indians, however, show some qualities of

much higher merit than their opprobrious colour might seem to claim for them; their industry, endurance, and fidelity are noble virtues; and the natives of Mexico and Peru appear to have been a people capable of fulfilling a higher destiny than that assigned to them in history. But it is incontestable, that neither the Peruvians nor the Red Indians equal the Europeans, under whose sway they invariably diminish or disappear. The Osmanli Turks, the mixture if not the source of whose blood is Circassian, possess far higher mental endowments than their inveterate foes the Russians; but the fatal creed of Mahomet chills their manners, congeals the noblest impulses of their souls, and is incompatible with freedom of thought and liberality of action.

The whites, with their oval faces and aquiline noses, ruddy complexions and fair hair, well-turned limbs and handsome demeanour, have hitherto governed the world. They are the descendants of those who entered Europe by the way of the Caucasus; the Circassians and the Georgians are esteemed their most beautiful specimens; and their attributes are typified in the statues of Apollo, Theseus, and Hercules. The colour of their skin discriminates them from the tawny or the black not more effectually than the pre-eminence of their moral feelings and intellectual capacity. The Negroes and the Tartars may evince frankness, generosity, and hospitality, at times, in the highest degree; but in their general powers of knowledge, reflection, and understanding, they fall miserably below the whites. No European people has ever been in a condition similar to that of the present dark races, within the reach of any history or tradition. The whites may have degenerated, as in the cases of the Greeks and Romans; but they have always recovered themselves from their occa-

sional failures or relapse, and their transcendent qualities have at no time been extinguished. Their natural prerogatives may be discerned in their least advanced states of civilization. The Germans of Tacitus and Cæsar were in no wise like the modern Hottentot or Red Indian; neither were the ancient Spaniard and Caledonian ever the same as the aboriginal African, American, or Mongolian tribes. The whites possess in the names of Scipio, Brutus, Virgil, Cicero, Horace, Livy, and many other equally great and gifted individuals, a galaxy of talent, unrivalled by the black or tawny races at their best estate. As the representatives of their own lofty pretensions, Theodosius or Charlemagne, Dante or Galileo, Torrecelli or Raphael, Alfred the Great or Sir Isaac Newton, transmit the intrinsic superiority of the race which they adorn, from one generation to another. To the Caucasians and their posterity alone belong nearly all the arts and sciences, or at least the most skilful application of them to the necessities of life. The treasures of literature and knowledge, civilization in its best and widest sense, politics and government, architecture and music, painting and sculpture, trade, manufactures, military tactics, diplomacy, steam navigation, the electric wire, the freedom of the press, the rights and liberties of man, and, above all, the Christian religion, are peculiarly and exclusively theirs. Europe has been their theatre of action from the first; and thence they have branched out and planted themselves all over the world. Wherever they have touched, they have taken root. A new nation has grown up, endowed with the social and political virtues proper to its parent stock. They have never failed to live and flourish. Their ascendency is acknowledged paramount and supreme. Their prospects are unlimited, their

hopes magnificent, their final object grand and praiseworthy. The world is theirs, and their own life, as well as the lives of others, are made over to their safe keeping, as a prey within their grasp.

The Greenlander, Laplander, and Samoïede, prove by their habits and features that they do not belong to the great European family. They owe their origin to the Mongols, and retain in the north the marks of their extraction, which we find so strongly expressed in the Chinese and the widely-different latitudes of the south. At the same time, the parent tribes are living in Central Asia, equally removed from both their offspring. We have already alluded to the Russian mind, marked off, both historically and socially, from the rest of Europe by its strong Mongolian taint, acquired so far back as the age of Zenghis Khan.

It has been supposed that climate has modified, discoloured, or transformed, the original type of man. This theory is nowhere countenanced either by present facts or historical evidence. On the contrary, the tanned or sunburnt European is not the same as the African negroes of the tropics; their natures are as distinct as their colours, with which climate has nothing to do; for blacks with blacks beget blacks, and whites from whites give birth to whites, under every climate and on every soil. The individual is modified for a time by the extremes of heat and cold, by intermarriage, social connexions, and local influences; but the race, and the germs of the race from which he sprang, remain intact, and reappear, the same as ever, as soon as the disturbing force is withdrawn or the primitive condition restored. The acorn never produces a willow, nor the lion a colt. The breed may be crossed, or the stock grafted afresh, from stronger or weaker species of the

same kind, and the offset and progeny may be disfigured or apparently changed; but nature returns to her original type; the modifications are limited to the species alone, or to the individual itself; the admixture of different kinds is resented with inherent pertinacity; the mule is born sterile, and, without the continual intervention of an unnatural artifice, the hybrid ceases to exist.

The differences of language are at first sight not less perplexing than those of colour; for if the colours of the skin be only three, the varieties of language seem all but infinite. We are living in the midst of the ruins of the primitive tongue. There is no longer a pure and grammatical language spoken or written by any nation at present on earth. When the Teutonic, in the eighth century, superseded the Latin, it rendered the reconstruction of a perfect language utterly hopeless; for it upset every rule of grammar then in vogue. First of all, it struck out the middle verbs and dual number, so characteristic of the Greek: it then introduced the constant use of auxiliary verbs and indeclinable moods and tenses, extracted the participle from the tenses and moods, and reduced the number of cases from five to three. The verb no longer selected its own place in the sentence, governing and governed by its noun, but was left to take care of itself by immediately following its nominative and going before its objective. The pronoun, participle, and adjective, no longer agreed with the noun in number, case, and gender, known by their terminations, apposition, and agreement; and the pronoun, which had hitherto been expressed by the final syllable of the verb, escaped from its entanglements, and stood alone. The noun and the pronoun became the leading words of

the sentence; and the Runic or Gothic mind gave vent to its barbarity by a grammatical solecism or egotism. The indicative mood was preferred to the potential; the first and second aörists are extinct; and it is difficult to write or speak continuously in the subjunctive or optative in any of the modern languages. It erased all those delicate inflections of the future and conditional tenses, so accurate in the Latin, so multiform in the Greek; and it abolished, at a breath, the numberless expletives with which the Greek abounds to the torment of the critic, but which rendered so rich, redundant, precise, and explicit the language that employed them so correctly and fluently. The stubborn nature of the modern, particularly of the English, idiom, is almost unequal to the effort of giving utterance to rhetoric or poetry, declamation or prose, in the same lofty style as that which once charmed or controlled the fierce democracies of Greece or Rome.

It would be carrying the object of this article too far, were we to follow up our analysis by showing that the original tongues are, like the original races, only three—the Indo-Germanic, the Malayan, and the Trans-gangetic. To these three belong all the languages now spoken by man. The European is the Indo-Germanic, the most comprehensive and complete of them all. It includes Noah and Abraham, the Pharaohs, the Chaldees, the Greeks, the Romans, and the Sanskrit. There are said to be only three vowels, *a*, *e*, and *i*, for the other two, *o* and *u*, make dipthongs when conjoined. But we must come to a close; and our task will have been accomplished, and its end attained, if we have been able to show that the psychology of nations is as demonstrative and conclusive as the colour of their skins, the history of their

progress, and the evidences of their relative excellence and ascendency in literature, arts, and religion.

The arrangement of the foregoing article is my own, but the materials have been drawn from various sources. I have not quoted my authorities, nor am I sure I could now recover them.

THE HUMAN BRAIN.*

Some forty years ago, or more, the medical student had no standard work on physiology to refer to. The truths of this science were scattered up and down the pages of practical writers, or else they were interwoven throughout the text of works on anatomy, or were, at the best, but only introduced as a sort of prolegomena to the course of anatomical lectures, upon the opening of each session at the different schools of medicine in the metropolis. At all events, there was no treatise on physiology of a decidedly indigenous character; for we recollect with what pleasure we first took up Richerand's Physiology † translated from the French by Copland, and Blumenbach's, with its very entertaining and instructive notes by Elliotson; or how eagerly we turned out what we were in search of from the clever Physiological Proems in Mason Good's "Study of Medicine." This season of scientific destitution has, happily for us, however, long since passed away.

The two Hunters certainly took the lead in this country.

* *The Human Brain; its Structure, Physiology and Diseases, with a Description of the Typical Forms of Brain in the Animal Kingdom.* By SAMUEL SOLLY, Esq., F.R.S., Senior Assistant Surgeon to St. Thomas's Hospital. Second Edition. London: Longman, 1847. Pp. 673. 8vo.

† Richerand's Physiology was first translated by De Lys, in 1812.

But the museum of the College of Surgeons, with its magnificent host of preparations that live or repose along its walls, was, as it were, a sealed book to the mass of medical men; while the celebrated Treatise on the Blood, with its apophthegms, and half-told general rules, and universal laws, was couched in a language so peculiarly obscure, that the routine practitioner, unused to recondite studies, or the intricacies of grammatical construction, disregarded it, as utterly beyond the reach of his capacity, and to all intents and purposes valueless to him as a book of practical utility. The amount of John Hunter's knowledge of the nervous system was small enough, and the extent of it is summarily drawn up by the reviewer of Mr. Palmer's edition of Hunter's works in the following words:—"Hunter's view was so especially comprised within the range of the vegetative or organic functions,—the formation of blood, and its distribution throughout the body,—that he had not time to look up to the particular functions of the brain as the nervous centre, nor even to glance at the wide relations of the ganglionic system." *

To his brother Dr. W. Hunter's work on the Gravid Uterus, and the valuable collection of preparations and casts in illustration of it, it is superfluous to do more than to allude. But however excellent they may have been in themselves,—and, indeed, their excellence is such, that they remain to this day a work *sui generis* and complete, as far as they go,—they are, nevertheless, far from meeting the views

* Med. Gaz. 1838, vol. xxii., p. 649. In the same periodical there is a digest of the Treatise on the Blood, which pretends to afford a clue to the scope of Hunter's thoughts. The writer says:—"Upon the properties and functions of the nerves themselves, Hunter is very brief. I know of only two passages where he directly notices their use or influence."—*Med. Gaz.*, 1828, vol. iii., p. 596.

now taken, and the new opinions, or demonstrative conclusions, entertained by the present generation of pathologists. We have in our possession an authentic manuscript copy of Dr. W. Hunter's Lectures on Midwifery, which pretend to give the anatomy and physiology of the subject of which he is treating, but from which we cannot extract a single statement of the slightest weight as far as regards the functions of the cerebro-spinal system of nerves.

Such was the condition of physiology in this country at the time we mention. In the meanwhile, the Continent had been giving birth to physiologists of no ordinary growth and stature, who had, with a master mind and at a giant's pace, been making great strides into the hitherto almost unexplored regions of the brain and its interesting radiation of nerves. Their freedom of thought and accuracy of investigation, coupled together with the startling novelty of their discoveries, astonished the retired English dissector in particular, or shocked the received prejudices and comfortable religious assurances of the lay public in general. To say nothing of Baron Cuvier—*medio dux agmine, tota vertice supra est*—we refer to the writings of Meckel, Tiedeman, Magendie, Cruveilhier, Flourens, and others, with peculiar feelings of delight and gratitude, for the atmosphere of truth they seemed to breath around us, as well as for the extent of intellectual horizon they so unexpectedly unfolded to our view. We were in a new land. Like Rinaldo, beneath the charms of Armida, we were spell-bound, conscious of a sudden increase of knowledge, and alive to our entrance on a pathway through the fields of science to which we had hitherto been entire strangers. But our journey was not altogether continental; for Sir C. Bell, Mayo, and Marshall Hall recalled

us to our native shores, where our attention was arrested by the discovery of the motor and sensory nerves, the posterior roots and ganglions of the spinal cord, and the exquisitely beautiful explanation of the reflex functions of the spinal column, unquestionably due to the natural talent, genius and industry of our own countryman, the late Dr. Marshall Hall. From thence we proceeded to the fibrous structure of the brain; and this pursuit turned our inquiry away from England, and directed it once more to the Continent, and Germany in particular; where Gall * had already begun to assert and demonstrate the fibrous structure of the brain as early as the beginning of the present century. Considering how completely time has verified the principles, and attested the dissections of Gall, it is now astonishing to reflect with how much vituperation he was assailed in this country. A few of the orthodox literary journals of the day—we refer particularly to those published in 1815 and 1817, joined successively in decrying both Gall and Spurzheim's discoveries or dissections as quackery, absurdities, trash, and nonsense !† And these periodicals, that uttered their sinister omens from the dim niche of partial knowledge, were but the re-echoes of private prejudice and ignorance, which have, like birds of twilight,

* Professor Owen says :—"The *fibrous structure* of the brain, the discovery of which, though due to Coiter, as early as 1573, has sometimes been attributed to Reil and Gall, is displayed by Hunter in preparations made to show the fact (Nos. 1,335, 1,336), and is expressly mentioned in the description of the anatomy of the whale."—Palmer's edition, Hunter's Works, vol. iv., preface, p. xvi. Although we forget the particular date, we remember perfectly well when Gall presented himself to Sir A. Cooper, at St. Thomas's Hospital. Of course, he was quite a lion, or, in the estimation of those who disapproved of his *doctrines*, a venomous reptile.

† Dr. Elliotson's "Physiology," 5th edition, 1835, p. 383.

vanished before the noonday of the age. We were once, while hospital students, in company with the Venerable Archdeacon Nares, the reputed editor of the *British Critic*. "I hope," said the Archdeacon, addressing us, "they do not teach phrenology at your hospital?" We honestly answered, they did not. "Because," continued the venerable dignitary of the establishment, "phrenology is a sad thing, as it leads to scepticism, and a disbelief in the truths of revealed religion!"* We treasured up this invaluable hint with boyish fidelity, and for a length of time afterwards piously refrained from approaching the excommuicated topic of phrenology. Yet in our later days, no one can have been more seriously addicted to phrenology than ourselves; nor are we aware of having sustained thereby any diminution of our creed. "On a subject thus obscure in all its parts," says Sir Henry Holland, the most dispassionate of its advocates, "and where our actual knowledge is still limited to detached facts or presumptions, there is enough to justify the opinion being kept before us, as one of the outlines to which future observations may apply."†

The dissection of the nerves was formerly a very dry and stupid affair, that of the brain was a mere tissue of hard names without meaning; while the dissection of the spinal cord was, with the exception of enumerating its thirty-two pairs of nerves, a very cursory piece of anatomy indeed. To a practised dissector of the *old school*, the present mode of tracing the fibres of the brain must inevitably cause a thorough

* No one could esteem the Archdeacon Nares more highly than ourselves, and the above anecdote is given merely to show what was the prevailing temper of the day, even among the best informed.

† "Notes and Reflections," by Dr. Holland, p. 511.

revolution of his ideas. He must make up his mind to go through that very difficult and perplexing process of upsetting all the knowledge he has hitherto gathered and arranged,—of wiping out the greater part of it entirely from the tablet of his memory,—and of beginning altogether anew in acquiring fresh notions, constructing another set of images, and informing himself with doctrines and principles, most provokingly at variance with those that he has heretofore been accustomed to uphold with all the veneration and respect due to established truths. For, instead of slicing off the brain from above downwards, he must now dissect it from below upwards; instead of examining surfaces and exploring ventricles, he must now trace out the fibres which form the corpora quadrigémina, constitute the visible striæ of the transverse commissure, or diverge into the convoluted expansion of the hemispherical ganglion.

"Every honest and erudite anatomist," says Mr Solly, in his preface, "must acknowledge that we are indebted mainly to Gall and Spurzheim for the improvements which have been made in our mode of dissecting the brain. For my own part, I most cheerfully acknowledge that the interest which I derived from the lectures of Dr. Spurzheim, at St. Thomas's Hospital, about the years 1822 and 1823, has been the exciting cause of all the labour which, for above twenty years, I have at intervals devoted to this subject. I believe that to Mr. Green, in his 'Dissector's Manual,' is due the honour of having first given to the English student an abstract of Gall and Spurzheim's method of dissecting the brain. Mr. South, in his edition, enlarged it considerably."

The leading idea of Mr. Solly's work is, that a greater development of the nervous system bears a direct ratio to a

greater development of the mind; that, all things being considered, the larger the mind, the greater the brain,—the finer the precision of its delicate organization, the higher the intelligence of which it is the outstanding organ, and which it is appointed to enunciate and subserve; that the brain is the instrument of thought, and that the manifestation of thought corresponds exactly with the more or less perfect development of the nervous centres. Startling as this proposition may sound, it is nevertheless the truth, grounded upon fact, nor can it be rejected, unless we are prepared to reject the evidence of our senses, and to refuse the data of our common understanding.

From the maggot that leaps from a nut as we crack it on our plate after dinner, and the caterpillar that eats up the leaves of our favourite convolvulus in the garden,—from the fish that cleaves the green, translucent wave, and the bird that wings the breeze of incense-breathing morn,—from the lion that roams the desert wild, and the horse that tramps the battle field, or prances before the lady's equipage,*—up to Man, the master of them all, there is one all-pervading nervous system, progressively diminishing in a downward scale of analytic exhaustion, till it ends in the mere microscopic globule of a brain, by which they all communicate and hold their relative and inter-dependent existences, according to their various forms and needs, and types of organization, function, growth, location, and pursuits.

* The *reins* between the horse's mouth and the coachman's hands are *supplemental nerves* of communication, whereby the horse is endowed with a superior intelligence in the man, and the man is empowered with an additional strength of body in the horse, for the time being. Thus, by the means of the two *occasional* motor and sensory nerves *(the reins)*, the superior brain governs the inferior, both animals being thereby rendered one and the same.

The knife of the dexterous dissector may display, and the most powerful lens of the best microscopist may reveal, the amazing intricacies of their minute anatomy, but the lens and the knife only increase the already marvellous intricacies of structure and organ, and only remove us so much the farther from the ultimate point of their elaborate, consentaneous, and multiform vitality. But what we cannot learn by direct investigation, we may arrive at indirectly by reflection, induction, analogy, and comparison, applied to similar and collateral objects. In the wide range of comparative anatomy, the elements of human physiology lie detached, wide apart, and exposed to view, so that, in the more simple manifestations of life, we may discover that which lies concealed from our researches in the more complex structures of the higher organic formations—comparative anatomy being an analysis of human physiology. Each creature, from a polyp up to man, is an entity, but it is an entity becoming evermore simplified under an exhaustive analysis, from man down to a polyp.

If we take Mr. Solly's book for our guide, we may follow out this reasoning in a series of details. After some observations on the grey and medullary matter of the brain, he proceeds to comparative anatomy in general, and adopts the five divisions of the animal kingdom, according to Cuvier, Grant, Rudolphi, and Macleay, named in accordance with the form and arrangement of the nervous system, in which we are presented with a bird's-eye view of the matter of the brain, beginning in an almost indiscernible point, and ascending to the globular brain of man and the higher mammalia. He begins with the lowest living creatures. First, the intestinal worm, with its microscopic thread of nerves; next, the star-

fish, with nervous filaments, and the nodule of a brain. This at once leads to the more recondite parts of anatomy; the ganglion of the fifth,—the cineritious matter of the brain, considered as a peculiar organ in itself,—and the truth of the *grey* neurine *generating power*, and the *white conducting* it. Then come the phenomena of life, and the history of the ganglionic nerves concisely narrated. The rudimental brain of the ascaris terminates in a ganglionic centre, which is shown at length in the articulata; and the law of development is carried upwards through the lobster, oyster, (with its supposed power of vision!)* the snail, slug, moth, &c., till the primordial brain is developed almost entirely in insects, and the earliest example of reflex functions produced in the mantilla of the cuttle-fish—the imperfect development of the nervous masses harmonizing with the low or imperfect habitudes of these creatures. We thence go on ascending through the vertebrata, such as the fishes, amphibia, reptiles, and birds, observing how exactly intelligence and hemispherical ganglia, or grey neurine, increase, till we are brought to a halt by the mammalia, that important class of animals at the very foot of man himself. The distinction between the placentalia and implacentalia is nicely drawn, and it is curious to remark the difference of intelligence, and also the difference of brain, between animals whose birth is typified by placental or non-

* Garner (Lin. Trans., vol. xvii., part iv., p. 485) has stated that distinct, though very simple, organs of vision may be observed on the margin of the mantle. It has long been known to fishermen, that the shadow of a boat passing over a bed of oysters will cause them to close their shells; this we can hardly suppose would occur if they were not supplied with some form of the apparatus of vision.—Solly on the Brain, p. 46. Perhaps, the opening and shutting of the oyster shell may be occasioned by the presence or absence of the solar beam, just as the sun's ray causes the convolvulus to open or close as it shines or not. In this case, there is no necessity for an organ of vision.—J. A. H.

placental fœtation. The kangaroo (non-placental) is scarcely above the bird in intellect; but the rabbit (placental) has made a sudden advance towards the human intellect above the kangaroo; and in the brain of the sheep we find the human brain no longer rudimental, but complete. The porpoise, which nurses its young, and the elephant, which judges for itself, have each of them brains more highly organized, according to the higher intelligence of either animal; and it is in the mammalia, much more plainly than in birds, that we fairly arrive at the conclusion, of mind being in some manner associated with the convoluted surface of the brain, and of the cortical substance, or grey neurine, being the appropriate ganglion or organ of thought and will—called the hemispherical or intelligential ganglion. The reason of the brain's being convoluted is for the sake of a larger surface being folded and packed up within a smaller compass; accordingly, the deeper the convolutions, the greater the extent of surface packed; the more extensive the surface thus packed, and the deeper the furrows, the more energetic the mind. A classification of animals is attempted, in groups of similar convolutions, which is intended to associate animals of corresponding faculties.

M. Guyot, in his admirable work *sur la terre et l'homme*, beholds animated nature proceeding from an inorganic unit, such as the polyp, up to a highly-organized unit, such as man; and Professor Agassiz has traced the history of the same progressive development in the hatching of the egg.

In the lower animals, the skeleton is external or deciduous, as in the lobster, which draws its claws out of its old shells, as we do our legs out of our boots; but in fishes, and the higher mammalia, as well as in man, the skeleton is internal

and permanent. Perhaps the first sketch of anything approaching to the idea of a skeleton is in the shell of the cuttle-fish, or in the more beautiful protective apparatus of the pearly nautilus. The exterior hard skull is modelled by the interior soft brain *from within.*

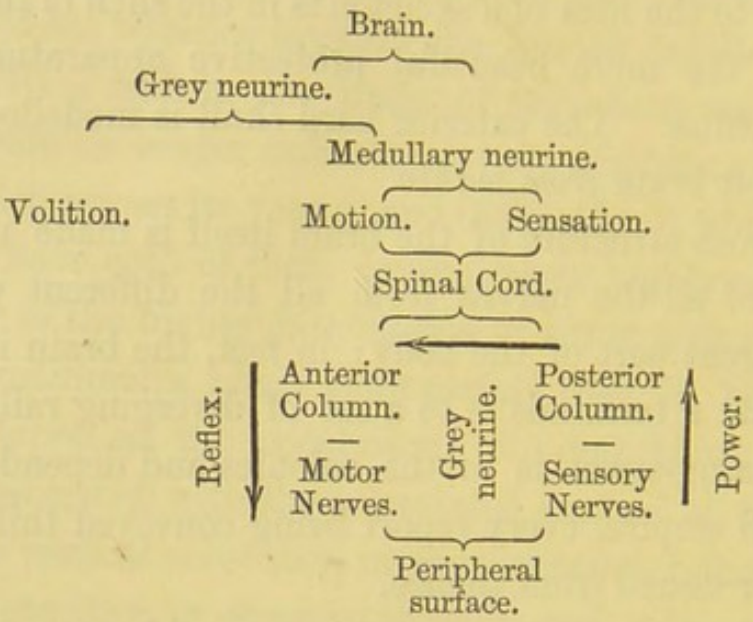
The fibrous structure of the brain itself is made up of all the fibres of all the nerves from all the different points in every different part of the body: in fact, the brain is to the nerves, what a terminus is to a set of diverging railroads, or what Downing-street is to the colonies and dependencies of the British empire, every report being conveyed thither, and every order issued from thence.

But the most striking part is this, that each nerve is double, made up of a motor and sensory filament, similar to strands in a rope, or threads in a skein of silk. Each nerve, thus twofold in itself, enters the brain along the censor and motor tracks, and terminates in the grey neurine, or rather, it passes through the grey neurine, and expands itself in a thin white layer on the convoluted surface, to which it communicates, and from which it receives the orders of volition.

The lesser brain, the cerebullum, and the spinal cord, is that nervous centre which so accurately unites the instinctive or ganglionic nerves with the voluntary or cerebral, and governs those subsidiary movements which are carried on unconsciously while our attention is engaged on objects far beyond our reach, or actually suspended in sleep. For a concise explanation of what are called the reflex functions, see next page.

There is a chapter on the development of the human brain, or embryology. Those who have given the sanction of their great names, and borne witness, by the extent of their labours,

DIAGRAM OF REFLEX FUNCTIONS.



The perpendicular arrows may represent the fibres of reinforcement. The horizontal arrow may represent the transverse commissural fibres of the cord.

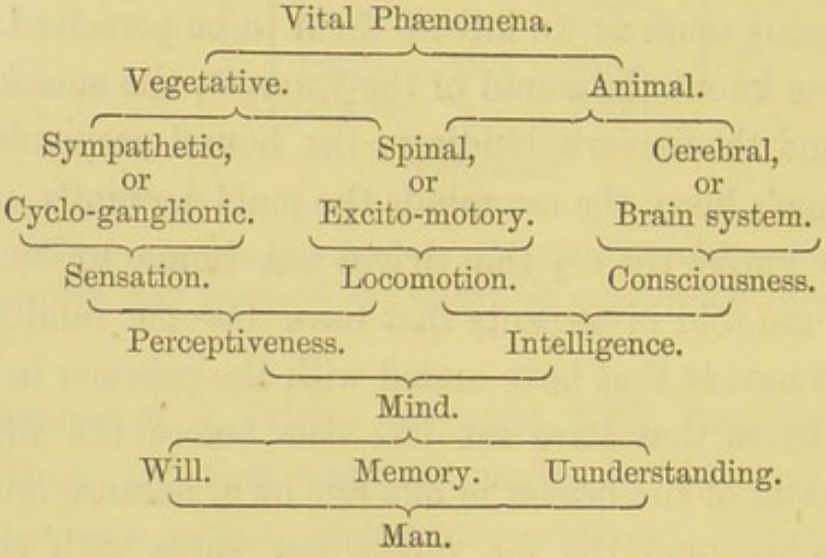
to the justness of the views here put forth, (and they rank among them the first scientific names in Europe,) regard embryology as a passing comparative anatomy, and comparative anatomy as a permanent embryology.

Understanding is possessed by all animated beings in various proportions and degrees: the sagacity of the dog, the sharpness of the ape, and the intelligence of the elephant, are proverbial. Even *moral affections* are enjoyed by animals and insects: the horse is docile, the lion courageous, the lamb timid, the spider deceitful. All these qualities are fragmental portions of the understanding distributed severally throughout the creation for the particular use and purpose of each being; and are, when taken together and summed up into one, the human understanding complete. And, were not the various qualities of the understanding manifested by animals identical with that possessed by man, there could be

no intercommunion between man and animals, for without this mutual intelligence, the rider could not manage his horse, nor the sportsman direct his spaniel, nor the pig-boy drive his pigs, nor the blind man be led and guided by his dog. Animals and man must understand each other, otherwise animated nature would be a confusion. Even sounds of the voice and the meaning of words are understood by animals as distinctly and fully as they are by ourselves; and the intent and object of our actions are perceived by them in the same sense as we intend them to be perceived. Thus the horse knows the sound of the trumpet, the smack of the whip, and the driver's bidding; the hound responds to the huntsman's horn, the cat minds the maid servant's call, and the cow knows the cry that drives her home to be milked. Stories are told of serpents that have become familiar with man, of insects that have mated with the prisoner in his cell, and of hares that have sat like cats before the fire. The mechanism of the beaver is like our own, because ours is the same as his; and the fox pilfers our yards with the same adroitness as the thief pilfers our coffers. Thus the intelligence of animals is the comparative anatomy of the understanding of man: what is one in us is several in them. They are the analysis of the mind of which we are the standard and type. By pursuing this train of reasoning, we might show that the less perfect understandings in man approximate to the lower understandings of animals. Thus we say, as stupid as an ass, as filthy as a swine, as timid as a lamb, as cruel as a tiger. The higher human understandings admit not of any such debasing comparison, since they cannot be likened to anything below themselves. Great minds are not brutal, but, on the contrary, so elevated, that they cannot be lowered by

any comparison. They are THEMSELVES both in understanding and soul, and comprehend within themselves all the mental qualities of every animated being below them. It is this excellence that can never be predicated of any of the inferior animals, and entirely excludes them from the idea of possessing either a soul or an understanding, in the fullest meaning of the word.

DIAGRAM OF THE PHÆNOMENA OF LIFE:



In cases where the vegetative or nutritive functions are defective or injured, sensation is impaired, and perception obscured. When the spinal system is deficient, locomotion is impeded, and the reproductive power suspended or destroyed. And when the cerebral system is imperfect or damaged, then consciousness is weakened, and intelligence diminished,or lost. In each case, serious injury is inflicted on the will, the memory, and the understanding; the balance of the mind is upset; and the man himself is no longer entire. Several diseases class themselves under these three heads.

Mr. Solly has divided his pathology into four classes—sanguineous (hyperæmia), and exsanguineous (anæmia) of

the brain,—convulsive and organic. The great question which Monro Secundus is convicted of being guilty of propounding—namely, that the amount of blood is at all times always the same within the calvarium, seems to be now entirely set at rest by the admirable experiments of Dr. Burrowes on this subject. There can be no doubt (indeed, *we* never doubted it) that the tide of circulation through the head is liable to ebb and flow;—that the floodtide brings in with it all the plethoric diseases—meningitis, cerebritis, apoplexy, congestive coma, &c., strictly belonging to the antiphlogistic school, with its formidable train of breaching batteries and forlorn hopes; while the ebb-tide, on the contrary, leaves the citadel of the mind open and defenceless to the invasion of fatuity, atrophy, ramollissement, hydrocephalus, asthenic coma, and that frightful phantom, *delirium tremens*. Convulsive diseases are still enveloped in their own obscurity. Their symptoms, indicative as they are of imminent danger to mind and body, are as yet *unpathologized*, and their intimate nature remains unresolved, or else carries us away on the wings of conjecture into the remote regions of the ultimate molecules of the nervous structure. *Post mortem* dissection has served but little to elucidate this perplexing subject—the most practical writers can assign no local habitation to epilepsy, nor is the distinction clearly defined between epilepsy and convulsions in consequence of teething or fracture of the skull. And so likewise as to mania —a nebula scarcely discernible in the "*clear-obscure*" (chiar' oscuro) of the dead-house, or from behind the veil that so mercifully shrouds the chambers of an appropriate asylum. Much might be done, on this interesting question, by erasing theory, and recording the ascertained data of morbid anatomy

in connexion with lunacy or madness. We have no doubt that the number of these data is exceedingly small. Every patient is a treatise on disease, and each disease is a monograph on its own pathology. It only requires attentiveness, a mind inclined to observation, and endued with an ardent love of its profession, in order to work out these materials into the happiest results.

Many diseases of the cerebro-spinal system yet remain almost intact. All those diseases of the head in connexion with primary and secondary disorders of the kidney, which the indefatigable Prout has only touched upon—the fatal coma of ischuria renalis, and cerebral exhaustion, with the phosphatic diathesis. There is, also, tic douloureux from anæmia curable by steel, and the hidden pathology of sciatica and neuralgia in general, which the dogmatic Macculloch forces into his capacious fen of marsh diseases. Add to all these, the functional and organic diseases of the spinal cord or column, which Mr. Solly has elsewhere slightly treated of, but in which no writer has yet shone, except Sir B. Brodie, in the present day, and Hippocrates, still more brightly, 2250 years before him.* The curious subject of dreaming belongs likewise to the pathology of the brain. Aristotle, his scholiast, or commentator, somewhere remarks, that dreams partake of the temperament of the person—that hot blood gives rise to vivid imaginations, and that cold dispositions dream of ice or water. It is important, he adds, that the physician should attend to the kind of dreams, as he may

* The treatise of Hippocrates on this point is unrivalled, for, besides its accurate description of the complaint, it is narrated with the freshness of a recent production. Hippoc.: opera omnia, Græc. et Lat. Lugduni. Batav. apud Graasbechios, 1665. De articulis xxxvi. xxxviii. xxxix. xliv. 1. Vectiarius, xxxi.

from thence gain some insight into the nature of his patient's malady.

Neither have we yet dwelt with sufficient minuteness on the importance of the convolutions as a manifestation of mind. When the foldings and furrows are deep, it renders the head long, and the vulgar phrase of "a long-headed fellow" means a clever man. Plutarch says, that Pericles had so long a head that he was ashamed of it, and in his statues was always represented with a helmet, on purpose to hide this supposed deformity. Had he enjoyed the advantage of living in the present day, the intellectual vanity of the great Athenian might have been induced to hail it as a distinguished beauty.

Humboldt is an instance of intellect undecayed by age. Strabo wrote his Geography, it is said, at eighty-two; and Michael Angelo, who died at eighty-eight, preserved his mind and genius to the last. His last will and testament was as grand as it was laconic, while critics are disposed to consider his last productions better than his first. On the other hand, the brightest efforts of genius have been conceived and executed before the meridian of life; of which Byron, Scott, Pope, Mozart, Weber, Tasso, Shakespeare, Sir Isaac Newton, and others, are illustrious examples. It is popularly supposed, that Homer composed his immortal epic in advanced life, and in painting and statuary he is usually represented as the blind old bard. Yet this was not the case. Perhaps the mistake arose from the Homer who recited those wonderful verses to his admiring hearers not being *the* Homer who had composed them. It is the opinion of Longinus, that the *Iliad* was the production of a mind in the vigour of manhood, and the *Odyssey* the poetic recreation or repetition

of the evening of life. We agree with the great critic. For there are, as he says, some puerilities in the *Odyssey*, while there are none in the *Iliad;* the order of events forbids the conjecture that the latter was composed before the former; and it must be owned, that with all its quiet beauties, the *Odyssey* wants the pathos, the depth of colouring, the majestic ease and force of the *Iliad*.

The preservation of the intellect to the latest period of age depends upon circumstances, over many of which we have no control. The nerves may be weak by nature, or accidentally decay the first; or there may be a scrofulous or gouty taint, the heirloom of the family; or a failure in the functions of the heart or stomach, natural or acquired. The early part of life may have been corroded by anxiety, weakened by privations, or overstrained by toil, which neither we nor our progenitors could either foresee or prevent. Wine or ardent spirits may have been too freely indulged in, and their use apologized for upon the plea of social engagements or a feeble constitution; while the more sensual passions may not have been held in with the curb of a tightened rein. Fortune may have arrived when she has ceased to be sought for, and reputation or celebrity bestowed or achieved when it is too late to facilitate the happiness of ourselves, and those with whom we are surrounded. In each of these instances, the mind decays early, and the earlier, the sooner the stimulus of necessity is withdrawn or suppressed. Besides all this, there is a climacteric period in man as well as in woman. In woman it occurs soon after forty, or at the latest at fifty; but in man it varies between his thirty-fifth and sixty-fifth years. When it takes place in man, his character and figure both undergo a change, sometimes for the better, but more

often for the worse. He becomes fat or thin, attenuated or obese. Old age sets in apace. The hair turns grey or white, the affections congeal, virility ceases; or, on the other hand, the figure remains lean and lank, the features are shrivelled, the hair falls off, and the complexion tans, while the mind improves, the wit sparkles, the understanding solidifies, and the flash of genius burns brighter than ever. The experience of a whole life comes into play; and the tardy seedlings of spring embrown the autumn of our days with fruit. In these cases, the organic life suffers at the cost of the cerebro-spinal system. But, on the contrary, we see the mind degenerate without our being able to account for it, in the most pitiable manner possible. Follies of the most deplorable kind are committed. The old man marries a young girl; and after having been respected for his frugality and prudence, suddenly breaks out and affects to play the boy, the gallant, and the fop. Sometimes, something worse than folly ensues. The religious man turns a worlding, the upright a spendthrift, the trustworthy a swindler; or he falls a dupe to religious enthusiasts and knaves, mistakes idealities for faith, fasts, prays, preaches, and insults the world.

No doubt, alteration of the brain is taking place *pari passu* with these alterations of character. It may be atrophy indicated by the loss of memory, slowness of speech and manner, and debility of gait and action. Or the circulation through the encephalon may be checked or impeded by ossification or softening of the cerebral arteries, or by some more distant disease about the heart and large vessels; or the neurine itself may be undergoing a change, particularly on its peripheral surface, as well as on the surfaces of its several ventricles or cavities. The convolutions become paler and

the furrows shallower. The weight of the whole cerebrum and cerebellum is lighter, less complex, and seems to be reduced to the condition of the brain in early life. Softening of the surface of that delicate character which is detected only by letting a slender stream of water flow gently over it, is sometimes the only discoverable alteration. But what is a very usual occurrence, and yet one that is often passed by unnoticed, because it is discernible only to a well-practised eye, which may not be present at the right moment for observing its attack, is a very slight fit of apoplexy and paralysis —so slight, indeed, that it occurs and passes away unperceived, and is recognised only in its after consequences and permanent effects. This appears to have been the case in Moore and Rogers, the poets; we have witnessed it in private practice, and though loss of life does not ensue from it immediately, yet its ultimate effects are sooner or later fatal, and from the moment of its infliction, the patient is an altered being—he never recovers himself, but continues to exist, like a venerable ruin, with the marks of decay indelibly imprinted on his front.

Dean Swift used to say, there is no such thing as a fine old man, for if his head and heart had been worth anything, they would have worn him out long ago. This was the case with the late Sir William Hamilton, Bart., Professor of Logic and Metaphysics in the University of Edinburgh. He was an immense student; his head was a compendium of knowledge; he did not belong to the present, but was a living fossil of the age of Aristotle and Plato—the schoolmen of the middle ages, the writers of tough German, ideal Italians, and erudite Frenchmen. He spoke the language of another world, and nobody scarcely ever sup-

posed he belonged to this. He was at work early and late, when he was young and when he was old, at meal times and at play; his mind knew no rest; and the consequence was that he was paralysed in the midst of his lucubrations and literary labours. His lamp went out, and darkness closed upon him before he could justly be said to be old. This was apparently a case of apoplexy with sanguineous extravasation upon or within the brain; and, perhaps, some softening besides. We speak under correction, as we are not acquainted with the results of the post-mortem examination, if, indeed, there were any autopsy at all.

The imbecility of age is not so painful to the old as it is to those who stand by and wait upon it. With the return of our second childhood, we lose the consciousness of our prime. The loss of any one of our senses is accompanied with the oblivion of its enjoyment. Thus, the blind are cheerful, the deaf happy, and the old content. So that we are tempted to conclude, that those exquisite lines of Goëthe, so ably rendered into English by their noble translator, express a poetic fiction rather than a medical reality:—

"Give me the active spring of gladness,
Of pleasure stretched almost to pain!
My hate, my love, in all their madness,—
Give me my youth again!"

Although the sight of the angelic Margaret, as

"She sat by the casement's chequer'd glass,
The clouds fly by, and she watches them pass
Over the city wall,——"

meditating on her love, was sufficient to enkindle a spark of passion even in the icy veins of an old dotard. But no: in the really old, the flame is extinct, the ashes have been burnt out, and no spark can ever fire them again. We knew an aged gentleman, who, during the stunning effects of an apoplectic

seizure, lost all his money by the failure of a bank. On recovering his senses, he could never be awakened to the feeling of poverty, nor the embarrassing consciousness of being a poor dependent on the bounty of his friends. Another, during a fit of apoplexy and its tedious consequences, lost two of his dearest relatives by death, and came into possession of some considerable property. On his recovery, he neither regretted the deaths, nor rejoiced at his own good fortune. A third, who had always been an anxious and thrifty man of business, declared that he had at length reached the age of contentment, and that neither loss nor gain any longer affected him. At the end of six months he died suddenly.

So delicate is the fine tracery of the nervous structure, that the damage of a single fibre or a set of fibres destroys the unity of the whole. It is like a grand orchestra, in which one instrument alone out of time or tune disturbs the harmony of the rest, and the finest musical composition in the world is entirely spoilt by the discord.

"Although Rogers, the poet's impressions of long past events were as fresh as ever, he forgot the names of his relations and oldest friends, whilst they were sitting with him, and told the same stories to the same people, two or three times over in the same interview. But there were frequent glimpses of intellect in all its original brightness, of tenderness, of refinement, and of grace. 'Once driving out with him,' says a female correspondent, 'I asked him after a lady whom he could not recollect. He pulled the check-string, and appealed to his servant. 'Do I know Lady M——?' The reply was, 'Yes, sir.' This was a painful moment to us both. Taking my hand, he said, 'Never mind, my dear,

I am not yet reduced to stop the carriage and ask if I know you.'"

We once ventured to ask Rogers if he remembered what Lord Byron had said after visiting his house and admiring the choiceness of its style—"What must this man not have suffered to have accomplished all this?" "It is perfectly true," replied Mr. Rogers, pinching up his skinny cheeks between his forefinger and thumb; "it is perfectly true—they have left me nothing but this!" This little anecdote refers to an interview that took place in Mr. Maltby's private rooms, in the London Institution. Mr. Maltby, himself, the clever connoisseur of a title-page, and a book-worm of no mean note, died at the advanced age of ninety, extremely feeble, but in the possession of all his faculties.

These cases might be explained in the dead-house. But morbid anatomy is not medicine, in the same sense as medicine is not a demonstrative art. Disease is a living phenomenon only to be correctly recognised, and properly treated during life. After death, it passes into another domain, which is that of the anatomical demonstrator.

DUALITY OF MIND.

Ὁ κεφαλος του ανθρωπου εστι διπλος, the brain of man is double, says Hippocrates, just as it is in all other animals.*

* *De morbo sacro*, vi. 1. This remark of Hippocrates shows that he knew something more of *human* anatomy than what he might have picked up by chance from the dissection of the lower animals; which is still more strongly shown, when, in the next sentence, he declares that it is thus double, ὡσπερ, *quapropter*, because it is divided in the middle by a thin membrane, μηνιγξ

In man, certainly, it is a double organ, or, more properly speaking, a *dual;* and it seems requisite that the brain should be thus a twofold organ for the perfect manifestation of the mind. For in the lowest scale of organic existences, in which the functions of life are scarcely raised above those of vegetation, the cephalic ganglion is only a solitary speck or a single thread. In what manner the mind, as mind, is connected with, or dependent upon, the matter of the brain, it were hard to tell, but that it is thus dependent or connected no one can doubt. Instances are on record* in which the brain has, while in full operation, been so pressed upon as to extinguish the mind for the time being, but in which, as soon as the pressure or disturbing force has been removed, the mind has recovered its elasticity, and resumed its operations at the very point at which they had become suspended. It is evident that, in such cases, the mind depends upon a certain condition of the particles of the brain.

The lens of the telescope does not constitute in itself the laws of optics, any more than the retina is itself the sight. Nor is the sensation or image conveyed along the optic nerve the sight, any more than the sight can be said to be the final particle of the ultimate molecule of that part of the brain, to which the image or picture is at last conveyed. For the power of vision is something beyond the remotest subdivision of the most distant molecule of the neurine, just as the well-known laws of optics are above and beyond the

λεπτη;—μηνιγξ is literally the *pia mater;* but as the *pia mater* does not divide the brain into two halves *per se*, it must mean the *falx major*, which does so divide it. The passage, however, explains itself. In his treatise *De fracturis*, he mentions the clavicle, its sternal and acromial attachments, in terms which none but a *human* anatomist could properly employ.

† Müller's Elements of Physiology, by Baly, 2nd edit., London, 1840, p. 815.

lens, or the equally well-known laws of acoustics are beyond the speaking tube, the trumpet, or the harmonious chords of the harp. But, nevertheless, the mind requires a particular molecule or neurine arranged in a certain mode, and an optic nerve and retina, and a virtreous humour, and a crystalline lens, and an aqueous fluid, and a transparent cornea, before the power of vision can be rightly expressed or properly conceived within the sensorium. This is not materiality; or else it is materiality and immateriality conjoined; the imponderable principle energizing through the ponderable organ, and the material organ subserving the immaterial essence or *vis vitæ*. The abrupt space that intervenes between the last portion of matter and the earliest dawn of intellect, is an unfathomable gulf tantamount to infinitude—for infinite it must be, since nothing can fill it up. No correct reasoning can conduct us farther than this.

Nor can the mind itself be said to be double, or dual, in the same sense as its organ the brain is said to be, inasmuch as the mind is, like light, electricity, magnetism, &c., a first principle or entity, indivisible and indiscerptible. It cannot be divided, duplicated, multiplied, expanded, or condensed. It is in its own nature one—*ων*, ens, sum, being, essence. In the monogamic molluscæ, which propagate by spontaneous off-sets or shoots, and not by reciprocal generation, the new creature is not the product of two, but the self-division of one; and yet in these animals, or animalculæ, the life thus apparently multiplied in each creature is, nevertheless, but one and the same life in principle as that from which it sprung. Its being is one, while its mechanism is alone multiplied. Its immaterial being is not manifold, although enunciated by a material organism which is manifold.

In the same manner, the mind may pass from an active to a latent state, and from a latent to an active—as in sleep, coma, suspended animation, seminal fructification, and oval germination, in each of which instances the mind is as positively latent as the electricity in the thunder cloud before it is bolted forth by fulmination, or the fire in the flint before it is struck out into sparks by collision with steel. Now, none of these things can be predicated of the material organ of mind—the brain, which obviously rests upon grounds of inquiry altogether different from the element of which it is only the instrument.

So that the mind may be either active or latent; but not so the brain. The mind cannot be dual, although the brain may. The mind is not the medium of thought, although the matter of the brain is. The mind is the generative principle, indigent of nothing—the brain is the subserving vessel, indigent of everything. The particles of the brain, like those of the body generally, are heterogeneous, dividual, personal, and transient—the mind, on the contrary, is itself a monad, homogeneous, individual, identical, and perpetual.

The existence of animals the lowest in the scale of animated nature, seems to be for no other purpose than that of mere sustenance and multiplication by off-sets or germs. In them there appears (as in the *hydra viridis*) no trace of a nervous system, at least none that in the present state of our knowledge we can properly define as such, unless the fine cord round the mouth be a nervous filament; nor can we ascertain anything like intelligence. They are scarcely raised above the vegetables. The *ascaris*, whose life is as limited as any living creature's can be well imagined, presents two white cords. The *asterias*, or *star-fish*, has a

circle of ganglia or brains, from which radiate distinct nerves. This may be only the sympathetic, whose existence may be independent of a brain. Many of the molluscous creatures (*tunicata*), but little raised above the sponges, and fixed to a rock all their lives long, have nothing like a brain, particularly not a dual one. The oyster is the first to exhibit a double brain, only the two brains are separate, without a commissural connexion, unless the œsophageal arch can be regarded as such. It is singular that with this approximation to a twofold brain, Garner should have pretended to show distinct organs of vision on its mantilla or beard. But no sooner are feet produced, than an additional portion of brain is bestowed in correspondence with these members—the *pedal ganglion:* which marks a kind of epoch in the history of the nerves; for where there are feet, there is also progression; and the act of progression implies an object of desire to be sought for and obtained by judgment, comparison, and volition. A more organized brain is therefore requisite. Thus, the common slug has two cephalic ganglia, evidently united by a small, though distinct commissure. The brain becomes a double organ. Some exceptions may be made to this order as an established law; for the *myriapoda*, or *centipedes*, which are higher than the slug, have several brains—one to each leg; while the crab, still higher than these, has only a single brain, but then its large pedal ganglion is almost a second one. The supra-œsophageal brain of the *pearly nautilus* is duplicated, and in the *cuttle-fish* this duality is still more distinct. As soon, however, as the sensorium becomes a much more valuable organ, we arrive at those creatures which enjoy a brain in a brain-case (*myelencephala*). These animals cannot live without a skull, box, or casket, on

purpose for holding their seat of intelligence. They no longer subsist like mere vegetation, but exist by intellectual pursuits, as in fishes, reptiles, birds, &c. The brain is now invariably a double organ, more or less perfect, and generally united by commissural bands—whiting, cod, eel, skate, &c. In the frog this is very evident. But, nevertheless, the commissures are as yet lost or confounded in the close proximity of the hemispheres. In birds, though the two hemispheres are more manifest, yet the *corpus callosum* is wanting, as in marsupials. The organ of comparison is defective, and the judgment low. In the beaver, however, with its constructive propensities, intelligent conduct, and provident habits, not only is the brain decidedly double, but the corpus callosum or organ of comparison is proportionally large. Convolutions are likewise visible. As we go on ascending in the scale of organic intelligence, the hemispheres become more distinctly double, the commissures larger, and the furrows deeper. In the elephant, so renowned of old for its understanding, and in the porpoise, so remarkable for its sagacious tenderness in nursing its young, all these characteristics are particularly visible. The brain of the chimpanzee differs from the brain of man only in size and weight; therefore, in the smaller size and extent of its cerebral convolutions; the same parts without exception exist in both brains. Whether the cerebral matter of the ape differs from that of man in microscopic characters, or how otherwise it may differ, are problems which remain to be worked out.

Enough is all this to show, that comparative anatomy attests a truth which we were first led to assent to on the slender grounds of induction and analogy. In man, with

his large brain and exalted intellect, the furrows are decided, the commissures bold and strong, and the brain a double organ,—all its intricate foldings are, as a sculptor would say, deeply chiselled and finely finished off.* "It is further to be noticed, as an anatomical fact," says Sir Henry Holland, in a note quoted from Meckel, "that in the brain and spinal marrow, the external parts on the two sides are less exactly symmetrical than those within; the surface of the brain showing this perhaps more distinctly than any other part."† Every one may find an opportunity of observing a difference in the relative size of the two sides of the head of some of his acquaintances; nor does this disparity or inequality seem to be detrimental to the intellectual development, but, on the contrary, rather favourable to it; for persons of distinguished talents have had their heads larger on one side than on the other,—as Cicero and Bichât, for instance.‡ Indeed, some go so far as to fancy, that whenever this inequality exists, the understanding is much better than in those whose heads are more exactly symmetrical.

A curious instance of literary duality was pointed out by the late Bishop Jebb, in the parallelism of Scripture. All the higher sentiments are, when strongly expressed, dual or double, and frequently, in their most energetic exhibitions, triple, until, after running up into a climax of passion, they descend according to a true chromatic scale, and end in a cadence note, which is so essential to the emphasis that it fails in producing the proper effect if the cadence be either

* Müller's Elemènts of Physiology, by Baly, 2nd edit. 1840, pp. 813*—824*. The Human Brain, by S. Solly, Esq., 2nd edit. 1847, pp. 30—96.

† Notes and Reflections, chap. xii.

‡ Gall sur les Fonctions du Cerveau, tome i. p. 194, tome ii. pp. 319, 320.

false in pitch or inadvertently omitted in the rhythm. And not only is this falling-note thus absolutely necessary to the right expression, but it must likewise conclude by repeating the first movement or emotion (a real *da capo)* with which the burst of feeling was first given vent to. The best example that can be adduced in illustration of this remark will be found in the parable of the "Prodigal Son," the whole of which may be worked out into a series of double or treble parallelisms, till it ends in the recurring melody of "*was dead, and is alive again; was lost, and is found;*" which brings back the mind to the first idea of the prodigal leaving his home, with a pathos of the happiest and most touching kind. Now, this duality, so exquisitely beautiful in poetry of an epic character, has most likely its exact counterpart in the structure of the material organ of the mind by which it was conceived—the brain.

Instances of a similar parallelism in art might be adduced, especially in architecture, in which the eye is never satisfied, unless the grand outlines of the building are double or repeated. This is one reason why the Parthenon, which is a parallelogram divided into two symmetrical halves by the obtuse angle of the pediment, produces the most delightful effect, whereas the triple temple of the Erectheum, Minerva Polias, and Pandrosium, exquisitely detailed as it is throughout, fails in producing the same happy impression, because its parts or projections are irregular and unaccountable. The servile manner in which this latter edifice has been copied in the present age, is only a proof of the inherent bad taste of modern architects. *Decipit exemplar vitiis imitabile!*

The reason of the duality of the brain not being more particularly examined into, is, in all probability, owing to almost

all the other organs of the body being double, at least those most commonly exposed to view—*e. g.*, the eyes, the nostrils, the hands, etc. But of the viscera occupying the three great splanchnic cavities—the abdomen, the thorax, and the calvarium—the brain is the only one that is really twofold. For the lungs are not justly so, nor is the heart, nor the stomach and bowels, but only the kidneys. There must be some reason for this. That this duplication is in most instances a natural precaution, that in case of one being disabled, a second should remain for carrying on the functions proper to the part, or necessary to life, is not a sufficient reason to account for the duality of the brain, however well it may serve to account for the kidneys, or any other organ; because the brain is more particularly an entity in its twofold capacity than the kidneys can be said to be, or the mammæ, or the hands, etc.—these organs being more like *duplicates* than *duals* —whereas the brain is, in fact, *but one organ*, not duplicate, but *dual* in itself. The duality of the brain has more the character of the treble and bass in musical composition; or the corollary, which is a perfected reflection of the theorem in mathematics; or the countersign of legal documents in attestation of the validity of the sign-manual. These are dualities, not repetitions or duplicates. Reasoning *à priori*, we should be disposed to predicate that the brain ought, as the ultimate organ of sensation, and the chief instrument of thought and will, to be twofold; because two things are necessary to produce a third; and the third or product is, when generated by the second or factor, the result of the first or prime number; for if the brain were a unit, instead of a dual, it must remain an inert unit, inasmuch as unity cannot be reckoned as a factor. Its duality is involved in the terms of its definition

—the organ of will, memory, and understanding. Thus, our deeds attest the validity of our judgment, which is the result of a comparison of things within the mind by a twofold instrument of thought—the brain.

The grand question of materialism that agitates sensitive minds so much is an immaterial one; for the immaterial principle must be expressed by the material agent, just as the material agent must execute the act agreed upon by both; yet no one will affirm, we suppose, that the act is the agent, any more than the agent is the principal, although in action they are all three of them one and the same. This runs up into a question of duality of the highest description, terminating in a trinity, or the perfect number, without which there can be no such thing as arithmetical progression or animated existence in the world.

We perceive, says Gall,* that no faculty of the mind can manifest itself without material agency—that every faculty, even those called the spiritual, can act only through the means of matter, and that their action cannot be perceived except by material organs. St. Thomas Aquinas,† in reply to those who confused the power with the agent, says:—Albeit spirit is not corporeal, yet the operations of the spirit, such as memory, thought, imagination, etc., cannot be performed but by corporeal organs. On this account it happens, that when an organ cannot, through some accidental derangement of its parts, continue to act, the operations of the spirit are likewise deranged together with it, as in delirium, asyhyxia, etc. And thus also, the healthy organization of the human frame ensures the distinguished faculties of a

* Sur les Fonctions du Cerveau, tome i., p. 231.

† Contra Gentiles, c 84, n. 9, quoted by Gall, *ut supra*.

healthy intellect as their necessary consequence or result—the *mens sana in corpore sano*. Plato, in his Timæus,‡ had arrived at a somewhat similar conclusion, when he calls the universe the paradigm of the eternal being, as our bodies are the paradigm of our souls; the lustre of the soul being in exact ratio to the more or less perfect execution of the paradigm.

I cannot dismiss this recondite enquiry without making a few remarks on the functions of sight, in illustration of what is termed duality of mind, or, more strictly speaking, of the brain. Its duality, or doubleness of action, is for the purpose of ensuring a balance so as to form a correct judgment. Practically, in measuring length or distance, we use two fixed points, the intervening space being the sum required. We perform this simple geometrical problem in every act of examining what we are looking at, by ascertaining the relations and properties of the boundaries of either body or space. In fact, the eyes are engaged in finding the parallax, or distance between the true and apparent place of things around us. The most ignorant, as well as the most expert, is occupied in the calculation of the sides and angles of a plane triangle. Without this mathematical process, the eyes would be useless.

The function of each eye is distinct, though consentaneous, and perfect vision is the result of a twofold, but separate action of the two eyes conjoined. For the eyes are not duplicates, but pairs: now pairs are not identical, but duplicates necessarily are. Each eye has a distinct office of its own. For neither eye looks at the same object in equally the same manner. Together, they do not see at equal angles

‡ Taylor's Plato, vol. ii. 4to, London, 1804, p. 490.

of the same parallax. The angle of one eye, say the *left*, is a right angle: that of the other eye, say the *right*, is more or less acute according to the distance. The left eye finds *the point of sight*, or fixed place of vision: the right eye finds the *vanishing point*, where the lines of sight converge or depart. Thus, one eye fixes the position of the object, while the other observes the angles of reflection or incidence, the distance or perspective of the thing seen. The one finds the centre, and the other collects the linear rays to or from the centre.

Architects, and those skilled in linear perspective, will understand my meaning. Properly understood, it explains the awkwardness of a one-eyed person in snuffing a candle, or taking an aim, inasmuch as the power of finding the *fixed* and the *vanishing* points at the same moment cannot be exercised by one and the same eye alone. It also explains the *modus operandi* of the stereoscope, which cannot be accomplished without a twofold focus of vision. To obtain an accurate sight of what we are looking at, the distance must be sufficiently great to enable the two eyes (if we had only a dual number to signify both eyes at once !)—to enable the two eyes to form a parallax, which can never be performed by one eye alone, nor by the two eyes together, unless one eye find the fixed point of sight, while the other finds the vanishing point towards which all the lines converge or from which they start. If both eyes find the vanishing and fixed points together, as in the squint-eyed, vision is no longer accurate, the distance is not ascertained, and the aim is missed. A squint-eyed, *i.e.*, a one-eyed-person, moves his head about, to and fro, so as to obtain an imperfect parallax by the means of some intervening object; but a person endowed with perfect vision, stands absolutely still, looks

steadily straightforwards, and gets the parallax at once by the separate, but co-ordinate use of his two eyes operating simultaneously and together. In taking aim with a rifle, we ascertain the *object* to be fired at, its probable or exact *distance* from ourselves, by the use of the two eyes conjoined, but as soon as we have found those two points, we close the left, and fire with the right eye, which takes the point where the lines of sight converge. By long habit, we perform this twofold function unconsciously; but an infant moves its hands here and there to correct or prove its sight, and we, when we come to new scenes, such as those of mountainous regions, find our ideas of relative space and distance confused and lost, until, after more or less observation, experience comes to our aid and recovers our accustomed accuracy of vision.

Thus, the duality of the brain is demonstrated by the duality of its functions, *e. g.*, the nerves of sight, and the presumption, or corollary, ensues, that the two halves of the nervous system are two distinct, but concordant powers.

The idea of this paper was borrowed from an interesting work under the same title by the late Dr. Wigan, although I am not aware that anything here stated belongs properly to him, except the idea. That portion which relates to the functions of the two eyes, is, as far as I know, be it right or wrong, exclusively my own.

DEFORMITY OF INFANTILE CRANIA.*

Foville, who had the charge of the *Asile Départmental de la Seine Inférieure*, paid great attention to the deformities of the cranium among the idiotic and imbecile patients confined within its walls; and he traced the origin of these cranial irregularities to mismanagement in infancy, especially that of bandaging the head too tightly. This deformity may be marked by drawing a line along the middle of the forehead, around over the ears, and beneath the protuberance of the occiput. This depression is most observable on the forehead and sides of the head. He accounts for it by tight bandaging in the early months of infancy. He observed it in all classes of society—among adults, old people, youths, children, and infants—under such striking circumstances, that what was only a floating conjecture in his mind in 1829, was in 1834 a solid conviction. At a certain degree of intensity this malformation produces grave disturbances in the cerebral circulation, such as imbecility or epilepsy, and may, sooner or later, end in confirmed idiotcy or insanity. It is a barbarity, he says, which would seem to have had its origin only among savages; and his object is to expose the magnitude of the evil, and to insist on the necessity of its being effectually remedied.

The shape of the head, when perfectly developed, is that of a sphere or spheroid, half of which is above the eyebrows and half below, the ear-hole being two-thirds of the distance

* *Influence des Vêtemens sur nos Organes. Déformation du Crâne, resultant de la méthode plus générale de Couvrir la Tête des Enfans.* Par le Docteur A. Foville. Paris.

in a line from the orbitar ridge to the occiput. With such a formation, its fortunate possessor could not be anything else than intelligent, if not good. Every head, however, is not so well turned as this. The greater number of crania is ovoid, and regularly rounded; and the variations or departures from this prevailing figure establish the difference between different individuals or races. A very little observation will show, that the best shaped heads may be slightly irregular, and frequently not quite symmetrical in their two halves. But the deformity described by Foville is a caricature of nature in her worst mode of expression. The forehead retreats and is depressed, the sinciput bulges out into a knobby globe, the occiput is thrown back, and deeply indented just above the spinal column. In profile the outline is angular, which is contrary, not only to the line of beauty, but likewise to the sign of a healthy constitution, which is invariably curved and flowing. A practised eye will discern this singular deformity beneath a thick cap, or bonnet, or detect it under the guise of a thick crop of hair; but sometimes, in order to observe it, the head must be uncovered or shaved. There is, of course, every possible variety. In the worst cases, the skull is divided into two portions, an upper and lower, by the circular depression. When this malformation is excessive, the forehead is thrown forward and the chin depressed, for the sake of preserving, it would seem, the balance of the median line.

Now, do such deformities arise from the process of ossification being disturbed? Is it rachitis of the cranium? or diseased softening of the bones? Evidently not; because these misshapen heads are met with in persons in all other respects healthy. In fact, the cranial bones are in these cases

elongated, proving an innate power of growth; whereas scrofulous bones are deficient in the power of growing. But is this deformity the result of external compression? It would seem to be so; although some authors affirm that no external force can alter the shape of the cranium. They judge by analogy, and ground their opinion on comparative anatomy. But, in this instance, comparative anatomy fails in deciding the question, which is one of fact, relating to the human head, that sometimes goes on enlarging till the fortieth year, and not to the lower animals, whose ossification is complete and stationary in a few weeks or months after fœtation. Yet, though the analogy with the lower animals is unsatisfactory, we find that the comparison with other races of mankind is valid and conclusive. The Caribbees exhibit a remarkable proof in our favour, for their heads are from their birth forced into a false shape by a very mischievous artifice, the frontal bone being pressed almost flat, and the occiput squeezed out so much backwards, that one of these crania looks at first sight like the skull of a dog. Mr. Lawrence, in his work on the "Natural History of Man," has commented on this striking physiognomy; and Blumenbach, in his "Collectio Craniorum," gives two representations of it, which are worthy of attention. Exactly opposed to this kind of shape is that of the Peruvian skull, which, instead of being pressed out horizontally, is forced up vertically, into the shape of an obtuse cone. Foville says that Blumenbach mentions some Turkish skulls, exhibiting a circular depression, in consequence of ligatures having been tied round the head in infancy. M. Virey, in his article *Enfant* in the "Dictionnaire des Sciences Médicales," says it is certain that the shape of the head may be altered mechanically, and that caps drawn

tightly round by ribbons force the head into a sugar-loaf shape; thus, he adds, producing idiotcy by means of compression.

In France, the rustics, if not the citizens, generally bandage their children's heads from the birth, exactly along the line of depression already pointed out; and it is remarkable, that the tip of the cartilage of the ear is, at that point where it is pressed upon, flattened and wasted, but that the lower portion of the ear, which has escaped the pressure, retains its original character. The scalp, likewise, over the fontanelle, is blanched, dry, and shining, exhibiting a few cicatrices, through which some scanty hairs make their appearance. Among adults, women suffer more than men, while children of either sex suffer equally; but then the women cover their heads more continually than the men, and the infants are all bandaged alike. These sad effects are entirely prevented by laying aside the head-dress from the first.

Some have supposed that the midwife may knead the head into a particular form during the act of birth. This is not the case: for the head of the child is always compressed and disfigured in a very awkward manner during the easiest labours, while, in tedious ones, it is distorted to a great degree. Nor does it recover its natural form immediately after birth, as it always does when the labour has been short and easy. It is not possible for us to compress the child's head at this time.

Those mothers who have been persuaded to discontinue the use of bandages acknowledge the happy results in consequence of their having done so; and others have remarked the ill effects of the bandage, although it has never occurred

to them to abandon the use of it. No intelligent man, to whom Foville disclosed his views, ever entertained any doubts as to their reasonableness. Several medical men from Rouen, besides Dr. Hodgkin from London, MM. les Docteurs Marc and Pasquier, and Professeur De Blainville, who visited his Asylum, agreed in his conclusions. It was the opinion of Pasquier, that the coincidence of the wasting of the gristle of the ear, and the atrophy of the hairy scalp, upon those parts over which the bandage or roller had evidently passed, was a proof positive in his favour. How, indeed, can these facts be denied, when the head is as deeply crimped by the marks of former bandaging, as the leg, above the knee, becomes permanently indented by the constant use of a tight garter?

One of the evil effects of bandaging the head in infancy is that which it has upon the cartilage of the ear. It is generally supposed by the best nurses in this country, that the ear should, in order to look aristocratic, be kept closely adapted to the side of the head. Now, in its natural state, the cartilage of the ear projects like a shell, which it resembles in shape, for the obvious purpose of collecting the sound, and conveying it along the auditory passage to the drum, and thence by successive vibrations to the auditory nerve. But the most accomplished nurses have resolved that this wise provision of nature shall not be allowed to have its own way. A projecting ear looks so ugly,—their darling *shall* grow up with a *flat* ear, in spite of its being next to useless! and in this way, the sound, instead of being caught and collected within the folds of the cartilage, passes beyond, and avoids entering the auditory passage originally intended for its reception. The person thus gratuitously

afflicted with a flat ear usually grows up hard of hearing. Besides, the auditory passage is bent back at an angle by pressing down the external ear, and the tube is spoilt. Bend a trumpet, and then try to sound it. It has lost its tone and timbre. It is no longer a trumpet; and in the same manner the ear is no longer fit for hearing. Deafness, more or less complete, is the result. A stricture has been produced at the angle of the bend, which can only be remedied in after life by inserting a hollow tube as a dilator, and by putting a pad behind the gristle or cartilage to throw it forward, and bring it once more into that natural shape and position which nurses of the first authority so highly disapprove of.

The results obtained in studying the deformed heads at the *Asile Départmental de la Seine Inférieure* bear out this view of the question. In the month of August, 1833, the number of patients there was 431, of whom 202 were men, and 229 women. Out of the total number of men, 109 heads were regular, and 93 deformed; of these 93, all did not betray the evidences of tight bandaging equally, for 36 were moderately marked—46 more distinctly, and 11 only very distinctly so. Out of the total number of women, there were 75 regular, and 154 deformed; and of the latter number, 68 moderately, 46 much more so, and 40 most of all. Relative differences apart, the sum total gives, out of 202 men, 109 regular conformations, and 93 deformed; while out of 229 women, it gives 75 regular conformations, and 154 deformed: both sexes taken together, it gives, out of the gross amount of 431 alienated, 184 regular conformations, and 247 deformities—*i.e.*, more than half. Among the men, the deformity does not extend to half the number, while among the women, the proportions exceed two-thirds—thus: of both sexes taken together, it is

57 out of 100; of the men, 46 out of 100, and of the women, 67 out of 100. From the 11th of July, 1825, when the Asylum was first opened, up to the month of August, 1833, an interval of eight years, 508 men and 640 women were admitted, giving about one-sixth more of women than men; and the total differences between the two sexes are still the same—namely, about one-half of the men having deformed heads, and two-thirds of the women. This result is as interesting as it was unlooked for. But what is still more interesting than this is, that, in this Asylum, there are separate apartments for those variously affected—with fury, or moping, or passive mania—among the inmates. And besides this house in particular, there is a sort of town residence *(Maison Bourgeoise)*, of a similar nature, reserved for ladies of fortune *(destinèe aux dames pensionnaires de la première classe)*, provided with three courts for the women, and five proper dormitories. In one of the courts are collected the incurables, who are the most indocile and violent; in two of the dormitories are enclosed the most brutal, and those the most incapable of occupying themselves; and in another dormitory are brought together, in company, the most laborious and sociable, as well as such as are the most disposed to the employment in common of sewing, etc. etc.

Now it so happens, that this last dormitory presents the smallest proportion of deformed heads—14 out of 28, or half: whereas, in the two other dormitories, containing the most violent and indocile, and the most brutalized of the population, there are, out of 78 occupants, 58 badly-formed heads, or three-fourths. Let it be remarked, that the most brutal characters here present the worst-shaped heads—a result so much the more interesting, as the classification of

disease has hitherto proceeded entirely regardless of the shape of the skull.

These observations, made by Foville at the Asylum, lead to the inquiry, whether their accuracy has been tested or corroborated in other establishments of the same kind, or whether one meets with such deformities in the world at large. He says, that when he was the *élève interne* of M. Esquirol, at the Salpêtrière, he had already remarked this malformation among the alienated in the wards of that hospital, and was sure of having, at that time, noticed the pernicious impress of the bandage around the cranium. It was the same at Charenton and Bicêtre; but then both these establishments frequently receive patients from the adjacent parts of Normandy. Dr. Delaye, a friend of Foville's, in charge of the *Hôpital des Aliénés* at Toulouse, confirms the notion, that the same evil is rife in the south of France as much as in the north—arising, in all probability, from the same cause. Many persons here, says Dr. Delaye, have their heads peaked (*pointue*), not only among the maniacal, but among the sane also. Children wear two caps, or cauls, bound round with a linen roller. These two cauls, or skull caps, tied on with long ribbons, compress the head strongly, by being wound five or six times round very firmly; so that it is not uncommon to see persons with a depression or gutter along the circumference of their heads, exactly corresponding to the line of pressure. This indentation is deeply traced in some idiots and imbeciles in the *Hôpital des Aliénés de Toulouse.* It might be conjectured that these deplorable effects from the mode of bandaging infants' heads would be met with only among the poorer set of people; but this is not the case, for out of 40 persons of fortune (*pension-*

naires pour les trois pensions supèrieures), 20 were thus deformed. The proportion is the same in each section of society; nor is this surprising, when we call to mind how many mothers put out their infants to wet-nurse, and, consequently, pass them over to the hands of the lowest and poorest of the population. Moreover, intelligent mothers do not feel themselves called upon to invent a new method of dressing their little ones, but take things as they find them, and do the best they can with what comes to hand.

Now, what are the injurious effects on the functions of the brain? This is a capital question, and the word that answers to the question will indicate the proper corrective of the evil.

The enormous proportion of badly-formed heads in the asylum under Foville's care will suffice to show how closely such deformities are connected with mental derangement; and the relative differences between the two sexes, which gives so serious a preponderance against the women, adds to the importance of this deformity, when considered as an immediate or indirect cause of madness. It is an extensive question, which comprises not only the mad, but even those sensible folks who, with badly-formed heads, go about their business apparently in the perfect possession of their faculties. The most simple disorders, however—such as headache and giddiness—may be all that arise from the use of the bandage, in some cases; although, in others, of a more serious character, they may manifest themselves as the warnings that precede and accompany the most dangerous forms of compression of the brain. Profound debility and a very deficient understanding are met with in such persons just as often as a slightly eccentric and an habitually irritable disposition—

symptoms indicative of a troubled circulation through the encephalon. It is easily demonstrated: tie a string round the finger, and the blood is strangled at the tip; bind a roller round the compressible head of a child, and the course of the blood is impeded within the skull; for all the vessels of the head communicate freely with each other—the outside with the inside veins—the internal with the external carotids—the circulation anastomoses, conjoins, corresponds, and sympathises throughout every portion of the neck, face, skull, and brain. Only take into the account the unclosed opening of the fontanelle, beneath which flows the superior longitudinal sinus, and calculate how much this capacious channel must be engorged by pressure on the scalp; for the external veins, first exposed to the pressure, empty themselves of their proper load, and force the burden back upon the sinuses of the brain, if not upon the sinuses or venous plexus of the spinal cord. The worst consequences are to be reckoned on.

It has been objected that the *dura mater* with its processes called the *falx major* and *minor* and the *tentorium*, is, from its inelastic nature, sufficient to retain the cranial bones in their proper position, and to counteract the effects of any pressure from without exercised upon them. The only answer to this objection is the fact, that the cranial bones are in reality distorted and pushed awry, in the manner so ably pointed out by Foville.

One of the first effects of this sort of pressure externally is suppurative irritation of the hairy scalp. This portion of the skin, so highly vascular, is not merely bound down, but kept much too hot by means of bandages, thick caps, or bonnets. The perspiration is both increased and obstructed, the hair falls off, and, in the dirtier people, it is quickly infested with

insects.* A sero-purulent discharge escapes, which is popularly regarded as beneficial; and so it is, by relieving the internal congestion. The cervical glands enlarge, and a train of scrofulous symptoms ensue, owing entirely to mismanagement from the first. Foville says, that he has seen the compression cause a varicose condition of the external veins of the head, and he gives a drawing of one of these enlarged veins along the occiput of an infant, which was relieved by discontinuing the accustomed compress. Such are the most evident effects of this erroneous method of dressing the head, especially during infancy; and that the brain thus compressed, should become the seat of inflammatory affections, is not to be wondered at—meningitis, cerebritis, epilepsy, and imbecility being the most frequent maladies in those exposed to its operation in its severest form. Terrible as these diseases are when uncomplicated with other evils, they become almost unmanageable, where there already exists some permanent difficulty in the circulation from birth; and it will be easily understood, that, at a more advanced age, the cerebral maladies peculiar to that epoch of life do not fail to exhibit themselves in those unfortunate beings who have been made the victims of such disastrous nursing,—a fact most strikingly brought into view by the reports of the *Asile des Aliénés*, quoted above.

The cause of the evil being thus detected and proved, it

* The loathsome insects mentioned by Foville are seldom met with in this country, except among the lowest of the low. "It is impossible (says one of the City missionaries) to convey a just idea of their state; the quantities of vermin are amazing. I have entered a room, and in a few minutes I have felt them dropping on my hat from the ceiling like peas. 'They may be gathered by handfuls,' observed one of the inmates."—*Parliamentary Reports: Lord Ashley's Speech on Emigration and Ragged Schools*, June 5, 1848.

only remains to discover and apply the remedy. Nothing can be easier. Tell the rudest mother in the world that her mode of nursing is doing mischief to her children, and show her how and in what manner she is inflicting a permanent injury upon them, and you have already won over her tenderest affections to your side, and gone more than half way in effecting the radical reform so earnestly solicited. The ordinary nightcap, in this country, is tied exactly round that part of the head which Foville has pointed out as the seat of pressure, and if it do not produce such extravagant deformities as those of which he has given several drawings, it at least helps in preventing the proper development of the cranium, and may become a means of rendering many a head less happily shapen than it would have been, had it been left to the care of Dame Nature alone. How can the tender, pulsating head of an infant, through which half the blood of the whole body is flowing, sustain with impunity the tightness of a common worked lace cap, nicely tied on in the most approved nursery fashion? Is it not evident, that the head of a newly-born child ought to be handled with the utmost delicacy, and that every sort of pressure ought to be most carefully removed from it? It requires time and space to grow and expand into the round cranium of a capacious understanding.

But, besides these mischievous caps and execrable head-rollers, there are other articles of dress, not less pernicious, in daily use; such as thick bonnets made to "*fit well*," tied under the chin, covering and pressing on the ears, and heating the head,—pieces of oiled-silk, for the purpose of preventing the perspiration transuding and soiling the silk or straw above, stitched inside, and worn precisely over the

great fontanelle. Nothing can be worse: for the head-dress of a child ought to be light, simple, and just sufficient to preserve it from the weather, and airy at the same time. Children, if left to themselves, run about without hats or bonnets, like the poorer urchins, who have never a bonnet or hat to wear, except a thick pole of tangled locks, which is nature's own covering.* It will scarcely be credited, by *lay* readers, that a common straw or silk bonnet made too hot, or too tight, just as the fashion may direct, will tend to alter the shape of the head, prevent its growth, damage the intellect, and lay the foundation for eventual disease of the brain. The form of the head is never so pleasing as when it has been allowed to develope itself without interference. In general, all classes keep the head too much covered. It is one cause of baldness in adults, and of difficult dentition in children. A light silk net or thin bonnet is sufficient in the first months after birth ; and some months later, it is better to let the head go uncovered, except with something light to protect it from the rain or sunshine during the day, or from the chilliness of night during sleep.

There is a fashion, almost out of date, of putting a pad about the head, to prevent the child from stunning itself by falling against anything hard. This pad, stuffed with wool, quilted, and made elastic, is only another form of the condemned bandage, with the additional evil of being much hotter than the flannel roller. It is a mere excuse for want of attention on the part of the nurse. When a child is begin-

* The Roman Emperor, Hadrian, always went about bareheaded, whether in private or at the head of his troops. His death was preceded by a defluxion from the nose, supposed to have been produced by this singular habit, for he was utterly regardless of weather.—*Spartian: in Adrian:* § xxii.

ning to walk, it is much better to let the head remain uncovered; and should it occasionally suffer from a fall, the inconveniences arising from a slight shock are not so formidable as those which are sure to follow from the constant use of a thick heating bandage.

The thick scurf that collects about the roots of the hair in the poorer people, and at last accumulates into offensive scabs, is seldom seen in the nurseries of the wealthier classes of society in this country—indeed, the fault of these last would seem to be that of washing, and combing, and curling the hair a great deal too much; for the hair may be dressed too much, as well as too little. Short hair, in early life, is preferable to long, and plain water, with a sponge, is more beneficial than soap and the various kinds of perfumed oils and pomatums so much in vogue. The comb should be used lightly every morning, and then the brush. Rubbing the scalp at the roots of the hair, brushing too forcibly, greasy applications, hot curling irons, and tight curling papers, etc., which only serve to irritate the scalp, ought never to be employed. A very soft brush, gently applied, does good in an infant before the hair is grown, but when it is once grown up, the hair-brush is an indispensable article of the dressing-table for the rest of life. Cutting the points of the hair frequently is good practice, except that it renders it coarse, but strong at the same time. The ends of the cut hair are exhalent surfaces, which keep the head cool. The dress of very young children should be both light and warm, easily secured without pins, which prick and tease the skin, and the child should be soused in tepid water daily, and rubbed dry quickly. Such are Foville's invaluable remarks on the management of children, but especially on the evil effects of a heavy head-dress.

THE DEFORMED AND THEIR MENTAL CHARACTERISTICS.

Fair forms and mental excellence, do they go together? Are we what our bodies make us? Does the mind answer to the shape of our heads, spines, and limbs? Are the profiles of Cicero or Marcus Aurelius, such as they are represented in the sculptures of the Campidoglio at Rome, emblematic of the talents and virtues so eloquently expressed in the histories of their lives and writings? Or, is the wonderful repose carved on the features of the First Napoleon, the sublime ideal of Austerlitz or St. Helena, Waterloo or Marengo? The chief charm in the countenance of Byron is the poetic fire that beams from his eye and forehead, for the rest of his face is not formed upon the best of models. Byron imagined that there was a strong resemblance between himself and Marcus Aurelius; and, perhaps, at first sight the resemblance is striking; but the nose, mouth, and chin of Aurelius are indicative of the highest moral perfection, whereas those of Byron betray the grossest sensuality.

Thersites is described by Homer as the ugliest man that came to Troy, and Ulysses says he had never met wth a more disagreeable creature. He was squint-eyed, or, as Buttman translates it, bandy, with one leg shorter than the other. His head was peaked and partially bald, or scattered over with thin hair. He had a squeaking voice, a spiteful temper, and a saucy mode of speech. His spine was gibbous between the shoulders. The noblest in the camp were the

butt of his cynical impertinence, and he was withal a coward. Ulysses struck him with his staff, and Agamemnon upbraided him in public, without effect.*

This accurate description is the earliest we have of diseased spine. It is earlier than that of Hippocrates by five centuries at least. The physiological as well as the psychological characters of the *Iliad* are touched with the hand of a master. The account that Helen gives to Priam, in the third book, is unrivalled as a piece of graphic writing. The scene passes before you, and each person, as he is mentioned, lives, moves, and speaks with the air and manners proper to himself. The fierce Ajax has broad shoulders and a strongly-built frame. Ulysses is short, with an expansive chest and a grave deportment; Menelaus is fair-haired and mild in temper; Agamemnon, tall, athletic, and graceful; Achilles, long-legged; and Hector distinguished by his handsome countenance, sparkling eyes, and exact muscular proportions.† The prettiest man among them is Nireus, who, singularly enough, is, like the ugly Thersites, a great coward.‡

The dwarf, if not a hump-back, is a ricket with the chief characteristics of spinal disease. People of diminutive, as well as of gigantic proportions, are seldom more sound in mind than they are in body. Their temper is malicious or stupid, cruel or weak; and their passions are ungovernable and brutal, or they have no passion at all. The salacity of the dwarf is only too well known. Ariosto makes use of this propensity to point one of his stories with the epigrammatic humour so peculiarly his own. The tale turns upon a fair lady, the wife of a handsome Italian, choosing as her paramour a graceless humpback, who treats her as his mistress

* *Il.* ii. 211. Butt. *Lex.* p. 541. † *Il.* iii. 216. ‡ *Il.* ii. 671.

with disdain, and serves her base passion with the coolest effrontery. If like goes to like, the lady must have been as deformed in taste as the dwarf in person, with whom she took her pastime.*

To which of the two shall we award the meed of merit in power of speech and fancy—to blind Melesigenes, thence Homer called, or to the incomparable Ariosto? Which fatigues us the soonest, the ancient or the mediæval bard? Perhaps, no one can decide but those who have seen the south of France, which is the land of Orlando Furioso, or the broad Hellespont and the shores of Troy, in which is the scene of the Iliad. In point of good taste and fineness of execution, the Greek excels the Italian poet; but the extravaganzas of Ariosto are too good to part with, and the wild fire of his genius never blazes in vain.

The idea of eccentricity of character being allied to eccentricity of form has not escaped the shrewd mind of Sir Walter Scott. In the *Lay of the Last Minstrel*, the elfin page is introduced with a vivacity and precision which leads us to believe that Sir Walter had some living being of the same description in his eye :—

"Little he ate, and less he spoke,
Nor mingled with the menial folk;
And oft apart his arms he tost,
And often muttered, Lost, lost, lost!
He was waspish, arch, and litherlie,
But well Lord Cranstoun served he;
And of his service was full fain,
For once he had been ta'en and slain,
And it had not been for his ministry.
All between home and hermitage
Talk'd of Lord Cranstoun's goblin page."

Canto ii., 32.

* *Orlando Furioso*, Canto xxviii.

In private practice, it is not unusual to meet with patients like Scott's elfin page, or Ariosto's dwarf. Sometimes it runs in families, particularly in those where marriages have been contracted between kith and kin. Account for it as we may, such connexions are productive of monstrosities, simpletons, or dwarfs. One of the children, a son or daughter, absorbs all the intelligence and strength of the rest. Of the remainder, one is too tall, another too short, a third bow-legged, and a fourth nothing more than a stunted nonentity. Spinal disease, consumption, or insanity is their common property. The medical attendant is seldom absent from their door. As they grow up, the boys become profligates or incapables, who are eventually laid aside by the world and left to shift for themselves. They end by becoming wearisome dependents on their betters, or sink into sots supported upon a pittance doled out to them weekly by some unseen hand. As to the girls, if they marry, they quickly fall into interminable ill-health, and help to fill up that dreary catalogue of ovarian and uterine maladies, of which they hope to be cured at last so long as their husbands have a fee to spare. Their minds suffer with their bodies. Their nervous fancies are real. They are never free from pain. Their home is their hospital, and domestic comfort is at an end. When their means are large, a long life is spent in the pursuit of health and in the gratification of an egotism which amounts to mental aberration.

Many of these cases are met with in children who have sprung from a late marriage or a drunken father. The wine or spirit drinker engenders an ill-health which is singularly visible in his offspring. The puny child, or dwarfish adult, comes of this source. The pale and beardless face that meets us in the busy streets is the unmistakeable evidence of his

parentage. Even dogs may be dwarfed by dosing them with alcohol. The functions are arrested, and the development is stopped. The bony structure suffers the most, although, very likely, the brain and spinal cord take the lead in the course of defective organization.

Misery, mental and bodily, is entailed on the first, second, or third generations, when the breed ceases, if it have not already become extinct in the first. Convulsions and palsy carry off not a few. The rickety live the longest, albeit, they fill up their place in the world with pain and sorrow, a vexation to themselves and a care to all around them. Hence it comes to pass that deformed persons are proverbially disagreeable and perverse, for they cannot keep pace with their companions, while it is impossible for them to live apart, and destitution overtakes them if they lag behind.

In the character of Richard III. all these qualities are well pourtrayed, as he descants upon his own deformity. It evidently had the worst effect upon the whole of his life. He was not formed to amble in a lady's chamber; the dogs barked at him in the streets; and the sight of his own shadow in the sun irritates him to the last degree of virulence. He feels that the world scouts him as an ill-begotten thing, and he vows revenge upon the world in return. He had the opportunity and the power of doing so, and he wreaks his vengeance even to his own cost. The cruel sarcasms he vents against himself, and the stinging consciousness he betrays of his imbecility as a man, remind us of the petulance with which Lord Byron resented the slightest allusion to his club-foot, or shrunk with morbid sensitiveness from the glance of a stranger casually looking towards the spot upon which he was standing. The bodily uneasiness finds a

poor relief in uttering sharp sayings and bitter invectives, which create enemies at every word, or make the careless laugh and good men sigh.

It was out of this class that the royal jesters and buffoons used to be selected. They were looked upon with a degree of wonder amounting almost to superstition; and, were it not for the barbarity and ignorance of the age in which they were fostered about the courts of princes and nobles, we might be tempted to regard the custom of retaining them as a dull satire on the favourites of kings.

Hippocrates has already described these pitiable cripples ages ago. Their long backs, short legs, and long arms; their small hands, narrow chests, protuberant larynx, shrill voices, and poking heads, were signs that did not escape his notice. He says, if they are fleshy and plump, they live to be old; but if they are lean, they die early, generally at or before sixty.

The reader will remember the Black Dwarf in the Waverley Novels. Pliny in his Natural History, tells us* that the celebrated historian, Tacitus, had a brother who was a perfect monstrosity. In three years he grew six feet and nine inches—*in tria cubita triennio adolevisse.* He was able to walk, but in a slow heavy pace, and was dull of apprehension almost to stupidity. He died of sudden spasms, and violent contractions of the nervous system. No likeness of Tacitus himself has come down to us. But if he was like his model Emperor, Vespasian, he had, according to numismatic authority, a vast head, a long back, short legs, and small arms—unmistakeable signs of rachitis, whether they be found in the person of a victorious Roman Emperor, or in

* Pliny, *Nat. Hist.*, Lib. vii. 12.

that of his not less highly talented admirer, the author of the history of his times, and the acute annalist of his age and manners. Vespasian's head was most remarkable for its prodigious size, and argued a character greatly above or below mediocrity. His talents were entirely of a military kind. He was certainly superstitious, for he cured a deaf man and a paralytic by his imperial touch.* But his sense of the fine arts was dull, since he forgot himself, and fell asleep in the presence of Nero, as that despot was reciting his own verses to the sound of his lute. For this dire offence, Vespasian ran the risk of forfeiting his life, except, adds Tacitus, that his superior genius or destiny reserved him for the conquest of Judæa.†

Jornandes, in his history of the Goths,‡ pourtrays the fierce and terrible Attila as a figure of short proportions, broad shoulders, and a huge head, thinly covered with hair, and a sparse beard; small restless eyes, like those of the Chinese, and a swarthy complexion. His gait was haughty, and his look inexorable. With this horrid description, his character exactly tallied. *Vir in concussionem gentis natus in mundo, terrarum omnium metus.* According to a very graphic picture, drawn by the historian Fleury, Julian, the Apostate is represented as a person whose step was unsteady and manner supercilious. He was in the habit of making a laugh which he improvised with a shrug of his shoulders, and a wild, glistening turn of his eyes. He had a snub nose, and thick lips. His beard, which Gibbon tells us was rather *populous*, was never trimmed, and his head of hair never

* *Tacit. Hist.*, iv. 81. Statim conversa ad usum manus, ac cæco reluxit dies.

† *Tacit. Annal.*, xvi. 5. ‡ *Jornandes, de rebus Get :* c.xxxv.

dressed. He had a propensity to ask cross questions and give crooked answers.*

Large trunks with short legs are mostly significant of gross dispositions, and, if the head be large, of a relentless and determined character. In *Gil Blas*, the Prime Minister of the King of Spain is described as a deformity of this sort. The portrait comprises too many particulars for it to be otherwise than original. He was a tall man, much above the common size, and he would have been thought fat, even among the corpulent. He was so high-shouldered that he looked like a humpback, although this was not the case; and his head was so large, that it was thrown forwards, and rested on his chest. His hair was black and straight, his visage long, his complexion sallow, his lips compressed, and his chin pointed and projecting. "This was certainly not the figure of a refined gentleman," says Gil Blas, "but he was agreeable enough whenever he pleased, and just the reverse whenever it served his interests, or suited his fancy, to be so. A libertine, an autocrat, an intriguer, and a devotee, he at last came to ruin."†

Peculiarities of hair accompany deformities of person. The deformed have usually black, white, or red hair; straight, curly, bushy, or thin. The very red hair, called *carroty*, is a sign of debility, and chiefly of a rickety or consumptive habit. It is the result of arrested development. Had the development gone on naturally, the red hair would have become black. Thus, black hair on turning grey first becomes red—red being the middle point between perfect and imper-

* *Fleury, l'histoire ecclesiast:* liv: xiii. § 25. Gibbon says, he celebrated with visible complacency his shaggy and *populous* beard: c.xxii.

† *Gil Blas.* Livre xi. c. 4.

fect growth; and the black and the red-haired are met with in children of the same family. The red-haired are naturally acute, irascible, impulsive, and inconstant. White hair is also a sign of debility. The *albino*, like the white rabbit and the *cheval blanc*, is an inferior individual of its species. In the true *albino*, the black pigment is wanting, and the eye looks red, instead of white, in the depth of its pupil. The white rabbit has the same defect in the colour of its eyes, from the same cause. White, or very light coloured hair, is often significant of a cruel disposition; albeit, the *blonde*, with her blue eye and good temper, belongs to this class. The most dangerous and deadly tint is that of the jet black. Black hair and red lips are seldom long-lived. They are liable to organic disease, from phthisis to carcinoma, and from jaundice to mania. The conventional assassin is usually represented with black hair, and the stage bumpkin ought to be red.

There is a medium size, above or below which *safe* talents are rarely found; and there is also a *safe* complexion, blended of the ruddy, black, and brown. The most energetic persons are of the brown temperament, and those of great action and discernment usually have aquiline noses. Julius Cæsar's was a small slender figure, with a long neck and a round but not a very large head. Nelson and Napoleon were both small men, and the great Duke of Wellington was not large. St. Athanasius was so small that a young lady shut him up in her wardrobe, and saved him from the emissaries of Constantius, who were in hot pursuit after him throughout Alexandria.* Levi, the Publican, known as St. Matthew, was a very little man; which accounts for his climbing up

* *Gibbon*, xxi.

the sycamore tree to see what was passing. St. Thomas, the Apostle, has given his name to streets in some of the capitals of Europe, on account of his diminutive stature, as that of *Little St. Thomas Apostle* in the City of London. St. Augustine was also small, and so was his mother Monica, if we may trust the traditional effigies of them both, which we have seen in the crypt of the magnificent cathedral at Bourges, Central France. Æsop was small and humpbacked; and so was that crooked little thing that asks questions, Pope, the poet. Alexander the Great had a wry neck. The great Apostle St. Paul was, if we may trust the Byzantine historian Nicephorous,* crooked and slightly stooping, small in stature, and of a contracted figure, of a fair complexion, bald, and prematurely old. Peculiar conformations of the body indicate peculiarities of the mind and temper. A giant is popularly stigmatized as big and stupid, and dwarfs are generally looked down upon as conceited and spiteful. Distortions of the spine are proverbial for the irritability of the brain, the vivacity of thought, and the biting sarcastic humour incidental to their deformity. Large foreheads are proper to philosophers; eyes wide apart, to draftsmen; rotund temporal fossæ to architects and misers; and projecting orbitar ridges to calculators, chronologists, and the lovers of order and colour. Thick lips betray the gourmand and the debauchee, aquiline noses signify even tempers and clever understandings, thin lips insinuate a vindictive disposition, and projecting chins point out either buffoonery, or its direct opposite, mental ascendancy and clear common sense. Hunter and Newton have each of them the organic development essential to the manifestation of their personal talents;

* *Nicephorous*, Lib. ii. c. 37.

and the historian, Gibbon, with his prominent eyeball and voluminous cranium, may be compared with the retreating forehead of Robespierre, Nero, and the profile of the Dutch adult idiot pourtrayed by Gall. Hereditary taint is a source of moral and intellectual eccentricities; and so is scrofula, that prolific origin of all that is imperfect, excessive, ecstatic, obstinate, and incurable in the physical history of man. Crooked spines, gout, asthma, phthisis, mania, imbecility of mind or body, short lives, effæte offspring, and an existence scarcely worth the having, fill up the weary catalogue of its daily—nay, of its hourly lamentations.

The incentive in Byron, says Moore, was that mark of deformity on his person, by an acute sense of which he was stung into the ambition of being great.*

> "Deformity is daring.
> It is its essence to o'ertake mankind
> By heart and soul, and make itself equal—
> Ay, the superior of the rest. There is
> A spur in its halt movements, to become
> All that others cannot, in such things
> As still are free to both, to compensate
> For stepdame Nature's avarice at first."
> —*Deformed Transformed.*

Adopting the sentence of the mighty Byron, we may conclude with the words of Lord Bacon, which the poet apparently had in his mind when he penned his foregoing lines:—"That whosoever has anything in his person that doth induce contempt, has also a perpetual spur in himself to rescue and deliver himself from scorn; therefore all deformed persons are extremely bold."†

One of the most able, if not the most highly favoured, of

* Moore's *Life of Byron*, p. 306. Murray, 1860. † *Bacon's Essay*, iv.

Louis XIV.'s marshals, was a sickly humpback, the Duke of Luxembourg. He had a huge pointed lump on his back, and was not only very ugly, but very diminutive also. His constitution was of the feeblest kind, and he was at once a valetudinarian and a voluptuary. His morals were none of the purest. He had great qualities, a rare judgment, and a singular presence of mind. Indeed, his sickly and distorted body seemed to derive health and vigour from disaster and dismay. At the battle of Steinkirke, where he was manifestly taken by surprise, the victory was entirely owing to the coolness and intrepidity with which he faced the critical conjuncture, and restored the order of battle.*

Many more instances might be quoted—but enough; so severe a disease cannot but inflict a lasting impression on the sufferer. It is an evil that spreads its influence far and wide. The census of 1851 enumerated 409,207 cases of deformity for England and Wales, and of these 90,277 resided in London. The returns from the manufacturing districts speak of distorted spines as all but universal. Nor is the complaint limited to those who are deprived of the comforts of life, for it is just as frequent among the more affluent classes. Infirmity of mind and inaptitude to the common offices of life, and undeveloped puberty of both sexes, are constantly reported. Few, if any of them, are fit for the army. Out of 613 recruits, only 238 were approved for service; the rest were rejected as not strong enough to serve in the defence of their country.†

It is the same in France as in England. At Orleans the number of deformities met with is marvellous. Whole

* Macaulay, vol. iv., p. 27.

† *A Letter to the Working Classes, &c.* By H. Drummond, M.P. London, 1859. Bosworth and Harrison.

families of bandy-legged and humpbacked may be seen walking along the streets of that sunny town. The cathedral on Sundays is thronged with them; they intermarry, and thus propagate the disease. While sitting on the boulevards at Périgueux, the chief town of Perigord, in 1858, three humpbacks passed us in as many minutes. Dwarfs, humpbacks, and squint-eyed abound in the Pyrenees. The Spanish peasantry that cross the border are small and contemptible. The finest figures are those of the Basques women, who may be seen at Bayonne, Bagnères de Bigorre, and various parts of the Basses Pyrénées, carrying pitchers of water on their heads, and tripping along as upright as a dart. Our very kind hostess at the *Hôtel du Parc* at pretty little Dijon, was herself a humpback.

The evil, however, is not a modern one. Hippocrates could never have described it so accurately had it not been common in his days. The cause of it is a deep question, which would require a treatise by itself, although it is not difficult to divine it. Our object, however, in this article has been to show its mental peculiarities and psychological bearing, and to bring before the profession and the public the consideration of a question which concerns the domestic, the political, and the sanitary condition of the population in the highest degree.

THE "TIMES."

PARIS, TUESDAY, MAY 5, 1863.

"One hundred thousand men," says a Paris paper, speaking of this year's conscription,—

"One hundred thousand men have just passed under the regulation measure, and have heard the President of the Board of Revision cry out, as each moved

on, 'Good for service.' One hundred thousand families have received the terrible tidings. For the first few days all sorrow ;—soon courage returns to their valiant hearts. Is not France a nest of soldiers ?"

No doubt the army of France is worthy of admiration, but while we are struck at the exactness with which she turns out yearly her 100,000 youths, apparently excellent in health and exuberant in spirits—some of them already grasping in fancy the Marshal's staff which they are to find in their cartridge-boxes,—we do not notice the crowds which the same Board of Revision has been forced to reject as unfit material for powder to consume before they can get at the number required. It is affirmed by those who ought to know the fact, that the sickly, the deformed, or those who are below even the small stature of an approved conscript are far more numerous than those who are declared fit for service. The result of the conscription which is just concluded shows that in this respect matters are still worse. The War Department had been forced to lower by a few centimetres the standard required for the old regiments; and it is feared that if the numerical amount of the conscription be maintained at its present rate, a further reduction will become indispensable.

This ogre called the Conscription, swallows up year after year the flower of the youthful rural population. Those who are left behind are comparatively short in stature, feeble in frame, and infirm. It is stated on authority, which has not, I believe, been contested, that, out of 1,000 youths registered as the contingent to be furnished by certain cantons, 731 were rejected by the Revision Board as unable from physical defects to bear arms. Napoleon I. used to boast that he had 100,000 men to spend every year, and his incessant wars and incessant calls upon the population to support them have produced what we now witness. To this, as well as to laws on the division of property, is attributed the fact that the population for the last ten years has stood still, where it has not actually diminished, while that of other European countries has increased.

Unwilling to admit that the law on the sub-division of property, which establishes equality among French citizens, has anything to do with the impoverishment of the people, a writer in the *Siècle* seems to attribute it to the excessive labour in the manufacturing districts, and the want of gymnastic exercises in public schools. While the mind of the pupil, he observes, is crammed with Greek and Latin to enable him to obtain the modest distinction of *Bachelier de Lettres*, the body, which also needs cultivation and force, is completely neglected. True, the gymnasium is found in the Lyceum, but it is like the dead languages which the pupils are forced to acquire ; they have no more relish for it than for Sophocles. He contends that all bodily exercises, gymnastics, fencing, swimming, riding, etc., should become not merely a neglected accessory, but the indipensable complement to education.

The late Census, which is taken at the end of every five years, shows that the population of the 89 French departments amounts to 37,382,225 inhabitants, to which are added 90,000 troops employed in foreign countries. The previous census set down the population for the 86 departments of which

France was then composed, at 36,039,364 inhabitants. Deducting 669,052 inhabitants for the provinces annexed to the Empire, the increase of the population since the previous Census is 673,802 inhabitants, or 1·86 per cent. The increase from 1846 to 1851 was only 382,684, or 1·8 per cent. This may be accounted for by the revolution of 1848, which produced an unfavourable effect on the general prosperity of the country. The deficient harvests likewise during that period were unfavourable to the increase of the population. The greatest increase in the population is remarked in the departments of the Seine, the Nord, the Rhone, the Bouches du Rhone, the Seine-et-Oise, the Gironde, the Loire Inférieure, the Finisterre, the Seine Inférieure, the Haut-Rhin, the Marne, and Corsica.—*Times, July* 24, 1863.

LONDONERS.—The medical officer of the London Post-office states that the candidates who present themselves to him for examination are, as a whole, *much below the medium of height, strength, and physique* generally. Of 367 candidates in 1861 for the situation of letter-carrier, messenger, porter, and labourer, he found the average circumference of the chest after expiration only 31½in.; the lowest requirement for the army is 33in. In a considerable number the expansion of the chest on inspiration was but 1in. The average strength was 289lb.; the strongest raised 450lb. The candidates varied in age between 17 and 37; the average height was 5ft. 6½in., and the average weight 9 stone 6lb. This is a weight decidedly below that of the prisoners in Liverpool borough gaol of the ages of 18 to 30, as stated by Mr. Danson, for the years 1857-59; but the height is above theirs. That examination of the Liverpool prison books by Mr. Danson showed this remarkable fact, that the average height and weight of men at certain ages were less than of the men a year older or a year younger. M. Millot, a French statist, some time ago attempted to show that the years of marked deficiency in the military requisites of conscripts coincided with birth-years in which the cost of food had been unusually high. Mr. Danson observes that whatever the cause of these variations, it is all but certain that they exist. The London Post-office report does not give the weight and height at each age.—*Times, June* 2, 1862.

"The potters are, as a rule, stunted, ill-shaped, and frequently ill-formed in the chest. They become prematurely old, are short-lived, are especially prone to chest disease, pneumonia, phthisis, and asthma. Scrofula is a disease of two thirds or more." "Each generation," says Dr. Greenhow, "becomes more dwarfed and less robust, and but for their occasional intermarriage with strangers this deterioration would proceed more rapidly."—*Lord Shaftesbury, House of Lords, Friday, July* 24, 1863.

One thing is certain, and that is that so wholesale a process of degeneracy and demoralization as is here disclosed cannot go on without being a source of national weakness. This is an evil the full consequences of which are not perceptible in a single generation, and unless we are prepared to see it grow as well as continue unabated we must grapple with it at once.—*Times, ibid.*

CLEOPATRA'S DEATH.

Cleopatra's death was most likely caused by a venomous serpent of the same species as the cobra, for she died very quickly. Florus, in his abridgment of Roman History, (Lib. iv. xi.), says:—*admotis ad venas serpentibus, sic morte, quasi somno, soluta est:* in which passage, the word *somnus* is not used in a figurative sense for the purpose of representing death as a sleep, but in its literal meaning, with the view of shewing how she died. For the bite of the cobra produces an overpowering drowsiness, which ends in death.

Horace, in his 37th Ode, the last of the six which he composed on this subject, may be supposed to have collected the current gossip of the day on an event at once so sad and momentous in the political affairs of that time. It was recent when he wrote. He says, *asperas tractare serpentes*, giving us to understand that she used more than one serpent. The common notion is, that she applied two to her breast. Plutarch speaks of one only. Horace adds the epithet *asperas*, which seems to imply that she first irritated and vexed the reptiles; for the word *asper* means *exasperated*, in this place, quite as justly as it does *sharp* or *cruel*. Moreover, this idea corresponds with history; for Plutarch tells us she angered the serpent with a golden spindle or bodkin. These are his words:—*Aspidem perhibent, aureo fuso ipsam lacessentis et stimulantis adripuisse Cleopatræ brachium:* in which passage two points are to be denoted,—1, That it was only one serpent, and, 2, That it was applied to the arm. Florus, as above

quoted, mentions more than one serpent. Horace likewise insinuates that Cleopatra was intoxicated before she put an end to her life thus rashly: *mentemque lymphatam Mareotico;* the obvious meaning of which is, that her senses were disordered by the use of Egyptian wine. Augustus Cæsar, according to Horace, called Cleopatra a deadly monster, *fatale monstrum*; and Dio, in his 51st Book, says, that Augustus addressed Cleopatra with no other compliment than that of *Mulier*, woman; and it is most likely in reference to this anecdote, that Horace sarcastically styles her *humilis mulier* —the virtue of humility forming no part of her character.

Thus died one of the most beautiful and ambitious princesses in the universe, at the age of thirty-eight years, of which she had reigned seventeen, though some say twenty-four. With her fell the Egyptian monarchy, and the family of the Lagidœ. There is a levity of tone in this ode of Horace's that is very unpleasant to our modern feelings; but it is evident that the poet only expressed the sentiments of his day, and said nothing but what was acceptable to the court of Augustus.

HORACE'S DEATH.

The illness which led to Horace's death was, in all probability, that of diabetes. He died suddenly—indeed, so suddenly, that he had not time to execute his last will and testament, except in a few brief words, by which he bequeathed his real and personal estate to Augustus Cæsar, but more especially the important charge of his literary productions.

Fortunately for posterity, this invaluable legacy could not have been confided to better hands than those of Augustus, himself a correct writer and a refined critic. Horace's health had been declining for several years. At the age of forty, as he himself confesses, his constitution was already giving way. In the fourth ode of the first book, supposed to have been written about that period, he considers his life too short for any great undertaking; *vitæ summa brevis spem nos vetat inchoare longam;* and in the fourth ode of the second book, while reproving Phoceus for allowing his affections to become entangled with a slave, he assures him he need not be jealous of his friend Horace's interference since he had now turned of forty—*cujus octavum trepidavit claudere lustrum,* and, as the scholiast, in the margin, significantly adds, *minus jam propensus est ad res venereas.* It was early in life to make such an avowal as this, but, coupled with the notice of his illness being diabetic, it was by no means improbable. In fact, he wrote most of his erotic verses before forty, and what little he wrote upon such matters after that age, wore an air of depression and regret. He was naturally disposed to take his ease, but especially towards the middle of life, which he dignified with the title of old age, *sit meæ sedes utinam senectæ* (Od. vi., Lib. ii.), although, in truth, he never lived to be old. The river Galœsus, the modern Galaso, near Tarento, in Southern Italy, was a spot particularly agreeable to him—*ille terrarum præter omnes angulus ridet.* A sailor's or a soldier's life, he was utterly averse to, as he informs us in the sixth ode of the second book. He was a man of letters; and retirement and quietude, together with easy circumstances, were essential to his happiness and studious habits. Like most of his class, he was a lounger, and if not exactly a man

of fashion, he associated with those who were exclusively such. Along with his companions, he was a lover of good cheer, but apart from them he led a frugal life in the country, or strolled through the busy thoroughfares and public places of Rome, surveying every thing with the eye of a poet, a philosopher, a critic, and a quiz. For a satirist, in the highest sense of the word, he certainly was not—his good nature prevented his being so, but pre-eminently a monitor, whose remarks were as amusing as they were searching and polite. A firm friend, a graceful and valuable adviser, and a man of honour, he was equally as acute in spying out the weak points of the society in which he moved, as in furthering the great cause he constantly advocated, which was nothing less than that of mankind at large. His style of conversation—for he *speaks* rather than *writes*—was inimitable, terse, and emphatic—*curiosa felicitas*, as Petronius Arbiter aptly defines it. His affections were genial, subdued, and sincere. In the management of his Sabine farm, he shews himself economical, neat, and orderly. With an easiness of manner, entirely his own, he accommodated himself to every change of circumstance, *mihi res, non me rebus subjungere conor* (Epist. i., Lib. i.) ; and with candid indifference, he communicates everything relating to himself, his condition, his life, his parentage, his health, his fortune, and his fame. What the daily press is in the present day, his writings were among the more polished citizens of Rome—the reflex of affairs; and in this light, they will ever remain, the theme of constant enquiry and research. Alas, that we never knew him ! or, rather, alas, that he has left so few, if any, like himself—so entirely free from ostentation and pretence, and yet so far above the common-place motives of the crowd !

In the farewell, he addresses to his publications (*ad librum suum.* Epist. xx. Lib. i. 23—25), he tells us, he was short of stature, grey-headed before his time, fond of the sunshine, prone to anger, but easily pacified; and Augustus, as Suetonius informs us, rallied him on his rotundity of figure —*sed si tibi statura deest, corpusculum non deest.* Apparently, he had always something of the invalid in his temperament, for he was sensitive to any relief of either mind or body, fastidious in his likes and dislikes, doubtful of his physicians, and querulous with his friends (Epist. viii. Lib. i. 5—10), *mente minus valide, quam corpore toto—nil audire velim, nil discere, quod levet ægrum—fidis offendar medicis, irascar amicis.* In his fiftieth year he began to decline, visibly to his friends, sensibly to himself—*non sum qualis eram*, he says in the first ode of the fourth book, and asks, pettishly, *intermissa, Venus, diu rursus bella moves? Parce precor—non sum qualis eram!* and then he adds his exact age, *circa lustra decem*, five times ten, or fifty. In the very first lines of the first book of his epistles, he sums up his consciousness of decay in these feeling words, *non eadem est mens, non ætas*—I am no longer what I was. The local symptoms of the illness from which he sank, he nowhere mentions, nor was he likely to do so; for we have no reason to suppose they were even so much as recognised by the physicians of his day. Hippocrates and Galen are silent respecting them; and, indeed, as late as the close of the last century, when Heberden wrote, they were but faintly appreciated, or inconsiderately dismissed. But, judging from what Horace has told us of his mental and bodily state, and coupling these few striking symptoms with what we now know of the disease in its effects on the constitution and habits of the individual, there can be but very

little doubt, we apprehend, in ascribing them to their real nature and origin. In his 57th year, he dropped suddenly—an event, by no means unlikely in this kind of ailment. If an epitaph were wanting, worthy of his peculiar talents as a poet and a man of the world, it might be found among the witty effusions of that incomparable writer, the author of the *Ingoldsby Legends*, in a specimen so sparkling and replete with humour, that were the whole of Horace's writings translated in the same style and spirit, they would be constantly in the hands of all the world:—

> Eheu, fugaces, Posthume, Posthume!
> Who shall recover the years that are lost to me?

PART III.

THE WEAR AND TEAR OF MEDICAL LIFE.

An Indian officer who has travelled over a large portion of the habitable globe, remarked the other day, that in whatever quarter of the world you may happen to alight, there you are certain to meet with a British medical man. In the remote islands of the Indian Archipelago, as well as in the backwoods of the Far West, an English doctor never fails to present himself! They are, happily for the human race, spread like a fan all over the earth. The smallest colony has often more than one. In the most unfrequented localities you find an English physician or surgeon settled as a permanent resident. Ask in the hour of difficulty and danger for a doctor, and, sesame! a son of Great Britain stands by your side! How is this? What inducement can have led the adventurous student, or the experienced practitioner, to migrate so far from his native land? What a history of individual chances, hopes, fears, shame, or necessity, must it not be that

can have driven or seduced the well-educated, if not the well-connected and ambitious aspirant, from the grand arena of the social world, where merit is rightly rewarded, wealth procured, and a name achieved! What destiny has provided for the numberless outcasts of mankind, "remote from consequence, and unknown to fame," to be thus skilfully cared for in the season of sickness, the day of calamity, and the hour of death? What a boon, and how little dreamed of in this huge metropolis, overwrought with the business of life, and merged in the vortex of headlong egotism or inexorable toil!

But it is part of the nature of the Saxon race to migrate from their home. It belongs to that peculiar spirit which rules the progress of our "Ocean Isle," to look beyond its shores, and to wend its way to the most distant climes, never more to return, perchance, to the spot from which it sprang. Of the numbers who pass their examinations weekly at the several medical boards, how few, comparatively speaking, ever settle down to practise in their native land! The greater number are never heard of again from the hour in which they obtain their diplomas to that in which their names are inserted in the obituary of some local or more widely-circulated newspaper. Perhaps even this last mark of respect is denied them; and they finish their days in some distant clime, alone, unknown, and unregretted even by those with whom they started in the morning of their prime. Premature disease, contracted, perhaps, during the period of their studies, cuts off not a few; the ocean or the desert swallows up others; disappointment and the icy hand of penury and want stifle many a fine genius and worthy soul; while the army, navy, and the mercantile marine might tell the

twice-told tale of all the rest. A remnant remains at home. Of this remnant, alas! but a small section surmounts the stern obstacles raised up against their strenuous efforts at advancement; and, out of the whole number, a few—a very few—survive to gain a satisfactory competence, or to rise to distinction in their profession.

Do you see yonder lean man, grey-headed and intelligent, walking down St. James's-street, clad in rusty black, and gazing at you with his cold, grey eye, as you quickly pass him by? Ambition, fatal ambition, marked him for her own. He came from a provincial town where he was well known, and, with every legitimate diploma in his pocket, duly signed, sealed, and delivered by the examining authorities, started in the great race to compete the prize among the millions of the modern Babylon. Ah, foolish effort! "Dark was his morn of life, and bleak the spring." The great world passed him by, and heeded not the talents buttoned up within his vest, nor heard the cry of his young ones pining away in a large house in a fashionable quarter of the town. He has grown grey in quest of a reputation perpetually fleeting from his sight, and eluding his tremulous grasp.

In the back room of a paltry lodging, in the deserted street of a fashionable watering-place, stretched on a water-bed, palsied and dying, lies one who not long ago resided in London, sat in professional state to receive the numerous patients that beset him daily, or rolled along the streets in his chariot to keep his appointments with due propriety and punctuality. How jaunty was he then! How little did he foresee the inroads that would be made upon the slender texture of his nerves by the constant excitement of the mind, the broken nights, the anxious days, and the precarious

tenure of maintaining professional infallibility at the top of its bent. And then he wrote a book. The book sold, and extended his reputation, and added to his toil. He wrote a second, and the second sold as well as the first. He was at the acme of his hopes. A London celebrity was before him, when, lo ! his eyesight failed in the zenith of his years, and he withdrew to linger out his term on a small pittance in blind obscurity. Adversity has no friends. The crowd that had hung attentive on his lips forgot that he had ever existed, and passed on to the adulation of their next new idol.

And this aged gentleman, grey headed and shabby genteel, with wisdom on his brow and discretion in his gait—how is it that this venerable epitome of medicine has never plucked a leaf from the golden bough of fame, nor taught the public to credit what he really is—an able, a learned, and a useful man ? But such are the chances of the medical life. The pretender too often carries the day ; and loud assertions and bombast prevail over solid merit, modesty, and truth.

The pursuit of medicine, however, is not to be blamed for casualties such as these. Most likely they are the lot of humanity, and belong to that class of severe teaching to which we, as moral beings, are subjected in the pilgrimage of life. Success is a rare result. The most gifted are not always the most successful. It belongs to a happy combination of things, over which we have no control, to be able to bring forward and produce before the world, in their proper light, those high qualities with which we have been endowed, and to offer them for general service in the most agreeable and acceptable manner. The kindest of patrons can do little

or nothing for us, unless we can do much for ourselves; and the most fortunate concurrence of events is fruitless without moderation, sagacity, and the consummate perception of time, circumstance, and place.*

In the routine of life, the practice of medicine affords a subsistence to about thirty thousand medical men in this country. Perhaps the average incomes of the whole taken together range from £500 to £700 a year. The majority are general practitioners; a class of men endued with a comprehensive and strictly practical education. The health and safety of the million are in their keeping. The sanitary management of private families is regulated by them. The unions, the workhouses, the provincial dispensaries, and hospitals, are officered by them. By them, the poor are waited on in their own dwellings; and a vast amount of disease is attended, alleviated, or cured, by their unpaid, if not unrewarded ministrations. The public are scarcely alive to the fact of how much the health of the community at large is in their hands, and how conscientiously and ably they discharge their duties. By night and by day, in summer and winter, the general practitioner beats his rounds, till the very stones might prate of his whereabouts. Such a man is always useful, and invariably in demand. His judgment acquires ease and perspicuity from incessant experience; his manners become chastened and toned down by the sight

* Tacitus says of Petronius Arbiter, the charming and well-known author of the best and the worst of satires, that, what others accomplished with trouble and hard work, he achieved with indolence and a masterly inaction. —*Annal.* xvi., 18.—Tacitus says the same of Crispus Sallust, the grand nephew and adopted heir of Sallust, the historian.—*Annal.* iii., 30. Without an effort he reached the highest honours of the State. Horace addresses an ode to him.—*Lib.*, ii., 2.

of suffering, in which he is deeply concerned; and he has no time to play the pedant, or to affect the ostentation and folly of the age. His behaviour assumes an air of gravity, and his countenance expresses that moral grandeur which is the result of a mind engaged in the slow prosecution of truth, the steady and daily exercise of benevolence. He becomes, generally, prematurely old. His task never ceases. He seldom indulges in a holiday, either at home or abroad. Each day brings its duties, which cannot be omitted without detriment to himself or others; and, above all, the labour of every day must pay for its own expenses. As to his realizing a fortune, it is out of the question. He may save enough to keep the wolf from the door in his old age, if he live to be old; or for his family, if, as is often the case, he die early. He may catch a fever, and die; or fall into ill-health from constantly breathing the contaminated air of sick rooms and hospitals; or, in fine, he may be worn out in spite of the strongest constitution. But as to his acquiring a fortune, in the sense in which a railway contractor, or a successful stock-broker, merchant, or lawyer makes one, and counts his hundreds of thousands of pounds sterling, and maintains a London establishment and a country-house, and procures a commission in the army for his son, or sends him to college, and introduces his blooming daughters among the aristocracy of the land—why, fortune, in this sense of the word, is, as far as the medical man is concerned, simply ridiculous, and signifies nothing. The successful speculator never works for nothing; his prosperity is the produce of his turning everything to profit. He never deals with the poor, of whom he has no practical knowledge. He does not believe in poverty. He looks upon it as a disgrace to be poor.

Follow the medical man through yonder dismal alley, climb the creaking stairs after him, enter the dark, dirty, unfurnished room, and attend him to the bedside of that poor woman sinking from disease, and who repays him with nothing better than her prayers. Depend upon it, those prayers are written in the Book of Life, and will, on the great day of account, outshine the glitter of the luckiest millionaire upon earth. The doctor's pay is frequently nothing more substantial than a prayer; and, then, if you return home with him, you will see how modestly he is forced to live, and how hard he works in order that he may live at all.

By himself, the general practitioner cannot possibly earn more than £1,500 or £2,000 a year. With a partner, of course it may be doubled; but by himself with a few rare exceptions, £1,500 a year is, perhaps, the maximum he earns. For it must be borne in mind, that there are not more than a certain number of hours in the night and day, and a certain portion of the time must be allotted to sleep and refreshment. There remain, then, not more than twelve hours for incessant occupation, and this is a much longer space of time than can be endured, or persisted in, by those whose constitutions are delicate, and minds sensitive. It is not possible, therefore, to visit more than a limited number of patients every day; and considering that patients generally reside far apart from each other, and cannot be dismissed in less than a quarter or half an hour each, if the case be serious, it follows, that, allowing for the distance of ground to be travelled over between house and house, not more than three patients on an average can be seen in the hour, or thirty-six patients a day.* In unhealthy seasons, he may

* A short period previously to the late Dr. Todd's death, I had the pleasure

count as many as fifty on his list; but, in general, not more than thirty. Of this thirty, one-third pay nothing; and the rest pay more or less according to their means; but even at its highest estimate, this will seldom produce more than £2,000 per annum, subject to a heavy set off on the score of business expenses. And recollect, that, to realize this sum, there must be no suspension of labour. It must be *de die in diem*—one and the same from the first of January to the thirty-first of December. Few constitutions are equal to this prolonged exertion. The health sooner or later gives way. Very few persist in carrying on so extensive a practice for many years in succession. They are forced to withdraw from it; and fortunate indeed, if, in so doing, they have something of their own to fall back upon. If not, they must go manfully forward and die in harness. With a few paltry exceptions, no long-sought sinecure, no pension for life, no distinguished prizes, await the leisure of the retired practitioner. A Lord Chancellor, a Baron on the bench, nay, even a bank-clerk, calculates securely on his retiring pension. An old domestic servant has a claim on those whom he has long served. But not so in medicine; for, if the medical man, through age or infirmity, can no longer serve the public, he must retire on his own resources, or on no resources at all; his widow must go a begging, or starve, and his children

of meeting him at the dinner-table of a mutual friend. One of the subjects of conversation, after the ladies had retired, was the number of patients a London physician engaged in active practice could see *per hour*. Several eminent physicians present took a part in the conversation. It appeared to be the general opinion that, allowing for distance, etc., *four* was the *maximum* that a physician could visit and prescribe for in the time specified. Poor Dr. Todd came in late to the dinner, looking extremely haggard, and evidently much depressed by over work. Death appeared even then to have him in his relentless grip. The candle of life had apparently burnt to the socket.—*F. W., Psych. Journal, January*, 1861, *p.* 84.

must trust to Providence, or take their chance. This observation applies to all branches of the profession, whether public or private. The Medical Benevolent College has done something towards remedying the evil, but only something.

There are numerous instances of medical men, living on to a green old age, and cheerfully continuing the practice of their profession to the last. They have realized sufficient to enable them to keep their ground, and, when occasion requires it, to take things easily. But each healthy old man, who has weathered the storm, represents how many who have been wrecked, stranded, or gone adrift!

For the most part, young medical men commit a great mistake on first starting. They overhouse themselves. Their establishment eats them up. They have not the courage to live in a small way. Then they marry too early. It is a virtue on their part, and speaks volumes in their favour. But house expenses are certain, and professional returns uncertain. Children must be fed: servants must be paid. The wife likes the habits of a lady, decorates her rooms, and receives her friends, while her husband lives in the streets, that he may sleep in a mansion. For a mansion it is to him, that vast pile of bricks and mortar, for which he pays an enormous rental, and which he has furnished beyond his need. For the sweets of life are unknown to him. He toils only for his daily bread. He has no time for visiting. He can never receive properly. His occupations unfit him for doing so. His real post, and the one in which he shines, are the sick chambers of the wealthy and the hovels of the poor. Beyond their precincts, he is nobody. How can it be otherwise? If he is a man of fashion, he is unfit for his profession; or, if he be a philosopher, he is unfit for fashion.

Add to these eccentricities and burdens, an equipage—a shining, well-turned-out equipage! This is the climax of folly that has brought many a general practitioner to the ground. It is time enough to ride in a carriage when you have realized capital, or should be lucky enough to possess some private means of your own. Only private means alters the question, which, as we are now looking at it, is one of pure, unaided, professional ability.

It has often occurred to us, that most medical men would be the better if they remained single. We know that it is opposed to the received opinion on the subject, and we own that it has its inconveniences. But we feel confident that, in the present state of society, in which expensive luxury forms a constant element, it is next to impossible for a general practitioner to support a proper appearance in the world from nothing more than the proceeds of his professional exertions. It is the married life that urges so many to work themselves to death. They cannot bear to see their family less than they should be. Consequently they are ever on the fret. They have no leisure to sit down and think. They cannot and must not do so; and it is owing to the cares of matrimony that many, who would otherwise have been philosophers, devoted to their profession, end by becoming nothing better than routineers or professional tradesmen. In moments of real illness and danger, the public do not ask whether the doctor rides or walks, is married or unmarried. All they require is that he should be at hand when he is wanted, and should be capable of performing all that is required of him.

There is something transcendently noble in the practice of medicine. Gold and silver are not to be compared with it,

neither are they its proper reward. It is humanity in the highest meaning of the term—practical charity, which, we are assured, covers a multitude of sins. "I was sick and thou visitedst me:" here is thy reward, not in this life, but the next.

A youth is dazzled by his first sight of the medical world. He sees a carriage driving by, the speed of the horses overcome with toil, and the brow of a distinguished surgeon or physician peering through the window. It is a recently created medical baronet. He is hastening to an important consultation at that great house within those portals at the corner of that street. Every one knows that its illustrious owner is at the point of death. The distinguished son of Esculapius dashes through the entry; the liveried servants receive him at the principal entrance. He crosses the marble hall, ascends the broad staircase, and enters the sick chamber. The family medical attendant is already there. The patient moans from within his canopied couch. The apartment is richly carpeted; the hangings are damask; the furniture is *en suite*, and the lofty windows are shaded by appropriate draperies. The consultation is long; the opinion grave; the fee large. The whole scene bears the impress of the grand and the imposing. It is the great world in its richest attire, convulsed in one of its saddest moments. The little moments drop away, like the sands in the hour-glass, and the great man dies. The emblazoned epitaph on his ancestral tomb in the distant village church sets forth his name and lineage, "to whom related, and by whom begot."

The next year the distinguished physician dies also, from over work;* and is gathered not unto his fathers, but is

* Worked to Death.—The carriage of the most famous physician in Dublin was waiting on Saturday last to take him on his rounds, when a

deposited in a vault, newly excavated in the midst of strange graves, in a newly-planned joint-stock cemetery. The youth does not see the issue of events, or will not see them. He only sees, in his mind's eye, the dashing carriage and the happy face within it. And certainly it is a vision never to be forgotten. Silently he breathes a fervent wish that he may live to be the same, although his favourite poet might have warned him that every scheme of happiness ends only in disappointment, as every form of life terminates only in death.*

The pageant of the world is but a dream. It moves forward in procession to a slow and stately measure, while first one and then another figure is snatched from its ranks, which are always changing, but never changed. The phantoms keep coming and going, but the scene remains.

The English physician, both of former and recent days, has always played a prominent part in the history of medicine. He is classed among the aristocracy. Individually, he is recognised as a gentleman. His mode of education and style of thought entitle him, in a certain sense, to the homage of his brethren, and of being looked up to as a person the most proper to be consulted in cases of difficulty and danger in the last resort. All, indeed, do not succeed equally well in this respect. Many fail. The common difficulties of living beset them as well as others. A thousand trifles may be wanting to accredit the most accomplished among them to the countenance of public esteem.

strange visitor intercepted him on the way. One touch of his dart on a little cerebral vessel, and our obituary records the sudden death of Sir Henry Marsh from an apoplectic seizure.—*Lancet*, December 8th, 1860.

* The infinity of lives conducts but to death, and the infinity of wishes but to disappointment.—*Moore's Life of Byron*. Murray, 1860, p. 475.

People are fastidious. They pick and choose as best it suits their fancy. They please themselves, they care not how, and they know not why. They are sometimes wrong, and then they resent it upon others instead of upon themselves. But, upon the whole, the *vox populi* is right in the end; and the most deserving have seldom failed of their reward.

But the fortunate candidate for public favour is just as often the victim of success as he would have been of failure. The demand upon his intellect is stupendous. It is enough to crush the strongest head and break the stoutest heart. For he who leads must necessarily know all that is known by those whom he leads. Nay, he ought to know more than they do; for how can he advise them if he knows less? The infinite particulars of science are progressively on the increase. The particulars of yesterday are obsolete to-day, and those of to-day will be obsolete to-morrow. The leading physician must know them all. There is no use in pretending to know them. His knowledge must be absolute, and of the latest date. The feint would be detected at the first touch. It follows, therefore, that he must not only be an active practitioner, but a scholar and a student besides. What an exhaustive effort! What a gigantic struggle! At home, he must study and think hard; and he no sooner steps across his threshold, than he must travel *express* all over London, and from one end of the kingdom to the other. There is no time, when he can say, Hold, enough! There is no *sick-call* that he can refuse. He can never say, No! for the first refusal from caprice or fatigue marks the summit of his reputation, and sounds the note of his decline.

Add to all this, he must sustain the character of his pro-

fession by his pen, whenever occasion calls for his doing so ; and he must sustain it honourably, ably, and critically. It is expected of him that he should give to the world the fruits of his experience in the shape of a goodly volume. Most likely he lectures once or twice a week, and visits the hospital of which he is one of the staff. His day is occupied from morning till night; his hours are frequently interrupted by the calls of friendship and humanity; and society requires that he should be well versed in the political exigencies of his professional brethren, and ready to step forward and maintain their cause in the public arena of the world.

His life is a struggle against mighty odds. Ceaseless anxiety is counterbalanced by restricted pecuniary results. "Every guinea involves personal service, and every prescription is a spreading out of brains upon paper."* His life is intensified to the last degree, and consumes itself with amazing velocity. His high repute and well-earned fame weigh with a deadly pressure on his frame. Many sink under it, many more perish in the vain attempt to raise it. All aspire to it. A few sustain it.

In the character of the physician we include that of the surgeon also ; for though he does not profess to be so liberally educated as the physician, yet there is no reason why he should not be so, and in fact many are. In practice he is not a whit less zealous and trustworthy than his colleague. The one solicits the same public confidence, and shares the same favour, if not the same honours, as the other. In professional credit they are equals. They discharge different functions, but their object is the same.

There are few sciences in which one or the other have not

* *Lancet*, December 8th, 1860.

shone. There is no occasion of pestilence or national calamity in which they have failed in their duty. They are spoken of as well in the colonies as within the limits of the United Kingdom. The exceptions in which they have betrayed their trust, and tarnished the lustre of their name, are so few, that they establish the rule. Their heroism is unquestioned. They have faced the thunders of a naval engagement, or the field of battle, the trenches, and the seige; and have merited by their personal bravery the same badge of distinction as that which decorates the breasts of those by whose sides they have fought and bled.

Such men deserve much, and their pay ought to be in proportion to their talents and devotion. But is it so?

The incomes of fashionable practitioners are quoted at fabulous rates. The vulgar ear delights in marvels. It is taken for granted that they sweep the board. But so far is this from being the case, that, setting aside private fortunes with which we have no concern, the most esteemed men have come into notice late in life, and reached their professional climax in the decline of age. At the age of fifty, the late Dr. Bright was still a candidate for popular favour. And, then, as to the incomes that are made. As with the general practitioner, so with the physician, he cannot make the day longer than it is, nor pretend to more endurance than the rest of mortals. If he sees twenty patients at home in the morning, and thirty after he goes out, it is as much as he can manage, and about the same as that of his inferior medical brother whom he meets in consultation. Nor do all these fifty leave a guinea a piece behind them: some leave none: few leave more; and if the fee for a distant visit into the provinces be large, it is barely more than a compensation for

business missed or lost at home, to say nothing of the bodily fatigue undergone in a long and hasty journey, and the responsibility incurred in delivering judgment on a case from which there ought to be no appeal. *Five thousand pounds* a year, or *three thousand pounds* at least, is not more than is requisite to maintain a first-rate London establishment in necessary working order for an extensive consulting practice. Doubtless, much larger incomes than this are made; but we ask, how many surgeons and physicians of note are making as much as this, or as little?

The most painful portion in the history of a physician's life are the early years of his commencement, which are passed out of sight, and in straitened circumstances. The bitterness of this period darkens the spirits, and throws a deep shadow across the brightest futurity.

Can civilization proceed at its present speed and intensity? Can life subsist under it? Will it not eventually wear itself out? We think not. Facts declare themselves in our favour. Longevity is upon an increase: statistics prove it. The health of the community is good. Where seven or eight died formerly, only two die now; where pestilence once raged, it is now extinct.* The race improves. Stature and strength are greater than they used to be. Free institutions, freedom of thought, and religious as well as civil liberty, enlarge the sphere of vision, extend the faculties of the mind, and multiply the resources of happiness and enjoyment. Cloudy as the political horizon may seem, yet the gleam of

* In the seventeenth century, the mortality was at the rate of seven per cent. on an average during twenty years. If the mortality of London had been at the same ratio in the last year (1859), instead of 61,617, about 194,204 deaths would have been registered. In 1665 nearly a third of the population perished by the plague.—*Registrar-General's Summary of the year* 1859, p. vii.

light along its margin is bright and encouraging. The privileges of mankind are more fully appreciated, and less likely to be invaded or oppressed by domestic or foreign aggression than at any former period of the world's history. Steam and the electric wire are working wonders in a way that cannot be disputed. Their beneficial operations will not cease. They are public property; and their utility is too well understood ever to allow of their being laid aside and forgotten.

In regard to ourselves, as medical men, is the prospect less cheering than we could wish? At present we are overtasked, or at least they are upon whom the world has bestowed the meed of merit. But was it ever otherwise? Must it not continue to be so? The pet of the public lies at the mercy of an exacting patron. A favourite is never his own master; and when we complain of having more favour than enough, let us not forget those who repine because they are neglected, and get less than they want. In a certain sense, the evil is irremediable. For

> "Some must laugh, while some must weep,
> So trips the world away."

And the ambitious will suffer, as well as achieve, the most. Except in a few favoured instances, "the cool, sequestered vale of life" is out of the question; and none but the old, the disabled and the timid, would covet the seclusion.

THREE THOUSAND A YEAR:—A SOLILOQUY.

Certainly I am "doing" about £3,000 a year. I think there can be no mistake about it. What makes me think so is, that for the last week or so I have been putting on my books at least £9 a day. This is as good as I had any right to calculate upon. It was very prudent on my part in fixing on a house in this conspicuous situation. It is a duty to make oneself known, and to place oneself within easy access of the world. The best men have done so as a matter of course—such as Sir Astley Cooper, or Sir Henry Halford. My friend Eusebius and his partner, together, at the other end of London, do at least £7,000 a year. Let me see.—They have four carriages, seven horses, two grooms, and three assistants. As early as seven in the morning they start to see their out-of-town patients. Then they return in time for their home customers—I mean patients—about eleven or twelve o'clock, noon. Next, they lunch, and after that drive round to see their town patients. I know Eusebius declares that their run of business is often more like £9,000 than £7,000 a year; but we will make some allowances for a very pardonable exaggeration in this respect. It is so easy to deceive oneself, without meaning to do so, in the full tide of reputation and success. I know that Eusebius is called to the greatest distances. He refused a visit to Worcester the other day, and a second to Ramsgate, because he thought the fees too small. Well, I do not venture to

suppose I shall rival him in prosperity. But certainly, things look very well just now, and I am on the fair way to make £3,000 a year, if I am not making it already. I am attending Lady ——'s lady's-maid, and one of the daughters. They are worth looking after, for their connexions are extensive, and I have already gained some introductions through their good word. Then, there is the rich banker in Park-lane, and all his family. It is worth something to be known as in attendance on a house of that description. They pay well; and, in fact, are so rich that they have only to ring the bell and ask for whatever they want. A powdered footman, with a sweet-smelling note, calls for me almost every day. I have also Lord This upon my list, and his lordship has just introduced me to his stockbroker, so well known in the money market. I have no doubt I shall attend the Governor of the Bank of England next. This would be a grand catch. I gained great credit from the dexterity with which I rescued the Honourable Mrs. X. Y. Z.'s daughter from the imminent danger she was in through the neglect or mismanagement of her learned and distinguished medical adviser. The President of the Royal College of Physicians will never forgive my success in that quarter. As for the Honourable Mrs. X. herself, she was so fully convinced of my merit, that she actually made me a present of my own bust in marble, the size of life, from the studio of Chantrey, and insisted on my placing it in a visible part of my entrance-hall. She likewise requested the erudite Mr. Simon Chatterly to compose a Latin inscription to be inscribed in letters of gold around the base. The Greek Professor of ——, whom I am now attending, says it is the finest piece of Latinity he ever read. He has just done me the honour of requesting me to favour him with one of my

photograph likenesses, which he will take the earliest opportunity of placing before a very distinguished personage, accompanied with an encomium on my professional talents. That was a capital turn of fortune in my favour—I mean my being called to that case beyond Oxford—a very good patient, and well worth looking after. It was a severe case, and it turned out well. The old fellow, I find, is a distant relation of the Marquis of Carabas, whose son is the M.P. for the county, and has his town residence close by mine in London. I must try and get in there—a good connexion. My neighbour, Tom Blank, attends the family. A good enough sort of man, but rather easy and antiquated—a bye-gone. I must keep a sharp look-out, and seize the first opportunity of getting my foot in the doorway. And, then, that fellow Wayse,—why, Dr. Wayse, when he was here, did nothing—absolutely nothing. Now, since he has turned homœopath he does £1000 a year, and without the smallest trouble. "Why, Wayse," I said to him the other day, when we met at the Eastern Counties' station,—"Why, Wayse, they tell me you are making your fortune—is that the case? Wish you joy of it, my good fellow, with all my heart." "O yes," says Wayse, "it is quite true." "And you are also a homœopath," I continued; "and is that true also?" "No, not exactly a homœopath," returns Wayse. "Not?—What are you then?" "An eclectic," says Wayse, rather demurely. "An eclectic! What is that?" "Why," says Wayse, "I mean I am an eclectic in the real meaning of the word, for I choose what is best out of everything, whether homœopathy or allopathy. My object is the good of my patient." "Capital! I understand: very sensible, and exactly to the point." After parting, I remembered that

Wayse had lately published a pamphlet, in which, among other things, he maintains that a few drops of laudanum in a tumbler of water is an infallible cure for apoplexy.* A few drops did I say? It was a single drop, if not less than that. How very curious! I wonder if Dr. Wayse believes what he says? Let me see! Apoplexy—what is the cause of apoplexy? The causes are numerous. First of all, simple congestion. Perhaps he means that, because he states, that as a full dose of laudanum produces apoplectic congestion, so an infinitesimal dose of the same drug will cure it. I know he said so; I heard him say it; and I have read his words to this effect in print. Well, this is certainly something quite new. Then, the next cause is, What? Let us say an atheromatous condition of the arteries. Will a few drops of laudanum cure this? Atheromatous arteries—I do not quite like that word—it is not simple enough. The other day, when I was in consultation with Dr. F., I said I thought the arteries in our patient's head were atheromatous. "What do you mean by atheromatous?" asked Dr. F., his eyes twinkling, and glancing at me rather slily I fancied. "Atheromatous—" I said, meaning to explain myself, but my memory was so treacherous at that moment, that I could

* "I deem it my duty, as a catholic member of the medical profession, to prescribe in every case *on its own merits*, to the best of my judgment, whether that judgment forces me to prescribe specifically, *i.e.*, Homœopathically, or *as is needful in some exceptional cases*, palliatively, *i.e.*, Allopathically."—"OPIUM is *homœopathic* to a form of threatened APOPLEXY where there is stupor, constant drowsiness, contracted pupil, &c.; nor would OPIUM be *homœopathic* where there was neither *stupor*, *drowsiness*, nor *contracted pupils*."—"A man already drowsy and in half-stupor, would be sent into a deeper sleep by a large dose of opium. Experience therefore has led step by step to the adoption of very small, and in most cases, of infinitesimal doses of medicine, *when that medicine is given homœopathically*."—*Homœopathic Pamphlet*, 1860. The capitals and italics are the author's own.

not recollect the primitive derivation of the word, although I remembered it was Greek. Just as I turned to explain my meaning, I caught Dr. F.'s eye steadily examining my carriage and pair, drawn up alongside of his, as we were both looking out of the dining-room window into the street. "What do you think of my two greys, Dr. F.?" I inquired, breaking in upon his apparent abstraction; "they are capital carriage horses, and I gave £60 a piece for them—they do their work excellently." "£60 a piece!—you must be a rich man," said Dr. F., politely taking leave of me, and smiling as he turned away. A distinguished man that Dr. F., thought I to myself, and evidently accustomed to high people. I must do my best to make up to him; it's worth my while to stand well in his good graces. Bother that word *atheromatous;* why did I use it? I ought to have said *degeneration*, which would have done just as well, and sounded quite as pathological. I do not like pointed questions—they argue a malevolent disposition. Why, the other day, as I was talking to that old-fashioned fellow H., in the street, and telling him of my doing £3000 a year, he said bluntly in return, "Then you pay income-tax on £3000." "No, not exactly so," I replied. "How so?" retorted H.; "how do you manage to get off?" "Why, if you must know, I have not made up my books yet, so I cannot precisely say so." "Then, in fact," continued H., in the coolest tone possible, "you do not know for certain that you are making £3000 a year, but only imagine it." Nothing could have been in worse taste. I wished him good bye as quickly as possible. But this is not all. One day I told him I had a case of fever under my care of great severity, arising from poisoned blood. "Poisoned blood," he said, eagerly; "how

do you know it was poisoned blood ?" He is the most provoking creature in the world; merely a reading man, who knows nothing of practice. For my part, I never read. I am a practical man. I read nature at the bedside. Of course it was poisoned blood—no one could doubt it, and I said so to him. "Yes," he replied, "you have no doubt of it, I see. But, now, tell me. If you had two cups of blood, freshly drawn, before you, one from a healthy person, and the other from a blood-poisoned patient, could you tell me the difference simply by looking at them, or have you any chemical or microscopical proof, by which you can distinguish the one from the other—the poisoned from the healthy blood ? If so, pray tell me, for I am desirous of collecting all the information I can on this topic." Now, was there ever anything half so tiresome as this fellow ? But this is the way with these reading men; they are always for pushing their inquiries to the utmost, and are content with nothing but absolute proof and certainty. Just as if I could tell him anything of the sort, or had time to make such minute inquiries. No, not I; I have something better to look after. So I cut the matter short by wishing him good day, stepped into my carriage, and drove off. There is no escaping, however, from folks of this kind. Not long after, I met him again, just after that distressing case of suicide, which made so much noise at the time, and in which I was summoned to appear as the medical witness at the inquest. "Why," exclaimed H., "what a remarkable case that was—the man spoke after his throat was cut ! I should never have given credit to anything so remarkable, except upon your testimony ; and I have entered it in my note book under your name thus : A man cut his throat through the

bronchial tubes, and yet kept crying out, 'Oh! doctor, save me,' and lived three weeks afterwards. I think it so very remarkable, that I shall keep it by me to publish on some future occasion, upon the authority of your good name. And it is the more remarkable," he continued, for it was impossible to stop him, "because the cut went through, not the larynx, which is above the sternum, but through the two bronchi, or bronchial tubes, which are below and behind the sternum, and the cut missed wounding the chief arteries which lie in front of, or contiguous to, the bronchi, and must in ordinary cases have been first cut through before the bronchi could be reached. Most remarkable! I have made a note of it, and will publish it whenever I am required to place upon record *The Curiosities of Surgery*."* This was too bad. I saw I could no longer keep terms with him. So I took the advice of my patient and friend, Major Longbeard, and resolved to disembarrass myself of a troublesome acquaintance of this kind at the first convenient opportunity. I had not long to wait. One day, as I was driving up to a patient's door in my open carriage, H., who was passing by at the time, stepped forward with alacrity to help me to alight. I touched his hand with the tips of my fingers, treated him with the disdain he deserved, and cut him dead on the spot.

* *Extract from the printed report of the Inquest* (daily papers).—"By the foreman: I never once saw a symptom of insanity in him. Another juror: If you say his mind was not at all impaired, how do you account for this act? Witness: Temporary insanity. You and I are liable to temporary insanity. I once was called in to attend a man who had cut his throat; but he had only cut through the bronchial tubes, and had not divided the carotid arteries; and he kept crying out, 'Oh! doctor, save me, save me.' I attended to him, and then had him removed to a neighbouring hospital, and he lived for three weeks." The jury were perfectly satisfied with the evidence, and, what was still more surprising, so was the coroner.

A HOMŒOPATHIC TRIUMPH.

To the Editor of the British Medical Journal.

Sir,—Great joy to the *blue* ladies who deal in homœopathy! All honour to the noble lords and learned gentlemen who allow themselves to be fascinated by the charms of globulism! Happy the nation whose magnates are above the prejudices of the age! Blessings on our descendants who shall revel in the approaching millenium of the healing art! The science which it has cost the long life of a Brodie to accomlish, or of a Bright or a Watson to comprehend, may now be practised by maiden aunts, reverend gentlemen, half-pay captains, and whimsical mammas, merely by intuition; and a duke or a marquis may safely expatiate on the wonders of infinitesimal doses, in arrant ignorance of the well-known facts of pathology, the meanest rudiments of physiology, and the first principles of therapeutics. Away with the old system, from Hippocrates down to Morgagni and the present schools of medicine! All that we have been taught was nothing; what we really know is a folly; and what we have actually performed is a delusion, a snare and a cheat! On Wednesday, April the 21st, at Willis's Rooms, a public dinner was given, with His Grace the Duke of Wellington in the chair, in aid of the building fund of the London Homœopathic Hospital, about to be instituted in Great Ormond-street, London. There is to be accommodation for 200 patients; accident wards, where the stupid system of modern surgery will be entirely exploded; a ward for children, who will only

be too glad to vote in favour of the nice little globules, instead of the nasty old-fashioned powders; and a theatre of medicine, where everything will be untaught that has hitherto been taught, while that alone will be taught which is already being practised by countless nobodies, without the labour of teaching. Once it was written: "Life is short; art long; occasion fugitive; and judgment difficult;" but now it is just the reverse: Life is long; art short; occasion everywhere; and judgment infallible. Long live homœopathy, and His Grace the Duke of Wellington at the head of it! Idiot that I am, allow me to subscribe myself, etc.,

May 3rd, 1858. J. A. H.

THE WAR OF 1854.

The moral as well as the physical world is full of the evidences of change, transition, and progressive development. Our public institutions and our language are but the fossil remains of a former state of society; just as the geologist shows us in certain strata the fauna and flora of species and genera long since extinct. The Latin tongue and the old Roman law are to be found in the statutes and language of every people in Christendom. Imbedded in present forms and manners, we pass them by without considering that testimonies of the past are as thick and frequent as the zoophytes that stud the limestone slab on which we are standing; that what is social is as antique as what is natural; and that we ourselves are but the children of a race subsisting

amidst the repeated transmigrations of ages. It is the same with every other branch of science. Astronomers tell us that the fixed stars have a proper movement of their own; that new stars have appeared and old ones disappeared; that nebulæ are forming or have formed within the memory of man; and that aërolites are but the portions of a disrupted planet, circulating round the sun,

"——— together hurl'd,
The fragments of a former world."

The violent shocks of nature are not limited to our own globe, for meteoric, if not volcanic agency is at work in the realms of space as powerfully as it is within the bowels of the earth.

If we descend from nature to man, the story is the same. They planted and builded, and married and were given in marriage, till the flood came and took them all away. Nineveh, Thebes, Babylon, Memphis, and Tyre are synonymous with war and miseries: and their names stand out like the salient angles of a bastion that conceals the cares of ordinary life behind its bristling parapets. The sculptured blocks recently arranged along the Museums of Paris and London, stammer forth, as voices from the dead, in broken hieroglyphics or arrow-headed inscriptions, the worn-out chronicles of their times. Nor do the arts and sciences of the present day change the burden of the song: steam and the electric wire only add velocity to life, and life, whether slow or fast, is evermore the same.

Upwards of a thousand years ago, the Greek Emperor Theophilus was, like ourselves, devoted to the progress of civilization.* He longed to surpass the splendours of Bag-

* "Histoire du Moyen Age." Paris: 1843. Tom. i., p. 524.

dad, at that time in the zenith of the caliphate. For this purpose, he engaged the most skilful artists to construct for him a toy of gold, set with precious stones, that played tunes of its own accord, like a musical snuff-box; and two golden lions that roared, and a golden tree with leaves rustling in the wind and boughs filled with singing birds. These puerile curiosities, together with many others of a similar kind, were enclosed within a spacious edifice, open to all the world. It was the Crystal Palace of the ninth century—the harbinger of amity and peace. But, in humble imitation of our own, it was followed by war, a brilliant victory, a successful siege, abundance of spoils, and a triumphal return to the peaceful curiosities of the Crystal Palace. The war was renewed, but victory changed sides; and Theophilus died contemplating the bloody head of a rival held up by its hairs before his glazing eyeballs.

Suetonius tells us,* that when Augustus Cæsar heard of the loss of the three legions with their cohorts under Varus, he was inconsolable, paced his corridor, beat his head, and exclaimed in anguish, "Varus, give me back my legions!" But the legions were lost; and it was not till years afterwards that Germanicus fell upon their remains, and ascertained the precise spot of their destruction.† He traced the intrenchments, collected the bones of horses and men, and recognised some portions of their armour mouldering into rust. When Tiberius was informed of this sentimental exploit, he was wroth, and rebuked Germanicus for leading

* Sueton. "in Oct. August." xxiii. "Per continuos menses, barba capilloque submisso, caput interdum foribus illideret, vociferans, 'Q. Vare, legiones redde;' diemque cladis quotannis mæstum habuerit ac lugubrem."

† Tacit. "Annal." i. 62. Quod Tiberio haud probatum. (See note at the end of this article.)

the troops under his command to witness such dismal sights, and making them acquainted with so signal a reverse of the Roman arms. The rebuke was just; and though he was blamed for it at the time, yet Tiberius was in the right. For, in spite of his depravity, he was an astute politician, who, with exquisite discrimination, saw in this misfortune, the earliest warnings of decay.

Xerxes, who was quite as luxurious, if not so debauched as Tiberius, was certainly just as farsighted in political affairs as that crafty old statesman. Herodotus gives us a peep into the Persian cabinet, and reports a speech of Xerxes upon the threatening rupture with Greece. "If *we* remain quiet," said the youthful tyrant, "*they* will not; for they will certainly invade us. Neither we nor they can stand still; we must attack them ere they attack us; they must submit to us, or we to them—there is no other alternative;"* and his pride instigated him to decide upon a war so plainly justified by his political acumen. But the decision cost him the severest trouble of mind. His sleep was broken, and his thoughts bewildered. In the night he was hallucinated; and Herodotus relates two of his spectral illusions. The war, however, was entered on; and the contest evoked the crisis that he dreaded. It hurried on Greece to its maturity; and not only were the Asiatics repulsed and chastised, but Persia, in her turn, trembled for her homesteads, her cities, and her fanes. Alexander came, and cut a high-road through the heart of her dominions.

The fifty years that followed the battles of Mycale and Platæa are the most brilliant and extraordinary on record; and we know the more about them, because their histories

* Herod. *Pol.* xi.

have reached us entire, and their well-known authors, Thucydides, Herodotus, and Xenophon were men of first-rate talents. In the midst of a rapid military career, by sea and land, the Athenians cultivated the liberal arts with the utmost enthusiasm, and carried them to a degree of perfection which few nations have been able to imitate, and none have surpassed. Under the administration of a single man, Athens was adorned with those magnificent structures, which Rome, on becoming the mistress of the world, did not disdain to avail herself of, in after ages, because she felt she was unable to copy what she could not but fall down and admire. So great, indeed, was the lustre shed by the name of Athens, that, from the age of Pericles, it designates the nation, the country, and the language of Greece. The Attic dialect, brought to perfection by its transcendent writers, became the model of all that is beautiful, and still holds the lofty privilege of being the most copious and the sweetest ever spoken by man.

The Persian war stands out in history as one of the landmarks of human greatness. The blood shed in battle was the first seed of liberty sown in Europe; but it required a series of wars—a succession of ages,—before it opened into blossom, and ripened into fruit; for the tree of liberty is no exotic of Eastern extraction. It is a hardy sapling that grows upon the bare ground or in the clefts of the rocks, luxuriates amid the ruins of empires, and strikes its roots the deeper the fiercer blows the blast.

The final cause of war is liberty. The immediate cause may be the gratification of personal ambition or national aggrandizement and pre-eminence; but its end is liberty. Man is not born free—he must fight for it. In all times and

all places, slavery, in some form or other, has always been considered a necessary piece of state machinery. The moment absolute freedom is introduced, the state engine gets out of gear. This is the fact in republics as well as in monarchies and despotisms; for a republic is only a monarchy disguised. The smallest number governs the many, or a single genius rules them all; and the crowd follows its leader as blindly as sheep do their bell-wether. No ancient philosopher ever seriously entertained the notion of abolishing slavery and liberating two-thirds of his fellow-creatures. Plato and Aristotle were parasites afraid of offending the reigning fashion of the day, or at the best, they were only speculative sophists. Nor was it till Christianity had sapped the foundations of Paganism, that man awoke from his social lethargy, and found, to his amazement, that he was no longer a nonentity, either in time or eternity. Rousseau, in his "Social Contract," affectedly exclaims, *L'homme est né libre, et partout il est dans les fers!*—but Lucan more honestly makes Cæsar say, *Humanum paucis vivit genus:** life is only for the few, and though freedom be our birthright, yet subjection or subjugation is the lot of most of us.

But to return to the moral or social cause of war. It is the effort for freedom. There is a moment in its affairs, when the world is stung to the quick with the sense of *Liberty*—a watchword that startles the repose of kings, breaks up the routine of life, and stuns the monotony of peace. Nations abhor foreign rule. The most respectable communities are those who govern themselves, or who are governed by their own princes, electorates, or presidents. This has always been the case. To be devoid of this nationality, is a proof

* Lucan. "Pharsal."

that a people are already dead, or are ready to die. The foreigner is not only a conqueror, which is detestable, but also a tyrant, which is insupportable. His gauntlet is steel, and his sceptre iron. His dignity crushes those whom he pretends to govern, and the reaction is tremendous. There are some evils we cannot shun, but which must be faced, submitted to, or overcome; and rebellion or war provoked by tyranny is one of these.

Hence it happens that war, horrid as it may be, developes some of the noblest passions of the soul, and purifies the heart as much as it enlarges the intellect. The condition of the weak, the needy, the ignoble, and the low is ameliorated by its means,—condignly, indeed, as each may suffer from it during its blood-stained progress. The penalty paid is enormous; every transition is a period of confusion and loss; nor is society ever revolutionized without its proportionate measure of suffering and woe. We are not its advocates—we are only stating the case.*

* "War, then," he said, "war, the grand impoverisher, is also a creator of the wealth which it wastes and devours?"

"Yes," replied Bridgenorth, "even as the sluice brings into action the sleeping waters of the lake, which it finally drains. Necessity invents arts and discovers means; and what necessity is sterner than that of civil war? Therefore, even war is not in itself unmixed evil, being the creator of impulses and energies which could not otherwise have existed in society."

"Men should go to war, then," said Peveril, "that they may send their silver plate to the mint, and eat from pewter dishes and wooden platters?"

"Not so, my son," said Bridgenorth. Then checking himself as he observed the deep crimson in Julian's cheek and brow, he added, "I crave your pardon for such familiarity; but I meant not to limit what I said even now to such trifling consequences, although it may be something salutary to tear men from their pomps and luxuries, and teach those to be Romans who would otherwise be Sybarites. But I would say, that times of public danger, as they call into circulation the miser's hoard and the proud man's bullion,

The next most eventful epoch in the history of mankind is the age of Julius Cæsar.* He was the most gifted man the world has ever seen, and his laurels are still green. As a warrior or a statesman, as an astronomer or a writer, as an architect or an orator, as a conqueror, a civilian, or an engineer, he stands alone and equally distinguished in each department. He is chiefly known as a great captain; but he was much more than a military man. Over the darkest portion of Europe he cast a gleam of light which has never been extinguished. His eye saw farther than the mere winning of a battle; for he was a diplomatist of the highest class, who reorganized those whom he subdued with the same masterly hand as that with which he had fought them in their own territories. By the firmness of his policy he delayed the fall of his country by the space of three hundred years or more; for he foresaw, not only what his political opponents imputed

and so add to the circulating wealth of the country, do also call into action many a brave and noble spirit, which would otherwise lie torpid, give no example to the living, and bequeath no name to future ages. Society knows not, and cannot know, the mental treasures which slumber in her bosom, till necessity and opportunity call forth the statesman and the soldier from the shades of lowly life to the parts they are designed by Providence to perform, and the stations which nature had qualified them to hold. So rose Oliver—so rose Milton—so rose many another name which cannot be forgotten—even as the tempest summons forth and displays the address of the mariner."

"You speak," said Peveril, "as if national calamity might be, in some sort, an advantage."

"And if it were not so," replied Bridgenorth, "it had not existed in this state of trial, where all temporal evil is alleviated by something good in its progress or result, and where all that is good is close coupled with that which is in itself evil."—WALTER SCOTT.

* Sueton: in Cæsar: I have seen Mount Gergovia from the spacious market place in the town of Clermont-Ferrand, Auvergne. It remains the same as it was when Cæsar stormed it. Cæsar here lost his sword, and very narrowly escaped with his life. On his returning victorious the year following, they shewed him his captured sword, at the sight of which, Plutarch tells us, Cæsar laughed.—J. A. H.

to him, the coming empire, but also the overthrow of that empire by the very barbarians whom he was engaged in defeating. And never was there a greater blunder perpetrated than in his assassination. His murderers could not supply his place: they were disunited, soon dispersed,—some committed suicide, others treachery, and each of them came to ruin. The boy Octavius gathered up the fragments of the State, and cemented them into a whole, to which the name of Cæsar gave importance and renown. Now, as the Median war, five hundred years previously, had sown the first seeds of liberty in Europe, so the wars of Cæsar called into existence the first germs of civilization in the West. It was the *punctum saliens* of the modern world.

The question has often been agitated, whether Rome would have fallen if Carthage had stood. A glance will show that the fall of Carthage was only a matter of popular rivalry. The dominant power of the day must be all in all, or else it is nothing. Rome saw the alternative, and acted upon it with her instinctive sagacity and promptitude. Carthage was razed; but with her fell nothing but a nation of shopkeepers. For merchants are only money-dealers, whose views are no larger than their coffers, and whose ideas of national prosperity do not extend beyond their balance-sheet at the end of the year, or a clever speculation in some remote corner of the globe. A tradesman can never be either a statesman or a soldier. In Hannibal there is nothing akin to Napoleon, Cæsar, or Alexander. *They* were more than soldiers, while *he* was only a general; and Carthage, the centre of commerce and wealth, had not advanced the world a step forwarder in its progress, but left it where she found it, in the government of others, instead of her own. She has not bequeathed to us

a single writer of note, her language is forgotten, and her spirit, except for trade, has left not a trace behind.

On the contrary, Rome consolidated the world, and held it together for many a long century; her fall loosened the bond, and scattered the growing nations around her. It was a moral earthquake greater than any that had ever yet shaken the framework of society. It was accomplished with war and disaster. The effect was instantly manifest: Christianity dared to show herself, and many nations arose out of the one. The cross, sentiment, and devotion crept forth from beneath the statues of the ancient gods, whose worship was now defunct, for the world had changed its mind and its tastes. Charlemagne, breastplates, shields, and the lance in rest, became the novel order of the day. It was a pantomime on a gigantic scale. Cæsar, Cicero, Pompey, and Mark Antony would have found themselves sadly out of place in company with Odoacer, Clovis, Pepin, and all their chivalry.

Quickly, another phantom stalked upon the stage; it was Mahomet with his crescent, turban, and scymitar—Mecca, Kaaba, and the Koran—his cruel disciples, and the Saracenic host. Battle, and murder, and crime were not only the usual, but also the religious precepts in vogue among them. Opposition of principles begat contention. It was no longer the stale design of conquering many kingdoms on purpose to convert them into one, but of fighting for faith, as the essence of life.* The knight in armour was a reckless enthusiast, but a great favourite for the time being. His plume, his helm, his polished hauberk, thigh-pieces, and leggins, his gauntlet, shield, and spear, with its fluttering pennon and

* "*Ex multis gentibus nationibusque, unum regnum populumque constituit.*" (Justin.)

quaint device, was the gew-gaw that once represented the mind of the age, but which now graces in effigy the mantel-piece or bracket of some well-furnished drawing-room. Nevertheless, the cause was a real one; the man within the iron mask was in downright earnest; the Saracen was wrong, and the Christian was right; and Charles Martel proved it to be so, at the battle of Tours.* From that hour, the Crescent withdrew its diminished head, and, except for Charles, the *hammer* of the North, except for the blood spilt and the numbers slain on that memorable battle-field, we might, for aught we can see to the contrary, have been Turks instead of Christians at this present hour, worshipping Mahomet instead of Christ, both in England and France.

The eighth century dawned upon the world a wilderness of war, want, ignorance, darkness, crime, and famine, both spiritual and corporeal. It was chaos returned. But from this seeming confusion arose, like a morning mist, the present states of Europe, in their youth and prime. The old governments were gone, the new were unsettled and inexperienced. The Franks had conquered Gaul and Germany. Beyond the Rhine, fresh populations were in continual ebullition, menacing those on the south, or menaced themselves by others on the north. The Lombards possessed Cisalpine Gaul. A Duke governed Rome under the title of an exarch —a figment of the past. The little city of Gaëtà was the only mart of promise, with municipal laws and a militia of her own. Upon a rock, by the sea, she protected the plains of the Garigliano, the orange trees, the aloes, the cactus, and

* Gibbon, c. 52. I have been over the spot supposed to have been the field of battle, about half way between Tours and Poitiers. I have likewise explored the classic ground of Orthes and Toulouse—the *grandia ossa sepulchris*, as Virgil says of Pharsalia,—J. A. H.

the African vegetation that still adorns that coast. It was a trading community, while in the volcanic region, the Solfatara of Vesuvius, Sorrento, and Amalfi with its mariner's compass, revived the commercial spirit of the Phenicians.

The terrified inhabitants of Padua, who had fled from Alaric, passed over to the Rialto, at the top of the Adriatic Gulf; and the others, who subsequently retired before Attila, perched themselves on the neighbouring isles, like so many sea-fowl. They founded Venice, and became the merchant princes in a cluster of palaces emerging from the sea.* The Doge of Venice was a great man in his day. Arsenals, docks, ships, and trade arose at his bidding; and in strength and importance the merchant-city played no mean part among the cities of the earth.

The British isles were still uncivilized. Spain, rescued from the Visigoths, fell a prey to the implacable Moors, who extinguished the light of faith everywhere, except the spark that smouldered in the Asturias. The Greek Empire, mutilated and dismembered, retreated from the Danube, abandoned the garrisons stationed by Justinian upon its right bank, and stretched a feeble arm of authority as far as Istria, Dalmatia, and Mount Hæmus. Africa, that had been either Greek or Roman, Palestine with Syria, the seat of the Caliphate, and the whole of Asia as far as Cilicia, had been seized on by the Arabs; and Arabia itself extended from the Euphrates to the Mediterranean, and from the Indus to the Iaxartes. The North was darkened by a mob of nomadic savages, who, under various designations, wandered and prowled from the Caspian to the Euxine, and from the Euxine to the Baltic.

* "*Histoire du Moyen Age.*" *Paris:* 1843. *Tom.* i. p. 273.

Such was the scene disclosed as the curtain rose after the fall of Rome. It looks like a solemn masquerade, so motley are the figures, and so diverse from all that had gone before. There is no kindred feeling between the Dictator Sylla and Luke Anafetta, the first of the Doges—there is not the slightest resemblance between Attila and Scipio Africanus, Quintus Curtius and Leo the Great. The form, the features, the costume, the speech, the manners, principles of action, hopes, fears, plans, thoughts—all are changed; myriads have perished in the direful struggle; blood has flowed in torrents, cities have been sacked and destroyed, plains and villages ravaged with fire and sword, the mighty have been lowered, and the low exalted—everything upset: and all for what?

The fifteen decisive battles, so often spoken of as the fifteen critical turning-points of the world, are far less pregnant in their grand results than the five successful sieges which occurred in the course of the two thousand years that intervened between 500 B.C. and A.D. 1454. The siege of Babylon liberated the Hebrews; the siege of Sardis dissipated the wealth of Crœsus; the siege of Jerusalem by Titus dispersed the Jews; the siege of Rome broke paganism to pieces, and the siege of Constantinople by the Turks started the modern period. For sieges are so much the more important in their consequences than battles, as cities or fortresses are the strongholds of empire, and the concentrated focus from which emanate those political ideas that govern a nation, a set of nations, or the world. Thus, the world fell when Rome fell, and with the fall of Constantinople the middle ages passed away.

A note was sounded, long, loud, and clear, at the fall of

Constantinople, that re-echoed along the remotest shores of earth—it was the invention of the art of printing, the circulation of free opinion, and the discovery of the New World. It was the clarion-note of freedom and intelligence. It was the death-note of spiritual darkness, feudalism, and prejudice. It was the signal that awoke the giant-genius from his sleep. The mail-clad warrior raised his vizor, and glared around him; the monk threw back his cowl, and looked astonishment; the stoled priest paused on the steps of the altar, and listened; the turbaned Turk brandished his sheathless scymitar, and counted the years of his Hegira.* Remember, thundered Cicero in the ears of Mark Antony; remember, wherever thou art, thou art still within the limits of the Roman dominions!† That threat could now no longer be

* "No sooner was Mahomet sovereign of the city than the duration of the Ottoman sway was predicted. It was to last 400 years. No prophecy is more explicit, has been more widely extended, or has raised greater expectation. From the White Sea to the Persian Gulf it has been the belief of millions. Its origin we know not; but, unlike most predictions, it has been equally received by those who feared and those who hoped its fulfilment. Greek, Russian, and Turk have alike accepted it. It has stimulated the ambition of the Czars; it has encouraged the obstinacy of the Rayahs; it has unnerved and depressed the Turks, made them more reckless of the future, and more selfish in the concerns of to-day. The Christian has never ceased to speak of Roumelia as his country, and St. Sophia as his church; the Mussulman has acquiesced, and often seeks to bury his dead on the Asiatic shore, that they may rest in peace in their own land; natural causes esteemed so likely to have inspired and to be tending to fulfil the prophecy, that even Gibbon—no ready believer—gives an ear to its revelations. 'Perhaps,' he says, 'the present generation may yet behold the accomplishment of the prediction—of a rare prediction, of which the style is unambiguous and the date unquestionable.'"—*The Times*, Oct. 24th, 1855.

† "*Ubicunque terrarum sunt, ibi est omne reipublicæ præsidium, vel potius ipsa respublica*," Cicero: in M. Ant: Phil. ii. perorat: By this taunt, Cicero provoked his own destruction. In the game of life, the cards that we deal to others are dealt back again to ourselves. "Wherever you are," said Cicero to the exiled Marcellus, "remember that you are equally within the power of the conqueror." Cicero ad familiar, 4: 7.

repeated. Beyond the sparkling waves of the Atlantic, another land was lying, ready to receive the fugitive of oppression, the victim of persecution, and the child of adventure. New plains, new rivers, new foliage, new mountains, and new scenes, invited the curiosity and courted the imaginations of the Old World, standing on its shores, and gazing impatiently on the sea—"the fresh, the blue, the ever free!"* The first discoverers came back, and told them of cataracts larger than their own, volcanoes loftier than Vesuvius, oceans without a storm—the smooth Pacific—constellations unusually bright, a tropical climate, and a virgin soil. And well might man rejoice! What a blessed epoch in the course of events! What a prospect of a new order of things in the dull round of human existence! Nor, after the lapse of more than three hundred years, has the beneficent illusion lost its charm, for the sight of the Southern-cross, the Magellanic clouds, the Coal-sacks, and stars, with a portion of the Milky Way, unseen in northern latitudes, the sight has, in our days, been alone sufficient to draw the venerable Humboldt from his fatherland, and fix our own countryman, Sir John Herschel, in a fit of scientific ecstasy, at the Cape of Good Hope. There are now no longer any more lands remaining to be discovered, while those that have been discovered are already becoming macadamised as fast as possible. Civilization expels nature, and the smoke of science dirties the skies. The ancients found gold in the golden Chersonese, or India; the gold found by Philip of Macedon in Thrace, or Thessaly, served to suborn the orators of Athens; and the Phenicians worked the silver mines of Spain so well, that the prows of their ships and their anchors were made of the precious

* "The vast, dread, salt, eternal deep."—*Byron.*

metal. Australia and California must be worked bare of their rich supplies at last; and then we must follow the guesses of geologists, and look for it anew in Japan, Kamtschatka, or Corea.*

What we have written seems but the fiction of a poet, and yet what is the poetry of life but a fiction as unsubstantial as it is real? "I would the gods had made thee poetical," says Motley in *As You Like It;* to which Audrey most discreetly answers, "I do not know what poetical is." We, who are wiser than either Audrey or Motley, declare it to be the very essence of life. To be poetical gives animation to all we say or do, and gilds the vacuity of our days. The "Bride of Abydos," the "Lay of the Last Minstrel," or the "Rape of the Lock," is worth a thousand philosophical treatises; it is the wine after dinner, the summer cloud in the morning of affairs. It is in stirring times, and in seasons of excitement, that song resounds the best: the National Anthem never comes home to the feelings with so much force as it does on the battle ground of a day of victory. It is to these moments that we owe the patriotic airs of all nations: the Marseillaise Hymn, Partant pour la Syrie, the Croatian March,

* Speaking of Philip of Macedon, Justin says, "*auraria in Thessalia, argenti metalla in Thracia occupat.*" (Lib. viii. c. 3.)

"L'Espagne fut longtemps le Pérou de l'ancien monde. Près de Castalon, une montagne de la chaîne de la Sierra Seruga avait reçut le nom de Montagne d'Argent. Aristote rapporte que quand les Phéniciens débarquèrent pour la première fois en Espagne, ils firent une telle provision de ce métal, qu'au retour ils en fabriquèrent tous leurs ustensiles, jusqu'aux ancres de leurs vaisseaux." "Histoire Ancienne." Paris: 1845. Tom. i., p. 268.

Of the gold in Spain and Portugal, Justin says it was so abundant, "*adeo etiam aratro frequenter glebas aureas exscindunt.*" (Lib. xli., v. 3.) The Pyrenees were to the ancient world what California and Australia are to the modern. Strabo (Lib. iv., c. 1—2) tells us, that masses of gold, as large as his fist, and scarcely requiring purification, were found beneath the surface. The Pyrenees are now a barren wilderness.

and God Save the Queen. The Scotch melodies in memory of Charles the Pretender originated in similar circumstances: and Moore's Melodies, although most of the airs may be traced to sacred chants and litanies, arranged to his measure, or sometimes traduced to a jig, derive their popularity from a feeling of national sentiment. War has given rise to some of the best of music; and the military band has greater charms for the cultivated as well as the uncultivated ear than the maudlin concerts and the sing-song of domestic life. Homer sang of a siege in a style that no man ever sang before; and Dr. Russell, the admirable correspondent of the *Times*, may, some thousand years hence, share with the Greek bard the safe and enviable honours of a poetic campaign. They both of them tell of things addressed to the common feelings of mankind, and music alone is wanted to render their records the most enchanting of their kind.

The love of glory is another passion inherent in the breast. It is not easy to define it. To love danger, and to delight in peril and woe, is a contradiction in terms; but then it is the pleasure of peril past and of danger overcome. But perhaps there is a deeper philosophy in it than this—namely, a profound sentiment of immortality. Wellington is reported to have said, "What will they say of us in England, if we lose this battle?"—the last he ever fought. It is evident the feeling was worth a bullet through the heart at the moment, or else it was worth nothing at all. To live after we are dead is a universal, but not a vulgar, passion. What is man without immortality? Nothing worth the name of man: a dead dog would do as well. To live hereafter is the hope of a rational being; to live in the memory of those we love is all that most of us desire; but to live in the everlast-

ing regards of a nation of our own that we have served, is the highest ambition, "that last infirmity of noble minds;" there is nothing but heaven beyond it. War alone affords scope to the indulgence of a virtue so legitimately sublime as this. Yet they who die for earthly glory, know not the bauble for which they bleed. Democritus laughed, and Heraclitus wept, at the miseries of life, which point the shaft of satire with irresistible keenness. The celebrity of a great name* is mostly consigned to the morning-state of an army in the field, the obituary or casual remarks of a daily newspaper, the sealed registers at the Horse Guards or the Admiralty, the short-lived wonder of the town, or, at its best and rarest lot, the brief memory of a long-tried and solitary friend. Posthumous fame is the most precarious of commodities: the Wellington Despatches will live as long as the English language, and—so will Johnny Gilpin!

Besides glory and poetry, there are some meaner sentiments that would remain hidden in their own obscurity, except for the stimulus imparted to them by the parade and circumstance of war. Dress is one of these. Modifications of costume are referable to periods of violent convulsions. Weapons, offensive and defensive, are changed, and dress also; the breastplate gave place to the jacket, whether of cloth or leather, as the jacket is now yielding to the tunic; and the Greek fire, that foiled the lance and shield, gave way in its turn to the use of gunpowder. Satin and velvet belong to the piping times of peace, and the amorous mooding of a lady's chamber; but at the sound of the trumpet all

* The late Lord Clyde was more than sixty years of age before he earned the meed of merit, so worthy, and yet so late! He died, almost as soon as he had earned his reward—so passes the glory of the world!

is changed, from the fashion of the baldrick to that of the beard and headgear. For warfare is a great reformer, tantamount to the experience of a whole life, or of many lives in one. What is trifling flies away, and the useful, the grand, and the durable alone remains. Hence it comes to pass, that at the termination of great wars the chief actors involuntarily fall into the attitudes of the drama, and the last act closes on a group exhibited in the happiest combination of colour, light, and shade. The spectacle is bright and evanescent: it passes away, like everything else; but the impression abides, and for a season the aspect of the world is changed.

Again, the weak and sickly die off. The old are removed by care or disaster. The young are cut short in their prime; none but the robust and vigorous survive the hardships of the times. The next generation increases in strength and stature; marriage is more frequent. Property, which had been tied up, is unexpectedly set free by premature or sudden deaths; and the destitute are supplied with fortune, while the young, who would otherwise have grown old in filial obedience and single blessedness, are placed in a position to gratify those longings, which all feel, but which so many are forced to repress from prudential motives. It is, so to speak, the harvest of the world, when multitudes are cut down and gathered to their account, and the field of life is gleaned to the last blade of mortality. What follows is a new epoch: the old are gone and the young begin a new career.

There is likewise an intermingling of nations; nation blends with nation, foreigner with foreigner. Antipathies clash with antipathies; hatred faces hatred; indifference

confronts indifference. Nothing is idle; everything is on the alert. We test our capabilities and our reason; we measure swords, and measure things; discover that others are wiser than ourselves, and ourselves wiser or weaker than others. The divisions of province and country are levelled, and we perceive with surprise that those who dress in straw hats on the south side of that range of mountains are much the same as those in beaver on the north. This social fact staggers us just as much as the point of the bayonet in the deadly charge. Sometimes the straw hat conquers the beaver, and at other times the beaver the straw. We compare notes, settle differences, make concessions, compromise a great deal, embrace each other, and are friends. National prejudices are dissolved or softened; and we engage ourselves to observe the ordinary rules of fellowship for the rest of our days.

Language undergoes a change. The Assyrian superseded the Hebrew, and the Egyptian modified them both; the Greek swallowed up both of these, and the Latin superseded the Greek. Then came the modern tongues and dialects, each of them resulting from national discords, peculiarities, and contests. Nothing was done in peace; everything was done with strife. New ideas require new words, new phrases, and new technicalities. New knowledge creates a language of its own. The whole was metamorphosed, so that Pliny could not understand those who in our modern universities and colleges examine and lecture in Latin according to the rules of a Latin grammar unknown to the Latins of old. This farce is a shred of feudalism, and the sooner it is got rid of the better.

The Teutonic races, the descendants of Japhet, have

hitherto conquered the world; and there seems no reason to suppose they will not continue to do so in future, They govern Europe, America, India, Australia, New Zealand, and Oceanica,—the northern and the southern hemispheres. What they have once acquired, they have always retained; and they will eventually conquer the entire globe, unless time should be no more, or they themselves should belie their name and origin. Their language superseded the Latin as early as the seventh century (A.D. 675). They may fail here and there, be defeated in this battle and lose that campaign, but the motto that waves from their masthead or flag-staff are the invincible words, *We will succeed:*—where there is the will, there is the way;

> "let both worlds rack,
> At least we'll die with harness on our back."

Who can withstand this? It challenges the world. Their ships navigate every sea, and their writings uphold the cause of freedom in every quarter of the globe. The Hanseatic League was theirs; theirs is the light of battle, popular elections, and free trade.

In peace, we may regulate our lives as we please; and, provided we keep within the pale of the law, and take care not to insult the conventions of society, we may indulge in luxury and vice to our hearts' contentment or bitterness. The sun shines, the air is tranquil, and all is still. We bask in the noontide warmth, and prolong our days in a sort of soothing dream. But it is not thus in war. In the clash of arms and the stern vigil of the foughten field, a dreary grandeur imposes both sobriety and caution. We cannot then mistake facts for fancies, nor realities for whims. There is nothing imaginative in a round shot, a shell, or a

Minié ball—a wet tent, scanty rations, the dismal trenches, or an outlying picket. Nor is this forlorn feeling peculiar to the soldier on active service, for all feel it alike. The instability of affairs comes home to all. The rapidity with which everything is precipitated from life to death, and from certainty to uncertainty, forces the stoutest heart to quail, to meditate, and to reflect; and the miseries incidental to open hostilities throw a sable mantle of grief over many a tender soul far removed from the actual scene of violence and bloodshed.

Of the 25,000 or 30,000 soldiers who quitted these shores, full of health and spirits, in the spring of 1854, how many are now left alive to tell the tale? Only a few, a very few. Of the stalwart Guards and Highlanders, the complete regiments of the line, the well-equipped artillery, and the splendid cavalry, almost all are gone—even their gallant leader is no more; and well-trained horses without number, and men who were but yesterday both veterans and heroes, are now numbered with the dead, the food of vultures, or dogs, or worms. The malaria of Gallipoli and Varna, the cholera, the glorious battles of the Alma, Balaclava, and Inkermann, the weary siege, the storms of autumn, the winter's snow and frost, the damps of returning spring, tattered clothing, green coffee, starvation, did their worst, and changed them to

> "Such things—a mother had not known her son
> Amidst the skeletons of that gaunt crew."*

The matchless naval brigade suffered comparatively less than the troops, for the simple reason that they were near their

* "Famine, despair, cold, thirst, and heat had done
Their work on them by turns, and thinn'd them to
Such things—a mother had not known her son
Amidst the skeletons of that gaunt crew;
By night chill'd, by day scorch'd, thus one by one
They perished." —*Byron.*

own supplies, and Jack knows how to look after himself; although in the trenches they shared equal honours and equal dangers with the rest of the army. For the same reason, the Highland brigade and the marines fared better in the winter than if they had been posted well up in front; but then these noble and unrivalled regiments preserved Balaclava for us:—*ils ne reculent jamais!**

"In times to come it will be a chosen terminus of Saxon pilgrimage this Cathcart's-hill. Whether the traveller beholds from its humble parapet the fair aspect of the Imperial city guarded by threefold mightier batteries than now, or sits upon the broken wall to gaze upon the ruins of Sebastopol, he must, if he has any British blood in his veins, regard with emotion that little spot which encloses all that was mortal of some of the noblest soldiers who ever sprung from our warrior race. He will see the site of those tedious trenches where the strong man waxed weak day after day and the sanguine became hopeless, and where the British soldier fought through a terrible winter with privation, cold, frost, snow, and rain, more terrible and deadly than the fire of the enemy. With the Redan, the Malakhoff, the Quarries, the Mamelon, Gordon's Attack, Chapman's Attack, under his eyes, he will revive with the aspect of the places where they stood the memories of this great struggle, and renew the incidents of its history. How many more of our gallant officers this cemetery may hold it is impossible to say; it is too full already. It is a parallelogram of about forty yards long by thirty yards broad, formed by the base of a ruined wall, which might in former days have marked the lines of a Tartar fort, or have been the first Russian redoubt to watch over the infancy of Sebastopol. Although many a humble tumulus indicates to the eye of affection the place where some beloved comrade rests till the last *reveil*, the care and love of friends here and at home have left memorials in solid stone of most of those whose remains are resting here."—The *Times*' Special Correspondent, October 8, 1855.

The sadness of heart inflicted by war is the penalty of sin or the inevitable condition of humanity. We must all die in our turn, but the anguish of parting for ever on this side of the grave is the more poignant when the blow of separation is struck by the hand of man, instead of the more gentle operations of nature and decay. "Killed in action" means

* Balaclava and Lord Clyde must go down to posterity together!

a violent, a sudden, or a cruel death; the consolations of a calm deathbed, surrounded by friends, a wife, a mother, a sister or a child, are irretrievably wanting; the last words and the last kiss are given to the gory ground, and the last pressure of the hand is spent in struggling with the desperate foeman or grasping the weltering blade of slaughter. A bullet may dismiss the soul in a moment, or a heavier missile destroy vitality by a stun, at a long range, far off from the immediate conflict, but the end is the same—it is what the epitaph says, *Killed in action.*

Among the mental phenomena produced by war, the love of bloodshed is one of the most singular and revolting. It is not the savage villain, hackneyed in brutal deeds, that is alone prone to this horrible propensity; for, when once engaged in it, the gentle and the polite, the amiable and the mild, the handsome and the winning, become unconsciously infuriated with a sense of this diabolical thirstiness. When it is first spilt, and lies in a clotted pool upon the earth—the reeking earth!*—the sight of the fresh blood inspires the awful passion. It is a mixture of fury and alarm, or ardour and revenge; nor can we accurately distinguish between bravery and love of slaying—between the cold-blooded murderer whose deed is criminal, and the bold soldier whose bloody work is glorious, patriotic, and praiseworthy. The motive alone excuses the deed, and the consent of mankind justifies the end. While it lasts, the passion is uncontrollable; and, considered in its elemental form, it is clearly a madness.†

* —*Fluebat sanguine terra*—ρεε δ' αἵματι γαια—*Il: passim.*

† An anecdote is told of a young officer, of a remarkably mild disposition, who was engaged in the cavalry charge at Waterloo. He was accosted, on coming out of the affray for a moment, and asked why he wiped his bloody

From this violent emotion arises another, which is akin to theft—it is the love for destruction and plunder. Those, who in ordinary life never think of appropriating what is not their own, nor of injuring, much less destroying, anything good they happen to meet with, are instigated, in common with the rest of their companions, to demolish the fairest works of art, to ransack whatever is sacred and secluded, and to take possession of what does not belong to them, without the slightest hesitation and scruple. It belonged to the enemy, and it is theirs by the right of war. Hence, the dreadful accounts we read of in the sacking, and burning, and overthrow of captured cities; as, for instance, that of Kertch in May, and that of Sepastopol, as far as its ruins allowed it to be so, in September, 1855.

Connected with these two barbarous and debased propensities, let slip as the dogs of war, to torment man, is the excitement of the sexual passion:—but, enough! drop the veil over this lurid glimpse of hell, and bewail our fallen nature, and the victims of havoc and lust! We question whether any of those who have passed through these terrible ordeals, and have afterwards grown grey in the lap of peace, ever feel remorse or compunction arise within their breasts at the recollection of the share they have taken in the scenes they witnessed? If not, it is an act of oblivion on the part of the moral sense, the more remarkable, because it occurs among Christians and civilized communities as frequently and as intensely as ever it did in the pagan and rude populations

sword with so much eagerness? "We are here to kill our enemies," he replied; "and he is the best man who kills the most." With these words, he turned round and spurred his horse into the midst of the fight once more. Tacitus frequently mentions the gratification with which the legionaries *fleshed* themselves in slaughter. The idea is too shocking to be dwelt on.

of antiquity; and it deserves the special attention of psychologists, moralists, statesmen, and divines.

Add to these vices, the habits of roving, and wandering, and restlessness, which are so contrary to domesticity, and which are acquired by soldiers and sailors from their particular modes of livelihood. A large army, accustomed to the field, or, in plain language, a select band of practised marauders, sent home and returned into store upon the conclusion of a peace, is the most grievous burden that can be laid on an industrious people. They are so many consuming mouths which cannot supply themselves; and the ways of peace are no longer familiar to them. But it is not thus with the sailor; for he can find his proper home again upon the waters, and his love of roving may be successfully turned in pursuit of trade and adventure, so conducive to the wealth, the happiness, and the greatness of a nation.

The last passion peculiar to warfare, is the state of mind engendered before, during, and after an action.* On the eve

* Tacitus, describing the feelings that pervaded the camp on a night previous to battle, says:—"*invalidi ignes, interruptæ voces, atquæ ipsi passim adjacerent vallo, oberrarent tentoriis, insomnes magis quam pervigiles. Ducemque terruit dira quies,*" etc. (Annal i., 65.) The madness of victory is proverbial.

The two Ajaces congratulate each other on the springy lightness of their feet, as they go into battle, *Il: xiii.*, 61, 75; and Achilles feels his limbs as light as air, *Il: xi. x.*, 386. Modern soldiers have felt the same. Suwarrow, to whom Prince Potemkin gave the laconic order,—"you will take Ismail"—which he took at an unparalleled cost of carnage and crime—used, after his victories, for he was never defeated, to retire to his tent, and cry like a child. Wellington, in his despatch from Waterloo, grieves, "that after a battle lost, there is nothing half so painful as a battle won." We, who stand apart, may say with Lucretius:—

"———— *Sine parte periclî.*
Suave etiam belli certamina magna tueri."

Lib. ii., 6.

and morning of pitched battles, a sullen gloom pervades the camp—the silent presentiment of the coming event; which, as Banquo said on the night of his own murder, was a heavy summons, that lay like lead upon him. Officers and men are irritable and morose,—they are bending their courage to the sticking point. At the first onset, the boldest are uneasy and reluctant, or rash and precipitate; but, when once in the midst of the engagement, the sense of danger is lost, delirium of a not unpleasing kind overwhelms them, together with a sensation, in some cases, of being lifted from the ground, and carried on by a preternatural movement. It is evidently hyperæmia of the brain, which subsides the moment blood flows from a wound, or the battle ceases; and then the paroxysm ends in fainting, or a disposition to shed tears, or apathy, or sleep.

Considering the subject *pathologically*, actual fighting appears in the light of an abnormal condition of the *cerebro-spinal system;* and were we, as pathologists, to assign to it its proper place in our nosology, it would be among the Protéan forms of exalted nervous sensibility. But we dare not affirm that an entire community, or several communities at once, should thus transgress the bounds of reason and discretion, when we see the greatest minds deliberately engaged in conducting the greatest wars to a prosperous termination. There is no doubt, war occasionally assumes an epidemical character, the result of a morbid principle of imitation—like suicide, and some of the convulsive diseases; while, among populations of an excitable temperament, this propensity is so easily called into action, that the slightest provocation is enough to kindle the spark, and light up the flame of revolution, civil contests, or foreign invasion, almost without the

pretext of a *casus belli*. The lively people of ancient Greece might furnish many an instance in proof of this. It has likewise been remarked, that periods of warfare are usually associated with seasons of rare meteorological phenomena,—such as earthquakes, tempests, droughts, volcanic eruptions, comets, bad harvests, and epidemic mortality; so that the phrase of war, pestilence, and famine, is both historically and scripturally correct. These phenomena, moral and natural, taken together, impart a formidable character to the passion for bloodshed, of which the preceding account is but its natural history, as it is exhibited in the histories of nations.*

It is the autumn of life, and the storms are stripping the leaves for the ensuing winter of the world. The migratory birds are on the wing; their time is short, and they are

* "On the field of battle one soldier at the appearance of blood experiences the intoxication of carnage; another will swoon at the same sight. Sir Walter Scott, in the poem in which he has referred to the battle of Bannockburn, alludes to the various feelings that influence the mind in the heat of an engagement; and, it will be perceived, that he directs particular attention to those who are influenced by no other motive than the pleasure they derive from sacrificing human life:—

"'But oh! amid that waste of life,
What various motives fired the strife!
The aspiring noble *bled for fame*,
The patriot for his country's claim;
This knight his youthful strength to prove,
And that to earn his lady's love;
Some fought for ruffian thirst of blood;
From habit some, or hardihood;
But ruffian stern and soldier good,
The noble and the slave,
From various cause the same wild road
On the same bloody morning trode
To that dark inn, the Grave.'"

—*The "Anatomy of Suicide."* By Forbes Winslow, M.D.

taking to flight or ever the frost and the snow stamp their cold seal on the hybernating death of nature.

"Like the leaves of the trees when the summer is green,
That host with their banners at sunset was seen;
Like the leaves of the trees when the autumn is blown,
That host in the morning lay withered and strown.

"There lay the steed with his nostril all wide,
But thro' it there rolled not the breath of his pride;
And the foam of his gasping lay white on the turf,
And cold as the spray of the rock-beaten surf.

"And there lay the rider distorted and pale,
With the dew on his brow, and the rust on his mail," etc.

—*Byron.*

Were finer lines than these ever penned by poet?

Never was a siege undertaken on a soil more replete with classical legends and historic recollections than that of Sebastopol. In the Crimea, the Tauric Chersonesus of the ancients, upon the borders of the Black Sea, the Pontus Euxinus of the Latins and Greeks, beyond the Thracian Bosphorus, and close to the Palus Mæotis, or Sea of Azoff, the moderns have played a memorable part in the annals of modern warfare. It was of this spot that Euripides chanted his real or fabulous tale of "Iphigenia;" and there it was that the Greeks actually reclaimed the Tauri from their brutal manners. There they fixed their maritime stations, perhaps in Balaclava itself, or the now half-calcined harbour of what was once Sebastopol. There, where the Cimmerian Bosphorus joins the Euxine with the Mæotis, is situated Kertch, or Panticapæum, the site of Cæsar's far-famed *bon mot*, or pithy despatch of *Veni, Vidi, Vici.* The Romans once advanced within three days' march of the Tanais, or Don, the native ground of the marauding Cossacks, and the boundary between Asia and Europe. In frail flat-bottomed barks, framed of timber only, without a

particle of iron, and covered with nothing but a slender roofing of reeds, the Goths carelessly trusted themselves to the mercies of an unknown sea. Their natural daring, and the hope of plunder, stimulated their ignorance and inexperience. They pillaged the Crimea; but at a later period the republic of Kherson assisted Constantine against them. The Genoese, the Venetians, and the gallant Franks, in their turn, penetrated those distant waters in pursuit of gain or adventures, till at last they fell under the rule of the Tartars, the Turks, and the Russians.

The basin of the Black Sea is a volcanic hollow, looked into by the snowy Caucasus, the heights of Ararat, and the shores of Midthridatic Pontus. Sinope furnished a god to Egypt, and the delta or liman of the Danube was the pitiful spot of Ovid's exile, for what he had seen—*quod vidi*—in the halls of Augustus Cæsar.* Some of the largest rivers of Europe empty their floods into its stormy bosom, which is as black as it is fathomless:† and an old proverb declared the mariner to be a fool who entered the Euxine before the

* *Cur aliquid vidi?—cur noxia lumina feci?* (Ovid. "de Ponto," lib., ii.) He says *carmen et error* was the cause of his exile: the verses were Ovid's own, but the error is the supposed incest of Augustus with his own daughter. For such a sight, if true, banishment was only less than death. He makes the same allusion in other places.

† A young friend of ours, who joined his regiment in the Crimea, says, speaking of his voyage thither: "The water of the Black Sea is certainly black. I was very much struck with its dark appearance on our passage from the Bosphorus to Balaclava."

"It is very deep, no bottom having been reached with a line of 140 fathoms."—Mrs Somerville, "Phys. Geogr." 1851. Vol. i., p. 359. The Russian maps give it a depth of more than 3,000 feet.

Upwards of forty rivers, many of them the largest in Europe, flow into it. It receives the melted snows from the Caucasus, Ararat, the Balkan, the Carpathian and the Swiss mountains; and the waste waters from Central Russia and the Oural mountains.

ides of May, or tarried in it after the kalends of October. Yet such is the sea navigated by our ships of war, which have floated upon it throughout the whole year, prepared for action and scatheless of shipwreck or disaster.

The long line of the Danube, from Galatz at its embouchure up to Singidunum or Belgrade, on the Austrian frontier, is overcharged with mediæval and imperial recollections; Trajan's Wall at the Dobrudscha and Hadrian's Bridge beyond Kalafat are too well known for more than a casual allusion to them; and it was between these two extremities that the barbarians rushed across in winter, when the river was frozen over. The most active of the Roman emperors were continually engaged in fortifying this long extent of open country against their frequent incursions: here Aurelius earned or lost his laurels, and so did Probus and others; here were signed the famous treaties of Unkiar 'Skelessi, and Balta Liman; and here did Omar Pasha win his undying military renown. It was here that the Goths crossed over in force in the fourth century, seized upon the present point of Schumla, passed the defiles of the Balkan, descended into Roumelia, and fought and defeated the Emperor Valens near Adrianople. Valens,* with his personal staff, took refuge in a cottage, which the Goths set fire to, and burnt both him and his officers to death. It was in Gallipoli that the Turks first set foot in Europe. The whole locality is full of the living past: Mount Ida, Achilles, and Troy—the Cyanean rocks or floating islands, Hero and Leander, and the Argonauts.

The modern and ancient worlds have touched each other. The difference of mind and manners is immense. Steam brings us in communication with the land of Cimmerian

* Gibbon, c. xxvi.

darkness in ten days over a distance of three thousand miles, and the electric telegraph in as many hours. The mode of warfare is also frightfully different. The Russians lost 200,000 men in less than a twelvemonth, and the Allies can have lost scarcely less. Perhaps the grand total of 400,000, both sides taken together, is not too large a number to put down to the score of battle and disease in the short space of time that elapsed between the siege of Silistria and that of Sebastopol. The defence of Sebastopol alone cost the Russians, according to Prince Gortschakoff's account, "from 600 to 1,000 men a-day for the last thirty days;"* and when the Allies triumphantly entered the fortress, they found the dead piled up in the streets, and mutilated limbs stowed away in empty barrels. We turn from the account with sickening horror; yet the necessity was stern and unrelenting. Russia was stealing a march on the south of Europe: had she conquered Turkey, she would have made a flank movement on

* "No English writer would have dared to rate the Russian loss so high; it would have appeared an ignorant exaggeration. 'During thirty days,' says Gortschakoff, 'the garrison lost from 600 to 1,000 men a-day.' This is independent of the slaughter of the last three days' bombardment, and in the last supreme struggle during six terrible assaults. What the Russian losses have been during the whole campaign it is scarcely possible to conjecture, for we believe that no adequate idea has been formed of the terrors of this wonderful siege. Disease, cold, and combat have laid men low in numbers which it requires some boldness to state. We say nothing of the allied loss, but that of the Russians seems likely to have fallen little short of 200,000. Never in modern times has there been so great a destruction on so limited a field."—*The Times*, Oct. 8th, 1855. In the present contest between the Northern and Southern States of America, a most competent authority in the Confederacy rates the wear and tear in the Confederate armies alone at between 70,000 and 80,000 per annum, and considers that about 200,000 have perished or been disabled since the commencement of the war.—*Times*, Aug. 18th, 1863. The loss on the Federal side must have been much more, giving a total of half-a-million of lives lost by fighting or disease in two years.—*Times*, Aug. 25th, 1863.

Italy, Austria, and Spain; had she not been checked, France must at last have fought her on her own borders, and we along our own shores. The necessity was obvious; and the people, with their natural sagacity, perceived the dilemma, and boldly extricated themselves from between its horns by insisting on war.

The present contest will strengthen more than ever the cause of freedom and the power of the people, who prove themselves to be as far-sighted in *their* diplomacy as the most finished diplomatist ever pretends to be in *his*. The result is already visible in the temperate but firm tone with which the British nation continues to address itself to the war, and bear the necessary cost of its being carried on to a successful issue. The liberality with which they provided for the sick and wounded was not less estimable than unpretending. They openly did their duty, without looking for applause or recompence. A frame of mind of this cool and deliberate character is more than an omen of success, because it is the means of success itself, and the inferences to be drawn from it in favour of the future are bright and encouraging. The first Napoleon said, "Fifty years after my decease, Europe must make up its mind to become Republican or Cossack." That crisis has arrived, and France and England united have faced the rising foe on his own ground, and encountered him in the secret lair of his vast dominions.

The end of war is peace, and peace upon a higher elevation than it was before the commencement of the struggle. Examples without end could be adduced from history to prove that right ultimately prevails over might, and that the poetic justice awarded in works of fiction, is but the conclusion drawn from our experience of the world; for were it

otherwise, we should be disappointed, because its failure would not be in accordance with profane or sacred truth. But it is from this confidence in the course of events that we so fearlessly rely upon the fate of arms—a proceeding which, though it may be discountenanced by the consent of mankind, yet is practically found to be the surest, if not the only means left for determining the balance of power or equity in the final adjustment of affairs. War is, therefore, the trial by battle on a large scale, in which thousands die instead of one, and the magnitude of the question at stake involves the welfare of millions instead of the particular interests of a king, a noble, or a plebeian. Nor is the appeal to Heaven in vindication of ourselves one iota less sincere and legitimate than the appeal to our drawn sword; since the dangerous expedient of leaving the justice of our cause to the arbitrament of Heaven or of arms, seldom betrays us. The experiment is not likely to prove too much for itself—the capricious choice of victory decides in favour of the injured party. A single battle or campaign may apparently go against this superstitious dogma; but, in the long run, success protects the deserving, and war never fails to yield the triumph incontestably in favour of truth, of justice, and of peace.

[See note, p. 286.]

Gibbon says, in a note appended to the first chapter of the Decline and Fall, "Augustus did not receive the melancholy news with all the temper and firmness that might have been expected from his character;" but, if the following statement be attentively considered, it will be seen that Augustus had good reasons for feeling nervous upon such a signal reverse. For, besides the three legions that were cut to pieces, under Varus, in Germany, as Tacitus has so well related, two other legions, under Ælius Gallus, the contemporary, and personal friend and companion of Strabo, the geographer, *(Strabo, Lib: xvi.)*, must have been swallowed up and lost in the sands of Arabia, since they never came back. A sixth legion, the 5th or *Macedonian*, was also cut to pieces, under Lollius, in Gaul, and Augustus was forced to go

in person and retrieve the disaster (*Paterculus, xcvii.*) A strong detachment of the *Vexillarii*, or *Old Guard* as the French would have styled them under Napoleon 1st, were likewise destroyed in a small fortress in the modern Tyrol, and their camp equipage, treasure, ammunition, etc., plundered and burnt (*Paterculus, cx.*) Thus, Augustus lost more than six legions in the course of his reign, each legion being computed at 6,831 Romans, besides its attendant auxiliaries, chiefly composed of veterans, and the choice troops of the army. But it was not the absolute loss of these excellent brigades that grieved him so much as the evidence it afforded of the ultimate danger to be apprehended along the frontiers of the empire—a danger that never ceased to torment his successors down to the reigns of Constantine, Theodosius, and Valens. Augustus perceived that the barbarians had audaciously triumphed, and that nothing but the most dexterous policy and incessant military skill could retard their inroads on the State. Every ancient writer attests the importance of the blow struck in the destruction of the three legions under Varus (*Florus, iv.*, 12), and both Augustus and Tiberius felt it acutely. In an age of luxury and despotism, military spirit was the only virtue that survived the corruption of the times.

THE PEACE OF 1856.

From the eminent point of view which the happy consummation of peace has led us to, we may survey at our leisure the condition of the European powers. Warned by the past, we look upon the present state of the world with a cautious, as well as a critical eye. According to our conception of it, the study of *Mind*, in its broad physiognomy of nations and dynasties, of religion and civilization, is the highest point there is in the study of psychology. In the mental diseases of individuals, we are apt to lose sight of those great intellectual revolutions that break up the harmony of mankind, and involve the individual in the general ruin or disturbance of the whole. Thus, epidemic diseases sweep over wide portions of the earth, like the unchartered winds, and mock at the precautions of legislative quarantine, the rigid per-

formance of *pratique*, and the *cordon sanitaire* of military boundaries. So, likewise, the mental phenomena seldom, if ever, appear in solitary cases, or, if they seem to do so, it is because we are not sufficiently aware of what is going on beyond our immediate sphere of vision, so as to perceive the extensive class of maladies to which they belong, and of which they are only isolated instances. Hence it is that we are so frequently staggered by crimes of the same nature developing themselves simultaneously, and appearing, one after another, in different persons and widely separated localities at the same time. It is because they are the effect of vast moral changes, in operation over vast portions of the world, originating in occult, but by no means inexplicable causes. The true spirit of mental philosophy pre-eminently consists in understanding these great epochal and psychological variations of the moral atmosphere.

It is no longer possible for this country, nor for any other, to stand isolated and apart from the rest of the civilized world. It is not possible, either, for statesmen or philosophers to act or think as if their own country were the only one that deserved their attention and interest. No nation can any longer pretend to the narrow and exclusive policy of exalting itself at the expense of all the others, and of putting itself forward as the model republic, kingdom, or empire, for the rest to copy and work by. That day has passed away, we hope, for ever.* The family of mankind are becoming one in thought and feeling; the period of slavery has virtually, if not actually, expired. Our interests are one. Mountains and seas, climates and hemispheres, may mark us off

* North America is attempting a national egotism of this kind, which must at last come to nothing.

from each other in the many-coloured map of the universe; but our minds no longer recognise the real or artificial barriers between countries, nor the distance of space, nor the varieties of language, nor the peculiarities of manners, nor the difference of creed. It is useless to quarrel about a few hundreds of leagues of territory more or less, and worse than useless to quarrel about faith, which, if it do not amend the morals and correct the heart, is nothing better than an empty sound.

The trials and contests of the last fifty years have brought along with them their own dearly-bought experience, and, it must be added, with a velocity more than equal to a hundred and fifty years in any previous epoch of history. The nations have tried their strength and have failed. They have tottered on their slippery foundations: some of them have crumbled into nothing, while others have literally fallen to pieces. Europe has grown grey in feudalism, warfare, and theological disputes. America, liberal, independent, and young, has arisen out of the dissensions of her tenacious ancestors. *Our* prejudices are *her* freedom. On the other side, the Eastern populations have dwindled away into nothingness, abject slavery, and insignificance. China has potentially fallen; India is the *spolia opima* of Great Britain; and France, after oscillating violently between the two extremes of anarchy and despotism, has, for the present, settled down into a modified imperialism; Germany is still a huge mass of undigested fragments; Austria vacillates between Italy, Hungary, and St. Petersburg; while Russia, who only two years ago was soaring aloft, and motionless like an eagle on the wing, ready to swoop down on the first tempting prey that came within sight of her piercing eye, has fallen, and

now lies fluttering at the feet of the two successful marksmen whose well-aimed rifles have brought her to the ground.

Russia has reached a crisis the most momentous to her existence. Situated both in Europe and Asia, she is intimately concerned in the well-being of either continent. Her Asiatic or Mongolian element need not distress her; for, though much too visible to escape detection, it just serves to impart to her that imposing air of superiority and dread so essential to what she has always aimed at becoming—the empress of the world. The testament of Peter the Great, apocryphal though it be, is nevertheless the index of the Muscovite temper; and the aggressive acts of the Czars have at least borne tangible evidence to the probability of its truth. Profiting by a lucky moment, says its fourteenth article, with a large army on land, and fleets at Archangel, in the Baltic and Black Seas; the Mediterranean may be seized on, France invaded, and Germany subdued: these points gained, and the rest of Europe is ours. Late events are a practical comment on the reality of this *supposed* will of the Czar Peter. A serious inconvenience within the heart of Russia herself has, however, checked the earnestness with which she proposed to secure her conquests,—it is her religion, which retains too many traces of superstition and formalism ever to allow of her adopting any freedom of action in her efforts at political advancement. Peter the Great saw this important obstacle before him at the commencement of his reign. One of his first blows was aimed at the clergy, whose popular influence was incompatible with his own supremacy; and he fancied that with a stroke of this bold kind everything else would bend before him. He changed the Oriental style of dress for the Western—com-

pelled his subjects to wear the frock-coat, and to shave their beards. But acts of tyranny of this childish sort cannot change a whole people at once; and Russia has not yet been able to coalesce with the Western Powers, nor to enter into the *universal* spirit of the age with which the rest of Europe has been so long and deeply imbued. She still remains intact and alone, swallowed up in the vastness of her boundless wastes;* nor have her people manifested the influence of Christianity, in the plainest meaning of the word: for we must distinguish between the power of religion over the man, and the predilection of the man for his own religion. The one is a formality, the other a principle. They are two distinct things. It is one thing to observe a fast, or to die for a sacred image, and to carry a picture round the ramparts of a besieged fortress, for the purpose of inspiring or preserving devotion; but it is another thing to experience *that* Christianity which renders both the individual and his nation susceptible of the highest degree of virtue, science, and civilization.

Nevertheless, the Russians are an eminently brave nation, kind-hearted, intelligent, hospitable, ingenious, eloquent, and expert linguists, in particular. Their language is said to be almost devoid of *patois*, or provincialism, from which so few languages are exempt. They are enterprising, fruitful in resources, and patient—crafty and diplomatic. After the defeat of Narva, Peter the Great was not in the least discouraged: "*Je sais bien*," was his cool remark on first learn-

* The *Stock Exchange Journal*, of St. Petersburg, Sept. 18th, 1863, in a report from the Minister of War, shows the Russian regular army to consist of 1,523,632 men; but this mass of troops is dispersed over a surface equivalent to one-seventh of the entire globe.—*Times*, Sept. 28th, 1863.

ing the news—"*Je sais bien que les Suédois nous battront long temps, mais ils nous apprendront enfin à les battre!*"—a spirit of diplomacy, from which we may do well to take a warning on the conclusion of the *present* peace—*quousque tandem?* 1856. *Quamdiu?* 1863.

The faults of Russia belong to her antique, if not antiquated, form of government, which was Tartar, as much as to her aggressive mode of civilization, which is intensely Russian; and her prejudices and government, both of them dating from the darkest epoch of the world, have not yet been reformed by the just demands of her people, nor remodelled by amalgamation with elements external to herself. The Russian sees his own fate in that of his Czars. With the exception of the late Emperor, Nicholas, their reigns have seldom exceeded thirteen years, while the average reigns of other European monarchs is about twenty-five; and as his Emperors have disappeared, no one scarcely knows how, so he himself disappears from his home, as a conscript or an exile, never more to return to his family hearth! In order to reach the level of general civilization, knowledge, popular freedom, and enlightened administration, a crisis, such as the present, was indispensably necessary to the very existence of "all the Russias." She could not advance by means of her own inherent vitality; she could not stand still while the rest of the world was advancing; and to recede was a national decease. The blow has been struck—the walls have been levelled with the earth—an open breach has been effected into the very heart of Russia—and the inroad of modern opinions and freedom of thought through the yawning gap is inevitable and irresistible. When the Allies landed at Old Fort, on the 14th September, 1854, they took

possession, not of Muscovite territory, but of the Muscovite mind.*

France, as a great military power, is the first and foremost of the European family. She has never wanted a great statesman nor a great warrior, at her command, or on her throne, from Pepin the Little down to Napoleon the Great. At the same time, she is the most fickle and the most constant, the bravest and the lightest hearted, the most ingenious and the least persevering, the most enthusiastic and the most frivolous, the most erudite and the most superficial, of the chief western powers. Her history abounds with the saddest and the most joyous of anecdotes and annals. The Merovingian, Carlovingian, and Capetian dynasties are full of characters as remarkable for their piety as for their vices, for their debaucheries as for their saint-like

* The *Czas*, the Austrian journal of Cracow, says :—"In the night of the 20th ult., the recruitment of 30,000 men, from the age of nineteen to thirty-five, took place in Poland." This is the most terrible form of serfdom extant. But the Russian government are already alive to the pressure of the times. A university is to be founded at Nicolaieff. An observatory—arranged for meteorological as well as astronomical records—is also to be erected in the city. Proposals for railway undertakings are in the market. These reports speak volumes.

The subjoined is an admirable description of the Muscovite, Tartar, or Mongolian physiognomy. *Times'* Special Correspondent, April 4th, 1856 :—

"There is a wonderful family likeness among the common soldiers. The small round bullet head, the straight light hair, high cheek bones, gray keen eyes rather deeply set beneath straight and slightly-defined eyebrows, undemonstrative noses with wide nostrils, large straight mouths, square jaws, and sharp chins, are common to the great majority of them. Their frames are spare and strongly built ; but neither in stature nor breadth of shoulder do they equal the men of our old army of 1854. Many of the officers are scarcely to be distinguished from the men in air, bearing, or dress, except by the plain, ill-made, and slight swords which they carry from an unornamented shoulder-belt ; but now and then one sees a young fellow with the appearance of a gentleman, in spite of his coarse long coat ; occasionally a great tall lumbering fellow, who seems to be of a different race from the men around him, slouches along in his heavy boots."

virtues. It is a tale of romance from first to last, and never palls upon the taste with dullness and inaction. Her chivalry is proverbial. For the sake of liberty, real or imaginary, as it may be, she has changed her dynasty and its titles, her ensigns and her flag, more than once within the memory of some of the present generation. She has been infidel and Christian with the same breath; she has deposed and defended the head of her church in the course of the last half century. Her spirit has been subtle in the cause of Christianity ever since she was first called Frank. Warmly attached to her religion, which she never at heart renounced, she has endeavoured to propagate it all over the world. Her missionaries have always supported a high reputation in the most distant quarters of the globe. She alone owns the splendid victory over the Saracens, in the eighth century, which so effectually freed Europe from their grasp. A thousand years ago, the empire of the Franks was the most powerful state in Europe; and for a long period she was the centre of the civilized world. To her the student owes a willing debt of gratitude for her unrivalled works in science and literature, modes of feeling and sound logic; and the scholar and man of taste thanks her for so much that is beautiful, attractive, and instructive in the fine arts. Often buried beneath the agitated surface of external events, her intellectual progress has never ceased, and her history forms an essential and magnificent theme in the life of every civilized community. The dead monotony of the Byzantine court expired in a decreasing scale of moral, political, and intellectual degradation, and the Saracenic sway was but the hasty growth of circumstances unable to survive its own internal distractions. But the French have, in spite of some

dark exceptions to the contrary, exhibited the gradual organization of a Christian state, and the slow development of Christian science, for upwards of ten centuries, and they are as young now in valour and spirit as they were when Clovis held the sceptre and bowed his haughty head before St. Remy at the font, upon his conversion to Christianity, supposed to have been granted to the prayers of his sainted wife, the fair Clotilda.*

Such are the opposite characters of the two nations that have lately confronted each other in the field, or during the weary siege. When gun was pointed at gun, and trench was dug, and rampart raised against counter rampart and counter trench, how little did the well-disciplined officers who headed the charge, defended the breach, or led the assault, fancy, as they dropped at the cannon's mouth or fell pierced with the sword or bullet, think that they were only fulfilling the destiny of nations, and exemplifying the distinction of races. Their fate will serve to illustrate some curious questions in ethnology, or settle a worn-out date in a doubtful point of history: Sebastopol fell on the 8th September, 1855, and a treaty of peace was concluded at Paris, March 30th, 1856.

In the journals of the day, relating to the peace, there is an air of languor that reminds us of a person that has been over-fatigued. It seems to be a feeling of relief at having been allowed to lay aside a burden beyond his strength. Nor is this sentiment peculiar to this country, for, although expressed in a different manner, it is perceptible on the other

* "But in France government is neither founded on prescription, as with us, nor on superstition, as in Russia. The qualities which secure obedience in France seem now to be purely personal, and little is gained by birth, unless it be united with those qualities which conciliate the respect and compel the obedience of mankind."—*Times*, March 7th, 1856.

side of the channel. The eagerness with which the first proposals of peace were met by the Continental powers is, if possible, more undisguised than the want of enthusiasm on our part. The English were alive to the fact of their resources being equal to a second, or even a third, campaign, and of the strong probability of their coming out of the last battles far more victoriously than from the first. Nevertheless, they were willing to decline any further contest, and were content to retire in full force behind the bulwarks of their own defences. But it is, also, evident that Russia was exhausted, if not used up, and France, from whatever cause, only too eager for peace. But whether on their side or on ours, two short years of warfare have been enough to damp the warlike ardour of the combatants. It is useless to plead the milder temper of the present age: the truth is, the burden was too enormous to be borne any longer without danger to the whole of Europe.*

The next power is that of the Turkish Empire, whose interests we have espoused, and with whom we have enlisted ourselves. But it is not the first time that the Turks and Christians have fought together. They were united in the reign of Justinian, in the sixth century, and in that of Heraclius, in the eighth; and then there was the famous

* "I believe the best feeling prevails here among all classes, and almost all parties, at the conduct of England throughout. No one knows better than this people that if there ever was a time when England was prepared to carry on war with vigour, and with all the elements of success, it is the present; that her army is in courage, discipline, experience, and resources such as it has seldom been, and that her maritime force is unexampled, even in her own history. The probable cause of the eagerness for peace on the part of the French was the terrible mortality among their troops from camp-fever. In the spring of 1856, they lost 6,000 men from this cause alone. The English, on the contrary, were at this time almost quite healthy." —*Times*, Paris Correspondent, April 2nd, 1856.

alliance of the Sultan Solyman with Francis the First of France, in the sixteenth. But none of these alliances lasted long. Even the cunning treaty of commerce entered into by Venice with Mohammed II., which brought down upon the Venetians the hatred of Christendom, was of a very brief duration. The disciples of Mahomet do not approximate to the followers of Christ in any one of their relations. They never have agreed, they never can, and they never will. They are inherently inimical to each other. Our institutions, laws, marriage, mode of government, course of civilization, style of thought, modes of intercourse, habits, dress, and behaviour, are diametrically opposite. As a people, they are immiscible, unapproachable, and antagonistic with ourselves. *We* cannot change, neither can *they*. *They* are Asiatics, *we* are Europeans. We are all energy and adventure—they are all apathy and fatalism. They are to-day precisely what they were in 1454—that is to say, a Tartar camp pitched on the borders of Europe. Hence it has happened that war between us and them is but a matter of course, while peace is a diplomatic fiction, which can continue only so long as it serves the nonce.

Had the policy which dictated the Crusades been persisted in for one century longer, not a turban nor a scymitar would have been left on this side the Bosphorus and Dardanelles. They who suppose that the Crusades were nothing more than a Quixotic exploit for the purpose of gratifying an unmeaning spirit of devotion and chivalry, know but little of history. The Crusades, as far as they went, were the salvation of the West; their only fault is that they did not go far enough. The cause that produced them was a stern necessity of the last importance to mankind; and as the late ex-

pedition to the Crimea has checked the inroads of Russia upon Europe, so the Crusaders effectually repulsed the invasions of the Saracens and Turks from the East. As far back as the ninth century the Saracens nearly made themselves the masters of Rome and the whole of Italy. Had they succeeded in their attempt, resistance would have been in vain, and the ascendency of Islamism in the Western hemisphere would have been complete. The Crusades were the only means left for turning the enemy's flank, by descending upon Asia itself, and carrying the war into the heart of *their* land, instead of suffering them to invade *ours*. The Crusades, therefore, were the result of a policy the most enlightened and far-sighted of its kind, and it was well nigh brought to a triumphant close on the 7th of October, 1574, when Don John destroyed the Turkish fleet in the Gulf of Lepanto. That immortal day broke the Ottoman pride, and undeceived Europe, which fancied that until then the Turkish fleets were invincible.*

And now as to ourselves. The proverb says it is easy enough to praise the Athenians at Athens; and if we extol our native land, where is the patriot who shall blame us? But let us be candid. Let us look down upon our country from the highest point of sight, and scan its merits, if not its demerits, with the eye of an impartial philosopher.

In the present state of public opinion, with a Reform Par-

* Cervantes was wounded in the battle of Lepanto. *Don Quixote*, part 1, ch. xxxix. In the opening of the second part, Cervantes recurs to this famous battle with expressions of the greatest warmth. Lord Bacon, in the dialogue *De Bello Sacro*, wonders that Don John was never canonized. How was it Sir E. S. Creasy did not add Lepanto to the list of his fifteen decisive battles of the world? Lepanto by sea, and the battle of St. Gothard, Aug. 1st, 1664, on land, were the turning points in the naval and military career of Turkey.

liament, and the great principle of religious toleration no longer a question in abeyance, but a positive agent alive and alert in the bosom of the Cabinet itself, it is impossible that any ministry, formed upon whatever conditions it may be, can hold together for any length of time, unless it act in accordance with these popular and acknowledged data in politics. Trade and intercourse with foreign nations is no longer on the same footing that it was only twenty years ago. Monopoly is at an end;—the free trade with China shows this. Commerce cannot be any longer shackled and restricted by fetters, which, while they gall the many, aggrandize the few. Public opinion is not to be passed over as a mere sentiment of no force, except when it coincides with the policy of cabinets, the prerogatives of princes, or the maintenance of national egotism. The opinions of many are the voice of one—the mind of the ignoble and the pauper is as energetic as that of the wealthy and the noble. The handicraftsman owns a private judgment and a free will as clear and discerning as that of the statesman. The private interests of the world are common property, which can no longer be molested with impunity, nor excluded without opposition from a fair participation in their proper share of the public welfare. The prime minister of the present day must have the courage to face the whole world, and the wisdom to discern that, while it is his first duty to serve his sovereign, it is, at the same time, his most obvious policy to answer the requests, to meet the wishes, to supply the wants, and to ameliorate the sufferings of the totality of mankind. Party is at an end. The watchwords of Whig and Tory have lost their meaning. A new designation is wanting to signify the precise character of Great Britain's line of conduct at the present epoch. During

the last quarter of a century the British constitution has undergone a revolution, bloodless indeed, but not less portentous to her future destinies, than was the Reformation by Henry VIII., or the invasion of these shores by William the Conqueror.

The entire repeal of the Corn Laws was but the touchstone to a set of ideas that must eventuate in free trade altogether, just as the Reform Bill was but the overt act of another train of ideas respecting popular liberty, which must eventually end in a modified republic. And so, likewise, the removal of religious disabilities was the act of a great-minded people, proclaiming that a change had passed across the spirit of the age, and put itself at the head of civilization; it dispersed the darkness of the middle ages by acclamation, and showed that it could be religious without bigotry, and right-minded without superstition. It was a noble deed that penetrates to the inmost recesses of the heart. All these questions have come upon us with giant strides, and it is already manifest that their issue is, as far as it has gone, entirely beneficial to the well-being and advantage of the people by whom they have been brought about. Their intelligence and good sense is known to all the world; and our stability in the midst of the revolutions of 1848 is a solid proof of this. England must go forward, for she cannot go back; nay, more, she *is* going forward, and *will not* go back.

Her position as a maritime power, both naval and commercial, is the mightiest the world has ever yet seen. Her colonies are distributed all over the globe; her trade is settled in every port; her flag flies on every sea; her personal bravery is undisputed; her navigation unrivalled; her liberty, both national and individual, large and secure;

and the freedom of her press uncompromised, *uncensored*, and unabused. There is no doubt that a population of this description must be powerful, because of its intelligence, and cannot be conquered, because it is not only free itself, but also seeks the freedom of all others. Such is the fourth power recently engaged in the war.*

The little kingdom of Sardinia, which has played so heroic a part in the contest, ought not to be passed over in silence, without receiving its due meed of praise; and the mention of Sardinia leads us to think of mismanaged Italy, whose fortunes are now trembling in the balance. Another congress may have to determine questions whose explosive elements may ignite at a touch, and set the whole of Europe once more in a blaze. It is an instinctive feeling of uncertainty concerning points of this import which cannot be included within the proposed peace, that hangs heavily on thoughtful and foreseeing men, besides the deep and universal consciousness that peace is not the ordinary state of affairs,

* The physical power which England derives from the transformation of the latent power of its coal into active force is scarcely conceivable by unscientific minds. Professor Rogers, of the United States, furnishes us with the following estimates:—

"Each acre of a coal seam, four feet in thickness, and yielding one yard net of pure fuel, is equivalent to about 5,000 tons; and possesses, therefore, a reserve of mechanical strength in its fuel equal to the life labour of more than 1,600 men. Each square mile of one such single coal bed contains 3,000,000 of tons of fuel; equivalent to 1,000,000 of men labouring through twenty years of their ripe strength. Assuming, for calculation, that 10,000,000 of tons, out of the present annual products of the British coal mines, namely, 65,000,000, are applied to the production of mechanical power, then England annually summons to her aid an army of 3,300,000 fresh men, pledged to exert their fullest strength through twenty years. Her actual annual expenditure of power, then, is represented by 66,000,000 of able-bodied labourers. The latent strength resident in the whole coal product of the kingdom may, by the same process, be calculated at more than 400,000 of strong men, or more than double the number of the adult males now upon the globe."

any more than health is the usual condition of life, or prosperity the rule of fortune, but that, on the contrary, prosperity is liable to be interrupted by reverses, health by disease, and peace by war.

And, after all that has been done, what have we gained by our huge exertions? After the waste of half-a-million of lives, a hundred millions of money, the destruction of our foe's choicest strongholds,—Sweaborg and Sebastopol,—the sinking of his ships, the capture of his small craft, the petty marauding of his coasts, and the display of our own prowess, what good have we accomplished for ourselves or for the world? Is the world advanced one inch nearer to happiness, freedom, and stability? Is Europe wiser and better than she was two years ago? Is France a greater country, England a more flourishing community, or Russia a less formidable adversary? We pause for a reply: time only can answer these questions. A story is told of Talleyrand, when he was old and confined to his easy chair, listening to a popular tumult in the streets of Paris. To the sound of the tocsin and the discharge of the musketry he beat the tattoo on the table before him, murmuring to himself the words, "*Nous triomphons!*" "Who is victorious?" asked those about him. "Never mind who," replied the wary diplomatist, "never mind who wins or loses—we shall learn that to-morrow!" And this is the gist of the whole matter; for, in the course of ages, it is of little consequence whether this emperor is defeated or that emperor conquers, or this people is supreme, for the space of a year, a lustrum of years, or a brief century. The end is the same:

> "They strut and fret their hour upon the stage,
> And then are heard no more."*

* When, in December, 1845, at the height of his political greatness, the

But no great event ever happens without a cause proportioned to its greatness. What was the cause, then, for which we so liberally opened our purses, and so resolutely ventured our lives? It was simply to hinder one neighbour from breaking into the house of another neighbour, and robbing him of his goods. So far as this was the case we have succeeded in our plans, and, considering what the chances of success are, this is affirming a great deal. But something more was aimed at beyond the object we started with the intention of reaching; and should this ulterior point of sight have been, in fact, reached, and should its attainment prove to be a permanent one, it was certainly worth the blood and treasure expended upon it.

If there be anything real in this world it is the spirit of Christianity. The mutual fellowship of mankind upon an equal footing, and subject to equal laws, is the rule of government, the end of civilization, and the climax of humanity. There is no doubt that the late conflict has achieved a grand desideratum in this respect. It has already led to kindlier feelings between the eastern and western nations, a reciprocity of rights, a concession of prejudices, and a toleration of creeds. This sentiment is also expressed by Russia herself, and evinced in some of her late acts; and it cannot fail to be pressed still more closely upon her attention by the force of circumstances, that speak with too loud a tongue not to be listened to. An easier intercourse with countries, hitherto all but hermetically sealed against our entrance, is another

Emperor Nicholas retired from his audience with Pope Gregory XVI, it was generally understood that his holiness had warned him to prepare against the approaching evils of his reign. In 1855, Nicholas sank, shorn of his life and glory.—Wiseman's *Four last Popes*, p. 324.

necessary result of the past contest, together with a greater freedom of thought, a quicker circulation of ideas, an exchange of literature as well as of more substantial commodities, and last, though not least in the order of society, intermarriages, fresh blood, new connexions, new manners, new customs, and new things. These benefits will be felt by all for a season at least, if not for a continuance; and Russia, in particular, will be more known to us than she has been before, and we to her in return. A better understanding among all parties must ensue, and a new order of affairs arise out of the old. It is but a repetition of the effects of the more extensive emigrations we read of in former times, such as those of Sesostris or Cyrus, Cæsar or Pizarro. It is a passing panorama replete with imagery, and we ourselves are taking part in one of those striking scenes in the drama of nations, which will remain emblazoned on the page of history to all generations.

And here we must rest. The sun is declining calmly over the waters of the Black Sea, and shedding its oblique rays on the remains of what was once Sebastopol. The waves that heave upon its coast, or ripple upon the surface of its placid harbour, are reflecting the golden hues of evening. Everything is still, and the more solemn from the quietude that covers the dead, the ruins of the fortress, the long-cherished hopes of the czars, the camps of the allies, and the outposts of the Russians along the opposite heights. All is still: not a gun nor a rifle disturbs the deep repose; only a bittern booms from the sedgy ground of the Tchernaya, or a vulture hovers over an unburied skeleton in the valley of Inkermann, or a stray dog bays at its own shadow against yon broken wall. It is the stillness of death. They who

fell in action have long since passed to their last account; and the largest army* that England ever counted in the field is preparing to return, crowned with laurels, to its native land. May the peace that they, together with our allies, the gallant French and the brave Sardinians, have achieved for us, be as lasting as their valour has been unfailing and their arms triumphant. We linger in fancy over this remote corner of the earth, where lie buried so many whom we loved and honoured, and from whence has sprung that glorious end for which alone they fought, bled, and conquered!

* "We have to keep that army in efficiency, if not in full numbers, and, should it suffer any decay, should it crumble into regiments, should it disappear in country quarters and colonial stations, and have no aggregate existence except in the monthly list, showing whereabouts in the world each hundredth part of the army happens to be buried, we are sure that the Government of this country will be held responsible for the calamities certain to fall on us in the next great war."—*Times*, April 8th, 1856.

SEBASTOPOL EIGHT YEARS AFTER THE SIEGE.—A gentleman, who has lately returned from a fortnight's visit to the Crimea, has sent to the *Morning Post* the following account of the appearance of Sebastopol and its neighbourhood in 1863:—"On arrival at Sebastopol one is at once struck with the desolation that prevails on each side of the harbour. There are, indeed, a few guns still mounted on Fort Constantine, and the Russian ensign waves over it, but the other forts on the north side are crumbling to pieces, and not a gun nor a soldier is visible along the whole range of these once formidable works. At the entrance of the harbour are the few worm-eaten hulks lately raised by Colonel Gowen, and off South Bay lies the admiral's steam-yacht, while a few coasters are lading with shot and broken shell, the *reliquiæ Danaum* of 1854-55, at the further extremity, and these are the representatives of the Russian fleet in the Black Sea in 1863. On Cathcart's-hill, though the grass has grown up over many of the flat tombstones, we only noticed one headstone that had been injured; it was one which marked the grave of a colonel of the 55th Regiment, and on enquiry we found that it was blown down in a gale last winter. It splintered to pieces, and the words, 'Colonel, 55th Regiment,' were all we could collect. In the adjoining cemeteries, where some hundreds of our brave soldiers rest, it is gratifying to see that even the round shot which eight or nine years ago some friendly hand placed as a border to his comrade's grave remain undisturbed. What has been said of Cathcart's-hill applies equally to the graves of the light division, and, in fact, to all the large enclosures. Wild-flowers

spring up luxuriantly about them all, and there is no appearance of any intrusion either of man or beast. General Pelissier's head-quarters and Lord Raglan's house are inhabited by Tartars, who have taken great pride in preserving everything that tells of their departed glory. The huts still surround Lord Raglan's quarters which once sheltered his staff; a small tablet in the room where he died records the fact. Kadikoi and Balaklava are as quiet as the graves, some few small boats lying idle in the harbour, our quay rotting to pieces, and our huts now occupied by the returning Tartars, whose only occupation seems to be fishing for the treasure trove, the sad mementoes of the awful gale of November 14th, 1854. A bagful of sovereigns was fished up a few days before our arrival. There are said to be 3,000 inhabitants now in Sebastopol; we scarcely met thirty. The shops consist of a long line of open huts, on which English letters repeatedly occur, and prove their origin. These cover the ground where Fort St. Nicholas once stood. Some few of the houses have been re-built facing the harbour, and we were agreeably surprised to hear one evening the strains of music, which brought out nearly 100 well-dressed people to promenade on the terrace, where a naval trophy looks proudly down on the shattered town, but whence they came and whither they returned we never exactly found out."

THE INDIAN REBELLION IN ITS MORAL AND PSYCHOLOGICAL ASPECTS, 1857.

The European inhabitants had slumbered peaceably on the night of the 10th, and the large cantonments, garrisoned exclusively by native troops, were undisturbed on the morning of the 11th of May, when some native cavalry troopers dashed across the bridge of boats on the Jumna, and entered the city of Delhi. They left half their number to hold the bridge, while the rest—not more than fifteen, it is said—galloping through the streets, created a riot as they passed along among the scum of the population,—faced the 54th Native Infantry, which was ordered down to resist them,—pistolled the Colonel and European officers, who were without their arms,—and in an incredibly short space of time took

military possession of a fortress and arsenal the strongest and the best appointed in India, and obstinately continued to hold it till the 20th September following. All the Christian population within its walls were massacred. A very few only escaped to tell the tale. The chief military officers fell; the banks, printing houses, and other non-military stations, were plundered, the inmates murdered, and a vast number of clerks, half-castes, inferior Europeans, and every real or nominal Christian, slaughtered on the spot. No massacre took place in the cantonments; in fact, the regiments left there seem to have stayed with their officers the greater part of the day, and only gradually or passively went over or refused to act. The officers and ladies were collected at one point, and long and anxiously did they expect the arrival of aid from Meerut. Mutineers in abundance arrived thence; but the day wore away, and no Europeans came. Some thoughtful mutineer —whether in mercy or in triumph, we know not—sent up a cart and deposited before the survivors the bodies of the officers killed in the city. Bitter, indeed, must have been the feelings of those who remained. In the evening, finding themselves deserted by their men, and without aid from Meerut, they determined to fly. They had a number of carriages of different kinds, and they generally escaped in safety. But other stragglers from various other quarters of the place had more difficult and perilous escapes, wandering as fugitives from village to village; and some of them were thus wandering for several weeks before they reached their European relatives, and enduring all the time most cruel hardships of want and weather.*

* The *Times*, October 24th, 1857. History of the Bengal Mutineers, from Umballah.

Thus ended the day on which Delhi fell, and with its fall quickly followed that of every other military station in Upper Bengal—Benares, Allahabad, Agra, Lucknow in Oude, Cawnpore, and others. Regiment after regiment revolted, and, with different episodes of bloodshed and cruelty, passed over to the side of the rebels, and turned their arms against their employers, and the white population generally. The first shot was fired on the 10th of May, at Meerut, and by the 10th of June the whole of the North-west Provinces had become completely revolutionized; the British rule was confined to a very few insulated stations held by European troops; in the country generally it had ceased to exist. Entire anarchy had taken its place.* Dinapore and Arrah revolted at a later date. Some local insurrections broke out in the Bombay Presidency; and the Punjaub was prevented from following the same desperate course by nothing else than the decision of its energetic Commissioner, the late admirable Sir John Lawrence, and the presence of several European regiments. In all other quarters the rebellion was complete; and by the beginning of July we had 100,000 well-disciplined troops of all arms—cavalry, infantry, and artillery—arrayed against us in the field, or in actual possession of the strongholds of Delhi and Cawnpore, if not of Lucknow, Agra, Benares, and Allahabad. Never was any military achievement so well planned, or so well achieved without a plan; never was a civilized Government so easily taken by surprise, or, if not surprised, so easily wrested of its strongest stations and richest provinces, against its will; its officials slain, its people tortured and killed, its highest and lowest military officers put to death or to flight, its

* The *Times*, October 26th.

houses and cities burnt to the ground, and its treasure plundered and carried off in triumph or contempt. The rebellion was a master-stroke; it had attained its first object by a dash, and in the short space of a month it had inflicted a wound on the name and character of the British power which it will take years to heal up, more than half a century to re-establish in its pristine strength, and, it may be, never to recover from entirely. At all events, it can never be forgotten by either side; suspicion must always remain, and with suspicion come also distrust, retaliation, and revenge. As we stand by and look on, we are tempted to exclaim, Alas! that in one hour so great riches should have come to nought!

In the foregoing brief account, our minds are carried back to the ruthless period of Tamerlane, who once proposed to exterminate all the inhabitants of the Chinese Empire, and turn it into a sheep-walk. From this direful project he was hindered by death; but a similar process was his rule with the cities he conquered.* Let it be understood, he came down upon cities living in peace and prosperity, like those in India,† which had done him no harm, which had not resisted him, which submitted to him at discretion. He sacked the city, killed or enlisted the soldiery, and divided the rich, the women, and the artisans, among his followers. The Tartar character has been always the same, and in the Indian mutinies we see it exemplified to the very letter.

* Neither age, nor the severity of winter, could retard the impatience of Timour; he, mounted on horseback, passed the Sahun (Iaxartes) on the ice, marched 300 miles from his capital, and pitched his last camp at Otrar, where he was expected by the angel of death. Fatigue and the indiscreet use of iced water accelerated the progress of the fever, and the conqueror of Asia expired in the seventieth year of his age; his designs were lost, his armies were disbanded; China was saved.—*Gibbon.*

† *Newman's* "*Turks,*" p. 40. Dublin, 1854.

Our object in selecting this popular theme, is on account of the very striking manner in which certain emotions of the mind have displayed themselves on so many trying occasions —chivalry, devotion, and fortitude, on the one hand; cowardice, treachery, and cruelty, on the other. And these noble or ignoble qualities have not been the transient outbursts of the moment, but, on the contrary, the inborn energies of the soul, which belong not to the individual, but to his race, and not merely to his race, but to the political, moral, and social institutions of which he is the living representative and agent. We are accustomed to delight ourselves with tales of romance, and the spirit-stirring scenes of the great drama of Shakspeare or Racine; but within the last few months fiction has been surpassed by truth, and tragedy fades into insignificance before the actual horrors endured by our countrymen, or resisted to the last by their own heroic bravery, or else coolly narrated by their masterly pens in the midst of danger. Nor have our countrywomen fallen short of their high birth and destiny. Their courage has risen with the occasion, and shone the brighter, the darker grew the storm. They never quailed. They literally stood to their guns. They faced the shower of bullets—the glare of the naked tulwar. They loaded the muskets or pistols, and handed them to their husbands for their mutual defence, in the midst of the hottest fire; nay, more, when all was done that could be done by human strength and self-possession in the front of overwhelming forces, they gave up their lives rather than their honour, and devoted themslves to death instead of infamy. We see a noble Englishman and his wife defending a tower. The woman loads her husband's pistols: he fights the ruffianly legion till it swarms up the walls. Then the brave

fellow, kissing his wife, slays her—which he does for her sake, but which a Rajpoot would have done for his own—and then he kills himself, and they die as the infernal pirates rush upon them. Instead of the anecdote of Chelonis and Clœlia, our children may in future learn, from the victims of Bengal, how nobly an Englishwoman may die—how Mrs. Skene fought by her husband's side, how Miss Jennings offered to sacrifice herself to save her father. And upon these countrywomen of ours—matrons, virgins, tender girls—and upon tender children, have been practised the vilest tortures; things to be remembered, not descanted upon; infamies which the Greeks would have called The Unutterble, failing to describe them.* Nor are the instances of high devotion only a few. At Futtyghur, the wife and child of Mr. Tucker being about to fall into the hands of the rebels, she called to her husband to shoot her at once. He did so, his child also, and then himself. A Major Robertson also shot his wife and children and himself, under similar circumstances.† This is a new and melancholy feature in the history of these tragedies.‡ But everything of the sort falls into the shade compared with the lofty, moral grandeur of the heroine of Cawnpore, General Sir Hugh Wheeler's daughter,§ who was taken off by a sowar, and put into his

* The *Leader*.

† Let us hear both sides of the question:—"I have given up walking about the back streets of Delhi, as yesterday an officer and myself had taken a party of twenty men out patrolling, and we found fourteen women with their throats cut from ear to ear by their own husbands, and laid out on their shawls. We caught a man there who said he saw them killed, and showed us their husbands, who had done the best thing they could afterwards, and killed themselves."—*Extract of a letter from Delhi after the storming of it.*—The *Times*, November 19th, 1857. So that what is heroic on our side is dastardly on theirs.

‡ Letter from Jubbulpore, August 5th.

§ The *Times*, October 16th, 1857.

house along with his wife, near the church. This girl remained till nightfall, and when he came home drunk and fell asleep, she took a sword and cut off his head, his mother's head, the two children's heads, and his wife's head, and then walked out into the night air; and when she saw other sowars, she said, "Go inside and see how nicely I have rubbed the Resseldar's feet!" They went inside, and found them all dead. She then jumped into a well, and was killed. There is a stern brevity in the tale that strikes us with mixed admiration and awe; and in those few calm, biting words, "I have rubbed the Resseldar's feet," there is a horrible irony, expressive of the frenzy of passion at its highest pitch of exaltation. Those who listened to these words, and saw what this girl had done, were seized with fear, and none of the rebels would have anything to say to the Englishwomen whom the Nana at first proposed to give over to the soldiery. It was Medea again, but without her magic; Judith and Holofernes, in the midst of drunken carnage; Virginius and his daughter, in the Roman Forum; Tarquin and Lucretia. But no, it was none of these, for they all fail in the comparison, and that tender girl stands alone in her self-devotion—THE BRITISH SOLDIER'S HIGH-MINDED DAUGHTER. Alas! alas!—so young, so fair, so pure—to have died so early—to have perished thus! In the history of India, her name will descend to the latest posterity. A hundred and fifteen women and children were imprisoned with scarcely any food for six days, except gram and such stuff. The Nana ordered them to be killed. When they learnt this, the ladies tore their clothes, and with the shreds fastened the door. A sowar jumped over the wall, and began the slaughter; other sowars came through the

doors, and all the prisoners were killed. Their bodies were cast into the well. Twenty-five women and children remained alive under the heap of dead bodies—the women were killed, and the children dashed against the ground. The floor of the apartment was clotted with gore. Portions of dresses, collars, and children's socks, and ladies' round hats, lay about saturated with blood; and in the sword cuts on the wooden pillars of the room, long and dark hair was carried by the edges of the weapons, and there hung their tresses. "I often wish," says a writer who visited this room upon the recapture of Cawnpore by General Havelock, shortly afterwards—"I often wish I had never been there. Their limbs may be seen sticking out of the mass of gory confusion down the well into which they were thrown. I picked up a mutilated prayer-book. It had lost the cover, but on the fly-leaf is written, 'For dearest mamma, from her affectionate Tom, June, 1845.' The Litany, at page 38, is sprinkled with blood!" Some portions of a diary written in pencil were found, and it broke off at the day of the massacre, or just before; and a small work-box was open, and the things scattered about in the midst of the blood. General Neill compelled the high-caste Sepoys, whom he caught, to wash up the blood, and afterwards hung them, by both of which acts they defiled themselves and lost their caste; and the 78th Highlanders, on their arrival at Cawnpore, extricated General Wheeler's daughter from among the mangled remains, gently removed the ringlets from her head, separated a portion of them for her friends at home, and divided the remainder equally among themselves, each man swearing, as he received his share, that for every hair he had received a Hindoo should die by his hand. Well might Lord Palmerston

exclaim, on the 9th of November, at Guildhall, "Henceforth the bravest soldier may think it no disparagement to be told that his courage and his power of endurance are equal to those of an Englishwoman!"

The atrocities of the Nana Sahib at Cawnpore are, however, only in keeping with his creed and race. At the capture of Sivas by Timour, in 1389, four thousand Christian warriors were buried alive by his orders. Their heads were tied down by cords lashed tightly round the neck and drawn under the thighs, so as to bring the face out between the legs. In this agonizing posture they were thrown into graves, purposely left open for a time to prolong their misery.* After the battle of Nicopolis, Bajazet sat on a lofty throne to see the execution of three hundred Christian gentlemen, pitilessly murdered before his eyes. The meaner captives were sold for slaves, and the women, who had followed the French camp, were abandoned to the brutality of the Turkish soldiers.† The Sultan Musa, in 1424, caused the carcases of three Servian garrisons to be arranged as tables, and a feast spread upon them, at which he entertained the generals and chief captains of the Ottoman army; and in the memory of many of us, on the insurrection of the Greeks in Scio, their barbarian masters carried fire and sword throughout that flourishing island till it was left a desert, hurrying away women and boys to an infamous captivity, and murdering youths and grown men, till out of 120,000 souls in the spring time, not 900 were left there when the crops were ripe for the sickle.‡ In the present year the same scenes have been repeated in India, and the daily journals are teeming with

* Creasy's "*Ottoman Turks*," vol i., p. 74.
† Ibid, pp. 60—84; on the authority of Froissart.
‡ Newman's "*Turks*," p. 136.

their horrid particulars. We see a young girl, naked, mounted upon a cart, paraded through the streets of a city, subjected to the last humiliations, and torn limb from limb by gangs of black satyrs.* Give full stretch to your imagination, says a writer who had witnessed what he describes,—think of everything that is cruel, inhuman, infernal, and you cannot then conceive anything so diabolical as what these demons in human form have perpetrated. A man who witnessed the last massacre at Delhi gives a horrid account of it, stating that little children were thrown up in the air, and caught on the points of bayonets, or cut at as they fell with tulwars. One lady was stripped, abused, and murdered in the most cruel manner, first cutting off her breasts. Another lady, who had hid herself under a bridge, was treated in the same manner, then hacked to pieces, and her mangled remains thrown out on the plain. We found a pair of boots, evidently those of a little child, with the feet in them. They had been cut off just above the ankles. Children were put to death and cut to pieces before their parents, who were lashed to a post or tree ; and pregnant women were violated and ripped open before their husbands' faces, or flayed alive, or roasted over a fire, or slowly lacerated till they died. There is no end of their horrible ingenuity in torturing their victims. Bungalows were burnt to the ground—costly furniture broken and despoiled—silver services, money, and jewels stolen or strewed about. There was nothing but fire and blood, ruin, and desolation, and woe.†

* The *Leader*.

† "The proverbial woes of Priam were fulfilled." *Il.* xxiii., 38—76. Perhaps, they have been more than fulfilled in America :—"At the present hour ruin and desolation reign supreme. The Federals kill or carry off from our plantations every living thing except the white people, and these they

We might suppose that a new era had commenced in the history of the world, so regular and peaceful has been the course of the last quarter of a century. But peace and prosperity are not the rule of life. The historian knows but too well that his page recounts a wearisome catalogue of contest and misery from the first centuries to the last. Scarcely a hundred years have elapsed since the first French Revolution, whose enormities staggered the world; not fifty since the spoliation of Poland by Russia. At the close of the last century, to select one instance out of many, when the Russians took Oczakoff, in 1788, the same scenes were enacted. The Turks of Oczakoff had, before the siege, surprised a Russian village in the vicinity, and mercilessly slaughtered all the inhabitants. Potemkin and Suwarrow caused the Russian regiments that were to assault the town to be first led through the village as it lay in ashes, its streets still red with the blood of their fellow-countrymen. With their natural, stubborn, savage courage, thus inflamed by the longing for revenge, the Russians advanced over the frozen Liman against the least fortified side of the city. Whole ranks were swept away by the fire of the besieged; but the supporting columns still came forward unflinchingly, through musketry and grape; four thousand Russians fell, but the survivors bore down all resistance, and forced their way into the city, where for three days they revelled in murder and pillage.

leave without the means of subsistence. The hogs, the horses, and the cattle are either shot or carried off. Even the fowls are killed. The fences are destroyed, the barns burnt, houses pillaged, and all cultivation and means of resuming it destroyed, except the naked land, and much of that they have drowned by cutting the levees. The young men, if any of them are found at home, are carried away into captivity, and the old men, women, and children are left in destitution to shift for themselves, with nothing but the clothes on their backs."—The *Times*, Sept. 19, 1863.

No mercy was shown to age or sex; and out of a population and garrison of forty thousand human beings, only a few hundreds (chiefly women and children) escaped, whom the exertions of the officers in the Russian service rescued from the indiscriminate fury of the soldiery.

Mr. Eton, who was with Prince Potemkin at Oczakoff, describes a touching scene which he witnessed there, and which he cites as a proof of the fortitude and resignation, bordering on apathy, with which the Turks bear evils of the greatest magnitude. He says:—"The Turkish women and children (in number about four hundred) who were brought out of Oczakoff, when the city was taken, to the head-quarters of the Russian army, were put all together the first night under tents, as no better accommodation could, under the pressure of circumstances, be made for them, though it froze exceedingly hard, and they suffered dreadfully from cold and nakedness, and many from wounds. As I spoke Turkish, I had the guard of that part, and the superintendence of them for that night. I observed that there reigned a perfect silence among them; not one woman weeping or lamenting, at least loudly, though every one, perhaps, had lost a parent, a child, or a husband. They spoke with a calm and firm voice, and answered the questions I put to them apparently without agitation. I was astonished, and knew not whether to impute it to insensibility, or the habit of seeing and hearing of great vicissitudes of fortune, or to a patience and resignation inculcated by their religion; and to this day I am equally unable to account for it. One woman sat in a silent and remarkably melancholy posture, insomuch that I was induced to offer her some consolation. I asked her why she did not take courage, and bear misfortune like a Mussulman, as her

companions did. She answered in these striking words:—'*I have seen my father, my husband, and my children killed; I have only one child left!*' 'Where is it?' I asked her with some precipitation. '*Here!*' she calmly said, and pointed to a child by her side, which had just expired. I and those with me burst into tears, but she did not weep at all. I took with me that night into my warm subterranean room as many of those miserable women and children, wounded and perishing with cold, as it would contain; they stayed with me twelve days, during all which time none of them either complained aloud, or showed any signs of excessive internal grief, but each told me her story (both young and old) as of an indifferent person, without exclamation, without sighs, without tears."*

The Russians are Mongol Tartars, and the Turks are originally the Tartar descendants of the White Huns of Sogdiana, or Bokhara; and cruelty is proper to them both. But in the sad tale just told by Mr. Eton, we see the kind-hearted Saxon, full of warmth and compassion; while the sublime apathy of the Turkish women stands out in fine contrast to the animation, courage, and tenderness of the English women under similar circumstances.

The Anglo-Saxon spirit again comes into view in the following incident, related, in a letter from India, by a soldier of the 78th Highlanders to a relative in Perth:—"We came to a village and set it on fire—I saw nothing but flames around me. I came across a woman about twenty-two years of age, sitting over a man that, to all appearances, would not see the day out. She was wetting his lips with sisté. The fire was coming fast, and the houses all around were in

* Creasy's "*Ottoman Turks*," vol. ii., p. 291.

flames. Not far from this I saw four women. I ran up to them and asked them to come and help the sick man and woman out, but they thought they had enough to do, and so they had, poor things; but to save the woman and dying man, I drew my bayonet, and told them if they did not, I would kill them. They came, carried them out, and laid them under a tree. I left them. The flames were in the clouds. I went to the other side of the village, and there were about one hundred and forty women and about sixty children all crying and lamenting at what had been done. The old woman of that small family that I had previously taken out, came, and I thought she would have kissed the ground I stood upon. I offered them some biscuits from my rations, etc." *

In reflecting on the circumstances of the Indian Mutiny, several startling facts present themselves to our notice. England holds possession of Hindostan by the right of military conquest; and the ever-memorable names of Clive, Cornwallis, Wellesley, and Wellington are intimately connected with its subjugation. The English found a land of heathenism, which they converted into an almost inexhaustible source of revenue, and a lucrative emporium of commerce. The East India Company arose, flourished, and fell in the full enjoyment of this privileged acquisition. The moral and religious improvement of the country was never entertained by that illustrious band of merchant princes, for their real and only object was avowedly that of trade; and at the door of England's coveteousness lies the guilt of Indian heathenism. Her course was first to make war against some

* "*History of the Indian Mutinies.*" This clever *resumé* occupies several columns in two impressions of the paper.—*The Times*, October 24th, 1857.

native prince, then, having beaten him, to destroy his army and weaken his authority in the eyes of his people; next to place a resident at his court to protect him from danger within and without, and, above all, to collect his revenue for him. By thus insinuating themselves into his government, they left him nothing but his great fortune, and when at last he spent this in riot and debauchery, for very shame they put an end to his power.* For two hundred years, no attempt was ever made to convert a Hindoo or a Mahometan, the fundamental principle of British rule being strict neutrality; and the East India Company refused all missionaries passages in their ships, either to China or India;† although at the same time, for the sake of a base and mercenary conciliation, they gave money to the actual support of idolatry. Englishmen, under the influence of Hindoo wives, painted themselves, and performed *pujah* at the river side like heathens; and it was usual for the highest classes to accept invitations from opulent Hindoos to festivities in honour of the idols.‡ For the sake of a good bargain, they have even been known to pay respect to the sacred cow, to the utter mockery or scorn of the sagacious Hindoos. Juggernaut was licensed; pagan pilgrims paid a tax for their temples; British officers were appointed to superintend the management of the hideous worship, and the receipts of the proceeds. The fine exacted for the privilege of drowning themselves in the Ganges is said to have produced 250,000 rupees. The British colours were

* "*British India*," by John Malcolm Ludlow, vol. ii., p. 367. Lord Naas, House of Commons, July 6, 1863. J. S. Buckingham, Canada, ch. xv., p. 203.

† "*The Middle Kingdom*," by S. Wells Williams, vol. ii., ch. xix., p. 325.

‡ "*The Establishment of the Anglican Church in India*," by Major-General Parlby, C.B., p. 115, 1851.

carried in front of the idols; and the Sepoys, in full uniform, worshipped the images, and called on them to bless the standards and arms which they bore in the Company's service. It was this idolatry of other men's superstitions* that betrayed a depravity of heart far worse than the grossest indifference. Moreover, the early settlers in India were often men of intemperate habits and licentious lives. English gentlemen kept populous *zenanas*, while marriage was the exceptional state. At their riotous banquets, the native servants looked on with apathy or abstraction, regarding the English as wild animals sent to plague them;† and the grave Mahometan viewed with pity or disdain the levity of the whites. At last, to save appearances, the British Government sent out their official minister of religion in the quality of a bishop, to evangelize India. Dr. Middleton was the person first selected for this purpose. Before starting on his divine mission, the right reverend prelate stipulated for a salary of £5,000 a-year for himself, besides a handsome provision for his archdeacons, and ample travelling expenses. India, NATIVE India, disregarded the wealthy missionary. The next that Great Britain expedited as one of her choicest sons, to emulate the preaching and supernatural energy of St. Paul, was Reginald Heber, the scholar and the poet, the amiable gentleman, and the respectable married man. But this was all; for as he lived, so he died, and India remained unconverted. Of the last of the Anglican Bishops, his son-in-law, who has written his life, describes‡ his palace handsomely and completely furnished, his close carriage, and

* "*Pilgrim Tax in India*," by J. Peggs, Missionary at Cutrach, p. 141. The *Times*, March 16th, and April 12th, 1859.

† "*Diary in India*," vol. ii., ch. viii., p. 149.

‡ "*Life of Daniel Wilson*," by the Rev. Josiah Bateman, 1860.

his light barouche; but of the success of his missionary labours, we hear nothing.* Did such exalted characters as Xavier, de Britto, and de' Nobili, ever exist? At length, the terrible disaster of 1857 burst with a crash of thunder on the astonished land, and the secret sprang to light. Intelligent British officers had foreseen the impending catastrophe. As far back as the beginning of the present century, the clear-sighted Wellington had pronounced the system to be rotten to the core, and ready to crumble to pieces by the operation of its own size and weakness; fifty years later, General Sir Charles Napier boldly affirmed, that the atrocities were beyond description; the young cadet learnt nothing, except to drink and live exclusively with his own; the older officers were on the staff or civil employ, and high caste, *i.e.*, *mutiny*, was encouraged; while the brave and generous Lord Clyde looked upon the Sepoys as nothing better than bamboo tipped with British steel, and expressed himself strongly against the indignities inflicted on the Indian Princes.† The common feelings of humanity had been outraged. The pride of the oriental had been stung to the quick; and when the opportunity seemed to offer, he seized the propitious moment, and, with the ferocity peculiar to his race and temperament, flung himself on his masters in the deadliest spirit of hatred and revenge.

We are naturally led to inquire what was the state of the public mind, as well as that of the Government, both political and military, at the moment of the outbreak. Could it

* Marshall's "*Christian Missions*," vol. i., ch. iii. *India*. Brussels, 1862.

† "*Wellington Despatches*," Dec. 27, 1804. "*Letter of Sir C. Napier*," May 31, 1850, published by Sir W. Napier.—*Times*, 1857. "*Life of Lord Clyde*."—*Times*, Aug. 15, 1863.

have been prevented? Did it happen without warning? The matter seems to have had the anxious care of the Government; but the Commander-in-Chief took it more easily, and was out shooting, far from the telegraph. He was at Umballah in March, and thence went to the hills, to Simla. It was known that there had been a disturbance at Barrackpore and Berhampore, and afterwards at Umballah; and night after night isolated fires occurred, as early as April. All were equally puzzled and confounded by what they saw and heard. People gossiped or laughed; and the Commander-in-Chief was distracted by the most opposite opinions. In short, nothing was done; and Delhi was in possession of the mutineers before any one was aware of it. There is no doubt that if a European force, however weak, had been marched into Delhi at the first intimation of alarm, that that fortress at least might have been preserved. The officers in command at Umballah were Queen's officers; there were also the dragoons and a battalion of infantry at Meerut. Had only the wing of a regiment been opposite the magazine—had only a few dragoons been on guard at the bridge of boats on the fatal morning of the 11th of May, the revolt might have been averted, if not suppressed. But the chief military oversight was at Meerut. At that station the European forces were stronger than at any in India; but the regiments of European cavalry and rifles and large artillery were rendered inefficient by the general in command. Even in cantonments there was no effective opposition made to the first beginnings of the revolt; the mutineers were allowed to depart unmolested; and the active pursuit that might and ought to have been followed up to the Water-gate at Delhi, was omitted; the lucky moment was lost, and with it was also lost the whole

of the north-west provinces of Bengal, Lucknow, and the newly-annexed kingdom of Oude.*

A panic likewise was prevailing at the time, and it certainly tended to render all arrangements more difficult. You could believe no one. People seemed to have lost the use of their senses; and those whom you would have implicitly believed at any other time, now told the most wonderfully unfounded stories. It was impossible to distinguish truth from falsehood—a palpable sign of moral and intellectual debility commonly observed on most occasions of alarm and danger, whether social or individual. And there was no superior mind, cool and collected, in a position of authority equal to the emergency. The same want of foresight and precaution would have lost London on the 10th of April, 1848, as it had already lost the throne of Louis Philippe at Paris in the preceding February.†

One, and only one, solitary instance of determination and tact occurred at Delhi at that critical moment.‡ The Subahdar of the guard on duty at the magazine informed Lieutenant Willoughby that the King of Delhi had sent down word to the mutineers that he would, without delay, send scaling-ladders from the palace for the purpose of scaling the walls,

* The *Times*, October 24th, 1857, p. 8, sixth column.

† There are two sides to every question. "Let us for a moment suppose that the mutiny had at its first outbreak been quelled, subsequent events and disclosures have only proved to us that the outbreak was premature, and that had it been overcome at the time, it would probably have come upon us at the appointed day with a force that none of us could have hoped to withstand."—*Letter from an Engineer Officer, September* 28: The *Times*, November 24, 1857. Because the outbreak was premature, it was no reason for not resisting it at the first. The first blow might have been decisive. *Obsta in principiis*, is a universal axiom.

‡ "*Official Account*," by Lieutenant G. Forrest, of the Ordnance department.

and which shortly after arrived. On the ladders being placed against the wall, the whole of the native infantry deserted by climbing up the sloped sheds on the inside of the magazine, and descending the ladders on the outside, after which the enemy appeared in great numbers on the top of the walls, on whom was kept up an incessant fire of grape, every round of which told well, as long as a single round remained. Previous to the natives deserting, they hid the priming pouches; and one man in particular, Kurreemburkh, a durwam, appeared to keep up a constant communication with the enemy on the outside, and keep them informed of the situation within. Lieutenant Willoughby was so annoyed at this man's conduct that he gave orders to shoot him should he again approach the gate.

Lieutenant Raynor, with the other Europeans, did everything that possibly could be done for the defence of the magazine. Conductor Buckley loaded and fired the several guns in rapid succession, firing at least four rounds from each gun, and with the same steadiness as if standing on parade, although the enemy were then some hundreds in number, and kept up a continual fire of musketry within forty or fifty yards of him. After firing the last round, Conductor Buckley received a musket-ball in his arm, above the elbow. At the same time, Lieutenant Forrest was struck in the left hand by two musket-balls, which disabled him. Lieutenant Willoughby gave the order for firing the magazine, which was at once responded to by Conductor Scully firing the several trains. The convulsion took place; and such as escaped from beneath the ruins—and none escaped unhurt—retreated through the sally-port on the river face. Lieutenants Willoughby and Forrest succeeded in reaching the Cashmere-

gate. What became of the other parties it is impossible to say.*

This spirited scene has had its counterpart on other occasions during war. Presence of mind in the midst of danger is the chief attribute of an officer in command. It is that which places him above the crowd, and makes him the distinguished man. It sheds a lustre round his name, and inscribes his deeds in the annals of fame. Three hundred years ago, a solitary tower resisted the Turkish batteries, after all the exterior defences had been destroyed.† The name of the place was Szigrette; the date, 1520; the Commandant's name, Zriny; his force reduced to not more than six hundred men. The Janissaries advanced to the assault along the bridge that led to the last shelter of the defenders. Zriny felt that his hour was come. He attired himself as if for a festival; a diamond clasped his plume to his helmet; his falchion, with the keys of the fortress and a purse full of choice ducats, hung from his glittering baldrick. "He who lays me out," he exclaimed, "shall be paid for his trouble; the keys I surrender only with my life!" The banner of the

* Died, on the 10th of May last, of his wounds, in the 28th year of his age, Lieutenant George Dobson Willoughby, Bengal Artillery, and Commissary of Ordnance at Delhi, eldest son of the late George Thomas Railton Willoughby, Esq., of Bath, and grandson of the late Dobson Willoughby, Esq., of Belsize, Hampstead. It is supposed (for there is no authentic account) that after his gallant devotion in the defence and destruction of the magazine at Delhi (on the morning of the 10th of May last), although so desperately wounded and scorched as to be hardly recognised, he endeavoured to make his escape to Meerut (with three or four other officers, who had joined him on his way), but, exhausted by his wounds, he fell an easy victim to some miscreants of a village, who murdered him in his resisting their attempts to plunder him, and whilst defending one of his companions.—The *Times*, November 25th, 1857.

† Creasy's "*Ottoman Turks*," vol. i., p. 312.

Empire was borne before him. He descended to the outer court. The Turks were at the gate. A mortar, heavily loaded with missiles, was brought to bear upon the entrance. As the foremost Janissary raised his axe to break in the door, the gates were flung open, and Zriny himself fired the mortar. The deadly shower poured through the assailants; and amidst the smoke, din, and confusion of this unexpected carnage, Zriny sprang forward, sword in hand, followed by his devoted few. Six hundred Magyar sabres drank deeply of Turkish blood on that fatal day. Zriny, fighting to the last, fell pierced with two musket-balls through his body, and an arrow-wound in his head. The Ottomans, with a shout of "Allah" at his fall, pressed into the citadel, fired the place, and began the plunder. The fire caught a train, purposely laid by Zriny from the entrance to the magazine, which instantly exploded, and destroyed three thousand of the destroyers along with the battlements and walls of the fortress. Solyman the Magnificent, who had sat himself down before Szigrette in full expectation of success, had died during the siege. He lay stark and cold in his tent, while the trumpets flourished aloud the note of victory, and the flag of earthly pageantry waved in vain above his senseless corpse. The world and its glories had closed above the career of one who had shaken the powers of Christendom to their centre, and who had owned the obedience of all the most celebrated cities of biblical and classical history, except Rome, Syracuse, and Persepolis. The Tigris, the Tanais, the Borysthenes, the Danube, the Hebrus, and the Ilyssus, had rolled their waters within the shadow of the Horse-tails. But a change had passed across the spirit of the dream; the pomp was over,

and both Zriny and Solyman were numbered with the dead.*

The morning dawned clear and bright over the plains of Hindostan, the day after the first thrilling atrocities at Delhi, and the city of the Moguls outwardly appeared as serene as it had done the day before. Nothing betokened the change that had occurred within its walls; and none, save a few wandering and dispirited outcasts, guessed the heavy blow that had been struck at our Anglo-Indian empire, the name and *prestige* of England. "We started from Delhi," says one writer, "with five ladies and four officers besides myself; but afterwards in our wanderings fell in with two sergeants' wives and two little children, with two more officers and a merchant; so altogether, on coming into Meerut, we were about seventeen souls. Oh, great Heaven! to think of the privations we endured, and the narrow escapes we had! We used to ford streams at night, and then walk on slowly in our dripping clothes, lying down to rest every half-hour; for some of the ladies were wounded, and all so fatigued and worn out they could scarcely move. Had we been by ourselves, we should have made a dash for Meerut at once; but having these unfortunate women with us, what could we do? Sometimes we heard the villagers combining to murder us, and the whole time were in dread of being pursued and killed by the mutineers from Delhi. At one time we were attacked

* The fall of Szigrette suggested to the mighty Byron the idea of his highly-animated poem, "*The Siege of Corinth:*"—

"'Tis fir'd!
Spire, vaults, the shrine, the spoil, the slain,
The turban'd victors, and the Christian band;
All that of living or dead remain,
Hurl'd on high with her shiver'd fane,
In one wild roar expir'd!"

by the villagers, and robbed of everything we possessed: had we not had the ladies with us, we would have fought for it, and sold our lives dearly, instead of quietly giving up our arms as we did; for we had a few blunt swords among us, with one double-barrelled gun."

The same appalling scenes were enacted almost simultaneously all over the North Western provinces. The insurrection was well concerted, and well nigh successful from the first. While Great Britain was still reposing in confidence on the strength and security of her Indian possessions, India itself had all but slipped from her grasp. It seems wonderful, when we look back on the calamity, that it should have taken the Europeans so completely by surprise; and we are thence led to infer, that there was in reality little or no communication between the Christians and the Hindoos, Mahometans, and Parsees. Had there been, the secret must have come out; but from its being kept so strictly in reserve, it is evident that the separation between the Eastern and Western races was inveterate and deadly, on all occasions.

It has always been so. Treachery and deeds of darkness are peculiarly characteristic of the Eastern populations. History attests the fact from first to last. After Selim the Terrible had entered Cairo, in 1517, without opposition, and the garrison which he placed in it had been slain to a man by the indomitable Touman Bey, he endeavoured to retake it with some of his best troops. A street fight ensued, but the Mamelukes retained possession of the place. Selim then proclaimed an amnesty to such of the Mamelukes as would surrender. On the faith of this promise, eight hundred of the chief Mamelukes surrendered themselves, or were given up by the citizens. Selim had them all beheaded, and then

ordered a general massacre of all the inhabitants of Cairo. 50,000 human beings are said to have perished in this atrocious butchery. One of the titles of the Sultans is that of the *man-slayer*, to this day. It is a canon law of their policy to destroy their nearest of kin on mounting the throne —a prerogative they have exercised to the full without scruple or reserve. Amurath IV. is reckoned to have put to death 100,000 human beings in his short reign, from 1623 to 1640. He once ordered a party of dancing women to be seized and drowned; and at another time he ordered the batteries to open on a boat full of females passing along the Bosphorus, too near to the walls of the seraglio. It was his favourite maxim, that *vengeance grows grey, but not decrepit.* Von Hammer gives a long list of confidential officers put to death by Solyman the Great; and it is even stated by Turkish historians, that he inveigled his own son into the royal pavilion on purpose to have him bowstrung by surprise, and that, becoming impatient at the long-continued struggle between the Mutes and his victim, he himself also looked in on the horrible scene, and instigated them to the more speedy despatch of their work. A similar story is related of Selim I., who witnessed from an adjoining chamber the murder of his two brothers, whom he had kidnapped for that purpose. The massacre of the Mamelukes at Cairo, in 1811, by Mehemet Ali, and that of the Janissaries at Constantinople, by Mahmoud II., in 1826, were both of them acts of the vilest treachery. So that the massacre at Cawnpore has nothing extraordinary in it, but is in strict keeping with the spirit of their race.

Upwards of twelve centuries have elapsed since the contest between the Crescent and the Cross first began its mortal

and obdurate strife. The years of the Hegira are fast running out, and yet the fatal four hundred years from the taking of Constantinople have already passed their close, and the Turkish and Christian prophecies respecting their awful accomplishment remain unfulfilled. The green flag of the Prophet waves above the Sublime Porte, and the illustrious line of the Osmanlis presides at Istamboul.* Severe as have been the Turkish reverses, both by land and sea, for the last two hundred and seventy years, and greatly as have been curtailed the frontiers of Turkey in Europe in the course of that long period, the Ottoman Princes nevertheless continue to hold the key of Europe in their hands, and to guard the passage of the Bosphorus with jealous pertinacity. The spirit of Islamism, which breathes in the desecrated sanctuary of St. Sophia, is proclaimed by the muezzin from the tops of their loftiest minarets and mosques, and is exhibited in the sanguinary and accursed tempers of the Mahometan Sepoys or their miscreant chiefs, such as Nana Sahib.† The hard struggle begun by Charles Martel, at Tours, in 732, and by Leo the Isaurian with his Greek fire, in 716, still goes on; and it has at length devolved on British valour to carry out

* "*Que diable faire de Constantinople?*" said Joseph of Austria to Catherine of Russia, joking over their plot for the destruction of the Ottoman Empire, while at Batchiserai, or Atkiar, the modern Sebastopol, in 1787. "What shall we do with those poor devils the Turks?" The royal joke is as good as ever; for Constantinople is more than seventy years older than it was then, and yet, in spite of so many Russian treaties to the contrary, the Turks are at this moment the faithful allies of the Western Powers.

† The Reputed Nana Sahib. From the *Times of India*. Cawnpore, Aug. 23, 1863:—"The man supposed to be the rebel Nana Dhoondia Punt was brought into this station a prisoner yesterday morning, and is now lodged in the station gaol. All declared that he was not the man." His existence seems a myth.

the same deeds of arms in India at the present day, as those which once so effectually routed the Mahometans before Vienna, in 1520; before the little fortress of Malta, so gallantly defended by La Valette, in 1565; and before the fleets of Don John of Austria, at Lepanto, in 1571. In this light, the re-capture of Delhi, dyed with the blood of heroes (the distinguished Nicholson fell in the assault), assumes a character of renown far beyond that of the contest itself, and commensurate only with the records of the Christian and civilized world. Other sieges may have been more famous for their strategy and skill, but none more important than this in a moral, a religious, and a political point of view. It is a crisis in the course of events—a turning-point in the order of affairs. Barbarism must not gain or hold the ascendant. The intelligence, the science, and the prowess of England, as well as of Europe, must not succumb—no, not for an hour—to the black races of mankind, the acknowledged ignorance, brutality, and inferiority of the Asiatic hordes.

In fact, the siege of Delhi was the grand episode of the conflict. Long and obstinately was it held by the Sepoys, whom we ourselves had instructed in the art of war, and armed with our weapons of the newest construction. Well and ably did they defend themselves, but slowly and surely did we regain our supremacy over them. Our commanders, officers, and men succumbed in numbers to the destructive heat of the climate, the dangers of the service, and the weariness of the task assigned them. But not a word of complaint was ever uttered—none shrank from the post of duty, its perils, its all but hopeless endurance. At last, the place was taken by storm. A bastion close to the gate was

fixed upon and breached, and the gateway itself was blown in by an explosion party of her Majesty's 52nd. The bugle sounded the regimental call; the troops came forward, and carried the gateway with complete success. The enemy resisted for a day or two longer, but the capture of the magazine and 130 guns within it, decided the contest, and gave the victors full possession of the place. There was no doubt as to the result of the siege from the beginning. It was only a question of time, and an interval of dreadful suspense. Our character was at stake. Our prowess was put to the test. The test answered in our favour: our character was saved. The personal feats of arms that everywhere displayed themselves, proved our natural ascendancy. One British soldier drove twenty Sepoys before him; five hundred or five thousand bayonets, under the victorious Havelock, utterly routed and dispersed as many tens of thousands of the enemy. The Sepoys were good soldiers only so long as they repeated the lessons they had been taught by ourselves. When they had to act upon the spur of the moment, their military skill failed them. For they were deficient in the first principle of action, which consists in adapting the means to the end, and in obtaining by a few skilful manœuvres what could never be achieved by force of arms. Talent of this description belongs only to the eye of civilized genius, and the practised hand of science.

The reconquest of India is due to the unpretending talents of the late Lord Clyde. He was slow and cautious in opening the campaign, for he could not effectually take the field till Delhi, the stronghold of the enemy, had been first reduced; but as soon as that important fortress had fallen, the British army advanced without a check upon Lucknow, and

relieved the heroic little garrison of that long-beleagured post, almost at the last moment of their protracted resistance. From that hour the rebellion was at an end; the two capitals were in our hands, and the scattered bands of Sepoys were routed, disbanded, or captured in quick succession. But it is not our purpose to do more than touch upon the military tactics of that eventful crisis; our object has been to bring forward the chief actors upon the stage of public affairs, and exhibit them in full costume before the world. We have seen scene shifting upon scene; event following event; European and Asiatic assuming the boldest attitudes, and contending with amazing fury; till the curtain dropped upon the varied and multitudinous group, and closed one of the principal and most tragical acts in the history of our Anglo-Indian Empire.

ORIENTALISM.

During the Middle Ages, intercourse between Europe and Asia was almost entirely suspended. Far from seeking to unite, each was, by the course of events, separated more and more from the other. There was nothing in common between the asceticism of the cloister and the soft affluence of the curtained verandah. For a moment, indeed, they may have interchanged a few tokens of recognition, for it is recorded of Charlemagne that, in the eighth century, he opened some diplomatic relations with Harun al Reshid,* our early

* Gibbon, c. 49, vol. v., 4to ed., p. 145.

friend of the *Arabian Nights' Entertainments;* but with the exception of this transient glimpse, Asia remained hermetically sealed against Europe for the space of nine long and gloomy centuries.* Even the Crusaders sought nothing beyond Jerusalem delivered and the seaboard of the Holy Land. In the estimation of those high-minded soldiers and devotees, the depths of Asia were the regions of heathenism, sorcery, and spiritual darkness. In the charming cadence of his well-regulated stanzas, Tasso has represented the prevailing notions of mankind in this respect, not merely with the eye of a poet, but with the pen of a master. About two hundred years before the discovery of America by Columbus, Marco Polo had traversed some portions of the East; and the mystery of the Indies was at last cleared up by the rounding of the Cape of Good Hope. The European family congratulated itself on discovering its own cradle in the East, and started anew on the laudable task of exploring the entire circle of the globe. To Sir William Jones may be ascribed the original merit of making us first acquainted with the language and poetry of the Hindoos, in the same manner as Sir Henry Rawlinson and Mr. Layard have, some fifty years later, restored to us the long-lost arcana of Persia and the monumental archives of Babylon.

The influence of Orientalism has been gradually on the increase throughout Europe for the last three hundred years.

* Some distant communication was always kept up by means of commerce. During the Middle Ages, Antioch, Damascus, and Aleppo carried on the East India trade with Constantinople, Venice, and Genoa; but these cities sank into insignificance when trade took another direction, and went round by the Cape. At their best periods, the Romans procured their silks, precious stones, and aromatics from India by way of Egypt. Europeans first tasted sugar, called the "salt of India," during the conquests of Alexander; sacchar, or sugar, is a Sanskrit word. The Romans obtained their sweetmeats from the East, or from Egypt, which was so celebrated for them.

Camoens owes what interest he possesses to a tropical subject, mixed up with a strange confusion of pagan gods and goddesses, grossly out of place between the mouth of the Tagus and Trincomalee. In this country, the Oriental idea dates back as far as a hundred years or more. Collins' *Oriental Eclogues*, which are master-pieces of their kind, particularly the second eclogue, were composed about a century ago, 1740. *Rassellas* is Oriental: the *mise en scène* is entirely Oriental: the sentiments are gloomy, without a ray of hope, and imbued with a dark tinge of fatalism. *Vathek*, the brightest of dreams and the most eloquent of tales, the most panoramic of scenes, and the most densely populated of novels, is unmitigated Orientalism. The Orientalism of the first two volumes of *Monte Cristo* is superb, and so is that of the *Peau de Chagrin*, the master-piece of the consummate Balzac; but each is a draught of delicious poison, sweetened with the sweetest of ideas, and flavoured with the richest of styles. *Lalla Rookh* is the same — soft, effeminate, showy, and evanescent. None of these works of fiction, not even excepting *Rasselas*, the first among the first-born of sturdy writers, pretends to satire, or to that acute dissection of society which is the property of Pope and Molière among the moderns, or Terence and Plautus among the ancients. On the contrary, what they cannot approve of they lament, and what they cannot correct they sneer at or disdain. But such is the relish for Orientalism among the moderns, that the costume alone is sufficient to give it a passport to a good reception. The sight of the turban is enough.* It was so of late. The

* "One of the rooms of Marlborough House has been converted into a very good representation of a Turkish *mandar'ah* or reception room. The fittings

interest awakened by the Crimean war touched a sensitive chord in every nation of Christendom, which responded to the call, and hastened to the aid of the Turk threatened by the overpowering forces of Romanoff. There must be some universal feeling alive in the present day, that finds its analogue in the heart of the East, although it is not easy to say in what that analogy consists. For the morals of Mahometanism are not, nor ought to be, the same as ours. They are not those of ancient Greece or Rome at their most depraved periods. The stern censorship of Tacitus or Juvenal, and the keen irony of Horace, have no counterpart in anything we read of in the history of the Osmanli Turks.* Pagan society never reduced woman to the infamy of the harem or the seraglio.† Polygamy was

have been very successfully designed. There is a regularly arranged *durka'ah*, where the guests leave their shoes! Facing the visitor as he enters, there is a window of lattice work, admirably and truthfully cut, and of the favourite reel pattern. The walls are made to resemble sienna marble, but we miss the Arabic texts. A *sufrah*, *i.e.*, a round tray upon a low stool, forms the only table; and a splendid water-bubble stands upon it!"—*Illustrated London News*, August 29, 1863, p. 226. The writer is critical. He uses Turkish words instead of English, and even regrets the absence of the Arabic texts from the Koran. He could not say more, were he a Mahometan. But it is the fashion of the age. No one believes it to be real, nor wishes it to be mistaken for a reality. It is, in fact, a puerility, like one of those gothic mansions of the gentry, built to look like a convent, but used as a house of pleasure! Thus, George IV. built a Mosque at Brighton, and called it the Pavilion!

* Creasy's "*Ottoman Turks*," 2 vols. Bentley, 1856.

† THE ROYAL MARRIAGE LAW OF TURKEY.

To the Editor of the Times.

Sir,—Permit me to correct an error in your article on the state of Turkey. You speak there of "four or five wives of Abdul Medjid." But it is matter of history that no Sultan of the Ottoman race has been legally married since the days of Bajazet the Great. On his capture by Timur, after the battle of Angora, the Sultana was treated with gross insult, and to guard against the shadow of a chance of such a disgrace recurring no inmate of the Seraglio

never in vogue among them, nor even so much as countenanced by the Cæsars of Italy or the demigods of Greece. Their morality was low enough, but most assuredly it was exempt from this disgrace, at least. Possibly, Mahomet never intended to introduce the practice, but was carried away by the pressure of the times, and forced to yield to the popular inclination; for it was far easier to put the scymitar in the hands of his followers, and bid them go forth and conquer, than to prescribe for them rules of virtue which would never be observed. Sanctity and chastity were beyond *his* reach. Wherein, then, does the sympathy between the East and the West consist? Is it in the softness of social manners, and those luxurious modes of life that foster sensuality? or in a style of literature morbidly sensitive and over-refined? or in the love of wealth and parade? or in none of these, but

has for more than 400 years been a legitimate wife according to Mussulman law.

July 13, 1861. CANTEMIR.

"When one considers that the most beautiful girls among the Mussulman population of the empire usually find their way to the Bosphorus, and that, besides these, Circassia and Georgia contribute largely to the harems of Constantinople, the number of really pretty women to be seen at the Sweet Waters or other places of resort appears small."—*Times*, July 22, 1861.

There were in the worst times among the Gentiles, some few in whom, as Cicero says in his defence of Sextus Roscius *(Amer. X.)*, alluding to Cæcilia Metella, the wife of Sylla, remained, as if for the sake of example, the vestiges of ancient duty—*in qua muliere, quasi exempli causa, vestigia antiqui officii remanent.* And Pliny speaks in remarkable terms of Fannia, a Roman matron, *quæ sanctitas! quanta constantia! non minus amabilis quam veneranda!—Epist.* vii, 19. The language could not be more devout in the brief for the canonization of some saintly virgin or widow. Tacitus mentions Occia, a vestal virgin, as a woman *summæ sanctimoniæ.* And yet Cicero divorced himself from Terentia, to whom he had been married for thirty years, and Cæsar repudiated his exemplary spouse because she had been unjustly aspersed.

only in a passing fancy of the age? And yet one would think it is something deeper than this.

Look at the First Napoleon—his character is scarcely occidental. Its wildness, its swooping genius belongs to the East. It reminds us of Tamerlane or Zenghis Khan, or those Saracenic chiefs who swept along Africa, crossed the Straits of Gibraltar, occupied Spain, penetrated the passes of the Pyrenees, and broke their strength against the steel-clad chivalry of the North. So strong is the taint of Orientalism, or of Saracenic blood, in Napoleon, that he was usually followed into battle by a mounted Arab in the true Asiatic costume. His proclamations, which have been so severely criticised and censured, breathe the spirit of Oriental poesy in the court and camp. When he shouted to his soldiers, *Vous êtes descendus des Alps comme un torrent*, or when, on another occasion, he declared, *Je suis le dieu des armées*, did he use the polite and courtly phraseology of Louis XIV.? Was it not rather the language of Eastern hyperbole, such as might have been spoken by the Mahomet of the West? At Aboukir, Cairo, or Mount Tabor, Napoleon rehearsed or found a language of his own.

His life is an epic belonging to the class of heroic legends. He touched the four quarters of the globe. He disputed our arms in India and America, at the same time that he bestrode the confines of Asia, Europe, and Africa, with the armed tread of a warrior. And yet, the same hand that hewed the Simplon and carried the flag across the bridge of Lodi, was the first to accept from the pen of St. Bernardin de Pierre the gentle dramatic tale of Paul and Virginia. He is always poetic and sublime. On the top of the eternal pyramids or amid the flames of the burning Kremlin, at the glorious

sunrise on the plains of Austerlitz, or upon the solitary rock amid the waves of the wide Atlantic, he stands single and alone. He is the chief object of interest, when, in the zenith of his power, he dictated the terms of peace and war from his imperial throne at the Tuileries, or, when in the day of his reverse, he turned pale in the gloomy grandeur of defeat on the field of Waterloo. He ruled the spirit of the age, and impressed on the destiny of mankind an image of his own, as ineffaceable as the hand of time, and as enigmatical as that of a genie of the East.

The next potentate over the minds of men was the poet Byron. No one, merely by the aid of his pen, ever effected so great a change in thought and sentiment as the author of *Childe Harold*. In the writings of the *Poets of the Lakes*, as they were styled, as well as in those of the pantheist Shelley, whose fancy seems to have followed some Indian ideal, it would be easy to point out the Oriental spirit that actuates them all. The reader will call to mind Coleridge's *Khubla Khan*, and Southey's *Last of the Goths*. Even the charm that pervades Sir Walter Scott's exquisite lyrics is due to their Oriental character, which is derived from the Crusades, and mixed up with a thousand mystic myths and mediæval reminiscences. But Byron surpasses them all in breadth of colouring and grasp of intellect, and includes within his glowing themes the burden of the rest. He once thought of visiting India, and in fact made some preparations for the journey,* but this project was subsequently restricted to a tour through the Morea, and a sojourn at Constantinople, in company with his friend Hobhouse. A new tie was thus formed between the spirits of the East and the West, each link of

* Moore's "*Life of Byron*." Murray. 1860. p. 73.

which was forged of gold or diamonds by the touch of Byron. He alone related for the first time as a matter of fact, what Goëthe had chanted only as a fond idea,

> Know ye the land where the cypress and myrtle
> Are emblems of deeds that are done in their clime?

And he alone in *Childe Harold's Pilgrimage* lighted up with the fire of a true poet those scenes of nature which captivate the senses and exalt the soul.* But *Childe Harold* revels chiefly on the shores of the Levant, and sinks into luscious repose amid the ruins of ancient Greece, beneath the azure sky that suffuses the waves and mountains of the East. The contrast is strikingly drawn between European activity and Oriental apathy and inaction. The remains of Athens, Troy, and Corinth bask in the sunshine, or slumber amid roses and olives. The silence of the scene is broken only by the spirit of the West. *Lara*, the *Corsair*, the *Giaour*, *Mazeppa*, and the *Bride of Abydos*, are Europeans in Asiatic costume. The British temper breathes, and pants, and burns, and energizes beneath the turban, the pelisse, the Oriental trouser, the pointed slipper, and the naked scymitar. As actors, they play their parts to perfection, but it is not natural to them. They smack of the sands of Araby the Blest; but their speech betrays them, and they talk English. Even the haughty feudal baron, Manfred the Misanthrope, who converses with the snow-clad peaks of Switzerland, forgets himself, and invokes Ahriman and Ormuzd, the dæmons of the East. The fire-fays and elves of Persia appear upon the crags and vanish in the mists that boil up about the glaciers of the Wengern Alp. The fiction is consummately worked

* These scenes are now consigned to those useful pages, bound in a limp red cover, and 'ycleped *Murray's Handbook for Travellers.*

out; but the personages do not properly belong to the eastern or western hemisphere. To what particular country do Gulnarez, Medora, Kaled, Zuleika, or Leila belong? Certainly not either to England or Turkey. They are fatalists inspired with the impulsive temper of the North. Medora, the dreamy, pensive, broken-hearted Medora, is not a genuine Algerine. She is a Scotch lassie at heart, and a pretty little Christian playing the Turk.*

But it is in Germany that the Oriental spirit has made the greatest progress. It is not possible to say when, where, nor how it first entered and mixed itself up with the German tongue, whose Indo-Germanic root is now universally acknow-

* The *furor* that still actuates the public in favour of Byron may be exemplified by the following paragraph :—

Sale at Newstead Abbey (Notts).—On Friday there was a sale by auction at the Abbey of valuable effects, formerly the property of Lord Byron. Many of the lots realized only moderate prices. Four papier-maché decanter stands, formerly Lord Byron's, were sold at 15s., the positive value of all being about 4d. The model of a frigate, the property of the deceased poet, sold at £3 15s., the value being less than half that sum. A snuff-box, with a portrait of Byron, but not stated to have any other association, went at 10s. A parian figure of a sleeping Cupid, the property of Lord Byron, sold at 15s. The first printed copy of his early poems, with autograph, after a vigorous competition fetched only £6, Mr. Webb being the purchaser; and a pair of brass candlesticks, used by his lordship in college, were bought in by the same gentleman at £3 10s. Lord Byron's punch bowl, broken, but repaired, and not, perhaps, worth one shilling, realised £3 5s. A marble bust, life size, of Charles I., on marble half column, chiselled with great delicacy, sold at £15, to Mr. Redfern, of Warwick; and a bust, in the same size and style, of William III., at the same price, to Mr. Woodgate, of London. Musical instruments and portfolios of music, the former embracing flutes, guitars, harpsichords, musical boxes, and harps, and the latter, copies of the best operas and standard classical music, brought good prices. There were pipes of every design and pattern, in which cost became paramount to utility. and in all cases the articles put up were disposed of at fabulous prices. Some curious and valuable articles in Dresden china, plate, and plated goods were subsequently disposed of to advantage, and the sale concluded with the wine department, some small lots of hock of 1818, a few dozens of the same wine "from Lord Byron's cellar," and a large quantity of various wines of later vintages, having gone off at large premiums.—1861.

ledged. The speculative turn of thought, or idealism, of their philosophy reminds us of the Gymnosophists of Hindoo. The ancient German mythology is almost entirely Eastern and extravagant. Odin's skull is a microcosm comprehending the universe. Its present analogue is the pantheism of the German schools.

Goëthe embellished his poems with the choicest Asiatic morsels and allusions. Sometimes it is an Indian legend which becomes an ode to the Deity, a pearl, as it were, from the gulf of Golconda, finely engraved by the lapidary of Weimar: at other times he breathes nothing but Islamism. Collected, as if in Divan, his couplets seem to have been copied from the dome of the mosque at Mecca. The style of thought, sentiment, and language is entirely Asiatic—not Asiatic and European, the Cross and the Crescent combined —but pure and absolute Orientalism—oppressively calm and superbly monotonous—the coloured daylight of the Alhambra, the twilight of the East. *Lara*, the *Giaour*, and the *Corsair*, find no footing there.

Closely associated with this Oriental turn of thought is a profound melancholy and an air of inveterate scepticism. It has been a fashion of late years to feign this mournful tone, perhaps in imitation of its distinguished prototype, Byron.* It is supposed to exhibit something aristocratic in its look and bearing; but nothing can be in worse taste—it is simply a vulgarity, if feigned, or a constitutional ailment, if genuine. At the best, it is nothing better than pyrrhonism, or univer-

* Moore mentions the disposition to melancholy which belonged to his temperament—the boundary of this world's pleasures—"to see nothing but 'clouds and darkness' beyond, was the doom, the anomalous doom, which a nature premature in all its passions and powers inflicted on Lord Byron."—*Op. cit. p.* 87.

sal doubt, such as that cultivated by Lucian, Lucretius, or Voltaire. It doubts everything, except the right of doubting; it almost doubts of its own being; and rushes headlong into pantheism to escape from unqualified Atheism. It philosophizes on this world and the next; and perceiving that it is impossible to uproot Christianity, it perplexes itself with lopping its boughs and twisting its twigs into every variety of shape, to suit the whim or fancy of the hour. No one dares face an eternity of nothingness. The vast void must be filled up with fiction or truth—truth with a day of judgment, or fiction without a hope.

From this dread abyss uprose Faust. Having nothing in common with the transcendental philosophy of Lucian, Montaigne, or Voltaire, Faust is an absolute sceptic. His thirst is universal knowledge—his drink an intoxicating spirituality. He ransacks nature, art, science, passion, the city, and the desert, to get at the grand arcanum of existence. He is not an alchymist foiled in transmuting a grain of dust into an atom of gold; he is much more than this, for he aims at bringing down the Almighty into his crucible. The end is Margaret, dishonour, grief, and woe; and in the grand finale, the scene darkens, hell yawns, and the curtain drops over a chasm of eternal night. Such is the climax of Orientalism in the persons of Faust and Mephistopheles, a twofold blasphemy that shivers to nothing the natural and supernatural order of events.

Nor is English literature free from the blight of this dismal mental obliquity. In one of the best stanzas of his *Elegy in the Churchyard*, Gray thus soliloquizes:—

> "For who to dumb forgetfulness a prey,
> This pleasing, anxious being e'er resign'd,
> Left the warm precincts of the cheerful day,
> Nor cast one longing, ling'ring look behind?"

It is evident these lines were paraphrased from the far nobler ones in *Paradise Lost*—

> "———— for who would lose,
> Tho' full of pain, this intellectual being,
> Those thoughts that wander thro' eternity,
> To perish, rather swallow'd up and lost,
> In the wide womb of uncreated night,
> Devoid of sense and motion?"

It is true that these sentiments are put into the mouth of one of the fallen angels, but the relish with which they are quoted, as they stand alone, betrays the kindred feeling with which they are read. In another stanza of his *Elegy*, Gray says—

> "Each in his narrow cell for ever laid,
> The rude forefathers of the hamlet sleep."

The words *sleep* and *for ever* may be excused on the plea of poetic licence, but, taken as they are, the expression is unqualified, and they mean precisely what they say. There is more real piety and hope of futurity in many an ode of Horace than in this; Virgil, in his sixth *Æneid*, allows of no sleep among the dead, either for good or evil; nor does Dante in his *Divina Comedia*. With each of these two last-named poets everything is in full action, whether it be penal torture, purgatorial expiation, or Elysian bliss. Nay, even in the *Iliad*, the opening lines are inexpressibly affecting, where the poet sends the souls of his heroes down to hell, while he leaves their bodies on earth a prey to dogs and all the birds of heaven;* nor less so, where it is said, that the battle shook the earth to its centre, and laid bare the astounded mansions of the dead, in that passage which Longinus extols to the utmost.† There is nothing in literature equally

* *Iliad*, B. i. 3—5.

† *Iliad*, B. xx. 61. Longin. de Sublim. § ix.

sublime, except in Isaiah, where the dead start from their thrones to hail the fallen monarch of Babylon.* But the most startling passage of this kind is that in the *Odyssey*, where the ghost of Achilles tells Ulysses he would willingly return to earth, and labour for ever as a slave and a hireling, rather than remain a prince in the realms beneath.† Goëthe, Byron, and Gray have no imagery similar to this in point of grandeur and solemnity of conception. Perhaps Homer derived his knowledge from some source much nearer to the fountain-head of primeval revelation.‡ It was not till the age of Shakspeare that the Oriental apathy began to manifest itself in this country. It came forward with the dawn of civilization. Hamlet represents the *deadness* of a living soul. Nothing pleased him: everything palled upon his palate: the criminality of his own mother is suggested to him by an act of necromancy, or spiritual intercourse with the nether world; man displeased him much, and woman much more. He loathes his own existence, meditates self-slaughter, kills Polonius, turns Ophelia crazy by his ill-treatment of her, insults those about him, and dies in the midst of bloodshed and shame. Such is one of the most touching and approved dramas of the English stage.

We are almost tempted to imagine that the world has an inherent tendency to paganism—not, indeed, to the worship of idols, but to the practice of those principles which were sym-

* Isaiah xiv. 9. † *Odyss.* xi. 482.

‡ Antiquity believed that Hercules, Orpheus, Castor and Pollux, Theseus, and Pirithous, had before their death seen the habitations of the dead. The adventures of Eurydice were venerated as religious truths; and Orpheus was struck dead for looking back on the restoration of his lost Eurydice from Pluto's dreary reign. It is an inverted story of Lot's wife. Fragments of revelation descend like floating lights along the gloomy stream of paganism, but shine more faintly the lower they descend.

bolized by idols. There can be no question of the worship of Venus in a way that we need not specify, since no one discredits it; nor is there any doubt of the worship of Bacchus, the god of wine and good cheer; nor of Plutus, the god of wealth. The *cultus* of these deities is fully recognised in our daily habits, and scrupulously carried out all over Europe. The pagans never paid higher veneration to their deities than we do to ours. The images of these vices are alone wanting to complete their ritual service; and the British nobleman, whoever he was, that facetiously bowed to the statue of Jupiter in the Vatican, was not far off from the truth when he said it was a matter of policy as well of politeness to put himself on good terms with the pagan deities, since no one knew how soon they would come into fashion again. What mean the statues of the great men which adorn our streets? are they not a species of hero-worship? Do they not represent an idea, or a set of ideas, and appeal to those sentiments which mainly actuate the modern world?* Did the idols of antiquity do more or less than this? Cæsar fell at the foot of Pompey's statue, the ideal of conquest; the merchants of Rome celebrated an annual festival to Hermes, the god of commerce; and the statue of *Divus*, or divine Augustus, had, as the superior emblem of power, its appropriate offerings. *Mutato nomine, de te fabula narratur.*

In the first ages of Christianity, it was the opinion of

* A statue is said to be inaugurated. What is an *inauguration?* The derivation of the word is *augur*, soothsayer. To inaugurate, is to consecrate or devote something to a particular purpose. Inauguration, therefore, is an act of devotion, and in this particular instance to a statue. *Dedicatio magnam religionem habet.* Cicero *de domo sua. Simulacra gentium argentum et aurum, opera manuum hominum: os habent, et non loquentur; oculos habent, et non videbunt: similes illis fiant, qui faciunt ea.*

many writers on prophecy, that towards the end of time the world would return to idolatry, actual or potential, and that another Rome would resume the pre-eminence of the first, and surpass her ancient predecessor in wealth, power, splendour, and renown. They supposed that the luxuries of life and the art of living would be carried to the highest pitch; and St. Augustine, in contemplating this surprising course of events, pondered over the loss of the Christian faith that was to attend this exalted worldly prosperity.* He asks himself whether it were possible that Christianity should ever perish from off the face of the earth; and yet within three centuries from his death, Mahomet blotted out the name of Christ from a large portion of Asia, the coast of Africa, and the west and east of Europe. Gibbon† relates the degradation of the Christians, and says that the light of the Gospel, after a long and perfect establishment, was totally extinguished.‡

The foregoing observations have been thrown together for the sake of promoting inquiry and reflection, as well as for the purpose of criticising the opinions of an age which excels so greatly in literature, arts, and arms; and it is a fair and legitimate subject of psychological investigation. The habits of thought peculiar to any given period are, if they are wrong, the fault of all or of none. They constitute the prevailing tone of society, and supply the motives of conduct and behaviour, both public and private. They form the atmosphere we breathe, without our being aware of its noxious or beneficial influence; and we are taken by surprise when the magic wand of truth dissolves the charm, and shows us the nature of the

* *De Civitate Dei*, lib. xx. c. viii.

† Gibbon, c. 51, vol. v., 4to ed., p. 386.

‡ Cornelius a'Lapide, tom. viii., p. 449. Paris, 1854.

elements floating around us, their evil and their good, their general bearing on mankind at large, and their specific action on ourselves. It is only by analysing the subject matter of the mind that we discover what the mind itself really is; and the literature of an epoch is the exponent of the progress or decline, the improvement or degeneracy, of a republic, an empire, or the world.

ANCIENT AND MODERN CIVILIZATION.

Civilization was all but entirely abolished by the overthrow of the Roman Empire, and, perhaps, in one sense, it has never been thoroughly restored. Ancient Italy contained nearly 1,200 cities of note, besides Rome, the chief of cities; Verona, which still exhibits the remains of her primitive grandeur, was surpassed by Aquileia, Padua, and Ravenna. In Great Britain, York was the seat of Government; London, the emporium of commerce; Bath, the favourite resort of invalids. Like Italy, France could also boast of her 1,200 cities, and almost rival the mistress of the world in the wealth and elegance of her townships. Throughout the Southern provinces of that fair and charming country, the modern traveller may still discern in the midst of sun-burnt plains and an impoverished population, the vestiges of long lost glory, affluence, and plenty. Strabo tells us that gold was found in the Narbonnaise, and that the wealthy citizens of Rome drew their richest supplies of corn, wine, and oil,

from *Provence, Provincia, the* Province, emphatically so called from its surpassing fruitfulness and the transcendent beauty of its scenery. This earthly paradise is now little else than a dusty plain in summer, and in winter a swamp, swept by that terrible wind the *mistral*, which Strabo had already so accurately described eighteen centuries ago. Montpellier, so finely situated upon the border of the Mediterranean, and once so loudly extolled for its salubrity and prosperity, stands at present alone and almost forsaken, on the edge of its lagoons, infested with mosquitoes and the ague. Nîmes, Narbonne, Toulouse, and Bordeaux, abound with the choicest and most imposing relics of a by-gone civilization, to which the modern restorations are nothing better than ill-disguised poverty, bad taste, and worthless imitations. The ancient province of Spain possessed, as Pliny tells us, its 360 cities, which are no longer counted as such by the modern kingdom of that distinguished country. Africa, both under the Carthaginian and Roman sway, could exhibit its 300 cities as polished as Carthage itself, or Padua, or Corinth; but they were devastated by the Vandals, under Genseric, in the fourth, and by the Saracens in the sixth century; and their names, together with the Latin tongue once spoken so fluently within them, have long since perished. Constantina, captured by the arms of France during the present generation, was at that time the seat of a Roman proconsulate of no mean note. Egypt, the granary of Rome, and one of its most valuable dependencies, has expired under Turkish rule. Asia Minor, or Anatolia, formerly enriched with the gifts of nature, and adorned with all the refinements of art, could exhibit a roll-call of 500 populous and opulent townships. Laodicea, to which a private citizen bequeathed £400,000, was neither the

smallest nor the least renowned of its free communities. Ephesus and Smyrna disputed with it the primacy of Asia; just as Antioch and Alexandria disdained a comparison with Rome. But, now, Rome is a proverb among the ruins of empires, Italy the sport of nations, and Anatolia a land of desolation that scarcely answers to the labour of the peasant, or affords a shelter to the wandering Arab. Its fields are a wilderness, and the magnificent architectural fragments that bestrew its surface, are imputed to magic, by the ignorance, the barbarism, or the superstition of the Turks. The subversion of twenty empires, says Abel Rémusat, is the price at which Providence has accorded to Europe the light of modern civilization.

England, sprung from the ashes of the past, and justly claiming the right of undisputed pre-eminence in science, arts, and arms, is still chiefly occupied in recovering a habit of thought and a mode of living which the ancients had already carried to perfection in the first century of our œra. Strabo informs us that every house in Rome was supplied with a copious flow of water; Horace taunts his city friend for preferring a *leaden* conduit to his own cool and refreshing spring; and the mighty aqueducts, like that of the *Pont du Gard*, in Provence, bear witness to the wise precaution with which they ensured to their dwellings a constant stream from the most distant sources. Ancient Rome furnished to each of her inhabitants twelve times as much water, of the purest quality, as Paris does to each of hers at the present hour. Petronius Arbiter, in his *Satyricon*, alludes to the various private and public uses to which the water was applied; and the fountains and reservoirs of modern Rome are so many actual testimonies to the same historical account. The well-

known cloacœ of the ancient city are the greatest safeguard and convenience of the modern one, which in this respect surpasses every other city in the world. Like most of the towns in the south of Europe, its streets were originally designed and built irregularly, on purpose to afford a shelter from the sun's rays in the height of summer; nor, indeed, was Rome ever quite so healthy, after Nero had re-built the streets in straight lines and along broad causeways, subsequent to the great fire that devastated the best quarters of the city in his reign. As a town residence, Rome was almost perfect. Cicero, when he returned from his proconsulate in Cilicia, was affected to tears at the sight of the accomplished style of the buildings, the people, their manners, and the capital with which he had been familiar from his youth. When, in the fourth century, St. Fulgentius, upon his arrival from Africa, was introduced to a sight of the senate and the conscript fathers sitting in debate, he involuntarily exclaimed —"If such be an earthly assemblage, what must be that of Heaven?" And when the Persian fugitive Hormisdas was shewn the wonders of the Eternal City by the Emperor Constantius himself, he smartly retorted on those who too curiously pried into his feelings of admiration—"Alas, that people should die here, as they do elsewhere!" There were three things St. Augustine regretted having lived too late to see—Christ upon earth, St. Paul preaching to the Gentiles, and Rome at the height of her imperial greatness—a sublime aspiration, to which every devout and well-ordered mind must most heartily respond.

In their habits, the Romans were a bath-loving people. The foundations of their bathing houses remain to this day, and may be traced in every watering place of fashionable re-

sort, from Baden-Baden on the Rhine, to Bagnères de Bigorre in the Pyrenees, and from thence to Aix-la-Chapelle, Bath, and Cheltenham. They were particularly attentive to their mode of dress. In the higher classes, their attire was purple and fine linen, and their costly ornaments were of pure gold. When the martyred corpse of St. Cœcilia, the daughter of a patrician race, who suffered in the third century, was exhumed entire and uncorrupt at the close of the ninth, its vesture was of plain and regal simplicity, as may be attested at Rome, at the present day. The luxury of their tables, the abuse of which is quizzed by Horace, denounced by Juvenal, and described with biting irony by Tacitus, is only an extreme proof of the care and attention they bestowed on the propriety of their diet and behaviour. Even the dainty frugality of Horace is but another proof in the same direction. Writers, such as Cicero, Virgil, Ovid, and others, could never have been produced and nourished without a mode of living in exact accordance with the grammatical accuracy and the intellectual dignity of their imperishable works. There is no modern writer who can pretend to the unrivalled perspicuity and unimpeachable veracity of a work like that of *Cæsar's Commentaries*. To suppose that anything short of the highest civilization could have engendered writers such as these, is to suppose that barbarism and refinement are one and the same. Nay, our present dearth in this respect, is the irrefragable proof of the lofty eminence from which we have fallen, and the intellectual and material ruin into which we have been precipitated. "When Rome fell, the World fell." It was shivered into fragments, never more to be re-united. Egypt, Babylon, and Nineveh passed away, and left mankind advancing along the high road of progress. But, when sub-

sequently to the destruction of Rome, Constantinople also fell, its fall was the inevitable consequence of the destruction of the Western Empire, and severed for ever the last links of society. Learning fled before the Turkish scymitar. A moral earthquake shook the infant communities of Europe to their lowest foundations. Impervious ignorance rolled like a thunder cloud over the darkened East; and modern Christendom emerged shattered and forlorn from beneath the catacombs, and stood trembling, naked, and alone, in the place of the mightiest monarchy the world had ever beheld, and the code of whose jurisprudence has imparted laws to the constitution of every state, kingdom, and republic of the present day.

The foregoing narrative refers to civilization under its social and political aspect in the ancient world, and there is little doubt it had attained a degree of perfection which the moderns are not disposed or prepared to allow it. Under its moral and scientific aspect the question is altogether different. Whether, morally speaking, we are superior to our ancestors 1,800 years ago, admits of very serious debate. Many consider that the floating vice and virtue of mankind is a constant quantity, which, if it vary in amount among one section of society, or at this or that particular period of the world's history, is upon the whole nearly always the same. For, if one set of vices preponderate at one time more than at another, it is counterbalanced, they say, by another set under different circumstances at a different epoch. So, likewise, it is affirmed, the amount of virtue never fails, however much it may vary in its manifestations, according to the several events that call it forth. And yet, it must be confessed, that the frightful instances of public or private delinquency that not unfrequently come before us, are totally at variance with

every preconceived notion of a *Christian* community; and the horrible crimes of poison, murder, suicide, and fraud, which swell the columns of the daily press, would blacken the pages of Tacitus, Suetonius, and the writers of the *Historiæ Augustæ*, deeply stained as they are with the blackest crimes of every description. In the balance of justice, the scales seem to trepidate between christian and pagan morals. But the question assumes an entirely different character when we approach the subject of science. Here comparison is at an end. Ancient knowledge shrinks into insignificance as soon as it is exposed to the full light of modern art and skilfulness. When Agricola headed the Roman legions in Great Britain, or Suetonius commanded at London in the days of Queen Boadicea, how little could those able Governors-General divine the causes that would eventuate in making the little metropolis, as it was then, the modern emporium of commerce, or render Great Britain, what she now is, the mart of all the world. Little, indeed, could they guess the inestimable value of the antediluvian forests deeply buried as coal beneath their feet—the gas that would be extracted from thence to light our dwellings, streets, and places of public resort—the heat that could be evolved for propelling steam locomotives along iron rails at a velocity that would have appalled their very senses, bold and hardy as they were. When Cæsar hesitated, and at last, after long preparation, ventured to run the risk of crossing the stormy channel that separates France from England, how little could he foresee a time when this short passage should be safely accomplished in less than two hundred minutes, during the worst of seasons, at any time of tide, and at every hour of the day or night. When the Romans, in the days

of the old Republic, panted to learn the issue of the critical battle of Cannœ, what would they not have given for only half an hour's use of the electric telegraph? If Cicero could have foreseen his *Opera Omnia* printed in legible type, hot-pressed, and handsomely bound, lying on our library tables, he would have been the very first to exult in the all but miraculous invention of the art of printing. Had the Elder Pliny, whose *Natural History* is the memorable proof of his industry and intelligence, only known the data of modern science, how much more cautious as well as zealous would have been his fatal approach, for the first and only time, to Vesuvius in flames! Those nameless engineers, who raised the aqueducts and laid the causeways, the remains of which stagger the beholder to this day, would, had they seen *our* viaducts, cuttings, tunnels, and embankments, have blushed at the consciousness of their own inferiority. Or, what would Aristotle not have thought of Nasmyth's account of the self-consuming atoms of the sun's photosphere, their shape and colour, and their magnitude of 100 miles broad by 1,000 miles long? or, of the discovery, that heat is matter in motion—that each Fahrenheit's degree of boiling water is equivalent to a weight of more than 700lbs. raised a foot high? And how would Plato have stood in silent contemplation of the mechanism of the Heavens, as it is explained and demonstrated by Herschel and Arago, in their outlines of Astronomy! and what would Strabo have concluded from the perusal of Humboldt's *Cosmos*, a work so like, and yet so grandly unlike his own! Archimedes might have hoped in these days to find among the dynamic forces of nature the fulfillment of his long-cherished idea—a fulcrum to move the world! and Hesiod have recapitulated his *cos-*

mogeny, in prose instead of verse, from the elucidation of the earth's strata by modern geologists! As to electricity, magnetism, light, ozone, and the electro-magnetic action of the sun's rays, operating in so many directions, and producing such immense results in the condition of organic or inorganic substances—they could only have stood still in mute astonishment and awe: but of an Armstrong gun, or an ironclad, such as the *Warrior*, or the *Black Prince*, it would have been beyond their reach—they could not have had the most distant idea approximating to the conception of it! These triumphs of knowledge, and many more, which we regard as only in their infancy, they would have been tempted to fall down and worship as the special gifts of their gods or demigods for the use and benefit of mortals—so vastly do we transcend them in our mastery over the elements of nature, time, and space!

Nevertheless, strictly speaking, the absolute difference between one age and another is not so wide as at first sight it appears to be. The necessities of living are limited and identical. We must eat, drink, and sleep, and provide ourselves with the means of doing so. These means are everywhere, always, and among all the same. In the excavated streets of Pompeii, we see things going on eighteen centuries ago just as they do now in the living thoroughfares of a modern town or city. The essential difference is in habits, manners, and style. In these they were our superiors—in architecture, social grandeur, language, and expression—of which we have lost the accentuation and the type. Science is a wonder—it stands alone: greatness of action is far above it—it is LIFE itself.

CHANGE OF SCENE.

The season for holiday-making is fast approaching. The polite and the political world, the professional and the mercantile, are already beginning to reckon the weeks or days before they can start once more by steamboat or by rail, and leave us poor scribblers far, far behind them, to the summer dust and solitude of London.*

The joy of travelling is universal. To many it is new life, for at heart we are all of us children, or we ought to be so—"pleased with a feather, tickled with a straw." When the morning is bright and clear, and the day for starting has arrived, how cheerfully do we bid a short farewell to home, and hasten on board the steamer, the bustle and confusion of which only give additional zest to the momentary sense of pleasure. The breeze blows afresh as the boat quits the harbour, heaves upon the coming waves, and cuts through the crested foam; health enters by the eye; the optic nerve is engaged with new sights; the invalid forgets himself, and time flies without his knowing it.

To the jaded Londoner, whose nerves are jarred by the incessant railroad, change of air and scene is almost indispen-

* "I reluctantly left Paris, and hastily drove through the summer dust and solitude of London."—*Gibbon's Autobiography.* What he regretted in 1765 we heartily respond to in 1863. But if Gibbon was delighted with the capital of France a hundred years ago, what would he say to it now? For though the Paris of his day no longer exists, yet most of its social attractions still remain, and the modern city has risen, like the phœnix, young, bright, and new, from the ashes of revolution, bloodshed, disaster, and dynastic change.

sable. At least once a year every one who possibly can, leaves the great metropolis. Fifty years ago, only the privileged sons of fortune could venture on travelling; now, every one travels. Fifty years ago, those strange mental and bodily ailments usually ascribed to medullary softening or exhaustion, were exceptional cases; but now, almost every case partakes somewhat of their character: the wan eye, the languid gait, the prone and bloodless hand, emphatically bespeak their origin. Odd feelings of numbness, without loss of motor power, an undefined foreboding of impending evil, puny remorse or capricious regrets, irresolution, and disgust of life, indicate either some deep-seated mischief of the nervous centre, or the effects of a moral shock, that has penetrated to the very seat and citadel of life. Intensity is the order of the day; velocity is the soul of business; decision is a matter of necessity; and yet, in fact, the world is only what it ever was. No one can comprehend at a single glance the precise bearing of circumstances and events which speed away from sight as quickly as they come into view; they are come and gone while one is looking on. It is too late to decide, except upon the spot. Yet, decide we must, whether the decision be right or wrong; and much must be left to time, and chance, and the chapter of accidents. Earnest but feeble minds find the task too much for them, and they shrink unconsciously from the weight of a responsibility which is forced upon them without the delay proper for deliberation. Their nerves are overstrained, and they totter or fall.

The master minds are so few, that we may consider them as the giants looked up to and implicitly followed by the crowd. The rest of mankind are nothing more than ordinary mortals. Nevertheless, we are all of us hurried away, both

giants and dwarfs, by a gigantic order of affairs, to which there is nothing analogous in the course of history. In spite of ourselves, we are all *fast* men. Every one suffers from it. Health is no longer what it was. Nervous maladies take the lead, fevers are of a low type. Formerly the latter were acute and inflammatory, now they are just the reverse. The treatment that was successful then, would it be successful now? Would not the present plan of sustaining the failing powers of life have in those days only added fuel to fire? The whole is changed—the mode of living, the features of disease, and the style of practice; all is changed, and so are we ourselves. Everything tends to promote a direct pressure on the nervous system, to raise a call for incessant excitement. There is no interval of rest. The great town roars from morning till night, and from night till morning. A short hour or so before the dawn, its granite pavement may be silent; but at sunrise, or before sunrise in winter, the hum begins again, goes on increasing, and shortly rises into one long continued roar. To sleep, is it possible? The intellect, does it ever sleep? Dreams, are they not the waking thoughts, hopes, fears, and ambition or despair of the day? And what is the consequence? This patient has lost the use of his arm, another is blind or paraplegic, a third is losing his memory and self-possession, and is obliged to resign a lucrative post. They all look ill, and, in fact, are very ill. They all show signs of wasted blood and damaged nutrition of the brain. They are all of them temperate. They none of them smoke, or drink, or do worse. On the contrary, they are upright to a nicety, only the burden of life is too much for them.

The weariness of life, incidental to mental and bodily exhaustion, is a form of disease of peculiar inveteracy. Some-

times it amounts to unmitigated apathy, pervading every function of the frame. To cease to be, is the only desire left, connected with a vague and indefinite idea of leaving life for the purpose of shaking off an incubus weighing too heavily on the mind. The nerves are unstrung and no longer respond to the touch of interest or affection. Perhaps it may be said that overwrought luxury or care is but a protracted suicide, long-drawn out. Which is the better or the worse, the profligate who destroys himself piecemeal, or the greedy usurer who supplies his needs? What is the value of a great reputation at the bar or in medicine, if you are found dead in your bed, with a distraint in your house, or you win golden opinions from all sorts of people at the cost of more than fifty per cent. on your income? What a life! Late dinners and late hours, rich repasts or meagre meals, hot assemblies, theatres, and saloons, the close and ill-ventilated bedroom, the use of tobacco, and the absolute necessity of having recourse to wine, spirits, or opium as a solace or support, beneath a vast canopy of smoke, that obscures the air and adjacent country for many a mile in circumference; such is the climax of a mode of life as diametrically opposite to health and happiness as light is to darkness, or earth to heaven!

The laws of nature are never transgressed with impunity. In the physical being of man there is no redeeming power analogous to that of repentance in the supernatural order of faith. Damaged functions are seldom or never restored to their primitive integrity. Their further deterioration may be arrested, but the point at which degeneration halts remains permanently fixed below the normal standard of health. Nought is left but a broken constitution.

But we are wandering from our point. We have forgotten ourselves. Our brown study was caused by the sight of that sickly-looking stranger who has just stepped on board the steamer, and seems pining for fresh air and relaxation from the toils of office. Where is he going? to the Alps or the Pyrenees? It matters not which, for either will do. No scenery is so exhilarating to an enervated patient as that of the mountains. It is particularly renovating to the worn-out cit. Everything looks enchanting to him. He can scarcely believe his senses. The sight of those distant giant peaks coquetting with the wreaths of clouds around their lofty summits—their wonderful variations of light and shade, and perspective and form—the valleys between and among them scattered over with villages, farms, fields, streams, cattle, hedges, woods, and pathways, looking so small, clear, and distinct in the depths below; or the sombre pine forests, such as those so ably depicted by Gaspar Poussin, clothing the heights above, below, and around him, vanishing beneath his feet, over his head, or far away, as far as the eye can reach, here, there, and everywhere—unfold a moving diorama or dissolving view that annihilates time and space, and transports the mind in fancy to the land of dreams.

Lofty elevations give rise to singular feelings in the breasts of those unused to them. There is something preternatural in their effect. But there is more than the sensation of novelty and grandeur which they inspire. There is a material alteration of the whole frame. Heights such as those of Mexico, Peru, Bolivia, and the awful Himalayas, produce phenomena, both in animals and men, of the gravest kind. It is styled the *alpine climate*, and its effects are everywhere the same. Saussure, on the top of Mont Blanc;

Humboldt and Boussingault, on the peaks of Teneriffe or Chimborazo; or Moorcroft, on the terrible altitudes of the Hindoo Coosh; each and all experienced precisely the same feelings at the same elevations. The diminished amount of oxygen, or the greatly reduced barometrical pressure, or the free electricity so clearly demonstrated by the frequency and severity of thunderstorms, hurries the circulation and breathing, and makes the arteries of the head pump with unusual energy. Bodily exertion did not cause it, for those who rode on horseback, or were carried in cars or palanquins, suffered the same. Humboldt's guides bled from the nose, mouth, and eyes—a sanguineous exudation rather than a direct hæmorrhage. Aëronauts suffer in the same way, and so do divers into great depths of the ocean: the mean surface of the earth being the only level adapted to the perfect functions of life. The digestive organs are sympathetically affected. There is a sensation of fulness at the pit of the stomach; loss of appetite, nausea, or vomiting. The thirst is sometimes excessive—a desire for cold drinks, and a positive aversion to wine or spirits, although cordials are by no means prejudicial; indeed, it is astonishing what a large quantity of ardent spirits can be consumed at these great heights without intoxication. Every traveller mentions this curious fact.

At extreme elevations muscular strength nearly ceases. Beasts of burden sink under their loads and lose their strength much more rapidly than man. They stagger, stumble, fall down, and often die from sheer exhaustion, as their whitened bones abundantly testify along the passes of the Himalayas or the Andes. But the most important effect is that produced directly on the nervous system, signified by giddiness, drowsiness, headache, singing in the ears, and an

almost uncontrollable propensity to lie down and sleep. These symptoms occur at the extremest heights. At lower elevations they manifest themselves in a lower degree. Still lower, they give place to a sense of lightness and buoyancy, as if the ground were elastic, and the feet seem to skim along the surface as if flying. The traveller feels himself so braced up and alert, that he can walk farther and more easily than ever he could do on the plains he has just ascended from. Life is sensibly invigorated. There is a kind of intoxication of delight. Hence the benefit to valetudinarians. A prolonged sojourn on the heights takes away all these good effects, and at length does harm. The tongue becomes parched, the eye bloodshot, the cheeks pale, with a congested red spot in their centre, and the skin ceases to perspire. Very sensitive persons experience these unpleasant sensations at an elevation of five thousand feet above the sea-level, particularly if riding instead of walking. Exercise on foot in general soon restores the circulation.

Animals are affected in the same manner as man, but not in the same degree. When the Spaniards first went to Bolivia, they took their cattle along with them, and they found, to their utter astonishment, that their bulls had lost their ferocity and pugnacity. The torédors could scarcely stir up their rage, or, if they did, the bulls fell down at the first encounter or turned tail, to the infinite disgust of the spectators assembled to witness their favourite amusement. Possibly the animals may have become acclimatized at last, for Boussingault witnessed a regular bull-fight at Quito, which is only a thousand feet lower than Paz in Bolivia, where the animals first failed. Cats die at 12,000 feet above the sea, from tetanic spasms. Dogs live longer than cats,

particularly if born in the locality, but they are often subject to fits, like those of pups. Hares and rabbits live at a great elevation, but the race soon ceases. Poultry quickly die. Horses and mules become acclimatized, but they require the greatest care, and must be allowed to halt frequently in the course of a journey. The lamas of Peru, and the yaks of Mongolia, suffer like the mules and horses. Bears and wolves exist beneath the snow-line. Eagles and condors, those denizens of air, live at an elevation of 20,000 feet above the sea-level. Butter-flies, spiders, and house-flies were observed by Saussure at 12,000 feet, and by Bonpland still higher than that. The chamois, the gazelle, and the izzard, enjoy a free and independent existence among the highest crags and precipices, but then it is their native place, and they are, as it were, to the manner born.

In Europe none of these bodily sufferings are so strongly marked as they are in Asia and America. Those who have ascended Mont Blanc, or, like MM. Desor and Agassiz, passed a day and a night on the glaciers of Aar, have not remained long enough in those inhospitable regions to enable us to form a fair estimate of their injurious effects. It is from travellers who have dwelt for some time on the Himalayas or the Andes that we learn what is the real pathology of those elevated localities. Acute inflammatory fevers stand at the top of the list. Dyspnœa is a very common complaint. It is a kind of asthma, produced by a dry, cold, and rarefied atmosphere. Animals suffer from it as well as man. Natives of the plains, the corpulent, and robust, suffer the most. It is the worst in dry seasons. Among new comers, the digestion, which is at first much distressed, recovers quickly

enough, but the dyspnœa and lassitude consequent upon it continue for many months, and in some cases are never cured, except by returning to the lowest levels. The complaint is seldom fatal. There may be apoplexy or pulmonary congestion in those so disposed, but in general it is an inconvenience rather than a disease. The maladies peculiar to hot climates are unknown in the mountains, and ague is cured by a residence among them.*

It is evident that the changes effected within the animal economy by a short residence in these elevated regions are of the most important kind. It cannot fail to be most favourable to the worn-out inhabitant of great cities. The stimulating influence that it exerts on the nervous system in particular is the very remedy that his case requires. The respiration, the circulation, and the process of digestion, are all of them powerfully acted on and promoted. In enervated and wasted constitutions, these beneficial results are the most obvious. But, chief of all, is the good that it accomplishes on the mental faculties. What is most needed, and the least likely to be obtained, in the treatment of mental maladies, not only at home, but also in the same place, and in the midst of kindred associations, is a complete and sudden diversion of thought and feeling. There is nothing within reach so long as the patient is confined to the circle of his own country, relations, and habitual pursuits. They must be all changed. New scenes, new thoughts, new ways, and new food, are the *primum mobile* of cure. Nowhere can they be found in so ample a degree as among the solitude and grandeur of a mountain pass—such as that of

* These remarks are taken from "*Les Climats des Montagnes*," par Dr. Lombard. Genève. 1858.

the Via Mala, in the Grisons; or the Port de Venasque, at the entrance into Spain, in the Pyrenees, near Luchon. We appeal to the *initiated*, and ask them whether such points of sight can ever become vulgarized, or lose their beneficial effects by long acquaintance? They are too unique ever to become commonplace, or be forgotten. Like the ocean, always the same yet always new, they fix the eye in wonder, contemplation, and repose; and the novice is satisfied with a feeling of the sublime that is never effaced.

The mind shakes off the phantoms of the past, recovers its tone and manliness, and life is renewed. A rich background is furnished to the drudgery and business of the world. The number of ideas is multiplied, for there is no end to the stores of nature. Who would ever have supposed that these solid peaks have a language of their own? and yet the *voices of the mountains* are as old as the days of Strabo; and Humboldt himself uses the expression, which he has borrowed from the ancient geographer, where he is describing the Lipari islands and Phlegræan fields of old.*

An anonymous writer in the *Edinburgh Philosophical Journal*, "On peculiar Noises heard in Particular Districts," mentions a dull moaning sound that came from the Maladetta in the Pyrenees at a moment when the sky was cloudless, and Mont Maudit was distinctly visible in the transparent atmosphere of the south. In his *Views of Nature*, Humboldt mentions the organ-like sounds heard at sunrise on the banks of the Orinoco, proceeding apparently from the granite rocks that had been overheated by the intense rays of the sun the day before.† Mr. Scrope, in his excellent

* Strabo, lib. vi. 276. Humboldt, *Kosmos*, v. p. 263.

† The sound proceeding from the Memnonian Statue in the sands of Ancient Egypt might be thus accounted for.

work on extinct volcanoes, states that some rocks absorb moisture, and give it out again with a hissing sound, and a considerable disengagement of air bubbles. The rock called domite is one of these, of which the Puy de Dôme is nothing more than a huge mass. It is a pumice, the product of ignition, and looks grey and naked enough as it towers above the dingy, antiquated town of Clermont-Ferrand, in Auvergne.* The clinkstone and trachyte of Mont Mezen, Haute Loire, as well as of Mont Dore, one of the range of Puys, might readily yield a distant reverberation from the constant effect of meteoric agencies, detrition, and decay. Mr. Weld, in his work on the Pyrenees, likewise alludes to the mysterious sounds wandering through the solitudes of the mountains, and answering each other in echoes from height to height. Perhaps these noises may be accounted for by currents of air sweeping round the lofty peaks on high, while a profound calm reigns at their base.† Around the sugar-loaf point of Mont Ventoux, 8,000 feet high, in the neighbourhood of Avignon, fleecy clouds may be seen circulating on the calmest day.

But let us descend. The back wheels are locked; the horses are put on the full trot; the drivers shout and smack their whips; the road turns sharp round; the vehicle swings, you overhang the depths below, and a moment afterwards you are driving down the next slope in the opposite direction, to run the same risk at the next sharp turning of the steeply-inclined plane. This desperate experiment is repeated many times before you reach the long-looked-for bottom. The slightest accident to the vehicle, an inadvertence of the

* Scrope's *Extinct Volcanoes*, p. 46. Murray. 1858.

† *The Pyrenees, West and East.* By C. R. Weld, p. 194. Longman. 1859.

driver, the tripping of a horse, would inevitably send the whole freight over the brink, several thousand feet deep. Had we experienced the same embarrassment on the heights as we did in the valley, our fate would have been sealed. We had just crossed a shallow mountain torrent, and were rumbling along the grassy plain beside it, when the seventh horse, or leader, ridden by a lad *en postillon*, began jibbing, backed on its three fellows behind, and they again backed on the three wheelers, which threw the vehicle awry out of the roadway. One of the conductors alighted, ran to the leader's head, re-adjusted something wrong in the harness, and everything was quickly put to rights; but the same occurrence on the heights would have toppled bag, baggage, horses, and all, headlong over the precipice, and then you would never have heard from your ill-fated author again.

As when a trav'ller o'er the heath'ry waste
Treads darkling, wearisome, his nightly way,
The dawn begins, the glorious sun ascends;
While he, forgetful of the drear sojoùrn,
Pauses, and feels, the magic beam of morn.

J. A. H.

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