Sudden death / by A.B. Granville.

"TO WHOM SHALL I SPEAK AND GIVE WARNING?"

JEREM. VI. 10.

SUDDEN DEATH.

BY

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"I NEVER before had so many cases of sudden death as at present. Within ten days I have had thirty-one cases to inquire into. One constable, alone, sent me notice of five cases."

Mr. Coroner Wakley, at the inquest on the late J. Russell, Esq., a Stipendiary Magistrate, who was found dead, March 10, 1851.

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REMARKS PRELIMINARY.

1. I HAVE not adopted Mr. Wakley's emphatic and official declaration as a text for writing a book, but as a suitable introduction to one which I have long been preparing from practical observations and extensive inquiries into a subject, the importance of which is sufficiently enunciated in the title-page.

2. Class-diseases, as we may term them, have of late years received great attention in this as well as in foreign countries. The great progress recently achieved in physiology and animal chemistry, was, of itself, likely to induce a movement towards a better

acquaintance with, and sounder treatment of, any group of diseases which are known to affect alike the higher and the easier, not less than the humbler and the industrial classes of society. Accordingly, we have suffered from no lack of treatises on stomach complaints, on affections of the lungs, and on diseases of the heart. Each of these classes, in fact, of disturbed functions, known to implicate important organs as the centres of those functions, has received a large share of consideration from the medical profession. Nor have their efforts and researches been received and accepted with less eagerness and encouragement by a discriminating public.

3. The class of "head diseases" has probably attracted less serious attention. Unquestionably, their treatment has never, in this country, been made the subject of many volumes. Drs. Cooke, Kellie, Clutterbuck, Abercrombie, Todd, and Copland,—the latter in his admirable articles on head affections,

in the "Dictionary of Medicine,"—are the principal authorities referred to in our days, in questions connected with especial diseases of the brain. Although far from agreeing with one another, either in theory or practice, their works will always command respect and be consulted with advantage. Their writings, however, by their very nature and form, are not calculated (like many of those which relate especially to any of the three classes of diseases previously mentioned), to invite and secure public attention generally. And yet, were the importance of the subject of "head diseases" to be measured by the good which the public would derive from attending more closely to it, the consideration and study of diseases that snap the thread of life asunder abruptly, might be expected to command a paramount interest on the part of the general reader, before any which relates simply to the stomach, the heart, or the organs of respiration.

4. Another and more recent publication, by an hospital physician, to which I shall again revert on a future occasion, might be alluded to in this place. But that work does not treat exactly of the same subject-matter as the present, which refers principally to the most formidable of the affections of the head. It confines its investigation rather to the consideration of apoplexy and partial paralysis, consequent on diseases of the heart, a subject handled with considerable ability. But it says nothing of the tremendous consequences treated of in the following pages, arising from disturbed vascular action in the head, no matter how, and from that alone. Nor does it bring the powerful aid of death-statistics to bear upon the propositions laid down, as tests at once and in corroboration of their truth and importance. Yet nothing can be more interesting than the whole question so viewed. Nor is anything more essential to its full development and the useful inferences

to be derived from it, than the exhibition of an almost overwhelming number of life and death records, in support of certain reasonings and conclusions connected with the inquiry. In comparison with them, what are the tabular returns from hospitals of fifteen or twenty cases of head diseases in a year, to illustrate a proposition, hazarded on evidence so slender, that the diseases in question proceed principally from affections of the heart?

5. Were the records, which it is my intention to bring forward in the present volume, suited only to invest with a momentary attraction the original proposition of the increasing frequency of sudden death on the one hand, and of the great prevalence of apoplexy and paralysis among comparatively young people of both sexes, on the other hand,—without, at the same time, elucidating their causes, and, in so doing, point out how their operation may be checked, I should

scarcely consider their introduction worthy the acceptance of the profession and the public. But vital statistics have a nobler and loftier purpose, as will be noticed in the sequel; and in that light they have been viewed and adopted in the pursuit of the present inquiry.

6. That inquiry I have purposely divided into two branches. The one popular, statistical, and philosophical, relates to matters of fact and occurrence in connexion with sudden death, apoplexy, and paralysis, which have not been duly noticed or appreciated before. The other, medical and practical, embracing an extended view of the causes, increasing frequency (especially among comparatively young people), treatment, and prevention of those formidable disorders, together with a section on longevity, or death from old age. The present volume is intended to exhibit a full development of the first branch of the inquiry. It is so written that it may form

an independent work. The second branch will form the subject of another volume, to follow soon after the present. In it the reader will be put in possession of certain plain physiological principles relating to the circulation of the blood in the head, with an account and description of the consequences that must, and do inevitably, follow any deviation from the normal condition of that circulation; with the delineation of the corresponding ill effects produced on the nervous system; lastly, with the enumeration of those professional measures, by which the stealthy advances of the "disorder of death" (as it may justly be called), being once detected, may be diverted and stopped.

7. In its dry and insulated character, the investigation I am about to enter upon could not boast of novelty, but for the manner in which it has been treated and the many curious facts brought forward. The subject of SUDDEN DEATH, that of apoplexy, that of pa-

ralysis, has each had many able and distinguished expositors, from the very earliest periods of medical science down to our own days. But conjointly, and in reference to one another, and as affecting vital statistics, and, in fact, as a complex question, interesting to all in these times,—it will probably be admitted that the subject has been handled in a novel yet practical manner. I have done my best, though not the best. Others will come after me who will do better, for there is ample room for it; and the successful advances which each collateral scientific inquiry connected with the question of life, may be expected to make in future years, will be so much help towards the production of a far superior performance.

8. In the meantime the present attempt, with its succeeding volume, will, I trust, effect some good, by preserving many lives that now fall victims to unsuspected affections of the head; as well as by pointing out to all

the means of protecting themselves from nervous injuries, which, when not immediately destructive of life, tend to impair the senses of sight, and of hearing, and of locomotion, and, not unfrequently, the faculties of the mind also; thus rendering a prolonged life almost a burthen.

9. In the plan of my present work simplicity has been my object. I have endeavoured so to divide and arrange its subordinate parts and sections, that, although bearing a due relation one to the other, each may be taken and considered separately with perfect independence. Of notes and quotations, that serve oftener to perplex and confuse, rather than illustrate or explain the text, I have been very sparing. But where assertions or facts are brought forward of so startling a nature, that it could hardly be expected they should be accepted on a mere statement of my own, I have not failed to corroborate them by suitable references to superior and unquestionable authorities.

10. And thus the present volume is sent into the world as a respectful tribute of accumulated professional experience, due by me to the public, from whom I have received every encouragement during a career of thirty-five years in the metropolis. I venture to think that my professional brethren will thereby become acquainted with a multitude of facts and correlative views worthy of their consideration ; that actuaries and all such as are engaged in estimating the value of human life, may consult it with advantage ; and, lastly (and this is not the least important point), that the religiously inclined will find in these pages, themes pregnant with the most serious and soul-inspiring reflections.

1, *Curzon Street, May Fair,*
June 20th, 1854.

I.

RECOLLECTIONS.

THE CONSULTATION-ROOM.

"*Mon cabinet des consultations me rapporte trente mille francs,*" said to me the late Professor Hallé, of Paris, when, in a moment of dyspeptic terror, I hurried on the 10th of August, 1816, from my hotel, in the Rue du Colombier, to his house near the Ecole de Médecine, at which he used to deliver, annually, a course of "*Physique Médicale et Hygiène.*"

Hallé had acquired, by his writings, a great reputation as a physiologist; but he was a man of books, and not of experience, as I soon discovered; like many a counsellor,

" learned in the law," whose chambers in the Temple you seek with case and fee in hand, to save yourself the trouble of poring over the statutes at large, or even the more useful volumes of Welsby and Beavan digests, and so get an opinion, or a condensed view of the law.

The Professor was consulted from far and near, on account of his extensive reading and prodigious medical erudition. He used to receive his patients on three days in the week, as early as at half-past seven o'clock in the morning; and his cabinet was generally thronged with people of the better and higher classes, chiefly dyspeptic, hipped, and hypochondriacal.

On taking leave, the patient dropped, as he went by, his three or four *écus* on the mantelpiece of the chimney, and seldom returned again. It is curious that this oracle, whom the classes of patients I have just named were especially eager to interrogate

respecting their own ailments, should himself have been one of the most pitiable victims of those affections which he was expected to relieve in others ; and should ultimately have died, at no advanced age, from the effects of indigestion.

Hallé was a stout and neatly made man, short of stature, and with a large head, rendered more voluminous, in appearance, by a vast quantity of black, bushy, and crisp hair. He was a most patient listener (unlike an eminent English surgeon, his contemporary, to whom we are indebted for the blue pill system), and attended closely to every circumstance of the case. He then would enter fully, and even too minutely, with the patient, into each particular feature, explaining away difficulties as he proceeded. His manner was pleasing and persuasive. Technical language he seldom used, and he would oftener conclude by giving merely a few verbal directions, than by writing long and complicated

prescriptions, after the fashion of many of his countrymen.

Before this oracle of the Parisian faculty then, did I, on the 10th of August, of the year before-mentioned, present myself, the condemned of all the higher practitioners of London—the Baillies, the Farquhars, the Pembertons, the Blanes, the Scudamores, carrying with me, in their opinion, a declared disease of the heart, with palpitations of such violence, and so palpably evident, that Hallé counted them without feeling my pulse. The stethoscope was not then in existence, and I was destined to be present at its discovery by Laennec, and to assist at its birth. My inward conviction was, that I might drop down dead at any one moment, so intense was the disturbance of the circulation and its internal commotion.

My visit to Hallé proved reciprocally unproductive. He declined to receive any remuneration for his advice from a *confrère*,

while I derived no benefit from his counsels. The boldest suggestion he ventured to offer me was, that of my drinking plentifully of what he called "eau de café," or a largely diluted coffee infusion. Still he encouraged me by his conversation, apparent sincerity, and I felt better for my visit to him during the three or four following days.

This system of consultation at home is an agreeable, as well as lucrative, arrangement for a medical man; nor is it less convenient or economical to the patient. A late baronet, President of the College of Physicians, enjoying, as a practitioner, a greater share of notoriety in this country than even the late French Professor enjoyed in Paris, yet not equal to him, as a consulting physician, bade me one day remark, how seldom and with what difficulty, now-a-days, a London physician succeeded in attaining that degree of an almost oracular renown which enables him to remain at home in the morning, until

a late hour, "in the receipt of business!" (for such were his expressions). "In this respect," said he, "I have been very fortunate; but see how far more lucky are the dentists, the oculists, the inserters of bougies (a favourite practice in those days), and they who syringe the ears, for *they* are the mountain that never goes to Mahomet, whereas Mahomet must needs go to the mountain. Look at a certain famed odontologist, not far from Burlington Gardens. Vehicles of all description throng the street in front of his residence. The barking of his knocker is loud and incessant. The breathless porter has no sooner delivered a card and a message to his master, and slipped into his own pocket a propitiatory half-a-crown or a shilling, than he receives another, and a third, and a fourth in quiet succession, promising to all parties priority of introduction, and apportioning their station for waiting, according to the weight of *their arguments*. Upstairs, downstairs, 'into my

lady's chamber,' are the anxious patients led towards their doom, until, at last, not a niche is left for a new comer. This is 'doing business,' and doing it, too, in a very pleasant manner."

"A lively and very clever accoucheur, in this town," continued the courtly Baronet, "who has won many friends and golden opinions for the space of upwards of twenty-five years, and who, during that period, held the public at his beck, often observed to me that more than half of his daily earnings poured into his house in the course of the morning, with very little or no trouble to himself. Often in his present dignified retirement does he look back with satisfaction to those oracular days, when, in the enjoyment of a well-merited and unbounded confidence on the part of the public, he exchanged with them his valuable *dicta*, and medical recipes, for their not less valuable *notes*, willingly given. I say, therefore, again, *quàm dulce quàm lucrosum!*

(the Baronet was fond of quoting Latin). To do business in this way, how delightful to all parties!"

But what relation, I shall be asked, can these reminiscences bear to the subject of my book? My answer is, the most direct; for that which led me to Professor Hallé's consultation-room was the commencement of that series of successive indications of a constitutional disturbance in the equilibrium between the circulation and nervous action, which, after the lapse of twenty years, terminated in establishing a permanent liability to the two formidable disorders, and to "sudden death," of which I purport treating in the following pages.

Once the attention of a physician has been called to the existence, within himself, of a train of symptoms which threaten to destroy life, however slight or transient such symptoms may at first appear, he fails not to watch their every movement; to discriminate

between the several modifications they may undergo; to judge of the real importance to be attached to each; to infer from their modifications the treatment they require; and, finally, to draw just and available conclusions from the results of his meditations. And all such experience thus gained by the physician, through observations made on himself and his own sufferings, applied judiciously and deliberately to the management of similar contingencies occurring in other people, would enable him to comprehend, master, and more successfully treat diseases thence arising.

The record, therefore, of the author's own case, in the present instance, might so far be deemed a useful, not less than a suitable, preliminary to a treatise on diseases with which he has himself been threatened, and which he has afterwards had frequent opportunities to watch and treat in a vast number of other individuals. Hence, all personal recollections likely to throw light on the question in hand,

may be considered as so much admissible evidence in its support or illustration. With this I shall proceed with my narrative; and there may be found, perchance, not a few among my readers who will recognise some of the symptoms and corresponding sensations, about to be described, as similar to those they have themselves experienced at some period of their lives, and so apply to their own case my several conclusions.

It is now near upon thirty-seven years since that most extraordinary of all the Italian *cantatrici*, the celebrated and unequalled Catalani, was in her zenith, and attracted universal admiration in this country. During her residence in London, though but a young physician at the time, I had been honoured with her confidence in medical matters. I was standing before her one day full of health, giving her some directions at parting, concerning some slight indisposition under which she was suffering, when she sud-

denly exclaimed, "O Dio! si sente male? qual cambiamento di viso!" I found myself in the act of catching hold of the back of a chair near me, as if to prevent my falling on the floor. At the same instant of time, a tumultuous action, accompanied by pain, arose suddenly in the region of the heart, the blood of which felt as if it had quitted, at one violent bound, its proper tenement, to rush, with more rapidity than thought, to the brain—there to cause giddiness, beatings, and a hissing noise.

Alarm, such as I had never experienced before, but have not unfrequently experienced since, followed,—with the conviction on my mind that death must speedily ensue. This impression, probably, as much as the extraordinary disturbance which had just taken place in the circulation, unstrung my nerves, and I instantly became so weak, cold, and faint, that with difficulty I muttered a few unintelligible words, and strove to walk away

upright and firmly from the house. My own, fortunately, was only a few hundred yards distant, and I reached it at last, looking all along eagerly at the rails to support me, should I fall; but I fell not.

A friend of mine, the late Professor A. T. Thomson, then living near me, being summoned, arrived immediately, when I requested him to bleed me largely from the arm. Inconsiderate as the measure might have been deemed by many practitioners—such was the feeling of security which the performance of that operation had given me, as contrasted with that of alarm produced by the suddenness, not less than the violence, of the attack, that after a few days I had the operation repeated. Of course other remedial agents were had recourse to at the same time; for in the course of a couple of days many of the most eminent men in practice, whose friendship I enjoyed, had either assembled, or had come separately to my house, to advise on the case.

At this distance of time, with the safer guide of many years' experience, I recognise that the free use of the lancet, in the manner I directed it to be employed, in opposition to the opinion of most of my more expert medical friends, was injudicious. True, there was an almost overwhelming sense of suffocation at the heart, as if the entire mass of venous blood were rushing into its chambers, producing, at the same time, great confusion in the head and pulsations against the ribs, both in front and under the shoulder-blade, resembling the loud strokes of a hammer ; and the sudden diminution of the fluid mass, by venesection, might fairly be expected to cause a corresponding mitigation of its alarming tumult. But it was not so. The palpitations continued unmodified, the intermissions of the pulse remained unchanged, and with these symptoms there supervened extreme real weakness as well as an *unmitigated state of dyspepsia.* I shall have occasion to dwell,

hereafter, on this latter consequence of large bleedings, as a very important point for consideration; still, I repented not that I had freely opened my veins. My impression, from the very onset of the attack having been, that apoplexy must inevitably ensue, unless, by the abstraction of blood, I prevented the impetus and pressure from within, to burst asunder the coats of some of the weaker vessels in the brain. It was a source of immediate comfort and ease to my mind, to believe that I had baffled such a fatal result by the measure I had adopted.

Nevertheless, the continuance of the cardiac symptoms, unaccompanied, however, by any sign of disturbance in the head (which had by this time completely ceased), induced the friendly faculty pretty unanimously to conclude that I was labouring under a disease of the heart; with which comforting deliberation the sufferer was left to shift for himself. Two months elapsed before I could venture

out for an airing in a carriage, and a little later for a walk, which was necessarily short, since every exertion produced a painful shortness of breath, and a feeling of suffocation.

At the end of the third month I transferred myself, agreeably to a plan long before settled, to Paris, with my wife and three young children, for a couple of years. The intention was to plunge, at once, into all sorts of mental occupations and professional studies, in the hopes of diverting my thoughts from the consideration of my own wretched feelings, which had, at last, reached a degree of hypochondriasis that threatened, at times, to lead to some disastrous result. I carried in my mind the sentence of my brethren in England, and their condemnation; and I felt within me, by night and by day, and at every hour of my wakeful existence, those dreadful sensations which seemed to attest the accuracy of their sentence.

I have already mentioned how my case was

viewed and treated by the first eminent professor to whom I flew for some comfort, immediately on my arrival in the French capital. The experiment had not proved very encouraging; nor did the opinions of Chaussier, Pariset, Montègre, Magendie, Breschet, and Orfila, with whom I presently became acquainted, by attending their respective courses of lectures, afford me better encouragement. One symptom in particular I used to urge them in mercy to relieve, and that was a positive feeling of strangulation, not at the windpipe, but at the gullet, just below the pharynx (probably what Dr. Marshall Hall has since denominated trachelismus), which came on half an hour after every repast, no matter how trifling. The sensation was that which might be supposed to be produced by a hard pressure, or a squeeze rather, of the part between finger and thumb, and was accompanied by intense pain. It seemed to last as long as the process of digestion in

the stomach lasted, and then entirely disappeared. None but what proved mere palliatives were recommended, and those chiefly of the class of antispasmodics. Against the violent beatings of the heart they had nothing to suggest better than *hirudines in ano;* but I had bled quite enough, and declined the application.

My nights were passed in a continued state of agitation; for in whatever position I laid myself, the loud tones of my heart, and the throbbing pulses in every part of the body, permitted none but a feverish and agitated sleep. The days were spent in going from hospital to hospital,—from one lecture to another—and in assisting at as many autopsies of patients who had died suddenly, or had succumbed to supposed diseases of the heart, as I could hear of—that I might learn my own fate. In the vortex even of all these various occupations, the one obtruding thought would ever be present, that such immense

disturbance of the circulation as then existed within me, could only terminate in death.

And yet, while examining the many unfortunate victims of real diseases of the heart, which the clinical wards of *La Charité* afforded me opportunities of daily witnessing, in company with the distinguished physician of that hospital, the late Professor Leroux (the immediate successor to Corvisart), and Cloquet his principal assistant, I would often persuade myself that my own symptoms differed from those which these patients had exhibited in life; while many of the most prominent signs by which their cases had been distinguished, were not to be found in mine.

It had likewise struck me that, although seized at times suddenly with absolute suffocation, while standing or sitting still, I yet found myself sometimes running fast to prevent my being too late at a lecture; or mounting a staircase quickly for the same

reason, without being out of breath or experiencing more distress or uneasiness than was my ordinary lot to suffer from. "Surely," said I, "if my heart were diseased,—its structure faulty,—its action irretrievably disordered, two such modes of rapid movement must have produced their usual formidable or fatal effects on so defective an organ." Reflections like these were somewhat encouraging.

At length hearing of the great and rising reputation of Doctor LAENNEC, in the treatment of diseases of the chest, at the hospital Necker, in which he had succeeded to the post of principal physician, on the death of MONGENOT, which had taken place in 1815, I obtained admission into that hospital, through the Minister of the Interior, as a student, and for a time followed that professor's practice, waiting to see how his diagnoses were verified by dissections, before I again submitted my

own case to the consideration of another French physician.

It was Laennec's habit, when examining a newly admitted patient, labouring under pectoral disorder, to percute him (as I had seen invariably done in the *Clinique of La Charité* also) in every part of the chest, both in front, and at the back, as well as on either side. After which he would apply the ear to any part which had resounded badly or imperfectly. One day (it was the 13th of September, 1816, for I took a note of it), Laennec seemed dissatised with the result of his percussion and direct auscultation, in an interesting but obscure case before him; when turning round to the circle of pupils around the bed, "Why," said he, "should we not avail ourselves of the help which acoustics yield to us, of making distant sounds more audible? The speaking-trumpet enables the dull of ear to hear the faintest whisper; the ascending tube in a warehouse conveys to the upper

stories, in audible sounds, the muttered directions of the master below; the ticking of a watch placed at the end of a long beam, is heard loudly by the ear applied to the other extremity; a tube, therefore, applied over the lungs or to the chest over the heart, ought to instruct us more plainly through our ears, with the movements and sounds going on within; and forthwith snatching the *cahier des visites* from the hands of the nearest *elève interne*, and rolling it up lengthwise to the shape of a cylinder, having a perforation through its axis, he applied it first to one side of the chest, then to the other, and again to the back, between and below the shoulder blades, and declared (what we all know to be true) that he could make out with greater distinctness, than with the naked ear applied over the parts, their inward condition, from their respective sounds which he then described.

Such was the birth of that famous instru-

ment, at first denominated by its inventor *pectoriloque*, which, slowly winning its way from the humble hospital, bearing the name of its founder, the unlucky minister of Louis XVI., to every corner of Europe and to the new world, has laid open to the medical men, in almost every instance, the scenes of disease enacted within the thorax, which before baffled detection. The invention of the stethoscope, simple and accidental as it may have been, marks a striking era in the history of medicine, and is second only in importance of results, to the discovery made by the immortal Harvey.*

On the following day Laennec had pro-

* Why Laennec, in his first edition of the work, in which he announced the invention, should have changed the scene of its first application from the ward of a hospital to the chamber of a fair patient, is not very intelligible to me, except on the score of French *gallanterie*. My own notes, taken down at the time and on the spot, are liable to no misconception.

cured proper cylinders made of a thick pasteboard (to which he not long after substituted hard wood), eight inches long, and one and a half inch in diameter, perfectly smooth, with an even perforation in its centre throughout its axis. It had the two ends somewhat hollowed out, so that the one which was applied to the convex parts of the chest, as well as the opposite end to which the ear of the examiner was applied, fitted admirably for both purposes. Such an instrument as this I brought to England in November, 1817 (that is, a year after its invention), when I first settled myself down in practice in Saville Row; and I well remember how most of my contemporaries, to whom the instrument was exhibited and explained, made themselves merry at the credulity of French doctors and my own.

But, returning to our doings at the *Hôpital Necker;* some months passed in the daily employment of this new exploring instru-

ment, brought to light so many instances of the most extraordinary accuracy in the diagnosis which it had enabled the professor to pronounce, that I determined, at length, to submit my own chest to the explorations of that sagacious practitioner. The leading features of my case, I had already mentioned to him, as well as my motive for seeking, amidst the many miserable objects of disease which encumbered the wards of the hospital, some cases that should resemble my own. He took some days to form his judgment,—examining the action of the heart, as well as every phasis of the function of my lungs at different periods of the day, and under variable circumstances; when at length he pronounced an opinion, which, to this very day, I have had reason to consider a just one, and which put me in the way of distinguishing between disorders of the circulation, that directly affect the heart, without sensibly affecting the head, and *vice versâ;* while it

opened my eyes to a third class of disturbances of the circulation, in which both the heart and the head are alternately, and sometimes simultaneously, affected.

Of the most distressing symptoms I was labouring under, he found the principal cause to have been the too large quantity of blood I had lost. He justified the principle of blood-letting in the outset of such an alarming attack as I originally had had, and which I described to him; but he disapproved of the repetition of that operation, and even of the too high number of ounces of blood I had lost on the first occasion. "Continue" (added the experienced professor) "to study both in these wards and in those of *La Charité*, more especially devoted to the examination and treatment of diseases of the heart, and you will see reasons, as well as a number of examples, sufficient to convince you of the correctness of my assertions." And, truly, the impression left on my mind

by the contemplation of the examples in question, while it has perfectly satisfied me of the truth of Laennec's doctrine, it has also served to direct my attention, in subsequent years, much more closely to those conditions of the circulation which endanger life by involving its two most important organs, the brain and the heart. By watching those conditions, and bringing timely and suitable remedies to bear upon them, I firmly believe that, under Providence, death has more than once been averted in my own, as well as in the case of many of my patients.

To these conclusions the present personal recollections were intended to lead; and to that end they have been introduced in this place. They are the text of my book, and not inappropriately form its commencement.

As to what became of all the various and anomalous symptoms by which I was incessantly tormented in the midst of all my self-imposed occupations during my prolonged

sojourn in the French capital, it is hardly worth while to inform readers; once the cause explained to my satisfaction which had given rise to them, I had only to set about replenishing the vessels with wholesome blood, and fill the muscles with good interstitial deposit, in order to restore normal health. This was done; but it took not less a time than two years and a half to bring about a perfect restoration of that even, calm, and synchronous action of the heart, which, with the simultaneous regularity of the function of digestion and a clear head, constitute healthy life.

II.

THE REGISTRAR-GENERAL.

THERE is, in the very heart of the metropolis, and beneath the loftiest and most magnificent of its palatial structures, a huge cemetery in which, stripped of all their organic elements, and of every particle of what renders ordinary intramural sepultures hurtful to the living, the dead of all England, for the last sixteen years, have been lying interred ; not covered with earth indeed, but in black cerements. Their number is legion. Five millions, nine hundred and thirty-two thousand, three hundred, and seventy-three names of human beings, of all classes and ages, who have departed this life during the

above-named period, may be read in these sepulchral vaults with the same ease as he, who strolls through the mazes of Kensal Cemetery, can scan the names of the beings there entombed.

Thus, while the last census tells us that the previous half century has added ten millions to the population of England; the records of death kept at Somerset House, proclaim the equally attested fact, that nearly six-tenths of an equal amount of human beings have disappeared from among the living, in less than half the time which has been occupied in doubling our population since 1801.

The Registrar-General's Office, a department destined to yield, hereafter, results which the philosophy or sagacity of the present generation can scarcely predicate, but of the high importance of which there cannot be a moment's doubt, was located, when I visited it last year, in Somerset

Place. It has since been transferred to another part of Somerset House, to that formerly occupied by the Royal Academy. But my description of its sepulchral recesses and arrangements applies to the former locality and distribution, to which, likewise, is referable the account given of its nature by the officials of the department, in one of their annual reports;* as well as the more romantic delineation of its use and peculiarities inserted in one of the numbers of a weekly miscellany stamped with the inspiration of Dickens.†

It was, indeed, important, that in the pursuit of my inquiry into the number and prevalence of cases of sudden death, apoplexy, and paralysis which I had undertaken, and for which I had been collecting notes and facts for the last twelve years, I should not omit to inspect the

* See Annual Report of the Registrar-General for the year 1839; Appendix, page 59.

† "Household Words," vol. i. page 330.

returns of all deaths, sent in every Monday to this department, by the many hundred registrars and sub-registrars, established all over England and Wales. I should thus be quite certain of coming to the knowledge of positive *data*, enabling me to form a correct calculation of the total number of deaths under the three heads of causes already named. The result of such an examination would impart a degree of precision to the conclusions I might draw from it, which neither private nor public experience could pretend to attain, even by way of approximation.

Truly, as regards "sudden death," I had another source of information to which I might have recourse—the returns from the Coroners. But I was soon discouraged from looking to that quarter by the tenor of a letter, dated October 31st, 1852, from Mr. Coroner Wakley, to whom I had addressed a request to be permitted to have access to the registers of his court; and still more so by

the ill success of a motion made and carried in the House of Commons, on the 20th of December, 1852, by the Honourable Member for Ashton. That gentleman had moved for and carried an Address for the opposite returns.

These returns, however, were never made to the House, or, indeed, were asked for of the several Coroners in England ; or, if asked, they were never complied with : and thus a series of highly interesting data, which such returns were likely to afford, was denied to the public.

It was then that I addressed myself to the Registrar-General for permission to have access to the documents in his custody, stating the object for which I required that permission—namely, to collect such additional and authentic information respecting sudden death, apoplexy, and paralysis, as would render what I already possessed, not only more valuable, but more available for mathematical cal-

ADDRESS for, "First, a Return, as nearly as may be, from each County Coroner, of the number of inquisitions held by him in virtue of his office, during the last twelve years, beginning with the year 1841, specifying the number of such inquisitions in each year, and in each quarter of every year; the sex, age, and station in life of the subjects of inquisition, and of the cause of death, where that has been ascertained, distinguishing such as have been so by *post mortem* examination; and the number of 'sudden' deaths (properly so considered) inquired into by the said Coroner; and whether in any such cases medical aid had been immediately obtained before death."

"Secondly, a Return from the Secretary of State for the Home Department, of all the annual Returns made to him by the Borough Coroners, under the Municipal Reform Act, 5 and 6 Will. IV., of all inquests of death held by them, specifying, as far as that may be accomplished from such Returns, the several particulars required by Return (First), both Returns to be made in accordance with the annexed tabulated form :—

Years.	Total number of inquests in each year.	Quarter.	Total number in each quarter.	Sex.		Number of inquests according to three classes of society.								
						Industrial and working class.		Middle class.		Upper class.		Totals.		
				M.	F.	M.	F.	M.	F.	M.	F.	1	2	3

Years.	Accidental death.*		Violent death.†		Sudden death.		Medical aid had before death.
	M.	F.	M.	F.	M.	F.	

Years.	Number of inquests of death according to disease.										Number of verdicts of "Visitation of God."		Suicides.		Remarks.
	Apoplexy.		Disease of the heart.		Convulsions or fits.		Palsy.		Old age.						
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	

"And a distinct Table of the number of deaths in each age (where that could be ascertained) that came under the consideration of the said County and Borough Coroners during the same twelve years, without reference to any particular year or quarter."—*Mr. Hindley.*

* Such as falls, drowning, suffocation, railway and carriage accidents.
† Such as poison, assassination, strangulation.

culation, in a matter of such public importance.

The very next day after my application, Major Graham, with that courtesy and desire to promote statistical investigation for which he is distinguished, was pleased to signify by letter, that "for the purpose mentioned in your letter of yesterday's date, I shall be happy that you have access to the registers of this office; I only regret that I cannot offer you a more convenient apartment in which you may consult them." He, at the same time, addressed me to one or two of the officers acting under him, who introduced me, and presently initiated me into my long and laborious work, aiding me with their hints and explanations whenever required, with a kind readiness for which I am happy to express my acknowledgments on this occasion. Indeed I ought, in pure fairness, to state, once for all, that such are the order and discipline maintained among all those concerned in this

great department (since Major Graham introduced the method and regularity which now preside over the many intricate operations performed in it), that there is hardly another branch of the public service, where information appertaining to it, can be more readily or so fully obtained. This is especially the case in what is called the Statistical Section; and here I had the good fortune of falling into the hands of Dr. Farr, the head of that division, whose name needs no eulogy from me, and of Mr. Thornton, one of his coadjutors in the calculation of the numerical returns.

Day by day, for many months, at such hours as my other engagements would permit me, and, under such auspices, did I attend at this office, from December, 1852, till July, 1853, and again in October and November of the latter year. For three or four hours at a time I proceeded to the examination of some hundreds of huge folios, going over

every name inserted therein, and picking out and noting down in tabular forms, already prepared, all the cases which had direct reference to the threefold object of my inquiry.

In the subterranean and vaulted chambers then, of the Registrar-General's Office, did I take my station, in a compartment destined for the preservation of death-records ever since the commencement of the establishment in 1838. The very aspect of the structure and its atmosphere, warmed by steamed air, in which an oil lamp struggled to disperse darkness, tended to add to that feeling of awe and solemnity which the nature of the inquiry was, of itself, calculated to inspire. All around, against the walls, large presses are erected, on the many shelves of which one beholds regularly arranged an immense number of volumes, fourteen inches in length, twelve inches wide, and from two to three, and even four inches in thickness. Their

sable binding, massive and secured in front by strong straps and buckles, is relieved on the back by the laconic word "DEATHS," stamped in large gold letters. As the eye ranges round the vaulted chamber, this solemn monosyllable offers itself, repeated a hundred and hundred times, until the very number sickens the spirit.

Within these huge folios are registered the names, age, sex, and state in life of the deceased, the disease of which he died, and, in many cases, its duration ; the date of death, and whether or not it is certified by a medical man, but almost always attested by one or more persons present on the occasion. From not fewer than six hundred and twenty-three districts, into which all England is divided for registration purposes, are the returns of these several facts obtained, and here transferred, after a proper examination of the documents so received. The information thus obtained amounts, in every quarter, to twenty-five or

twenty-six such volumes, the metropolis alone occupying five of them with its suburbs. If the same amount has been obtained since 1838, the year of the first operation of this office, the particulars collected of the deaths of all who have departed since then, must occupy about sixteen hundred and sixty-four such volumes, as were displayed before me in the sombre caves of Somerset Place. In what direction will these caves proceed, to yield room for the forthcoming twenty-six folios in every quarter during the next half-century? What will the space be which will be occupied by the progressive accumulation of these death's registers—population and mortality increasing at the same time?

The aspect of these vaults and their repeated echoes of death, not unaptly suggest a visit to La Morgue, in Paris, or to the resting chamber of the dead, one finds in connexion with the great cemeteries at Frankfort and Munich. There the very bodies are laid out,

either for recognition or momentary observation, but nothing of their history is suggested to the observer. Here, on opening these fatal volumes, you behold at one view the whole group of beings implicated in one death—the dying, the certifying doctor, and the attendant witness, each to attest by his signature the sad event, not omitting, when necessary, the result of an internal investigation into the particular nature of each case.

How is it that no such minute details and particulars are required on the coming into, as are demanded on the going out of, the world, of the meanest, not less than of the highest individual? In the latter case, those who remain behind expect to know how and wherefore the departed have quitted them; nor will they trust to the mere missing of an individual, or to his abrupt absence from the busy scenes of earth, and rest satisfied that he has taken his flight to another and more lasting life.

As I ran down the columns of these sable volumes, so pregnant with information, how glaringly the great truth stared me in the face, that in death all distinction ceases! Be the name illustrious or of the most degraded, into these columns that of every dead one must come at last, and often in the closest approximation. In the suburban burial grounds, the patrician, or the citizen vain of his wealth or civic honours, insists, even beyond the grave, to keep aloof from the general herd. Not so within these unrelenting columns of registered deaths! Here the lofty and the humble, the powerful and the weak, the Crœsus and the Lazarus, the haughty and the meek, all, all, are confounded together in one continuous procession of mingled beings, who had occupied very different stations when in life, but who are now placed on an equality. Often the most exalted name of one who is reported to have died suddenly "by the visitation of God," is immediately preceded by

that of a criminal who was "executed;" for so runs the "cause of death" in his case! In another part we find, "Maria Ostler Aslett, aged thirty-six, a *gentlewoman*, who died of ovarian dropsy;" and next to her, Maria Manning, aged twenty-eight years, of whom it is recorded, that she was "hanged," 30th of November, 1849. What a lesson of humiliation!

As if in mockery of such a lesson, the chambers of the dead were placed between those of the registers of births and the registers of marriages. The former clad in cheerful red, the emblem of joy; the latter in a green colour, the hue of hope and expectation, perhaps of jealousy, not unaptly located in this manner, between reproduction and destruction.

If we open any of the volumes of these two divisions contiguous to that of death, we soon perceive how simple each operation is—the birth or the marriage which they record. The

manner of union in wedlock ; as the mode of entrance into the world is one only. But oh, how diverse and multiplied are the fashions of its exit ! Run with an inquiring eye down the columns of the black ledgers here accumulated, and you will understand by how many channels is life made either to slide through, or to leap at once into another and dark world.

As these relentless registers lay before me in all their impressive particulars, the spectres and images of the departed seemed to start up out of the ground. The very frame-work and lineaments of the bodies as they were resting on their bed of death, assumed from the descriptions, a reality that made me, as it were, one of the witnesses of the last solemn scene.

Here I beheld a barrister, scarcely 36 years of age, expiring on one of the beds in St. Batholomew's Hospital, amidst the tortures of *delirium tremens*, brought on by incessant

intoxication, none but strangers near him to bid God speed to his soul! 19th of November, 1846. I turn into a house in Robert-street, Chelsea, one Christmas-day of the same year, and there see the wife of a lighterman, one of a merry party, suddenly become indisposed, vomit, and expire in ten minutes. I hear the wailing of a distracted father, as I approach his dwelling in a street near the Strand, on a particular day in 1849, at the self-inflicted instantaneous death of his son, a young physician, who had quaffed a dose of prussic acid. Here in Houndsditch, Alfred Thomas Griffith, a young and inexperienced chemist, dies suffocated from accidentally inhaling a large quantity of ether on the 15th of November, 1851. In the same month and year, one of the attesting witnesses leads me into a wretched room, at No. 45, Greek-street, Soho, the abode of despair, where Mary Ann Blake, the wife of a music printer, has inflicted a deadly wound in the throat of her infant three months

old, and then, with the same instrument, a carving knife, severs her own head from the body, and falls by the side of her babe! An old lady has accidentally broken a basin while washing, and with the edges of the fragments inflicted a wound on her person. Erysipelas ensues, and she is snatched away in three days, though previously in robust health. I am suddenly transported, on the 5th of October, '49, into the baggage warehouse at the London Dock, and witness the opening of a cask, in which a man unknown, aged about forty-five years is found dead. John Welch, a young policeman, just come of age, enters courageously on the 12th of the same month, the Kenilworth sewer, out of which three labourers, the youngest 22 years of age, had just been dragged dead. He hoped to save others, and is followed by a young surgeon, Henry Wells, equally eager to render assistance: they never returned! I could fancy that I beheld the tremulous hand stretched upwards to clutch the

rope of the gate bell of Homerton workhouse of the poor wretch, of whom it is recorded that she expired on that spot, on the 29th of August, 1849, "from neglect and starvation," before the call was answered. And oh, how grievous, how deeply painful the reflections which suggest themselves, when on running over the list of those who are reported to have died in workhouses, whither sheer want and absolute wretchedness had driven them. One reads such designations as the following of the beings so sheltered :—"widow of a gentleman," "an author," "a housekeeper," "formerly independent," "a coach manufacturer," "a coach herald painter," "a brewer," "a builder," "a clerk," "an officer in the army." We readily can picture to ourselves the miserable feelings of desolation and abandonment by which death in these unfortunate creatures must have been embittered! But attention is soon diverted to a much more horrid sight by these relentless records,—a sight at the

iron works of Dowlay, Merthyr Tydfil, where we almost fancy we hear the yells of a child scarcely eleven years old, a straightener of iron, who, on the 6th of January, 1851, while employed at his task, misses his aim and dies, "his belly pierced by a red-hot bar of iron," —the victim of utilitarianism, and of that greediness for labour so rife in these days, which sets a mere child to straighten glowing bars of iron!

But here is a crowd in one of the streets, on the 28th of November, 1851, around a poor higgler, John Watts, aged 20 years. A runaway horse threatened to knock him down. To avoid it he suddenly turns round, and in so doing has run against the head of a post with his belly, which has actually burst, and he has expired!

Who cannot see, as if enacted before him, the following scene taken from the death-records of July, 1851. The second mate of

the "City of Boulogne" steamer, enters the inside of the paddle-wheel box to inspect it. The wheel suddenly revolves, and he with it. The shock produced congestion of the brain, and the unfortunate mariner dies apoplectic in three hours.

In another case you fancy you behold the very infernal act perpetrated on the 24th of March, 1849. "A female infant, newly born and alive, is taken from the mother's side and laid on the burning coals,"

But enough! the heart sickens at these dreadful spectacles of human infirmities of body, immorality, insanity, and crime. Often as I went on scanning these stern and truthful details, the scenes themselves so forcibly recorded, were brought before and appeared to confront me,—until the very air of the subterranean chambers in which I was writing, in the doubtful twilight of an expiring day, seemed reeking with cadaverous effluvia, and

the rattling of bones was heard along the dark vaulted passages which connected the one with the other compartments!

In fact the *moral*, not less than the *mortal*, history of our population, may be traced in these sombre registers, in which not an hundred but thousands upon thousands of similar and even more affecting examples appear, illustrative of both histories—the latter, quick, keen, relentless—the former, dark, indifferent, criminal, yet always consistent in its results.

It is not, however, either for very sensitive people or romantic themes that these black books are so carefully, and like a treasure, preserved. No! It is for the more worldly purposes of law, of testamentary inquiries, of inheritance, perhaps of legitimization of issue, and other such objects. Into the head of searchers after these objects no such sacred ideas, feelings, or suggestions, will ever enter, as I experienced myself and have endeavoured feebly to portray.

To those worldly purposes, therefore, I shall devote the next section, embracing an extended statistical inquiry such as has not yet been brought to bear by any physician on the consideration of the three modes of death I have chosen for my theme. From this inquiry I trust to be able to extract such particular and general conclusions as will establish the truth of my proposition, "that sudden death, apoplexy, and paralytic diseases, are both very prevalent in our time, and affect much younger individuals than is generally considered in society."

For political or politico-economical purposes statistics have been found useful by some, by others faulty and defective, as evidence. The same has been thought of them when applied to free-trade. But there is no tampering with death-returns; and life-averages are much more certain than those of bread-stuffs, which have been viewed by many as capricious, uncertain, and not trustworthy.

III.

DEATH-STATISTICS.

THAT the reader may be prepared fully to comprehend the importance of the investigation I have undertaken to conduct statistically, and be enabled to follow me in the conclusions and inferences to be derived from it, I deem it essentially necessary to place before him: First, the general mortality of all England during the ten years elapsed between the two last censuses, with the corresponding population of each year, corrected by calculation. Secondly, the number of deaths under the three heads of sudden, apoplexy, and paralysis, which have occurred in all England in the course of a certain number of those years,

as far as I have been able to obtain them at the Registrar's Office. And lastly, the total number of the same kind of deaths as have taken place exclusively in the Metropolitan Division during the same period, distinguishing the sexes. This Metropolitan Division is the first of the eleven divisions into which all England and Wales are at present divided for registration purposes, and consists of thirty-six districts, comprising a part of the counties of Surrey and Kent. London proper has twenty-five districts, Surrey supplies nine, and Kent two districts, namely, Greenwich and Lewisham.

One of the proclaimed objects of the present work is to prove that "sudden death," apoplexy, and, above all, paralysis, are not exclusively, still less emphatically, the ordained mode of death of the aged; but that, on the contrary, a larger proportion of such deaths take place before man has reached the age of sixty-five years, and that it is chiefly

among the younger class of lives that there is an increasing frequency of such deaths. With these views I shall introduce, in a table drawn up from information obtained in the manner previously described, a general statement of the respective ages at which the three forms of death in question have occurred, both in males and females, taking for this purpose three or four of the years of the last decennium promiscuously, in order to show that the same rule obtains in any one year, and not especially in any one particular series of years. Showing, in fact, that the principle I enunciate is the rule and not the exception.

Occasionally I shall present the annual returns, divided into tri-monthly periods, in order to see if any useful practical inferences can be drawn from any difference that may be remarked in different quarters of the year as to the amount of its share of mortality.

But all these considerations would be in-

sufficient to invest the main question with its proper degree of interest, were the *status* in life of the patient not taken equally into the account. For the profession, handicraft, or occupation of the individual, exercises more or less a certain influence in each case. These particulars, therefore, will be stated, as I shall, likewise, endeavour to mention the average length of time which elapsed, as far as I shall have been able to ascertain it, in cases of apoplexy and paralysis, between the first seizure and death.*

There is another branch of the present investigation which must not be passed over in silence, and the nature of which is alike interesting to the philanthropist and the public authorities, namely, the frequent occurrence of "sudden death" (as it is represented in the official returns) of children within the

* It has been deemed advisable to reserve this last consideration for a volume on the practical part of this question, to appear hereafter.

first year of their existence. Not until I entered into this painful inquiry had I any idea that the early sacrifice of human life, in certain large towns and cities of England and Wales, reached to the extent I found registered in the subterranean vaults of Somerset House. Professedly we do not (as the Chinese have been sometimes represented to do with theirs) commit the exuberance of our infant population to the depth of a canal or river, in a wicker basket. But we certainly contrive to disembarrass ourselves of such exuberance by modes little less equivocal—as far as the returns, to be read in the great ledgers of death so often alluded to, do testify.

I shall develope more circumstantially this branch of the subject farther on, when we shall have had before us the astounding numerals representing the early extinction of human life in England and Wales.

Next in importance to the preceding part of the subject is that of the large number of

individuals "found dead." In the majority of such cases there is an investigation recorded, with, occasionally, a *post mortem* examination, the result of which is presumed to explain the immediate cause of the awful occurrence. But it is, in reality, the effect producing death which is mostly ascertained on such occasions, and not the cause, when the internal appearances after death are taken into account. This observation applies equally to the *post mortem* examination of a great many other cases of premature death. For example, a female unknown is found dead on the steps of a door in St. Pancras, on a particular day in June, 1851. She is examined, and water was found in the *pericardium*, and accordingly, it is stated, in its proper column in the register, that she died of water in that sac. But the water must have been the effect of inflammation, or sudden congestion of the coronary vessels of the heart, which, in reality, had *induced* death. The same may be said

of a great many instances of sudden death, in which it is asserted, after examination, that they had been caused by an effusion of either blood or serum on the surface of the brain, or within its ventricles. I say the cause of death was that which produced the effusion. This is no idle quibbling about a word; hereafter, in speaking of prevention and cure, with reference to any of the three classes of death treated in these pages, the importance of the above distinction will become manifest.

When, on examination of the body of a person who died suddenly, we find recorded in the register such remarks as in the following cases, we readily assent to the opinion therein expressed, that the immediate cause of death was the one actually detected and described. A lawyer's clerk, sixty years of age, is found dead in Hyde Park, on the 12th of December, 1849. On examination, his "stomach and œsophagus are found crammed full to the throat with undigested food." (!)

On the 8th of September, of the same year, a labourer died suddenly in the district of Camberwell, after ten months' suffering under some unknown disease. His body is examined, and a large tumour is found, adhering to the inside wall of the chest, which had compressed the lungs and displaced the heart, and thus caused sudden death. In a third case, that of a child, two years old, who likewise had died suddenly about the same time, it was ascertained that he had been choked by numerous warts growing in the inside of the larynx. There is no doubt as to the direct cause of death in these cases.

Perhaps, in the following verdict, returned by a jury under the direction of Mr. Coroner T. Barnett, of Cheltenham, in the case of a child not quite five years old, whose death had taken place on the 16th of December, 1851, at Old Cross, township of Westdean (Welsh counties), it would puzzle my readers to determine which was the cause and which

the effect:—"Having taken cold on the 15th" states the oracle, "and had given him sweet turnips, pigmeat, and herb-tea, gilt underground, ground ivy, chamomile blossoms, and honey, after violent vomiting and inflammation, in a state of exhaustion, died accordingly." (!)

The present statistical section would be incomplete were I to omit to notice the greater or lesser liability to sudden death, apoplexy, and paralysis, exhibited in males and females, when compared with each other. The investigation is not only curious, but important, inasmuch as many practical and useful deductions may be drawn from the facts, which will be elicited in corroboration of principles already generally adopted.

With such preliminary explanations, then, I proceed to introduce the collected facts themselves in the order in which they have just been named, as far as it is practicable.

TABLE I.

Annual Deaths from all causes in all England and Wales (both sexes included), and annual Population between the last Censuses of 1841 and 1851.

Deaths.	Census.	Population.
	1841	15,914,148
349,519	1842	16,108,300
346,445	1843	16,293,824
356,933	1844	16,492,603
349,366	1845	16,693,818
390,315	1846	16,897,483
423,304	1847	17,103,362
399,833	1848	17,312,297
440,839	1849	17,523,507
368,995	1850	17,726,294
395,174	1851	17,927,609
Total deaths in ten years		4,220,723
Increase of population in ten years .		2,013,461

A glance at the same decennial period, in reference to the metropolis, furnishes us with the following details. The population of the metropolis was :—

In 1841 . .	1,948,417
In 1851 . .	2,362,236
While the mortality in the former year was	45,508
And that of the latter year	55,354

And if we look at the intervening years between the two, the progressive annual increase of the metropolitan population, with the real number of deaths corresponding thereto is found to be as set down in the annexed Table.

TABLE II.

Years.	Population.	Deaths. Males and Females.	
1842	1,987,385	46,242	*
1843	2,027,133	49,477	
1844	2,067,675	51,110	
1845	2,109,029	48,318	†
1846	2,131,209	49,450	‡
1847	2,173,834	59,131	§
1848	2,197,310	57,628	
1849	2,221,256	68,432	¶
1850	2,245,682	48,579	
1851	2,362,236	55,354	

In contemplating the two preceding tables,

* See Seventh Annual Report, page 111.

† See Eighth Annual Report, page 167.

‡ See Ninth Annual Report, page 103.

§ See Tenth Annual Report, page 177.

¶ See Broadsheet of London Mortality, published 1853.

what reader will not be struck by the remarkable fact, that whether as regards the total number of deaths in all England, or the total number of deaths in the metropolis only, the large increase which appears in the year of the cholera (1849), is followed in the succeeding year (1850), by a most striking diminution in the amount of deaths? so much so, as to bring that year's mortality considerably below the average number of deaths of the years preceding the cholera year. Thus, in Table I., for all England and Wales, the deaths of that year were 440,839, being the largest amount in any one year since the census of 1841. But in the year following that of the cholera (1850), the number of deaths fell to 368,995, being not only 71,844 less than in the cholera year, but even less than the number of deaths of the year preceding that of the cholera, by as many as 30,838. The same observations apply to the metropolitan deaths, which in

the cholera year were 68,432, whilst in the succeeding year they only reached 48,579, a difference of 19,853. Nor is this all, for on comparing the number of deaths of 1850 with that of each of the three years preceding the year of the cholera, it is found to have been *inferior* to them all; whereas, according to the yearly increase of the population, the relative proportion of deaths should increase also. Now, there must be something more than a simple coincidence or chance in these singular deviations from ordinary events. A great epidemic malady sweeps over the country, carrying away its thousands of victims, raising the ordinary average of deaths to a very high figure, and in the next year we find death slacking its fatal scythe to an unusual degree of moderation. Is not the unerring hand of a compensating Providence in all this? Accordingly, if we take the deaths of the two years together which preceded the cholera, and strike the mean;

and treat the year of the cholera and the compensating year that follows, in the same manner, we shall find that the four years present nearly the same average. Thus, the mortality of all England was :—

In 1847 . .	423,304	
In 1848 . .	399,833	
Together . .	823,137—Aver.	411,568.
In 1849, year of cholera	440,839	
In 1850 . . .	368,995	
Together . .	809,834—Aver.	404,917.

And for the metropolis the mortality was :—

In 1847 . . .	59,131	
In 1848 . . .	57,628	
Together . .	116,759—Aver.	58,378.
In 1849, year of cholera	68,432	
In 1850 . . .	48,579	
Together . .	117,011—Aver.	58,505.

So that, in reality, it is found, when the aggregate of the four years is taken, either for

the whole of England or for the metropolis only, that no greater number of people died in those years because of the cholera intervening, than if the cholera had not visited us.

It were well that those philanthropists, who are running the whole hog, to use a vernacular expression, with their theory of cholera being the offspring of filth and insalubrious localities, requiring large measures of Government interference, expensive Boards of Health, and extramural interments, should reflect on these statistical facts and the conclusions to which they lead.

The sudden inroad and presence of a great plague, that for a season chokes the graveyards and fills the streets with funeral processions, leaving behind it a high number of the victims fallen, on the great registers, are ordained from on High as a solemn warning to us all, that we may put ourselves and our houses in order. But it is not sent to "depopulate whole counties" or to destroy man-

kind ; for when the great plague has passed away, and on the following years "the tribes are again numbered," fewer than usual of the people are found to have died in that year, that the "mass of living flesh" may continue the same. Such is the Divine covenant.

A Report from the General Board of Health, dated Whitehall, 4th January, 1854, has just been presented to both Houses of Parliament, which, as regards the mortality from cholera in England during the year 1849, may be looked upon as an extraordinary document. On grounds, not specified, the reporters first throw discredit on the returns of the Registrar-General, adopted as accurate in these pages, but described as "not accurate"* by the reporters—and then deliver their opinion, founded on *probability*† (the

* "It is known that these returns were not accurate," &c.

† "It is probable," &c., "it is estimated," and so-forth (pages 5 and 6).

Board of Health possessing no such machinery, or the vestige of it, for collecting truth, as the Registrar-General has), that between eighty and ninety thousand persons had perished of the cholera in England in 1849. Proceeding still on *probability*, they assume, in a climax assertion, that "ten thousand more persons, in the prime of life, perished in a few months in that year from the cholera, than fell in battle during the whole of the last war"! But this is not all; for, ascending gradually to higher *probabilities*, it is furthermore asserted, in the same document, that should the cholera of the present year (!) prove as mortal in its entire course as it has done at its *re*-commencement,—upwards of one hundred thousand persons will have perished from the disease by the end of the year, equal to "the depopulation of two counties like Cardigan and Huntingdon."

The simple inspection of the official returns received at Somerset House (of the perfect

accuracy of which, as far as it is attainable, there cannot be a doubt), and transferred to these pages, will convince every reader that the statements just referred to are a pure and unmitigated exaggeration, which must have escaped the attention of the head of the Board.

A simple numerical proposition will prove this. The total number of deaths in all England and Wales in the three years preceding the cholera, and in that of the cholera itself, amounted to 1,654,291. The average yearly deaths, therefore, were 413,573. But in the year of the cholera there died in England, from *all causes*, 440,839, being an excess, over the average, of 27,266—and such, and not 90,000, was *probably* the total number of deaths caused by cholera. This number, however, as I have already shown, was more than compensated by a diminished mortality in the two following years, in which the average number of deaths, instead of

413,573, as in the above case, was only 382,085 ; giving us a diminution of the ordinary mortality, 31,488—more that enough to make up for the 27,000 and odd deaths by cholera which had taken place two years previously. Why, then, frighten the world out of its propriety thus unnecessarily and gratuitously ? We may rest assured that the sanitary movement, like every other human undertaking, can only benefit by the help of truth.

Having now set forth the total number of deaths from all causes in all England generally, and in the metropolis especially, during the decennial period in question, we will now turn to the number of those who, in the course of the same period of years, have died suddenly, or from apoplexy or paralysis, whether in England generally, or in the metropolis separately. I exclude from this number the sudden deaths of infants under one year of age—which is to form a separate consideration in another part of the volume.

TABLE III.

Number of Sudden Deaths, and from Apoplexy, and Paralysis, for all England and Wales, during the five years following, both sexes included.

Years.	Sudden.	Apoplexy.	Paralysis.	Totals.
1847	3,708	7,881	7,071	18,660
1848	3,197	7,602	6,671	17,470
1849	3,556	7,799	7,328	18,683
1850	3,559	8,093	7,318	18,970
1851	3,458	7,946	7,587	18,991
Totals	17,478	39,321	35,975	92,774

From this large sum total of deaths under the three forms, we will now eliminate those which especially appertain to the Metropolitan Division, in order that we may see how large a share (and in proportion to its population how much larger a share than properly belongs to it) that division has had in the general mortality from the three causes. In this case I am enabled, by reference to the documents in the Registrar-General's office, to present a table embracing the eleven years

preceding the last census ; our means of comparison are thereby increased.

TABLE IV.

Number of Sudden Deaths, and from Apoplexy and Palsy, that have occurred in the Metropolis between the two last censuses, males and females.

Years.	Sudden.	Apoplexy.	Paralysis.	Totals.
1842	870	814	776	2,460
1843	668	925	851	2,444
1844	592	1,143	895	2,630
1845	532	1,133	886	2,551
1846	422	1,278	1,007	2,707
1847	674	1,310	1,130	3,114
1848	590	1,238	1,057	2,885
1849	714	1,250	1,109	3,073
1850	676	1,326	1,153	3,155
1851	516	1,250	1,063	2,829
Totals.	6,254	11,667	9,927	2,7848

The influence of seasons on the occurrence of deaths of the nature we are considering, is sufficiently evinced by separating into four groups, or quarters of the year, the several totals recorded in each class in the preceding

table; when we find the following proportions :—

	Sud.	Apo.	Par.
Total in ten Winter quarters .	1,975	3,228	2,961
„ Spring „ .	1,488	2,840	2,400
„ Summer „ .	1,190	2,525	2,053
„ Autumn „ .	1,601	3,074	2,513

Or, combining the general total of 27,848 deaths by the three causes, their occurrence in each quarter stood thus :—

Winter.	Spring.	Summer.	Autumn.
8,164	6,728	5,768	7,188

Two great facts may, on a first view, be deduced from the preceding tables. The first, that deaths by apoplexy and paralysis have, *cæteris paribus*, been generally on the increase. The population of the metropolis in 1851 being 2,362,236, and that of 1841 1,948,417, the difference is 413,630, or a little more than the fourth of the population of 1851. The number of fatal cases of palsy, therefore, should have increased somewhat in

the same proportion, and be 939—whereas it amounted, in reality, to 1,063. But the case is still stronger as regards apoplexy, the number of deaths from which having been 866 in 1841, should have increased only to 1,080 in 1851, whereas the number reached 1,250—showing the progressively increasing frequency of the complaint, as before stated.

If we turn our attention to the mortality from the three causes, throughout England and Wales during the same period, we see the truth of the preceding assertion still more strongly illustrated. I will quote only one or two examples in support of the fact. Take the number of deaths from apoplexy and paralysis in 1842, which stand at 5,361* and 5,559 respectively : according to the criterion of population, which in 1850 was 17,726,294, and in 1842 was 16,108,300—the number of deaths from apoplexy should have been 6,196, and from paralysis 6,190, in 1850. But stern

* See Sixth Annual Report, page 94.

reality shows us instead, 8,093 deaths from apoplexy, and 7,318 deaths from paralysis—being an excess of 1,897 on the one hand, and of 1,128 on the other!

The second great fact is, that a manifest influence is exercised by the season on the occurrence of premature deaths. Hence, in looking at the distribution of the total number of deaths in Table IV., according to seasons, it appears that the winter and autumn quarters are more prolific of such deaths, than the spring or summer,—the last being the least productive of such results. This is more remarkable in the case of apoplexy, than in sudden death or paralysis; and yet, professionally speaking, one would have expected a contrary result, inasmuch, as independently of *coups de soleil* so nearly allied to apoplexy, heat is known to favour the development of the disease.*

* On comparing these relative proportions of deaths according to seasons, with those in Table IV. of the

We pass now to the consideration of the age at which such deaths are found to occur more frequently; and here (as was stated in another place) the reader will hardly be prepared for the fact, that the period of life between thirty and sixty-five years of age is, to say the least, as much liable to these forms of death, as the more advanced periods between sixty-five and one hundred years of age; nay, I will venture to assert, that apoplexy and paralysis in our days, destroy more people in the flower of their age, than they do such as are far advanced in life; although it has been

Appendix to the Twelfth Annual Report of the Registrar-General, embracing the mortality of England *from all causes*, for a period of eleven years, divided by seasons, it will be found, that the relative proportions do not follow the same progression, as our three specific causes appear to follow in the above table: for, in the one case, the autumn number never comes up to that of the spring, whereas in our case, the autumnal deaths are more numerous than those in the spring.

the practice to consider the latter as more exposed to such deaths.

I am aware, that mere statistical calculators will object to my assertion, that at the periods of life to which I refer the greater frequency of premature deaths, a larger number of individuals exist at those ages, than are living at the same time of a more advanced age. That, for example, the percentage of those who are living at any age between thirty and sixty-five upon every 10,000 of all living, is larger than the percentage of those who are older ; and that, therefore, it is not surprising if premature deaths are more frequent among the former than among the latter. Assuming such to be the fact mathematically, it controverts not the other fact, that while life is at that period when one would expect it to endure longer than that of older people, it is seen, on the contrary (within the last thirty years at least), to be destroyed oftener by the three causes already mentioned.

Nor is this a peculiar or exclusive characteristic of human life in this country only. As far as I have had the means of learning by conversation with hygienic physicians of other nations, and by the perusal of foreign statistical reports, the same observations have been made in all countries, wherever great and sudden political commotions, or gigantic commercial speculations, and in fact, wherever all those events of a public nature are of frequent occurrence, which tend to exalt, depress, irritate, or vex the character and spirit of man, whether through ambition or disappointment, persecution or terror, the pursuit of riches or the love of renown,—in one word, through any and all of those human passions which are antagonistic to the enjoyment of an unruffled temper, and an even state of mind.

As, however, the present is intended to be a section only, and not a volume on death-statistics, I shall not inflict on my readers any

large numbers of elaborate tables from France, Germany, or Belgium to prove the preceding assertions. But I happen to have at hand an old number of the *British and Foreign Quarterly Medical Review*, in which an article is inserted on a subject of a kindred nature to my own, and which had been proposed as the theme of prize-essays in Italy, in the year 1834. The article in question gives a succinct account of two of those essays, the same which had obtained the prize; the one by Doctor Giuseppe Ferrario, intitled *Statistica delle morti improvviste, e particolarmente per apolessia, nella Città di Milano;* the other by Doctor Tommasio, intitled *Monografia delle morti repentine*, both published in Milan in 1834.

The researches of these writers extend from 1750 to 1833, and the result proves the increased frequency of sudden death. Supposing all sudden deaths to have been denominated apoplexy, it would appear that their

number had increased gradually, until it had doubled during the period between 1750 and 1833. It was at the former period in the proportion of 1 to 1,231, and at the latter as 1 to 589.

Both authors corroborate the result of our own observations, as to the influence of winter and autumn in giving rise to a larger number of sudden deaths and cases of apoplexy and paralysis, than the spring and summer. The scale of proportions given by Ferrario in each month of the year, is as follows :—

Jan.	11·0	Feb.	10·0	March	9·5
April	8·4	May	8·2	June	6·8
July	6·8	Aug.	6·4	Sept.	7·1
Oct.	8·2	Nov.	9·6	Dec.	10·7

Doctor Ferrario gives a table of the ages at which the recorded cases of sudden death took place, and he has shown that at Milan the tendency to apoplexy increases with age, in a geometrical progression, doubling every ten years; and he has no doubt that the

fatality of that disease is governed by mathematical laws. Curiously enough, he calculates what should be the rate of such fatality from birth to ten years of age, and so on from decennium to decennium, up to the last, between ninety and a hundred years of age—and by comparing the actual observations, or fatal occurrences, with his calculations, he can find only a trifling difference between the two.

Our observations in this country do not coincide in their results with those made at Milan; nor is it to be wondered at, for our male population between twenty-five and sixty-five years of age, which exhibits a very large proportion of sudden and apoplectic deaths, is much more exposed to exciting and influencing causes, mental, social, as well as physical, by which those deaths are produced. Such exciting or influencing causes, scarcely ever ruffle the temper or the even tenour of the circulation in steady old gentle-

men, who have reached and passed the scriptural three-score and ten.

With respect to the greater liability to apoplexy in males than in females, the observations in both countries coincide. Mr. Farr, in the Second Annual Report of the Registrar-General for 1838, page 73, states, that "women have less chance of dying suddenly than men, in the proportion of ten to eighteen." And a little farther on he remarks, that of 3,012 sudden deaths registered by coroners, including apoplexy, 1,840 were males, and 1,172 females; so that out of 10,000 males 6·5 died of sudden death or apoplexy, while of the females 5·1 only died.

As regards sudden death, Mr. Farr's statement may be accepted as uniformly accurate; but with respect to apoplexy, I am inclined to think that a greater number of data than he could have had in the first year of the registering operations in his department, obtained in the last twelve years, will have

shown him that the statement of an invariable superiority in the number of deaths in males over that of females, demands certain modifications, especially in reference to females in very advanced life. For example : in the year 1849 the number of females who died of apoplexy between the ages of sixty-five and one hundred was, in the first, second, and third quarters, greater than that of males ; and the total numbers for the year, at the above period of life, were 227 females to 194 males.

Be this as it may, with regard to apoplexy, there can be no doubt of the greater liability of females to paralysis. Accordingly, if we look to the column of deaths by paralysis in all England and Wales, during the five years previous to and inclusive of that of the last census, in the table hereinafter annexed, the relative proportions of the two sexes in each year's total amount of paralytic cases, will be found to stand thus :—

TABLE V.

Fatal Cases of Paralysis in Males and Females, for the five successive years following.

Years.	Total deaths.	M.	F.	Difference.
1847	7071	3376	3695	319
1848	6671	3213	3458	245
1849	7328	3428*	3900*	472
1850	7318	3474	3844	370
1851	7587	3650	3937	287

Here, in every instance, we observe a well marked increase of liability to paralytic complaints, with fatal termination, in women.

It is a curious, and yet a well-established fact, that this difference between females and males, in fatal cases of paralysis, is to be found more or less prominent in all the English counties, with the exception of five, in which the greater number of deaths, from paralysis,

* These two numbers, taken from the tables in the Annual Report, differ by about 143, from my own tables of 1849, drawn up by myself from the MS. volumes of the Registrar-General, with the utmost care extended to the smallest locality.

TABLE VI.

Table exhibiting, by counties, the Greater Liability of Females over Males to fatal cases of Paralysis.

	M.	F.		M.	F.
Middlesex, including London proper, being the 1st Division of the General Registry of England . .	427	433	6. *West Midland Div.*		
			Gloucestershire .	93	118
2. *South Eastern Div.*			Herefordshire . .	26	13
Surrey . . .	183	192	Shropshire . .	45	48
Kent* . . .	140	118	Staffordshire . .	92	90
Sussex . . .	67	66	Worcester . .	44	51
Hampshire . .	83	94	Warwickshire . .	84	101
Berkshire . . .	54	65			
			7. *North Midland Div.*		
3. *South Midland Div.*			Leicestershire . .	47	57
Hertfordshire . .	21	47	Rutland . . .	6	11
Buckingham . .	27	42	Lincolnshire . .	67	64
Oxfordshire . .	33	44	Nottingham . .	62	48
Northampton . .	50	59	Derbyshire . .	46	52
Huntingdon . .	8	8			
Bedfordshire . .	30	32	8. *North Western Div.*		
Cambridgeshire . .	25	26	Cheshire . . .	82	111
			Lancashire . .	354	394
4. *Eastern Division.*					
Essex . . .	49	75	9. *York Division.*		
Suffolk . . .	59	76	West Riding . .	200	208
Norfolk . . .	94	117	East Riding . .	53	58
			North Riding . .	34	38
5. *South Western Div.*					
Wiltshire . .	58	61	10. *Northern Division.*		
Dorsetshire . .	23	31	Durham . . .	62	88
Devonshire . .	112	121	Northumberland .	80	90
Cornwall . . .	72	93	Cumberland . .	43	65
Somerset . . .	79	102	Westmoreland . .	10	11
			11. *Welsh Division.*		
			Wales . . .	202	239

* The superiority of males over females in this case, is due to the large number of pensioners dying of paralysis at Greenwich.

is on the side of the males—albeit, the difference is very trifling. But, in the other thirty-six counties, as well as in Wales, the reverse is the case, and the difference, in many places, is considerable. This will appear manifest in the opposite Table, calculated for the year 1849 ; but still more so in Table VII., p. 87.

Next to the influence of the sex, in the consideration of our three sources of death, that of the age at which the death of the patients occur is the most interesting.

As I before stated, it is the common opinion that none but old people are liable to die of apoplexy, or paralysis, or suddenly. This may have been the case at very remote periods of society, when there did not exist that degree of progress in civilization of which we at present boast, albeit, but of utilitarianism and self-aggrandisement, and not of solid intellectual acquirements, the principal of which certainly belong to earlier ages. It is, however, not so in our days ; for we shall per-

ceive, from the citation of a few examples, that the middle period of life supplies an equal, and at times even a greater number, of such deaths, than mere old age.

For this purpose I shall select the years 1847, 1848, 1849, and 1850, as the four years, the records of which I have been able more minutely to study, dissect, and analyze in the vaults of Somerset House.

Let us examine, then, the returns of those years, and adopt a form best calculated to bring out, in a prominent manner, the various facts which they present to us, so as to impart authority for the inferences to be deduced from them.

This has been effected in the opposite Table (No. VII.) from which it appears, that within the short space of four years, in England, 73,779 individuals, or 37,371 males and 36,408 females, perished either suddenly or from two forms of "head diseases," apoplexy and palsy.

We will now class this large number of

TABLE VII.

Number of Sudden Deaths, and of Deaths from Apoplexy and Paralysis, in all England and Wales, Males and Females, for the years as follows :—

	Sudden.			Apoplexy.			Paralysis.		
Yrs.	M.	F.	Totals	M.	F.	Totals	M.	F.	Total
1847	2154	1554	3708	4007	3874	7881	3376	3695	7069
1848	1811	1386	3197	3898	3704	7602	3213	3458	6671
1849	2012	1543	3555	3896	3901	7797	3428	3900	7328
1850	2025	1535	3560	4078	4016	8094	3473	3844	7317
Total	8002	6018	14020	15879	15495	31374	13490	14895	28385

premature deaths from three causes only, in all England and Wales, under three distinct periods of life at which they have occurred, in the following manner :—

1st. *Infancy to youth*, a period of twenty-nine years, viz., from one year to thirty years of age, A.

2nd. *Mature age*, from thirty to sixty-five years of age, B.

3rd. *Old age*, from sixty-five to ninety-five and upwards, C ; deducting, however, all

deaths under one year of age, and deaths at unknown ages, the amount of both of which is included in the preceding Table.

TABLE VIII.

Periods.	Sudden.		Apoplexy.		Paralysis.		Totals.
	M.	F.	M.	F.	M.	F.	M. AND F.
A.	1210	1054	1894	1826	756	666	7406
B.	3196	2342	8730	8046	6922	7175	36411
C.	1392	1276	4793	4632	5792	7022	24907
Three Periods	5798	4672	15417	14504	13470	14863	68724

Here, then, we see that from infancy* to manhood or mature age, the deaths from the three causes are the fewest in number; that nearly double the number of men die suddenly, or from apoplexy, at a mature (B) than at an old age (C); that women and

* As before mentioned, all deaths under one year of age are excluded from these calculations, as they will be considered separately, hereafter, in the Section on the Early Destruction of Life in England.

men die in almost equal numbers, either suddenly or of apoplexy, in the two periods of life, B and C: and, lastly, that the only marked difference which the two latter periods offer with regard to males as well as females, is observable in the number of deaths by paralysis. The latter disease will invariably be found to be more destructive in females than in males. It is essentially the disease of women from fifty to ninety-five years of age. In the years 1847, 1848, 1849, and 1850, the total number of women who died from paralysis was 14,895, compared to that of males, 13,490. But this excess begins to be observed only at the age of sixty years, and so on for every succeeding year of life.

Tested in the same manner, the mortality of the metropolis, from our three causes of death, exhibits precisely similar results. The truth of this will be made manifest by the annexed Table, No. IX., in which are pre-

sented the number of males and females who died suddenly, or from apoplexy, or paralysis, at different ages during the years 1847, 1848, and 1849, classed in groups at once, according to the formula of Table VIII.

TABLE IX.

Metropolis.

Group.	Sudden.		Apoplexy.		Paralysis.		Totals.		Both sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	
A.	283	217	346	356	138	124	767	697	1464
B.	751	463	1878	1667	1278	1291	3907	344	7328
C.	671	487	1701	1790	1954	2271	4326	4548	8874

Here we have presented to us a grand total of 17,666 deaths, exclusive of those under one year of age and of ages unknown, from three causes only ; 7,328 of which belong to the second period of life.

Now, this large number of premature deaths, whether in all England or in the metropolis, in people of the age when mankind is sup-

posed to be in its greatest vigour, is the more remarkable, as no such excess is to be observed at the same period of life, when we take into the account the deaths from *all causes* together. As compared with the total amounts of such deaths in all England and Wales for any one year, from the age of one year to one hundred years of age, the mortality in group or period B, viz., from thirty to sixty-five years, is exactly one-third, as may be ascertained by examining the published returns. I can only afford space here for the general returns of one year, as an illustration.

We will take, then, the year at the head of Table VII., viz., 1847; especially as this is the only year for which the Registrar-General's return has given us the ages at which the deaths from all causes have occurred throughout England and Wales. The information which such an arrangement is calculated to afford, is of so much importance, that no doubt so zealous a public servant as the

Registrar-General has proved himself to be, will take care to secure it for the use of the public in all future years. At the same time it would be well to give to the Annual Reports that uniformity of subjects treated in them, and regularity in the distribution of matter, without which reference is rendered both difficult and defective. That all these necessary perfections have not yet been attained in Major Graham's department, is neither his fault, nor the consequence of any unwillingness on his part, or that of his very able subordinates—but the natural result of a mistaken parsimony of the Government, in granting such a number of working hands as shall be commensurate with the yearly increasing magnitude and importance of this highly interesting and national establishment.*

* In the First Annual Report of the Registrar-General, and at page 78, we find these words:—"If the cause of death be correctly inserted (in the re-

Grouping, then, the deaths from all causes into periods A, B, C, according to ages, as we have done with regard to sudden death, and from apoplexy and paralysis; but excluding all deaths under one year of age, or from malformation, premature births, old age, unknown ages, and the deaths from our own three particular causes; we have a disposable total of 271,713 deaths from all causes, which group themselves as in Table X.

The first remark to be made on that Table is, that the deaths from *all causes* during the period of mature age B, taken together, form very nearly one-third of the whole; whereas, in the case of sudden deaths,

gisters) there will exist, thenceforward, public documents from whence may be derived a more accurate knowledge not only of the comparative prevalence of various mortal diseases, as regards the whole of England and Wales, but also of the *localities* in which they respectively prevail, and the *sex*, *age*, and *condition of life* which each principally affects."

TABLE X.

Total number of Deaths from All Causes, in 1847, divided into Three Periods of Life.

Age.	Period A.		Age.	Period B.		Age.	Period C.	
	M.	F.		M.	F.		M.	F.
1-5	33,013	32,241	35	6,075	7,047	70	6,893	6,966
5	8,760	8,490	40	6,185	6,590	75	5,289	5,509
10	4,240	4,965	45	6,307	6,082	80	2,651	2,715
15	5,609	6,809	50	6,234	6,227	85	985	1,120
20	7,209	8,011	55	6,833	6,435	90	189	274
25	6,337	7,863	60	6,451	7,755	95	44	63
30	5,839	6,320	65	7,532	7,557	100		
	71,007	70,699		45,617	47,691		16,051	16,647
Total males, 132,675.			Total females, 139,038.					

and from apoplexy and paralysis, as we have seen, the proportion during the same period B, is as 1 to $2\frac{2}{25}$ of the whole; confirming my assertion, that such forms of death are more prevalent during the vigour than in the decline of life.

The second important, though only an incidental, observation, is, that the deaths of females in each group B and C, are more

numerous than those of the males, the excess amounting on the whole to 2,670. This fatal superiority is especially remarkable from the age of fifteen (the adult age), and it continues to increase throughout the age of propagation up to forty years, when it becomes inferior to that of the other sex, until sixty-five years, at which age the deaths are nearly equal; after which the deaths of females are again on the ascendant.

Of course, owing to the introduction of the deaths in infant life, at one to five years of age, in Table X., the period of life A, is the largest in amount, instead of being, as in the like period of deaths from our three causes, the smallest. It will be seen that the deaths in question amount nearly to the half of the whole number of deaths in that period.

Following up our inquiry into the relation of age with disease, and looking to the sudden deaths, properly so called, that have taken place in the year I most especially studied

(1849), we find in this case also, that a large number of comparatively young people in all England, both males and females, who at one moment were seen in the full enjoyment of life, were, at the next, cold and inanimate. I have drawn up a Table showing the proportion of sudden deaths in each county during the year in question, distinguishing the sex, and assigning to each county the amount of population which we may suppose to have existed in 1849. From notes taken of the different ages at which such deaths have occurred, as they appear in the MS. returns at Somerset House, I am enabled to state, that not fewer than four hundred and fifty-five of them (that is one-eighth of the whole) occurred between the ages of twenty and forty years. Surely the sudden extinction of life* in so large a

* The number of these cases would have been greatly increased, and that of apoplectic cases proportionately diminished, had I added, as might have been legitimately done, all such instances of death by apo-

number of young people in the course of a twelvemonth is a fact suggestive of serious considerations.

But we shall do well to analyse the following Table a little farther, in order to elicit all the information it is capable of supplying us with, respecting the influence of localities in the recurrence of the three forms of death under consideration. Thus, when comparing the metropolis with the north-western division of England, we see that although the population of the latter, at the last census,

plexy so reported, respecting which no duration is assigned, and which may be presumed to have happened suddenly. And there were also many cases of *cephalitis* reported in the registers in which the attack is stated to have lasted so short a period as to be almost considered a sudden death. Finally, there are the cases of "convulsions" which frequently terminate in a few moments, and might have been counted as sudden deaths. But all these I have purposely excluded from my computation of sudden deaths, which has, nevertheless, extended to very large figures.

TABLE XI.

Table exhibiting the number of Deaths from Apoplexy, Paralysis, and Sudden, in each county of England and Wales, distinguishing the sexes, and with corresponding population, 1849.

County.	Population.	Apoplexy.		Paralysis.		Sudden.		Total.	
		M.	F.	M.	F.	M.	F.	M.	F.
Middlesex .	2,335,435	403	409	427	433	373	336	1203	1178
Surrey . .	665,388	167	168	183	192	45	60	395	420
Kent . .	605,634	181	125	140	118	128	69	449	812
Sussex . .	332,176	87	103	67	66	20	15	174	184
Hampshire .	392,023	116	140	83	94	28	17	227	251
Berkshire .	197,454	62	62	54	65	25	27	141	154
Hertfordshire .	171,649	42	32	21	47	5	10	68	89
Buckinghamshire	142,634	35	35	27	42	41	24	103	101
Oxfordshire .	169,041	39	45	33	44	40	29	112	118
Northampton .	210,217	37	33	56	9	38	26	131	118
Huntingdonshire	59,369	11	14	8	38	5	3	24	25
Bedfordshire .	126,367	27	39	30	22	5	8	62	79
Cambridgeshire	187,443	48	32	25	56	17	16	90	74
Essex . .	339,467	71	105	49	75	51	29	171	209
Suffolk . .	331,845	76	65	59	76	40	37	175	178
Norfolk . .	427,998	86	74	94	117	90	51	270	242
Wiltshire . .	242,411	59	81	58	61	21	18	138	160
Dorsetshire .	175,252	45	48	23	31	12	7	80	86
Devonshire .	563,770	185	186	112	121	30	18	327	325
Cornwall . .	355,510	63	75	72	93	35	31	170	199
Somersetshire .	454,766	100	94	79	102	82	62	261	258
Gloucestershire	408,722	112	116	93	118	101	79	306	313
Herefordshire .	98,599	33	19	26	13	15	13	74	45
Shropshire .	248,866	58	65	45	48	40	22	143	135
Staffordshire .	610,210	106	106	92	90	29	23	227	219
Worcestershire .	243,064	52	60	44	57	25	19	121	136
Warwickshire .	464,969	106	116	84	101	15	10	205	227
Leicestershire .	232,972	48	41	47	57	6	5	101	103
Rutlandshire .	24,048	3	6	6	11	3	4	12	21
Lincolnshire .	391,434	55	72	67	64	49	38	171	174
Nottinghamshire	289,651	48	55	62	48	27	23	137	126
Derbyshire .	256,493	39	33	46	52	33	31	118	116
Cheshire . .	410,093	98	85	82	111	17	21	197	217
Lancashire .	1,993,490	407	413	354	394	125	92	886	899
West Riding .	1,307,344	240	259	200	208	146	259	586	726
E. Riding & York	247,757	66	67	53	58	35	67	154	192
North Riding .	192,961	34	38	34	38	23	38	91	114
Durham . .	394,552	64	46	62	88	23	12	149	146
Northumberland	296,059	65	58	80	90	18	12	163	160
Cumberland .	192,002	35	28	43	65	22	16	100	109
Westmoreland .	58,032	8	13	10	11	6	5	24	29
Monmouthshire	171,908	38	16	23	22	13	8	74	46
South Wales .	591,843	74	75	92	111	65	48	231	234
North Wales .	398,892	34	30	87	106	31	24	152	160

was higher by 125,000 than that of the metropolis, yet the number of deaths by the three causes, in 1849, amounted only to two-thirds of the metropolitan deaths from the same causes. In the same manner, when we contrast the south-western with the York division, having a population nearly equal, we observe a difference in favour of the latter as regards greater immunity from such deaths, the difference being as 2,036 to 1,646. Again, if we contrast the metropolitan with the northern division, the population of which is about equal to two-thirds of that of the former, the destruction of life by sudden death, apoplexy, and paralysis, conjointly, amounts to no more than one-third of the metropolitan mortality from the same causes. The advantage of superiority of exemption, in this respect, however, belongs to the eleventh division, or the Welsh counties, where it is seen that with a population exactly the half of that of London, or the first division,

the mortality from the *three causes* does not attain (by one-tenth) the third of the mortality of the metropolis.

On the other hand, when we turn to single counties, we observe Westmoreland to be the freest from the disease in question, as compared with the metropolis; for with a population, one-fortieth of that of London, its mortality from the three causes was only equal to one-fiftieth of that of the metroplis. Cambridgeshire is of bad repute with regard to salubrity; and one is inclined, we hardly know wherefore, to think quite differently of Oxfordshire—both counties forming parts of the south-midland division. But, on comparing numbers, we find, that as regards sudden deaths, apoplexy, and paralysis, the last-named county, with a population, 21,500 less than that of the first-named county, has had 232 such deaths against 174, which occurred in Cambridgeshire. If we next compare Gloucestershire with Warwickshire, the

amount of whose respective populations at the last census was 420,000 to 470,000, we find that the number of fatal cases from the three causes so often mentioned, was larger in the county with the smallest population, being 619 to 460. Let the two huge counties, Lancashire and the West Riding, be compared together for a similar purpose. The former having a population, one-third at least larger than the latter, its mortality from the three causes conjointly should have been 1,587, whereas it has amounted to 1,785, showing a very marked inferiority in the healthiness of Lancashire as contrasted with Yorkshire. And in this manner we might proceed with our parallels in the case of many of the other counties.

If we turn now to what are denominated in the Registrar-General's Black Ledgers, the districts of the metropolitan division, of which there are thirty-six, and compare the one with the other (inequalities of population

being taken into account at the same time) a notable difference is at once detected in the degree of immunity of some districts, and that of the rest from the three forms of death. But such an inquiry, interesting, and, for medical purposes, useful, though it might be, would lead me too wide of the scope of my present investigation. I must, therefore, leave it to future inquirers, and a future period, when a less parsimonious Treasury, alive to the immense value which will hereafter belong to every research emanating from the Registrar-General's department, shall have supplied its chief with the means of carrying out, to the full, his intentions of rendering his Annual Reports more perfect.

One subordinate branch only of the investigation I would, nevertheless, lightly touch upon in this place, as serving to throw additional light on the influence of localities in producing sudden deaths, and deaths from ăpoplexy and paralysis. I have already stated

that the year 1849 was one of those I had most closely and minutely examined at the Registrar-General's Office. This operation has enabled me to ascertain the fact that certain towns and cities in England present (population being equal) differences in their respective number of deaths from the three causes, sufficiently large to be deserving of attention.

A few examples of this sort I have arranged in Table XII., which follows. These examples may be multiplied through any series of places, the total amount of whose population and annual mortality from the three causes, being compared together, through a reference to the quarterly and weekly returns published by the Registrar-General—any reader will be able for himself to extend this Table of curious and interesting contrasts.

The deductions to be derived from the returns of deaths by apoplexy, paralysis, and sudden, in males and females, in cities as contrasted with counties, contained in the Second

TABLE XII.

Table of Comparative Healthiness of certain Towns and Cities in England, 1849, in reference to the three causes of mortality.

County.	Town.	Population. 1851.	Apoplexy.		Paralysis.		Sudden.		Total number.	Total number according to population should be.	Balance.	
			M.	F	M.	F.	M.	F.			Against.	In favour
Sussex .	Brighton	65,573	20	25	10	16	3	4	78	—	—	—
Hants .	PortseaIsland	72,676	27	44	23	24	3	1	122	86	36	—
Kent .	Isle of Thanet	31,798	13	12	8	7	6	4	50	—	—	—
Surrey .	Hastings	21,214	9	6	1	1	0	0	17	33	—	16
Hants .	Isle of Wight	50,315	13	11	5	7	2	0	38	—	—	—
,,	Lymington	12,153	5	8	3	5	0	0	21	9·5	11·5	—
,,	Southampton	34,092	8	5	4	7	3	2	29	—	—	—
,,	Winchester	25,658	11	7	2	8	1	0	29	21·75	7·25	—
Middlesex	Edmonton	45,352	15	12	13	8	3	3	54	—	—	—
,,	Hendon	15,900	1	3	1	3	2	1	11	33	—	22
Herts .	Hertford	15,088	1	4	1	4	1	0	11	—	—	—
Bucks .	Eton	21,482	9	5	8	3	4	2	31	15	16	—
Oxon .	Oxford	20,173	4	2	2	3	1	2	14	—	—	—
Cambridge	Cambridge	27,803	9	11	—	6	2	0	28	19 4	8 6	—
Cambridge	Ely	22,896	1	0	5	2	1	3	12	—	—	—
,,	Wisbeach	36,192	10	7	10	7	4	5	43	19	24	—
Essex .	West Ham	34,378	9	10	5	8	11	3	45	—	—	—
,, .	Maldon	22,138	2	6	2	5	1	0	16	29	—	13
Suffolk .	Sudbury	30,834	16	11	4	6	3	0	40	—	—	—
,, .	Ipswich	32,757	2	8	11	3	0	0	24	42	—	18
Norfolk .	Norwich	68,196	17	20	14	26	22	12	111	—	—	—
	Erpingham		3	4	8	6	4	3				
	Aylsham	67,491	1	1	4	2	4	3	63	110	—	47
,, .	Forehoe		1	3	4	2	5	6				
	Wayland		0	1	2	0	0	2				
Wi ts .	Wilton	10,742	3	3	5	3	0	1	15	—	—	—
,, .	Pewsey	12,501	0	5	0	3	0	0	8	18	—	10
Devon .	Honiton	23,824	2	3	6	2	0	1	14	30	—	—
	Plymouth	52,233	13	19	5	13	17	10	77	—	47	—
,, .	Exeter	32,810	4	17	9	8	0	0	38	60	—	—
	Newton Abbot	52,306	22	18	10	11	0	1	68	—	8	—
Cornwall .	Liskeard	33,833	7	9	3	4	4	3	30	—	—	—
,, .	St. Germans	16,543	8	7	5	11	1	2	34	15	19	—
Somerset .	Bath	69,836	15	22	10	19	5	8	79	—	—	—
,, .	Bridgewater	33,185	5	11	5	6	11	4	42	33	9	—
Glo'stersh.	Bristol	65,781	26	25	9	23	15	8	106	—	36·5	—
,, .	Cheltenham	44,193	13	10	5	6	8	4	46	68 5	—	—
Lancashire	Ashton	119,185	23	18	21	20	10	3	115	—	—	—
	Oldham	86,785	9	11	9	17	15	12	73	86	—	13

Annual Report, page 162 (the populations of either being nearly equal), are these :—

1. Apoplexy and paralysis, male and female, more frequent in counties than in cities.

2. Sudden deaths more frequent in cities than in counties.

The real numbers for 1838 stand thus :—

TABLE XIII.*

Diseases.	Males.		Females.		Totals.	
	Cities.	Counties.	Cities.	Counties.	Cities.	Counties.
Apoplexy	313	358	274	337	587	695
Paralysis	258	303	282	341	540	644
Sudden	111	179	120	108	331	287

* Here, again, is a most valuable arrangement, in a tabular form, adopted in the Second Annual Report, in which important information, in a clear and concise manner, is given (and from which the above Table is extracted), that has not been retained in any subsequent Report. Why not, one may inquire? Something like the same information undoubtedly may be gathered from other forms of tables, in one or two, but not all, subsequent Reports; but the matter there is diluted, extended, and not easily comparable.

The last point in connexion with death-statistics, which I shall introduce, as far as my researches at the Registrar-General's have enabled me so to do, is the consideration of the influence which the profession, occupation, or *status* of the patient may be supposed to have exercised in the production of the event. There is no other means of obtaining such information, except by going over one, by one, all the cases of sudden death, apoplexy, and paralysis which occur on the Great Registers, and write out the entire report of each case. The published documents do not put us in possession of the particulars required of the *status* in life of the deceased, nor of the time that his attack lasted before death, both important features in an investigation like the one I have undertaken. I therefore patiently selected all the cases of the Metropolitan Division that had any relation to that investigation: choosing for the purpose the two years, 1846

and 1851. Here I give only the result of my research as far as the condition in life of the victims: the other consideration, namely, the duration of the attack of apoplexy or paralysis, belongs to the practical part of the question, and must be reserved for a future occasion.

Tedious though it proved to be, the labour of the operation has been fruitful of curious results, and yielded information, which, as a medical man, I rejoice at having obtained, and which I never could have hoped to obtain through any other process. In this place, however, I shall confine myself to giving the results of the inquiry into the *status* of the patient. I have distributed, among other sections of this volume, whatever other results I obtained which seemed to me to be more immediately referable to the subject-matter of those sections.

The two Italian authors to whose monographies I alluded early in the present sec-

tion, had also directed their attention to the influence of professions in deaths by apoplexy ; when it appeared that out of 100,000 of each class, those who had fallen victims were in the following proportions :—

Brokers, Agents, Farmers . .	1,117
Physicians and Surgeons . .	480
Painters and Engravers . .	329
Merchants	256
Victuallers and Innkeepers. .	255
Civil Engineers, Accountants, &c.	168
Masons	32

Our own list is a more extensive one, as will be seen in the annexed Table, No. XIV.

The two Tables, however, are not comparable together, inasmuch as the Italian reckons the number of apoplectic deaths in each calling out of a known number of individuals of that calling then living ; whereas our Table simply states the number of those of each calling or *status* in society who had fallen *victims* to apoplexy, paralysis, or sudden death, during the two years selected.

TABLE XIV.

Of the Conditions in Life, and of the different Professions and Occupations of those who died from the causes herein named, in the years 1846 and 1851, with the number of such deaths in each class of Patients.

Number of Classes.	METROPOLIS.	Apoplexy.	Paralysis.	Sudden.	Totals.
1	Noblemen, gentlemen, "independent"	93	79	25	197
2	Officers in the army and navy, and East India Company's service	12	9	13	34
3	Clergymen, medical men, lawyers	25	20	5	50
4	Ladies, widows of gentlemen, spinsters, daughters of gentlemen	131	129	64	324
5	Widows of artisans, tradesmen, labourers, servants, &c.	303	301	146	750
6	Married women of artisans and all industrial classes, and unmarried daughters of ditto	291	208	214	713
7	Domestic servants, butlers, valets, coachmen, grooms, cabmen, postboys, porters, messengers, housemaids, charwomen	128	138	89	355
8	Barbers, hairdressers	1	1	3	5
9	House-painters, plumbers, slaters, plasterers, stonemasons, bricklayers, labourers	122	127	104	353
10	Carpenters, upholsterers, cabinetmakers, joiners, brushmakers, wheelwrights, shipwrights	55	56	37	148
11	Smiths, millwrights, ironmongers, brassworkers, gunmakers, cutlers, coppersmiths	27	27	19	73
12	Licensed victuallers, hotel and innkeepers, publicans, brewers, coffee-house keepers, beersellers	29	30	16	75
13	Butchers, pork and tripe sellers, poulterers	7	4	10	21

Number of Classes.	METROPOLIS.	Apoplexy.	Paralysis.	Sudden.	Totals.
14	Grocers, milkmen, dairymen, cheesemongers .	8	8	4	20
15	Fishmongers	3	7	6	16
16	Bakers, confectioners, millers . . .	13	17	7	37
17	Tailors, boot and shoemakers, hatters . .	59	77	51	187
18	Needlewomen, milliners, dressmakers, haberdashers	17	13	8	38
19	Merchants and merchants' clerks, accountants, commercial travellers	47	37	25	109
20	House-agents, auctioneers, and brokers . .	10	4	1	15
21	Artists, architects, surveyors, musicians, teachers, schoolmasters	12	6	9	27
22	Stationers, publishers, printers, booksellers, bookbinders, newsmen	11	13	4	28
23	Watchmakers, gold and silversmiths, jewellers	17	11	10	38
24	Coopers, turners, and other artisans, brushmakers, carvers	5	10	9	24
25	Coachmakers, coach-painters, saddlers, harnessmakers, leather-cutters	7	4	5	16
26	Horse-dealers, carters, waggoners, draymen, carriers, stablemen	4	4	2	10
27	Policemen, watchmen, soldiers, sailors, and their wives; watermen, Custom House officers	45	46	42	133
28	Pensioners, male and female . . .	20	43	21	84
29	Paupers, male and female	17	31	24	72
30	Various other occupations, or whose conditions in life is unknown	115	140	113	368
31	Prostitutes	—	—	5	5
32	Prisoners	5	2	4	11
33	Lunatics, male and female	4	34	4	42
34	Weavers and their wives, mercers, haberdashers	25	33	18	76
35	All persons connected with gardening or agricultural operations	16	15	14	45
36	All professions	1684	1684	1131	4499

The Italian Table is imperfect in one or two important particulars also; namely, in not giving the manner of death, either when sudden or from apoplexy, and in omitting to give us the number of the latter which were ascertained to have arisen from disease of the heart; two very interesting considerations to which I shall have to revert on a future occasion.

IV.

EARLY DESTRUCTION OF LIFE IN ENGLAND.

"Il perit près du quart des enfans pendant la prémière année,"* observes a modern foreign writer on Tectology: and he goes on to express his surprise at such a fact. His feelings would not be greatly different were he to scan our annual reports from Somerset House since the commencement of their establishment.

We open the very first of these valuable volumes, containing a set of tables giving ab-

* Dr. Friedlander, "*Education Physique des Enfans.*"

stracts of deaths registered from July 1, 1837, to June 30, 1838, both days inclusive, and there we find the following facts.

1. In the first, or Metropolitan Division, having, at the time, a population of 1,594,890, out of the total number of registered deaths in that year, about one-fifth were those of infants under one year of age. At that time England and Wales were divided into twenty-five divisions for registering purposes, instead of eleven, as is at present the case.

By consulting the table of each of those divisions we learn (speaking in round numbers, for strict mathematical precision is not needed in medico-political computation) that the early destruction of human life went on at about the following rates in every 1,000 registered deaths.

2. More than $\frac{1}{4}$ in Manchester and its suburbs.

3. Nearly the same in Liverpool, West Derby, and its suburbs.

4. At Leeds more than $\frac{1}{4}$.

5. In Birmingham near $\frac{1}{4}$.

6. In Middlesex (London exclusive), Hertfordshire, Bedfordshire, and Buckinghamshire, about $\frac{1}{5}$.

7. In Kent, Surrey, Sussex, Berkshire, and Hampshire, $\frac{1}{5}$.

8. In Dorsetshire and Wiltshire less than $\frac{1}{5}$.

9. In Devonshire a little more than $\frac{1}{5}$.

10. In Cornwall ditto.

11. Somersetshire ditto.

12. In Essex ditto.

13. In Norfolk and Suffolk, more than $\frac{1}{4}$.

14. In South Lincolnshire, Huntingdonshire, and Cambridgeshire, more than $\frac{1}{4}$.

15. In North Lincolnshire, Rutland, Derby, Nottinghamshire, Leicestershire, and Northamptonshire, more than $\frac{1}{4}$.

16. In Oxfordshire, Gloucestershire, Worcester, Warwickshire (Birmingham excepted), a little more than $\frac{1}{5}$.

17. In the mining parts of Staffordshire and Shropshire considerably, more than $\frac{1}{4}$.

18. In the rest of Staffordshire, Shropshire, and Cheshire, not quite $\frac{1}{4}$.

19. In Lancashire (except Liverpool and Manchester), considerably more than $\frac{1}{4}$.

20. In the West Riding (except the Town of Leeds), $\frac{1}{4}$.

21. In the East Riding and the City of York, more than $\frac{1}{4}$.

22. In the North Riding and Durham (except the mining districts), less than $\frac{1}{5}$.

23. In the mining districts of Durham and Northumberland not quite $\frac{1}{4}$.

24. In Cumberland and Westmoreland, and Northumberland, not quite $\frac{1}{6}$.

25. In Wales a little more than $\frac{1}{5}$.

The preceding proportions, however, assume a different and more saddening relation, if we view the two sexes separately in any of the above divisions, the number and respective denominations of which I have taken this opportunity of giving above. Thus, for example, at Leeds, out of every 1,000 registered deaths

of males, not fewer than 306 are of infants under one year of age.

But I will put the subject in a clearer point of view, by constructing a Table out of those supplied by the official Report, showing the proportion of those who have died under one year of age in every 1,000 registered deaths, distinguishing males and females, and classing them under the separate divisions of the county, as before enumerated.

TABLE I.

Number of Divisions.	Number of deaths under 1 year of age.		Number of Divisions.	Number of deaths under 1 year of age.	
	Out of 1000 male deaths.	Out of 1000 female deaths.		Out of 1000 male deaths.	Out of 1000 female deaths.
1	202·96	177·33	14	283·44	256·16
2	271·32	256·50	15	263·06	201·83
3	269·26	244·09	16	233·63	185·61
4	306·27	247·53	17	299·67	260·31
5	270·43	216·70	18	233·22	192·90
6	240·38	189·63	19	294·72	246·64
7	209·02	169·55	20	280·95	221·11
8	201·74	160·56	21	261·26	211·70
9	195·94	164·55	22	217·53	166·47
10	203·17	186·69	23	240·14	195·54
11	207·91	163·19	24	196·99	152·12
12	196·66	178·98	25	193·55	161·65
13	256·7	200·83			

The preceding Table gives for the year 1838 a proportion little short of $\frac{1}{4}$ for the males, and $\frac{1}{5}$ for the female deaths, within the first year of life, out of the whole number of registered deaths.

With the aid of the tables contained in the Second Annual Report (pages 32—57)—tables which, it is to be regretted, have not been continued in precisely the same form in every succeeding Annual Report,—we can push our investigation into this early destruction of life, even to within the first month of existence, in both sexes. From the information therein marshalled we shall gather some extraordinary facts.

What is professed to be given in the following Tables is an abstract of deaths, male and female, for all England, under one year of age, subdivided into months: the population of England being taken at 13,897,187.

As compared with the deaths of the previous year, the rate of increase in the number

TABLE II.

Deaths in 1838.

Age.	Males.	Females.	Totals.	Births.
Under 1 month	13,309	9,168	21,477	M.
1 and under 2	4,419	3,391	7,810	245,465
2 —— 3	3,311	2,657	5,968	F.
3 —— 6	7,838	6,290	14,128	235,075
6 —— 9	6,653	5,291	11,944	Total.
9 —— 12	5,809	5,168	10,977	480,540
Total under 1 yr.	40,339	31,965	72,304	

of deaths in 1838 was as 218·5 is to 214·19 males and females. This point is best elucidated by a reference to similar Tables for each of four other successive years. By combining, afterwards, the five together, and contrasting the result with the mortality of the year preceding those we have selected, we can draw inferences which will surprise most of my readers.

We see at once a very striking difference in this early destruction of human life, between male and females; the latter

TABLE III.

Deaths in 1839.

Age.	Males.	Females.	Totals.	Births.
Under 1 month	13,274	9,603	22,877	M.
1 and under 2	4,782	3,803	8,585	257,129
2 —— 3	3,521	2,782	6,303	F.
3 —— 6	8,341	6,612	14,956	244,460
6 —— 9	6,717	5,350	12,067	Total.
9 —— 12	6,162	5,378	11,540	501,589
Total under 1 yr.	42,800	33,528	76,328	

TABLE IV.

Deaths in 1840.

Age.	Males.	Females.	Totals.	Births.
Under 1 month	13,314	9,732	23,046	M.
1 and under 2	4,745	3,702	8,447	258,389
2 —— 3	3,343	2,647	5,990	F.
3 —— 6	8,183	6,606	14,789	246,154
6 —— 9	6,706	5,485	12,191	Total.
9 —— 12	5,889	5,155	11,044	504,543
Total under 1 yr.	42,180	34,327	75,507	

TABLE V.

Deaths in 1841.

Age.	Males.	Females.	Totals.	Births.
Under 1 month	13,351	9,741	23,092	M.
1 and under 2	4,858	3,703	8,561	262,714
2 —— 3	3,313	2,676	5,989	F.
3 —— 6	8,008	6,451	14,459	249,444
6 —— 9	6,351	5,182	11,528	Total.
9 —— 12	5,573	5,013	10,586	512,158
Total under 1 yr.	41,444	32,766	74,210	

TABLE VI.

Deaths in 1842.

Age.	Males.	Females.	Totals.	Births.
Under 1 month	13,987	10,366	24,353	M.
1 and under 2	5,172	3,887	9,059	265,204
2 —— 3	3,653	2,890	6,543	F.
3 —— 6	8,279	6,634	14,913	252,535
6 —— 9	6,814	5,594	12,408	Total.
9 —— 12	6,141	5,287	11,428	517,739
Total under 1 yr.	44,046	34,658	78,704	

being less sufferers in the proportions of $166\frac{1}{4}$ to $210\frac{3}{4}$; difference, 44·5. Now, as such a

TABLE VII.

The Five Years combined.

Age.	Males.	Females.	Totals.
Under 1 month	66,235	48,610	114,845
1 and under 2	23,976	18,486	42,462
2 —— 3	17,141	13,646	30,787
3 —— 6	40,649	32,593	73,242
6 —— 9	33,201	26,902	60,103
9 —— 12	29,574	26,001	55,575
Total under 1 yr.	210,776	166,238	377,014

disparity of relation between the two sexes in death, is considerably higher than that which exists between them at birth, the latter being only 100 females to 105 males in England, we must conclude that some physical reason exists for the favour of comparative exemption shown to females, supposing one and the same cause to act in both sexes in producing death, either under one month or within the first year. What is that reason? Of course the proposition is thus put on the

belief, that there is fair play (of which I have some doubt) in all these numerous deaths of newly-born babes, from which, I should have before stated, the still-born and the premature births have been totally excluded. What that reason is remains to be discovered.

We next notice in the preceding Tables, the fact, that of the total number of deaths, males and females within the first year of life, nearly one-third of them occurs before or at the expiration of the first month.

Again, if we seek in the aggregate of the five Tables for the lowest mortality within the year, we find it at the ninth, tenth, and eleventh months; the proportions being as 382 : 185, the former under one month, the latter between the eleventh and twelfth month, both males and females.

In the same manner the combined Table shows that the relative rates of mortality in the several months of the first year, compared with the whole mortality of that period,

have been the following, 287, 101, 72, 61, 50, 49, exhibiting a gradual decrease as the infant approaches the completion of his first year.

Thus far, then, we arrive at the knowledge of the fact, that whereas, during the period of five years, out of a number of children, male and female, born alive, amounting to 2,516,569, there had died 377,845 under one year of age, not fewer than 114,845 had perished before the thirtieth day of their existence.

Frightful as this early destruction of human life must seem in the abstract, I grieve to add, that as we come nearer to the present times, not only does the general amount of life thus extinguished, as it were on its threshold, increase, but the accretion appears under circumstances capable of inspiring grave suspicions of its not being altogether natural. Thus, I find that the early destruction of life is greater in certain manufacturing districts than in purely agricultural districts. That it

is more marked in the latter districts than in certain other large cities, or even the metropolis. Finally, that it prevails in the most frequented sea-port towns over that of the surrounding towns, or cities unconnected with either seafaring life, mining, or manufactories. In fact, that wherever classes of careless, uneducated, idle, dissipated, beggarly, and godless people of both sexes live, there the early destruction of life is the greatest.

It will not be superfluous in this place to add, that nearly the whole of the number of infant deaths within the first month, and of a large proportion also of those which occur subsequently within the first year of age, take place, as reported, "suddenly." Assuming that they are so reported correctly, had I included their number in the total of the sudden deaths I have recorded in the section on Death-Statistics,—the aggregate amount of the latter would have acquired still more extraordinary proportions. But I deli-

berately excluded them from my records of adult sudden deaths, that we might deal separately with the former in the present section, as a subject calling for a distinct and serious consideration.

We assume, then, that these infant-deaths are sudden; and as the mind of man, impressed with the conviction of the infinite goodness of the Creator, revolts at the idea of so much human life being quenched, nearly as soon as it is called into being,—we are made to look for an explanation of so unnatural a phenomenon, to the evil passions of man, and listen with doubt to such verdicts as the following, extracted from the registers, professing to account for each sudden and fatal event, after some sort of investigation.

1. Found dead, accidentally suffocated.
2. Found dead in a cradle, suffocated.
3. Sudden, insufficient inflation of the lungs.
4. Accidentally suffocated whilst in bed with the mother.

5. Suffocated whilst in the arms of the mother.

6. Accidentally overlaid.

7. Found dead by the side of the mother.

8. Found dead lying close against the mother,

9. Found dead in bed, suffocated by pressure, how caused unknown.

10. Suffocated instantly, lying between the mother and the father.

11. Suffocated by being accidentally turned over and laid on by another child in bed.

12. Suffocated by slipping off the pillow of a bed on to his face, being laid thereon to sleep.

13. Suffocation from taking an over quantity of the mother's milk, she having fallen asleep while the child was sucking ; duration uncertain.

14. Found dead in bed with her parents and two other children.

15. Suffocated by being accidentally pressed

too closely to the mother's breast whilst suckling.

16. Inability to support an independent existence, being a seven months' child.

17. Found dead in bed between father and mother, supposed to have been accidentally overlaid.

Now, in all the cases in which the preceding verdicts were delivered, either the children were *illegitimate*, or the parents steeped in poverty, and of the several callings of labourers, carters, basketmakers, bricklayers, mariners, weavers, &c. Thus, among the "found dead in bed" of infants, a few weeks old, returned by Mr. Coroner Baker, in Bethnal Green, from the 31st of October to December, 1849, there is a successive entry of not fewer than seven of them, some illegitimate, and some the children of destitute weavers.

In the Welsh Division's returns of death for 1851, there are often such statements as

these to account for infants dying at a few hours, days, or weeks, after birth: "unknown, no medical attendant." nor any coroner's inquest. In the subdistrict of Chepstow, for example, as many as five deaths of male infants are recorded in that manner, between the 21st of June and the 29th of July, 1851, out of sixteen deaths from all causes, registered in that district. And in Monmouth the deaths of four female infants under one year of age are registered in an equally unsatisfactory manner. Out of 351 deaths from all causes, registered at Abergavenny during the first quarter of 1851, as many as fifty-six cases of deaths of infants under one year of age, are recorded without any satisfactory reason assigned.

Here is evidence enough (and a great deal more might be adduced from the same indisputable sources) to lead one to pause before he concludes that all such early and premature deaths are, what one of the coroners

frequently affixes to his returns of similar deaths, "natural." What is the meaning of such a definition? The only natural death I admit, is that of old age. But the same coroner has often reported the sudden death of an infant, thus, "Natural; found dead in bed." Is it natural to find a dead babe in bed?

Others of the verdicts I have enumerated convey explanations of the death not a whit less singular. Let us take an instance:—verdict No. 12. This was the case of a male infant at nine months, who died suddenly on the 19th of September, 1846, at No. 44, Lower Marsh, Lambeth. What can such a verdict mean? and how is the fact which it implies possible with a child nine months old? Take again, No. 13. A male infant, nine weeks old, son of a basketmaker, in Cross Street, Whitechapel, is found dead in bed, on the 13th of January, 1846. How did the coroner come to the conclusion that the infant continued sucking, and what is

the quantity of the mother's milk that will destroy a child nine weeks old ?

In verdict No. 11, the coroner was obliged to accept the statement of the father, residing at 23, Great Exeter Street, on the 27th of December, 1846, as a legitimate evidence, that the death of his infant was brought about in the manner there described. A child lying at full length on the back of another who had his face downward, until death is produced in the latter, is, to say the least, an extraordinary occurrence. Verdict No. 9 refers to a female infant, four months old, found dead on the 5th of April, 1851. It was an *illegitimate* child. What sort of pressure could it be that caused her death ? Not a hug of affection from the mother, I trow ! Again ; read verdict 17, and hear the additional fact of the case (which occurred on the 25th of August, 1851, in George Street, Southwark), that the infant was only six weeks old, and the offspring of *illegitimacy !*

In fact, from the now very frequent extinction of life in young infants, the coroners appear to be compelled to employ, in their verdicts, some set expressions, without attempting to explain, satisfactorily, the cause of death in cases of this description brought under their notice. We accordingly find numerous returns of infants found dead, described as having been "accidently suffocated under the bed-clothes."

Whenever they have to deal with a collateral fact connected with the death, their verdicts are laconic, and more intelligible; and, at the same time, more truthful.

Thus, on a particular day in July, 1849, we are told that a child, a few days old, was found dead in a gravel-pit, near a public-house. On another day, that the daughter, a few weeks old, of a clerk to an advertising office, was found drowned in a pail of water, but how, no evidence to show; and in a third case, a male infant, age unknown, son of a

single woman, is taken dead out of a bucket on the 17th of October, 1851 ; while a fourth infant, newly born, and which had breathed, was discovered in a cigar-box, in October, 1849. In all such cases the truth of the verdict is palpable, though it explains not the manner nor the motive of the act ; neither does it attempt to designate who the perpetrators of the act had been, or to discover if the act were wilful or accidental.

Thus far, then, the investigation conducted before the coroner's court, throws no light on the more important part of the great question, namely : what are the causes of the early destruction of life in England ? Numerous as these verdicts are, which one meets at the termination of every month or quarter in the great ledgers at Somerset Place, they are not more decisive of the question than the sixteen or seventeen forms of such verdicts I have just brought forward in illustration. And yet it is precisely upon occasions such as present

themselves before coroners in the cases specified in those several formulæ of their verdicts, that, if ever, the difficult yet important point can be solved: what is the real agency to which we are to ascribe the truly appalling frequency of the premature death of infants. At present such formulæ of verdicts as the coroners adopt, or suggest to their juries, are almost an encouragement, so to speak, to a repetition of infanticide,—whenever the perpetration of such a dreadful act has been ventured upon, on the chance of its being attributed to mere accidents, if inquired into afterwards. And if not an encouragement for repetition, they would prove such for imitation.

When two unwedded parents, steeped in wretchedness as in brutalizing drink, have squeezed their unwelcome infant intruder between them to death, and they hear the jury declare, as the whole final solution and responsibility of the case, "Found dead in bed between mother and father, supposed to have

been accidentally overlaid" (verdict No. 17); or when a single woman, burthened with the infant fruit of her illegitimate passion or involuntary seduction, is summoned by the coroner to explain how it happened that it had suddenly died, and finds her own statement accepted, as sufficient explanation, that the babe died "suffocated by being accidentally pressed too closely to her breast whilst suckling" (verdict No. 15); when all such sententious verdicts are uttered, I say, where is the juryman of common sense who does not perceive at once, that such his decisions, to say the least, are not likely to deter the parties in question, or any other equally ill-minded parties, bent on imitating a proceeding so safe, from appearing before him on a similar ground again?

It is my strong conviction, come to after the perusal of a considerable mass of verdicts of the same stamp, on the sudden deaths of very young infants, as are to be seen in these

sad remembrancers at the Registrar-General's through a succession of years (a mass which would actually appal any reader), that until the investigation of sudden death at all ages, though I confine my present remarks to the earliest moments of life, shall be conducted with more deliberate sagacity, aided by a professional and patient inquiry, under the guidance of a properly authorised officer connected with a *real* Board of Health and Medical Police, no effectual protection whatever will be afforded to the life of a new-born child among the lower classes. The frightful fact of more than one-fourth of them becoming extinct before the first year of their existence, and, of this number, nearly one-third before the expiration of the first month, goes far to demonstrate the truth of my assertion.

As we have failed to procure satisfactory information from the English coroners on the great point at issue, let us see whether what

are called "the attesting witnesses" to the death of such young infants as are recorded in the Registrar-General's volumes, can supply us with more explanatory or convincing grounds for this early extinction of human life in this country. Let us see, in fact, to what causes have been ascribed these 114,845 deaths of babes under one month; and of 377,014 deaths of infants under one year of age, which have taken place in the short space of five years, viz., from 1838 to 1842.

As in the case of the coroners' verdicts, so, in the present instance, I shall marshall the various causes to which the death of infants, occurring naturally, has been attributed by the attesting witness. I shall give them as collected from the great registers. A general reader will be puzzled at some of these allegations; professional readers will, perhaps, smile at the pompous display of affected physiological penetration in some of the

Reports; but all will be impressed thereby with the truth, that the too frequent occurrence of death at the earliest periods of life, is a mysterious fact, to be witnessed only in highly civilized nations, and amongst them, chiefly in those luxurious cities, the residence of courts, or in huge towns, the dwelling-place of gold-coining manufacturers, in both of which the two antagonistic states mostly prevail, of excessive wealth and the most abject and squalid misery.

Of the causes assigned for the death of young infants under one month, the following are among the most frequent.

1. Low vitality.
2. Want of vitality.
3. Difficult vitality.
4. Want of development.
5. Imperfect development.
6. Want of power.
7. Imperfect respiration.
8. Inanition.

9. Want of natural nutriment. And when the child is farther advanced :

10. Want of sufficient nourishment.

11. Dry nursing.

12. Some few cases are set down as "a seven months' child," to account for their decease.

In certain other cases we have more learned explanations :

13. Imperfectly *vitalized* (!)

And in a particular infant, born in Brecknock Place, Camden Town, 27th of July, 1851, the death was ascribed to,

14. Low vital tenacity, or debility from birth (!)

There are, however, some causes assigned for this early destruction of life, which, if not so profound or mystical, are not the less unintelligible ; as, for example, in the case of a baby, three weeks old, who died September, 1851, at West End, Hampstead, from

15. "*Strenuous* cachexia from birth."

Or where a little girl, Louisa Barker, by

name, is said to have departed this life on the 10th of August, 1851, at No. 10, Wilmot Street, from

16. "Cancrumonis" (!)

It is but fair, however, to surmise, that in the two latter cases we are indebted to the blunder of some transcriber, or the ignorance of a sub-sub-registrar, for the cachophonetic denominations of the cause of death.

It was stated, in the early part of this Section, that as we came nearer to present times, we should find infant deaths more frequent. The proof of the assertion lies before me in the abstracts of the number of deaths of this description which I am about to adduce from the death-ledgers at Somerset House, for the years 1847, 1848, 1849.

It is rather an unfortunate circumstance, that since the year 1847, the form adopted in the Annual Reports of "deaths by ages," as far as the deaths of infants are concerned, has been altered; and that such deaths as

occur under one month, or between one and two, and between two and three months, are not now given. Their total number is, at present, classed in one column only, representing all the deaths which take place from birth to the third month collectively. Such an arrangement deprives at one stroke the two sorts of Report, namely, those previously and those subsequently to 1847, of one immense advantage. They have ceased to be comparable the one with the other, and, therefore, all statistical computations connected with the earlier period of human existence, which may not be of use to actuaries, but are of the utmost importance to the naturalist and the philosopher, not less than to the practical physician, cannot now be based, as they might have been, on a mass of continuous reports, for a period of nearly eighteen years. They must be split into two distinct computations, each embracing only a comparatively short period.

It was not possible, of course, from the beginning, or even in the course of the first few years of the establishment of this great department of civil administration, so to pre-arrange the manner in which its numerous facts should be conveyed to the public, as never after to require any alteration. Yet how important, nay, essentially necessary, it is, that when once cases for calculations have been determined, forms of tables selected, denominations of causes adopted, and the signification of terms fixed, the same should continue and never vary, if each successive Annual Report is to be a help to the one that preceded it, and of equal assistance to the one that is to follow? Researches, also, by curious and interested readers of such Annual Reports, would thereby be facilitated, and reference for the sake of comparative information obtained with ease and certainty. I may appear fanatical on this subject; but such is my reverence for this prodigious en-

gine of vital and political statistics, which the Registrar-General and his principal subordinates so ably conduct, that I would wish to see those large Annual Reports so replete with information of the highest standard and value, religiously maintained within one uniform arrangement of subjects, embracing, if you please, as many important points of congenial inquiries as it may be deemed necessary to introduce, yet always under the same form, and with the same denominations.

Then it is that we shall be able to draw large conclusions and inferences from the mass of information communicated to the public, which cannot fail, in many ways, to redound to the benefit of mankind. Two or three more heads might advantageously be added to the present printed returns. I mean, first, "Disease and Ages," next, "Diseases and Professions," together with the population of the latter, for the sake of computation; and lastly, "The lowest and highest average du-

ration of the disease." At present the certifying attendants are instructed to insert, in their returns, the duration of the disease. It is, therefore, to be presumed, that the information was intended to be conveyed to the public.

After these preliminary remarks, I proceed to submit to my readers the returns of deaths under one year of age, and during the first three months of that period, for the years 1847, 1848, and 1849, in all England and Wales, as well as in the Metropolis, separately, and in three other of the largest provincial divisions. We shall in this manner be able to contrast what takes place in localities differently circumstanced. The information is extracted from the Tenth, Eleventh, and Twelfth Annual Reports of the Registrar-General. It will be seen that the work of destruction in early life has not slackened from what I represented it in reference to an earlier epoch, tabulated in a previous part of

this Section, but rather that it is on the increase, and that in some parts of England, the manufacturing towns to wit, such as Manchester, Ashton, Preston, Leeds, &c., this early mortality may be rightly called frightful. Compared with that of the metropolis it is almost unaccountable.

The highest number of deaths under one year of age, both male and female, in all England and Wales, quoted in Tables 3, 4, 5, 6, occurred in the year 1842, when it amounted to 78,704. But in the following Tables we shall find that in about five years from that date the number in question had become 88,508, and that in two years more it reached the figure of 92,171 (of which 46,786, or more than the half, were deaths under three months), being an excess in that year of 13,467 infant lives lost. And as the average total births, male and female, was in that year 560,394, it follows that every sixth child born, died before one year of age, of

which latter number every third child never attained its third month of existence!

TABLE VIII.

Deaths of Infants under three months, between three and six months, and between six and twelve months, for all England and Wales, Males and Females; during the years following:—

Years.	Under one month.	Three months.	Six months.	Totals.
	M. F.	M. F.	M. F.	M. and F.
1847	25,252 19,196	9,208 7,290	14,955 12,607	
	44,448	16,498	27,562	88,508
1848	25,621 19,566	9,146 7,243	13,606 11,225	
	45,187	16,389	24,831	86,407
1849	26,551 20,235	9,835 7,680	15,031 12,839	
	46,786	17,515	27,870	92,171

It is thus demonstrated that in the course of three years there perished more than a quarter of a million, or, 267,086 infants, before they reached the first year of their life. Surely so large a mortality calls for some serious investigation into its origin and causes.

With the view of affording some clue to

such origin and causes, I have collected, as before stated, a similar amount of information respecting the deaths of infants, occurring in the metropolis during the same number of years; and an equal amount also respecting those deaths which have taken place among infants in three large sections of the country, where the most laborious, as well as the worst paid and fed, and the least educated of the working classes are congregated. If we should discover that in such localities the number of infant deaths is larger than the amount of population or any physical peculiarities of the place or district would warrant (agreeably to the laws that regulate this species of mortality in other places), we shall have but one conclusion to draw from that fact. And let the legislator and the moralist look to it. For as sure as there is in any nation a hidden tampering with infant life, whether frequent or occasional, systematic or accidental, as in the cases of the poisonings in Essex, or the

burial-club iniquities, so sure will the chastisement of the Almighty fall on such a nation.

Looking first to the metropolis, during the same period, I find that with a population of 2,162,230, it lost 28,916 infants, males and females, under one year of age, 15,371 of whom had not reached the third month. The increase during the years 1848 and 1849 was 928. This is a moderate augmentation of the infant mortality in the metropolis ; in addition to which, it may also be stated in favour of London, that, judging from the total amount of infant mortality of all England and Wales, as set forth in the preceding Table, the number of infants' deaths under one year of age falls short of its proportion to that amount by 3,295. But we can only take this favourable view of London in its complex and not in its dissected state : for if we enter into an examination of its several parts, we find some of these, the abodes of

vice and poverty, in which, compared with their population, the number of infant children who die annually, under three months or under one year, is disproportionately large.

Thus, for example, Shoreditch, which, in 1847, had 296 deaths of males under one year, in 1848 had 345, and in 1849, 357: and the proportion of such deaths to the total deaths of the district have been on an average more than one in four. In Poplar, again, there were 154 male infants' deaths out of 560 total male deaths in 1847, giving pretty nearly a proportion of two children in every seven deaths, of all ages, dying under one year of age; and inasmuch as out of that number of 154, not less than 84 were under three months, the extinction of very young male life in the district, went on at the rate of 56 per cent. compared with that of infants under one year of age.

Let us take Lambeth next, in 1847 and

1848. In that period there was an aggregate of deaths of all ages, 2,076 males ; not fewer than 745 of which were infants under one year of age ; consequently, more than one in three died at that age during those two years in that district. Stepney, within the same period, lost 2,623 males of all ages, of which 607 were infants under one year of age, that is one in four ; and so on through the several districts of Bethnal Green, Whitechapel, and Rotherhithe. I need hardly state that the female side of the problem is not more encouraging.

On the other hand, let us look at one of the districts at the west end of the town, St. George's, Hanover Square, for instance, in 1847 and 1848. Here we find an amount of deaths at all ages, males and females, 3,075 ; and that of infants under one year of age, 490. It follows that the mortality of the latter was to the former as one to $6\frac{1}{8}$;

just half the mortality of infant life in Lambeth. Does not this call for inquiry? Can such a preposterous difference between one district and another, in the same city, be simply ascribed to differences of position, water, aspect, drainage, and the *res angusta domi* of the less fortunate inhabitants? Is there nothing else?

The reader, however, may seek out for himself any further information on the subject in the metropolis, and any of the three other great sections of England to which I have alluded,—as I put him in possession of the several particulars relating to this grave question, in reference to these localities, in Tables drawn up for the purpose—confining myself, however, to the years 1847 and 1848, in order to avoid any interference which the deaths by cholera might exercise in our calculations, if we admitted into them the returns for the year 1849.

TABLE IX.

Tables of the mortality of Infants, Males and Females, under three months, from three to six, and from six to twelve months, during the years 1847 and 1848, for the Metropolis and following three divisions of England.

1, OR LONDON DIVISION.												
Years.	Under three months.		Three months.		Six months.		Totals.		Total deaths at all ages.
	M.	F.	M.	F.	M.	F.	M.	F.	M. and F.
1847	2,754	2,231	1,261	1,004	2,229	1,865	6,244	5,100	59,131
1848	2,801	2,240	1,288	1,062	2,146	1,763	6,235	5,065	57,771

6, WEST MIDLAND DIVISION.												
Years.	Under three months.		Three months.		Six months.		Totals.		Total deaths at all ages.
	M.	F.	M.	F.	M.	F.	M.	F.	M. and F.
1847	3,314	2,473	1,201	930	1,842	1,536	6,357	4,939	50,865
1848	3,280	2,452	1,233	938	1,713	1,431	6,226	4,821	48,946

8, NORTH-WESTERN DIVISION.												
Years.	Under three months.		Three months.		Six months.		Totals.		Total deaths at all ages.
	M.	F.	M.	F.	M.	F.	M.	F.	M. and F.
1847	4,401	3,334	1,721	1,437	3,233	2,835	9,355	7,606	75,540
1848	4,090	3,196	1,650	1,207	2,552	2,174	8,292	6,577	62,759

9, OR YORK DIVISION.												
Years.	Under three months.		Three months.		Six months.		Totals.		Total deaths at all ages.
	M.	F.	M.	F.	M.	F.	M.	F.	M. and F.
1847	3,093	2,336	923	759	1,542	1,315	5,558	4,410	42,860
1848	3,219	2,430	880	665	1,400	1,115	5,449	4,210	39,706

A singular, and I believe an unprecedented phenomenon occurs in reference to the general mortality at all ages, and from all causes, which I have inscribed opposite each of the four preceding divisions, in order that a comparison may be made with the contemporaneous mortality of infant life in the same localities. On contrasting the year 1848 with the preceding year, in each of the four selected cases, it will be seen that the general mortality, instead of increasing in the proportion of the increased population, actually diminished, being less than the mortality of 1847 by 1,360 in the case of the metropolis, by 1,919 in the case of the sixth division, by 3,154 in the case of the ninth, or York, division, and by no less than 12,781 (!) in the case of the eighth or North-Western division. Nor is this diminution less striking in the general aggregate of deaths at all ages for England and Wales in 1848, when compared with the aggregate mortality of the year preceding. For, in

1847, that mortality was 419,666, whereas, in 1848, it was only 398,531. Difference, 21,135—a number of beings spared, to make up for the victims that were to fall under the infliction of cholera in the succeeding year.

It is not possible to discourse on so grievous a subject as the extinction of infant life, without referring to what has been taking place in one of those monstrous congregations of spinning and weaving mills, yclept manufacturing towns, with which Lancashire is studded, and where, for a period of seven or eight months, a dogged though peaceable revolt of labour against capital has been carried on. I allude, of course, to Preston. Its strike and its lock-out, which began in the autumn of 1853, and ended only a short time since, need not excite surprise, when it is considered that the town continues much in the same unenviable condition in which I found it in 1841, when I paid to it a professional

visit, the result of which I gave to the public in one of my former works, entitled the "Spas of England," under the head of Preston.*

During the more recent unfortunate period, evidence in elucidation of the general proposition of the early extinction of life was exhibited by the classes of people I refer to, of such a degree, that even the most indifferent looker-on, or staunchest optimist, must be startled by it.

The returns recently obtained at Somerset House from that borough, show such an increased mortality among children under five years, under one year of age, and under one month, as to demonstrate one of two things, or both; either that the self-pauperising effect of the workmen's strike, by starving the mother, deprived the infants of their natural sustenance, and so caused the destruction of a vast number of such children; or

* Vol. i. page 344, 5.

that the state of wretchedness of both parents, reduced, by the suspension of work, to live with a whole family on the small pittance of four or five shillings a week, silenced the better feelings of humanity within their bosoms, and made them callous or indifferent to *any* fatal occurrence that might befal their youngest offspring.

"A long continued cessation of work at Preston," observes an able weekly journal of the time, "is telling severely on the operatives. Years will not efface the traces of the disasters of this period;" and yet the writer, when speaking of these disasters, had not in view those special ones, which it is my own more immediate object to point out. And, in another part, the same writer relates, that "The operatives were in a lamentable condition from want. For a long time they had but two meals a day, *lying late in bed*, in order to dispense with breakfast; and rather than give up the 10 per cent. in dispute,

they will lie a-bed till four o'clock in the afternoon, and exist on but one meal daily."*

Imagine, in the midst of these miseries, wives lying-in, bringing forth in miserable rooms already occupied by a large family, fresh mouths calling for part of the sustenance of the mother, of her life blood in fact, with which she was so ill-provided for want of food! Is it a marvel then that we should read of babes dying by hundreds?

Nor is there any evidence or the trace of it (in the returns of the registrars received at the Registrar-General's Office), that mere disease had been the cause of the vast and rapid extinction of infant life. In a very large number of instances, the entry in the great ledgers runs thus, "disease unknown," "no medical attendant;" and generally, the only attendant or witness in all the other cases, was either the father or the mother, and no one else. A great many such cases are not

* "Spectator," January 1854.

even "certified," that is to say, the father or mother reported to the district or borough registrar, or the undertaker, that "the child was dead," and the child was buried. "Convulsions" or "debility," are the only two terms employed to designate a disease as the cause of death, whenever a cause has been assigned, which is not often the case, and then the cause is generally assigned without any medical certificate; but simply on the statement of one of the parents!

That the latter were of the number of the misguided victims of those ill-designing ring-leaders, to whose instigation the recent strike at Preston is due, may be inferred from their callings or occupations, as set down in the registries. Those callings I have been at pains to select, and here report as forming the complement of that statistical information which I am enabled to lay before my readers, and without which, the philanthropist would in vain attempt to form a correct notion of,

or represent in its proper aspect, all the disastrous results of the Preston strike.

Arranged according to the frequency with which cases of deaths under one month, or under one year of age occurred, in reference to each particular class of operatives, their order stood thus :—weavers, woolcombers, loomers, frame-tenters, packers, flax-dressers, card-guiders, spindle-makers. There have also been frequent deaths of the same kind in families of shoemakers, tailors, and labourers. It is a fact worthy of remark, that in the majority of cases where the parents were *weavers*, or employed in any subordinate operation of the cotton-spinning process, the deaths of the infants have taken place at the very earliest period of life, varying from one day to one, two, or three weeks, and seldom older. The number of these in the short period of time alluded to, amounted to 219. I will now give the facts, as they stand recorded at Somerset House.

There died in the borough of Preston from the 1st of January, 1853, to the 31st of March, 1854, a period of 15 months, 2,785 people of all ages, male and female. Of this number, 1,399 were infants under five years of age, that is, one in every two deaths which took place in Preston, was the death of an infant under five years of age; equal 50 per cent. of the whole mortality!

Lest there should be any hesitation in believing this startling fact, I here insert the result of a special inquiry I made at the Registrar-General's Office within the last four weeks on this very subject, and which I have embodied in the next Table, No. X., for information.*

But this is not all. Feeling anxious to test further the effect which such an anoma-

* As my own inquiry extended only to a period of fifteen months from 1st January, 1853 to 31st of March, 1854, one quarter, the last in 1852, forming part of the first column of the Table, was eliminated from my calculation.

TABLE X.

Return of the number of Deaths at all Ages, and of Deaths under Five Years of Age, in each of the three half-years following, Males and Females, in the borough of Preston.

In the 6 months ending	Mar. 31, 1853.	Sept. 30, 1853.	Mar. 30, 1854.	Totals.
Total deaths .	1,205	1,099	1,038	3,342
Deaths under 5 years .	587	594	497	1,678

lous condition of parental existence as prevailed during six out of the fifteen months, owing to the strike, might have had on their children of a *tenderer* age, I sought to ascertain the number of deaths that had occurred among infants from a day old, and, month by month, up to the completion of the eleventh month of their life.

As the information I required for my purpose is not yet tabulated in the Office, or likely to be soon published, I was permitted to have access to what are called the MS.

sheets appertaining to the borough of Preston; and by patiently picking out and noting the deaths of infants as they occurred, I obtained the following results :—

Of the total number of deaths at all ages, males and females, in the borough of Preston during the fifteen months in question, amounting, as before stated, to 2,785 ; 911 were of infants under one year of age ; 219 of whom had not reached one month. Compared therefore with the general mortality of the borough during the same period, the proportions of infant death stood thus :—

Under 5 years of age,	1 in 2,	or 50 per cent.
„ 1 year of age	1 in 3,	or 33·3 „
„ 1 month	1 in 12·5,	or 10 in 125.

If we now look at the Returns of the General Mortality in all England for a series of years, say from 1839 to 1844,* we notice

* See Eighth and Ninth Annual Report of Registrar-General, p. 214.

that the ordinary proportions of infant deaths to the whole mortality were very different :—

Under 5 years of age	1 in 2·75,	or 36 per cent.
„ 1 year of age	1 in 5,	or 20 „
„ 1 month	1 in 15·5	or 10 in 155.

On comparing the two returns it is seen at once, that in the case of Preston, the extinction of infant life, in the period so often referred to, has proceeded at an increased rate, especially in infants under one year, and under one month; the excess as regards the former age being 13⅓ per cent., and, as regards the latter, 20 per cent.

This large sacrifice of infant life during the strike, and for a few months previously, is rendered still more glaring and suspicious (looking to the particular period), when we contrast it with the ordinary mortality in the very same locality during any other year in which its unfortunate population were not in the same exceptional state. For this purpose we shall again select the year 1847, and

add to it the first quarter in 1848, so as to equalize the period of fifteen months in each case. In this manner the comparison will be perfectly accurate.

From the 1st of January, 1847, to the 31st of March, 1848, the total number of deaths, in the borough of Preston, was 2,050, at all ages,* of which number 503 were under one year of age. The proportion, therefore, was one in four, or 25 per cent., instead of one in three, or 33⅓ per cent., as was the case some months previous, and during the recent exceptional state of the Preston population. In that fatal period for every hundred deaths that took place in that town we reckon thirty-three infants under one year of age.

The following is the rate at which the poor

* Care has been taken in the calculation to correct for difference of population between the district and borough of Preston. (See Annual Report for 1847.)

creatures succumbed at each successive month of their lives, males and females.

Age.	Males.	Females.	Age.	Males.	Females.
Under 1 month	124	95	At 6 months	38	31
At 1 „	40	31	7 „	20	22
2 „	98	34	8 „	28	24
3 „	30	35	9 „	29	28
4 „	31	27	10 „	24	23
5 „	27	24	11 „	20	28
Great total males and females, 911.					

Giving, as before reported, a total of 911 deaths of infants under one year of age, nearly the half of whom perished before they were three months old.

In the Fifth Annual Report there are some very judicious remarks of the Registrar-General respecting certain erroneous deductions often made, when deaths under five years of age are compared with the total deaths instead of the births, in the preceding years. I trust the remarks will not be found applicable to the deductions I draw from the comparative statement of the total number of deaths at

all ages, and that of the children under five, or under one year of age, throughout these pages. All I wish to show in my case is, that a certain total number of people of all ages have died in one year in any one locality, and that a certain component portion of that total consisted of infants of the tender ages in question. The larger or the smaller proportion, which that *component portion* bears to the total, being assumed to have been occasioned by some unusual causes requiring consideration.

The subject I have so painfully dwelt upon, connecting itself, as it naturally does, with the unusual occurrence of a state such as I have alluded to in the case of Preston, is calculated to suggest how necessary it was, on the part of our rulers, that they should have looked with corresponding vigilance to the events there transpiring. But the government, on the contrary, throughout the period, appears to have considered the whole affair

as a mere question of labour and profit to be settled between operatives and their employers, likely to subside and settle itself (as indeed it has since done), after some heavy pecuniary losses, and nothing more. It never was dreamt or imagined that a much severer loss—that of human life at its tenderest age—would be incurred (as I have shown on incontrovertible evidence), which ought to have been foreseen and guarded against. Did it never occur to our rulers that there would be another account of these dark transactions to be settled as between them and the Giver of life, for neglecting to watch, with a scrutinizing eye, over the existence of the younger offspring of those whom they governed, while placed in a situation of unparalleled difficulties, certain to lead either to an obvious or to a less natural increase of premature deaths ?

In seeking farther among these sad registers for evidence, either of the early destruc-

tion of life, or of the manner of its occurrence, we come to certain statements of the Registrar-General, which require some preliminary consideration ere we adopt and make use of its numbers.

A new compound term to designate one of the *specified causes* of death in the Annual Reports, was introduced for the first time in 1847, under the denomination of PREMATURE BIRTHS and DEBILITY. By referring to page 273 of the Seventh Annual Report, we learn the meaning of these terms to be as follows: beginning first with "debility," although debility is named secondly in the general Table of causes under No. XIII. of sporadic diseases.

"*a.* DEBILITY (from birth). Low vitality. Has been generally used to designate the unknown cause of death occurring shortly after birth, or perhaps more frequently from premature birth."

"*b.* PREMATURE BIRTH. The mortality of the child (fœtus) in utero, is probably very

great (*Dr. Granville*) ; but as little is known of the diseases of intra-uterine life, '*premature birth*' should be employed (by the registrars) in entering every case of death occurring between the seventh and ninth months of pregnancy. *Premature birth* must be the result of the mother or child's malady or injury, which should be written *under* 'premature birth.'"

For the information of such of my readers as may be unacquainted with the fact, I may observe, that the above are quotations from the general instructions given to the registrars and others, as to the meaning of the names of diseases to be employed in registering the causes of death, and the order in which they should be entered.

Now, as in considering the laws of vitality, there is a great difference between a child not yet come to maturity, and one dying a few hours or days after birth at its full period (*viabilité de l'enfant*), it would seem desirable

that the two terms or causes, with their corresponding number of victims, should be kept distinct, and for the two following reasons, among others. First, because the number of still-born children, which bears a certain proportion to the total number of births, must necessarily be included under the head of "premature births," since they are not recorded separately anywhere in the report,* and cannot possibly fall under the head of "debility." Secondly, because, in the case of "premature births," we have to look for a cause, according to the Registrar-General's

* I cannot suppose that the *still-born* are simply reckoned, without any reference to *premature birth*, under the head of "died under one month;" for how can a child die under one month, which was never born alive?[a]

[a] After this note and the text to which it refers were printed, I learn that the still-born are not accounted or noticed by the registrars. This is a pity; as the total number of births given cannot represent the whole reproductive force of females in England.

instructions, to two distinct parties concerned, the mother and the child, or both together; whereas, in the case of "debility," one party only, viz., the child can supply the cause of its death. It is evidently incongruous to amalgamate two such distinct contingencies.

I think I can prove the inconvenience of this amalgamation by the example of my own present investigation.

In considering the prodigious extinction of human life in its earliest periods, after giving the total number of infants who died under one month, which, as I have just observed in a note, cannot be meant to embrace children still-born, or born before their time and dead shortly after ("premature birth"),—I naturally feel desirous to add the total number of lives lost to the world under the two latter special circumstances. But as neither of them is distinguished from the other in the general table of causes; both being on the contrary mixed up with the deaths from "de-

bility," the information to be obtained under the joined term of *premature births* and *debility* is of no safe avail for my purpose. In using it, I run the chance of swelling the numbers of those born before the full time of pregnancy and dead ("premature births") with the number (perhaps a considerable one) of infants born at their proper time, and dead before the first month from "debility," which had already been included in the total number of deaths under one month.

If, on the other hand, we are to understand that in the last-mentioned category the total number of the "premature births" had been also included, treating, as I am doing of the early destruction of human life after regular birth, I am thereby prevented from giving the real total of that destruction, unless I first deduct the "premature births," which, we have seen, do not tally with my definition of early life destroyed. And yet, should I deduct the whole of such "premature births"

as are set down in the Annual Reports, I fall into the error of substracting also a certain unknown aggregate number of infants born after mature gestation, and dead before the expiration of one month.

Under these statistical difficulties, the tabular information, in farther illustration of the proposition treated of in the present section, which I am about to bring forward of the number of premature births for the years 1847, 1848, and 1849, in all England and the metropolis, separately (contrasting the latter with those that took place in three other large divisions of England during the same period), must be received with all the above salvos and reservations.

The opposite Table teaches us that in all England and Wales, in the space of three years only, 50,000 creatures came into the world, and died as soon as they saw the light, or there about, since they are not reckoned in the Registrar-General's books among

TABLE XI.

ABSTRACT of Deaths, males and females, from "Premature Birth" and "Debility," occurring in all England and Wales; in the Metropolis separately; and in three other Divisions, during the three following Years.

Years.	All England and Wales.			London, or Division 1.			West Midland, or Division 6.			North-Western, or Division 8.			York, or Division 9.		
	M.	F.	Totals.	M.	F.	Totals.	M.	F.	Totals.	M.	F.	Totals.	M.	F.	Totals.
1847	8,823	7,171	15,934	672	585	1,257	1,215	1,002	2,217	1,540	1,190	2,730	948	799	1,747
1848	8,939	7,406	16,345	626	517	1,143	1,187	940	2,127	1,395	1,217	2,612	922	825	1,747
1849	9,694	7,826	17,520	680	569	1,249	1,267	987	2,254	1,656	1,359	3,015	1,024	821	1,845
	27,456	22,403	49,799	1,978	1,671	3,649	3,669	2,929	6,598	4,591	3,766	8,357	2,894	2,445	5,339

the number of those who died under one month, or of those under one year of age. Of this large amount of "premature births," rather say, *very premature deaths*,—London, or the First Division, produced the smallest share; while the North-Western Division (the manufacturing world again) contributed the largest. Although its population is only one-nineteenth more than the population of the Metropolitan Division, the share of "premature births" (deaths) it contributed was one and a quarter time *greater* than that of first division. Again, therefore, I ask,—why should human life in its earliest stages be so largely decimated beyond the ordinary limits and fair average of other parts of the country, in districts where thousands of operatives of the least educated class, males and females, are huddled together for many hours of six days in the week, occupied solely in procuring worldly benefit for their masters for a limited hire, which is too often squan-

dered afterwards, in drinking and dissipation, as a relief to their tedious hours of labour? Does not the question itself embrace the answer likewise?

Is such a condition of perhaps the largest section of the industrial classes of England, full of life, and blood, and passion, when on full work, likely to keep them free from the suggestions of sin or the commission of moral offences, if not worse? What has education, what has religion done for them, that they might be able to know and resist temptation?

"The great mass of the humble classes in England," observes the author of "A Story of the World's Struggles," "are suffered to remain, as far as regards mental acquirements, in a state of nature, giving rise to an amount of wickedness and crime which is daily becoming more formidable and more awful." He might, with equal justice, have added that they are left in a state of soul-

darkness that renders their condition tenfold more pitiable and dangerous; for where the soul is shut out from the contemplation of heavenly subjects, owing to the want of knowledge of God, and His laws in this world and the next, the thing which is called *conscience* exists not; and the absence of that inward monitor, judge, and punisher, leaves to the individual being, so bereft, the fear of the human laws only, to restrain him from the commission of crimes. How feeble that barrier is, all know too well, who peruse the daily records of vice and crime exhibited in our courts of justice and police; and who will have read also the official and undeniable testimonies contained in these pages of the apparent careless, say reckless, manner in which infant life appears to be treated among certain of the lower classes of our population.

Another contemporary writer, in allusion to these facts, remarks that "unquestionably there are crimes which are peculiarly rife

among the lower classes . . . There appears to be growing up in England a large and increasing insensibility to the sight of suffering . . . The natural instinctive horror of blood, the reverential sense of the sacredness of human life, seems to becoming extinct among the humbler classes."*

It is refreshing to those whose researches have plunged them in the midst of scenes where such features of class-character, in its brute state, are displayed in this country, to find, here and there, among its gigantic Manufacturing Establishments, thanks to the efforts of their owners, most honourable and heart-cheering exceptions, brought about by creating precisely an opposite condition of character in their dependents, through religious and worldly education, administered judiciously and in suitable degrees, and no more, and with the additional help of almost paternal kindness and consideration for their welfare.

* "Morning Chronicle," leading article, May 24, 1854.

I am acquainted with more than one such exception ; and it were well if the proprieties of society permitted the divulgation of names and special instances, not many miles from Manchester, from Ashton, from Leeds, from Wakefield, and some other places. They would serve as examples to others to do the like ; proving to them, at the same time, that in such manner and no other, can the brutalizing effect of vice, and the pauperising result of " strikes," be prevented, or swept clear of the land ; as the individuals to whose exertions I refer, have driven them from their own premises and neighbourhood.

It would be an insult to my readers were I to imagine that this long moral digression, introduced in this place, required an apology for its appearance. I feel it impossible to disconnect the consideration of premature death, which is the main subject of my volume, from the reflections which suggest themselves, at the same time, with reference

to the early extinction of life in England. Nor can I dwell upon the latter, or bring forward the result of deep and extended inquiries concerning it, without touching, as I have ventured to do, however feebly, on the moral part of so important a question,—a question which the sooner the public authorities take up and make their study, the better for the happiness and tranquillity of these realms.

From early days, while practising as the obstetrical medical officer to three public charities, I became initiated into the habits and feelings of the humbler classes of this metropolis, and was taught to estimate their worth. Wherever the father was found to possess some glimmering of literary education, and the mother frequented a place of worship from attachment, neatness in the household and among the children, a regular supply of whatever tends to minister to the wants of life, an even, mild, and respectful behaviour to their superiors, and the reputation in the

the neighbourhood of being "good people," stamped the character of such a fire-side, however humble, however limited the means it possessed for daily support. Their younger offspring was free from formidable disease, and death rarely visited its early cradle ; for the mother was able to supply its wants, she cherished its existence, flew for succour to the nearest medical charity to save it when threatened, and, with her husband, looked upon it as one destined to be to them a blessing.

Not so within some garrets, back-attics, or under-ground floors, where the pains and difficulties of travail had summoned me professionally to a charity patient, who, lying on a single thin mattress laid on the bare floor, scarcely covered by a soiled blanket or some tattered garment, was awaiting, in excruciating agonies, the relief which nature denied and art alone could procure. Here everything denoted intense, unmitigated wretchedness,

the effect not of want of employment on the part of the husband, but of never-ceasing dissipation during the hours of rest from labour, especially on the sabbath-day, which had bared the dwelling of all its comforts, one by one, to supply intoxicating liquors to himself, and not unfrequently to his partner and to his children—the whole group presenting the spectacle of a perfect *abrutissement*, such as a traveller could expect to find only among the wilds of back Caffraria, or in the settlements of the Otchewo Indians!

Nor is this an exaggerated or a solitary picture. The like scenes I have repeatedly witnessed; and although for many years past my functions to such charities have ceased, I hear enough from those of my younger brethren who follow in the same track, that no great change—indeed, no change at all—has been taking place in subsequent years for the better. Neither will such a change for the better take place, until the curse of inebriety,

parent of all vices, shall have been driven from the land. I call upon those who may be sceptical on the subject to open a volume, entitled, "History and Progress of the Temperance Reformation," just published by James Silk Buckingham, and peruse the facts as well as the arguments, in reference to intoxication, which the author therein adduces, to show where the evil lies, as well as where the remedy against it is to be found. Quotations, also, in support of those arguments, will be read in that volume, from a recent report of "The British and Foreign Temperance Society," which assert that "more than one-half of the madness in this country appears to be occasioned by drinking;" that "no less than 29,886 persons were taken into custody by the police in one year for drunkenness alone;" and that "four-fifths of all the crimes in England have been estimated to be committed under the excitement of liquor;" among which I unhesitatingly include *infanticide*.

Unfortunately the classes of people to which special reference has been made in the preceding remarks, might retort that many of their better educated fellow-beings appear not a whit more careful of the moral precepts respecting infant life. They might bring forward frequent examples of educated dissipation tampering, with as much disregard of every moral precept, with the fruit of their illicit pleasures, which the public journals and police courts bring to notice. They could single out those establishments for the systematic destruction of immature life, under the garb of "premature confinement," which have been so fully divulged at the Lambeth Police Court, in March of last year, and in which married as well as unmarried ladies are helped by either a *soi-disant* or by an unworthy *real* surgeon, in preparing themselves for "a premature labour" under the care of a midwife not in the secret. Lastly, they might remark, as an extraordinary coinci-

dence, that such *premature* labours never happened to terminate successfully for the child, whatever may be the fate of the mother. All such and other similiar facts might certainly be retorted upon the better by the less favoured classes of people; and it is painful to be obliged to admit that, in such instances, there is no denying the truth of the allegations.*

But what does such a retaliation as this go to prove, except that a more strict and more vigilant, as well as effectual, guard against the perpetrators of such iniquities, whether in high or low life, ought to be instistituted by the Legislature? It is to that great consummation, therefore, that all my remarks and arguments point; it is to show its absolute necessity that voluminous proofs of its importance have been collected in the present Section.

* How comes it, that after the magistrate's declaration, that the case demanded and should have farther investigation, no other notice appeared of that iniquitous transaction?

V.

FREQUENCY OF SUDDEN DEATH.

FACTS.

THE appalling declaration of the coroner—that recorder of premature deaths—with which these pages were introduced, would suffice of itself to arrest attention. So fleeting, however, are the impressions produced by mere general assertions, that few, if any, of those who happen to read, dwell on them with that seriousness and gravity, which a question so immediately connected with our individual existence, would seem to command.

FACTS alone possess the magic power of effecting more vivid and lasting impressions ;

and in no considerations, partaking alike of a physical, moral, and religious character, is this assertion truer than in that one which engages our present attention, involving, as it does, our best and dearest interests.

The minister of the word of God may, from his pulpit, descant with all the eloquence of an inspired preacher of the Gospel to a devout congregation, on the uncertainty and the short span of human life—he may endeavour to impress on them how life is but vanity and an empty name, by allusions to an instantaneous death ;—but what could his pious efforts produce, compared with the impression which the discovery of one of the worshippers in the congregation having dropt from his seat and suddenly expired, would leave on the mind of all those who had on that day joined with him in solemn prayer to the Creator ? That one fact could never be obliterated from the memory of those who had been witnesses of it, but whose recollec-

tion, nevertheless, of the preached truths alone, would have remained but faintly behind. Such awful visitations in church have occurred, and in not a few instances, in the person of the minister himself, who thus became a dying example of his impressive doctrine.

This course then of appealing to facts, is the one I intend to pursue in the present Section of this volume, and for that purpose I need not carry my readers farther back than to the obituary of the last four or five years. Even so short a period will furnish us with too many examples of living beings, known to us by name, by sight, or by reputation, the friendship of some of whom we may have enjoyed, while to others we were probably united by ties of blood, and who, in the midst of apparent health, vigorous, and with their every faculty about them (which they were perhaps in the act of exercising, with the prospect of many future years of

enjoyment), ceased on the moment to exist, as if struck by lightning! And such are the facts, the increasing frequency of which I propose to demonstrate, by references to the ordinary chronicles of the days, as I have done with the statistics I have produced.

Looking only to the most conspicuous examples among the cases of sudden death which have come to my knowledge in the brief space of little more than the five years before mentioned, from the middle of 1849, I find nearly one hundred of them recorded in the public journals, as having occurred among people of consequence. There are periods, indeed, in which those awful visitations seem to occur, as it were, in quick succession. Then comes a brief lull, to be followed by another equally rapid procession of fatal cases.

It is painful to have to usher-in our necrological list with the name of one whose private friendship we had the good fortune to

enjoy. To look at his stout frame, or to follow him through the endless labours he had carved out for himself, one would have anticipated a long career to Horace Twiss. But Horace Twiss, while sitting in a board-room of one of the companies of which he was a director, and in the act of addressing the members, ceased to live, early in May, 1849.

A few months before this, a similarly awful occurrence had been witnessed at the Oriental Club, in the person of Mr. Traill, an Indian gentleman, who had for some time been undergoing the hydropathic treatment at an institution in the Regent's Park. Sir Nicholas Fitz-Simmon, Inspector-General of Prisons in Ireland, was meeting the same fate on the 31st of July, at the early age of forty-two years.

From Florence and from Paris, not long after, tidings reached this country of the equally sudden disappearance from among the living, of two fair countrywomen, who,

each in her exalted circle, had been the centre of conviviality and wit. Harriett Lady Pellew expires in her carriage on the drive at the *Cascine;* whilst the popular Countess of Blessington, returning home from dining at the Duchess de Grammont's, is seized with apoplexy, and dies the following morning, the 4th of June.

That same month saw an exemplary minister of the Gospel, the Rev. Philip Thistlethwaite Strong, die "very suddenly" at his rectory in Colchester; and Maria, widow of the late Lieutenant-General Cope, expire, as "suddenly," at Weymouth; while John Philpot, late M.P. for Gloucester, is next announced as having "died in an omnibus in the Regent Circus."

In the succeeding months we have the announcement that the Dowager Countess Morton "was found dead in bed;" that the Rev. Luke Yarker, vicar of Chillingham, while crossing a street at Spittal, whither he had

repaired for the benefit of his health, had dropped down, and died in ten minutes ; and that Mr. Gordon, M.P., had expired with equal suddenness.

The 8th of September, 1849, was marked by the not less sudden departure of the patriotic and consistent Stanley, Bishop of Norwich ; and in the same and succeeding months there followed, in rapid succession, the sudden deaths of John Law, Esq., late of Madras, in South Street ; of John Whippy, of Hillingden Lodge, and of Ann Charlotte, widow of Ralph Watson, of Somerset House ; of William Frederick Coward, well known in Clapham ; of William Goff, of Newtown Park, and of John Earwaker, of Westmear, Hampshire. And, lastly, we find that Mr. Furquard, one of the official assignees, having left his residence at Norwood in his usual state of health, on alighting from an omnibus at eleven o'clock, feeling himself unwell, went into a chemist's shop in King William Street,

where, while they were preparing a draught for him, he fell off the chair and expired in a few minutes!

In that same year death had marked as his own three important foreign personages in no less sudden a manner; Boutourlin, author of "La Campagne des Russes en France," cousin of General Nicholaï Boutourlin, at whose country house at Troskoï, near Moscow, I had met and enjoyed his highly intellectual society in July, 1849, only a few weeks before the fatal event, died in a few hours. The lady of the well-known diplomatist, Nesselrode, I saw depart from St. Petersburg, in June, 1849, overflowing with health. She was, in the following August, at Gastein, using those strong baths which some one had imprudently recommended to her. The countess was certainly not a fit subject for such a remedy. She died there instantaneously.

The third case to which I shall refer, is one in which I am somewhat medically concerned,

and to the particulars of which, therefore, I shall again allude when we come to treat of the causes of sudden death and the means of preventing it in another volume. At present the fact alone is important. The Grand Duke Michael, only surviving brother of the Emperor Nicholas, a prince of gigantic frame, like his imperial relative, starts at the head of a superb train of artillery for the frontier of Hungary, full of life, in July, 1849—reaches Warsaw, and while in the act of reviewing his troops, is seen to fall from his horse, is caught and carried to his quarters, where not many hours after he expires, on the 9th of September.

I have alluded to the occasional sudden cessation of life in the person of a minister while preaching to his congregation. The year 1850 ushers in the not less awful fact (in the person of the Rev. Mr. Francis, of Cockerhill Chapel) of a minister in the Archdeacon's Court, of Ashton-under-Lyne, nominating his

churchwarden, and, after uttering the last syllable, sinking on the floor and expiring.

The death of the lady of an eminent author and representative of a Northern Court in England, in an equally sudden manner; and that of a young banker at Brighton, J. H. Borrer, came in quick succession. Nor did the month close without adding another remarkable sudden death to the list, in the person of a most liberal and patriotic citizen, Sir Felix Booth, Bart., whose munificent gift in furtherance of one of the arctic expeditions, secured him an imperishable memento on the utmost northern confines of America.

Of Mr. Boothby, of Twyford Abbey, near Ealing, a director of the North-Western Railway, on which line, many a time and oft, we had met in jollity, the demise was not less awfully sudden. He expired in the last week in October, 1850, in the act of getting out of bed!

Then came tidings from Rome, that Richard Wyatt, who had just reached his fifty-seventh year of age, and the summit of his artistic fame, was no more. He had just given the last touches, with his graceful chisel, to the finished statue of Flora, on which he had been for some time engaged, full of health, and in the plenitude of his elastic mind, when an apoplectic seizure carried him off on the 27th May, 1851. The same foreign courier informed his friends in England, that on the 7th of June, at Fontainbleau, while on his way to Italy, Reynolds, the author of "*Miserrimus*," had died suddenly.

Next, the examples of this form of death, in 1851, follow in quick order. Mr. George Drummond, the banker, expires suddenly, at the age of forty-eight, in Wilton Crescent. Lady Shaw Stewart, in Belgrave Square; John Bell, M.P. for Thirsk, at Thirsk; Dr. Anderson, medical attendant of the Lieut.-General Sir Charles Napier, on his way home

from India—all disappear from this world without a warning!

"I must rise instantly, or I shall be suffocated," uttered the amiable and youngest sister of a noble earl, and the cherished wife of a wealthy banker, well known for his benevolence and the pious use he makes of his fortune. Her ladyship had but just laid herself down to rest, on the 8th of July in this year (1851), at Trent Park. She rose quickly, rushed to the window, which she threw open, to inhale fresh air. It was the last breath she took in, for she fell a corpse!

Two only, of the many examples that occurred in this same year, among foreign notables, I shall quote as illustrative facts; relating, as they do, to two remarkable persons. Audin, a great literary character, born in 1793, died at fifty-eight years of age, in his carriage, while travelling from Marseilles to Avignon. He was the author of several historical works of merit, relative to Luther,

Calvin, and Henry VIII., and a publisher by profession. Herr Carl Sander, one of the most celebrated surgeons of Germany, expired suddenly, while seated at his desk in the act of writing a treatise on anatomy.

But we are entering upon a much more disastrous year, with the accession of 1852. Among the many noted persons for high station, sounding names, sterling reputation, or other striking characteristics, in whom a sudden seizure was followed by speedy death in this year, we shall find the Great Captain of the age. From that very circumstance the year 1852 will be for ever after as memorable as the year 1769, in which the hero who was to share with Napoleon the Great the glory of their generation and the admiration of posterity, first saw the light, as had done the mighty opponent himself whom he was destined to overthrow.

I look at my collected notes of this year, and disregarding the minor or less striking

cases, I find the New Year's-day darkened by the sudden death of Sir Charles Wager Watson, of Westwratting Park. On that morning this gentleman, in his usual health and spirits, mounted to meet the Suffolk fox-hounds. At two o'clock he was riding at a brisk rate by the side of a friend, when suddenly he seemed to reel on his horse, and fell off. On coming to his assistance he was found dead. It was proved that he had been seized with a fit.

Baron Kemeny, the representative of Kossuth in London, was listening, on the 5th of January, to a letter which the Secretary of the Hungarian Committee was reading to him at his residence, in Foley Place, when he suddenly fell, and expired. Luigi Donati, professor of languages, while in the act of giving a lesson at the Clergy Orphan School, St. John's Wood, had his life cut short in a manner not less sudden.

Few there are who do not remember the

frequent visits to her cherished sister, the late Queen of these realms, of Ida, Duchess of Sax-Weimar. Her Serene Highness, having scarcely attained the fifty-eighth year of her age, died at Weimar "very suddenly," on the 3rd of April. But the suddenness and the importance of her death were destined to occupy public attention for a brief space of time only, inasmuch as, within three days of that period, an equally instantaneous cessation of life, but one pregnant with much more serious consequences, took place at Vienna.

Surrounded by all the cabinet ministers of Austria, of whom he was president, Field-Marshal Prince Schwartzenberg, on the 5th of April, held a cabinet council, during which he suddenly, at about four o'clock, P.M., appeared to gasp for breath, and withdrew before the business in hand was concluded. He had a very short interview, directly after, with the Earl of Westmoreland, and before five o'clock he retired to his room to dress

for dinner. On entering his private apartments the Prince complained to his attendant that he felt very ill, notwithstanding which he proceeded to wash himself. The attendant left the apartment while the Prince was wiping his face, and had but just closed the door, when, hearing something fall heavily, he turned back and found his master lying senseless on the floor. The Prince never recovered his senses, and breathed his last at a little before six o'clock, that is to say, one hour after the first seizure.

In the protracted discussion on the supply of water to the metropolis, and the best mode of drainage for this unmanageable Babylon—a question which has hitherto baffled all who have been engaged in it, and seems to appal Secretaries of State as well as Sanitary Commissioners—the public heard much of an eminent engineer, Mr. Frank Forster, the *protegé* and associate of Robert Stephenson. Since his connexion with the

Metropolitan Commissioners of Sewers, his health had been much impaired by the harassing fatigue and anxieties of official duties, not in the least lightened by much cordiality on the part of his colleagues. "He was in the act of writing a letter on the 13th of April, when he was struck with apoplexy, and almost immediately expired."

On the 25th of May, died, equally sudden, the Hon. Chetwynd Talbot, Recorder of Windsor, and not less instantaneously, Lord Abercromby, in Scotland, in the following month; an event succeeded, on the 10th of August, by the death, as sudden, of General Sir Thomas Dowman, Commandant of the Royal Artillery, at Woolwich.

The vagaries and mischievous doctrines of her son (whose name when the Italians shall have won for themselves an honourable position among the constitutional royalties of Europe, will hold up, as a warning against the delusions of socialistic republicans) have

given to the mother of Mazzini an importance which the obscurity of her descent would have denied to her. This lady, of whom report spoke favourably, died suddenly on the 9th of the same month, in Venice.

Next on the funeral list appears the name of one, who, from a scenic draftsman and an indifferent Protestant, became the leader of a sect of Gothic masons, and a convert to Romanism. To his efforts, it is said, England owes the fifty Romish temples which we have seen rising around us, as if by magic, in the last twenty years. While throughout England, and within a few miles only of the metropolis, district churches for the true worship and the religious comfort of thousands of benighted people, are lingering on, in their tardy construction, through periods of five, six, or seven years, nay, many more years, as yet incompleted,—for lack of that zeal, just patronage, and aid, which the more earnest and eager followers of the Pope have

poured into the lap of the morbid constructor of St. George's Cathedral! Augustus Northen Welby Pugin, scarcely of mature age, died suddenly on the 14th of September, 1852, at Ramsgate.

The account of his sudden attack and death, which appeared generally and pretty uniformly in all the most respectable public prints of the time, leaves no doubt on the public mind, or that of any medical man, that the Duke of Wellington succumbed to an apoplectic fit. That conclusion has been disputed; but as the point can only be determined from the symptoms described by the medical and other near attendants, no other opinion can be formed, than that in the case of the great Commander,—from the very first seizure when he ordered distinctly the apothecary to be fetched *immediately*, down to the last moment of his existence, paralysis of the brain had been complete, for no other comprehensible word could he utter after that

direction. Pressure by congestion or effusion was at work ; and in that awful state was the illustrious patient watched, by relatives and medical men, through the brief space of six or seven hours which the dreadful blow had occupied in destroying life, on the 14th of September. His Grace had retired to rest on the previous night apparently quite well.

Less important, yet, as connected with the remembrance of the first Napoleon, suggestive of the quenching of another meteoric genius, was the death of Dr. Stokoe, which happened in a public refreshment-room in York, on the 13th of September, 1852, as he was preparing to continue his journey to London from the north. He had just been to visit the grave of his daughter Jane, interred in the York Cemetery five years before, when the deadly blow at once felled him to the ground. He had served as surgeon in the British Fleet at the battle of Trafalgar, and was appointed medical attendant to

Bonaparte, during the last years of his exile.

Dr. Stokoe, I believe, was the last surviving actor in that great politico-tragical drama, which for a period of six years was enacted on the rock of St. Helena. All, all that took a part in that disgraceful performance, including its unenviable manager, have since quitted this worldly stage, unknown and uncared for; whilst the ashes of the imperial victim lie entombed under the panoplied dome of a temple which proclaims his glorious achievements! Dr. Stokoe often spoke to me, with feelings of honest indignation at what he had been doomed to witness, of the miserable and petty vexations heaped on the fallen hero. Often have I heard him in this town descant, in the presence of the ex-king Joseph, Napoleon's eldest brother, on the many excellent private qualities exhibited by the Emperor in his daily intercourse with those around him. Stokoe was not "*un homme de plume*,"

unfortunately ; his recollections however were vivid, and his veracity undoubted.

But death is hurrying on and refuses to linger behind. Suddenly it cuts off the existence of a young lady, barely sixteen years of age, on the 26th of the same fatal month. Miss Selina Ann Turner was visiting, with some friends, the Surrey Zoological Gardens, and making remarks on some of the animals, when she fell down and died. At Cambridge the Master of Jesus College, Dr. French, is suddenly seized with paralysis, after transacting business and being previously in the enjoyment of his usual good health, and dies forty-eight hours after.

Only a few days subsequently, in London, the son-in-law of one of the most eloquent advocates of the day suddenly ceased to live, at his father-in-law's, on the 29th of November ; and the first week in December proved equally, and as instantaneously, fatal to Jane Sanders, of Stoke Ferry, Norfolk, aged forty-

six ; to Richard Peacock, of Dalston ; to the Hon. Mrs. Peregrine Cust, at Brighton ; and to Edward Lovegrove, a respected young member of the Stock Exchange.

Captain Finlaison, of the R. N., who had held a command at the Ascension Islands, rose quite well, at his lodgings near town, on the 17th of December, 1852, and had his breakfast without complaining of any ailment. An hour after he expressed a wish to his landlady to see the apothecary, who arrived presently. The Captain said to him, "Before you think of my case sit down and write to my son in town, to come down to me immediately." "Why so ?" observed the man of physic, "there is nothing much the matter with you ;" yet he wrote the note. He next inquired into the state of the Captain's health, leaving him with the promise of sending him some medicine. The son, on receipt of the note, hastened down, and arrived eight minutes after his father had expired.

A scene even more awful was, about the same time, taking place at the "George and Blue Boar," in Holborn, where Mr. William Morris, while in the act of patting a horse in the yard, suddenly dropped down in a state of unconsciousness. Being immediately picked up and conveyed to King's College Hospital, the resident physician ascertained that life was extinct.

The name of Gioberti will be for ever revered by those sons of Italy whose aspirations are for the spontaneous emancipation of the whole of their fatherland, just as that portion was spontaneously made free (under the inspiration of that gifted and patriotic minister) by Charles Albert of Savoy, its chivalrous but ill-supported sovereign. Gioberti was not a practical statesman,—still less so for times of national struggles against external foes and internal treacherous friends. But he prepared the way for another statesman more equal to the task, who was to

succeed him, and who, by his judgment, disinterested patriotism, great tact, and conciliatory eloquence in the senate, has secured for himself, in the history of his beloved country, a twin page, on which the name of Azeglio will shine by the side of that of Gioberti. This excellent man died suddenly in Paris, in the night of the 25th to the 26th of October, in the year we are recording. He was born in Turin, in 1801.

Gioberti was incessantly at work: read generally twelve hours a day, and had taught himself German, English, mathematics, and the natural sciences. His nervous system had been greatly shaken by the political events in the midst of which he had not long before been plunged, and by all the immense head-labour he had undergone. He was frequently attacked with illness, during which (observes his biographer), "Il tombait facilement en délire." The fact is, he was subject to attacks in the head, for it is mentioned that he could

not bear the weight of his hat on the head. He lived in a constant state of apprehension that he would die suddenly.

We thus close the eventful and sorrowing year of 1852. The succeeding one has been but little less prolific in striking examples of the same awful description; and it is with the record of the death of an eminent physician, on the 20th of January, that the black catalogue begins. Dr. Pereira, a popular lecturer and writer on Materia Medica, had just recovered from the effects of an accident. One evening, after playing a game at dominoes with his daughter as usual, in his cheerful manner, he retired to rest, but awoke not long after, feeling unwell. Some one was summoned to his bedside, when, upon turning himself on his right side, he exclaimed, placing his hand at the same time on his heart, "I have broken a blood-vessel here!" and expired.

Four days after, news reached town that

the Rev. Edward John Chaplin, Fellow of Magdalen College, Oxford, had been found dead in his bed by his servant; and the same learned city furnished, at about the same epoch, another example of instantaneous death in the person of a young gentleman, the son of Captain Impey. Whilst at Waltham Cross, Louisa Collier, the relict of a remarkable man, died "very suddenly" on the same day, the 11th of January.

Not many days from that time the obituary announced the sudden demise of the Earl of Tyrconnell, at Kiplin Park, Yorkshire: and, from abroad, the similarly "instantaneous deaths" of the Grand Duke of Oldenburg, in Berlin, and of Lieutenant-General Martin, in Italy, were reported.

But in the necrological list from abroad, the announcement which about that time most arrested public attention was that relating to Marshal Haynau. On the night of the 12th of March he had supped with the

prime minister, Buol, preparatory to his proceeding to Italy, to succeed the veteran Radetsky; and he had recently returned home and retired to rest, when, just after midnight, he summoned his servant, desiring him to bring a glass of water. When the servant returned his master was gasping for breath, and soon after ceased to be. At the bare mention of this soldier's name the very hair stands erect from indignation at the memory of his countless atrocities. But he is now beyond human retribution, and we are to hope that his soul, ere it quitted its mortal dwelling, had made its peace with the eternal Judge before whom he had been so suddenly summoned!

On the same night an English gallant soldier, Lieutenant-General Sir Edward Kerrison, was found dead in bed.

Not many days after, death was striking a distinguished victim in the streets of Copenhagen. Vice-Admiral Zarthmann was re-

turning one evening early in April from a visit to a friend on foot, in company with the colonel of the Guards, and was quietly discoursing with him on the debates in the Diet, when, being seized suddenly with vertigo, he exclaimed, "Support me, I am very giddy!" and leaned on his friend. With these words he sank to the ground. He was immediately transferred to the nearest house. Medical aid was procured, but the Admiral expired in an hour.

There is something very melancholy in the simple statement of the following case, furnished me by a competent authority. Mr. Nicholson, the architect of Woodhall Spa, near Lincoln, attends one day, about the middle of April, with the trustees to look over the works. He agrees to meet, on the following day, a builder, to arrange plans for important future operations; returns to his hotel at Boston by railway, and while meditating on the best mode of carrying out the intended works, drops down dead!

The month of April, however, was to be signalised by a more important example of sudden death in that of the Rev. George Butler, Dean of Peterborough, and for a quarter of a century the highly-respected Head-Master of Harrow School, where his name is justly revered. Dr. Butler was seated at table on the 30th of April with his family, when all at once he became insensible, and, after ten minutes, passed away almost without a struggle.

Mr. T. Day, Senior Taxing-Master to the Court of Exchequer, had, only five days before the last-mentioned date, quitted this world in a manner no less sudden. He had discharged the duties of his office on that day, and had walked into the city, when, upon reaching the Mansion House, he was seized with a fit and expired.

The lady of the Brazilian Minister, in London, is brought to bed of a dead child on Saturday evening, the 11th of June. One

minute after she herself expires. Nor was the death of the lady of a well known surgeon in May Fair, in the same week, less instantaneous. She had proceeded to her own room to dress; her maid, who had followed her up stairs, heard something fall as she approached the apartment. On opening the door she beheld her mistress prostrate, and dead on the floor!

How awful and heart-rending is the following true tale:—The Rev. Mr. Collingwood, aged thirty-six years, an occasional preacher at Marylebone Church, delivered a sermon on Sunday, the 5th of June, and on the succeeding Sunday one of his fellow-curates preached Mr. Collingwood's funeral sermon—drawing tears from the whole congregation, as, indeed, they flowed freely from his own eyes. In the course of the week Mr. Collingwood had suddenly sickened and died, leaving a young widow and three children wholly destitute!

Mors æquo pulsat pede. How true! From the humble lodging of a poor curate, it visits next the more sumptuous dwelling of the Danish Minister, and, simultaneously almost, the not less comfortable apartments of a Member of Parliament. M. De Bille had attended the Queen's drawing-room on Thursday, the 18th of June, and was out as usual on the Friday at two o'clock. On Saturday morning he expired! It is not a little remarkable that his predecessor at our Court, Count Reventlow, died in a similar manner, two years before, while on a tour through Scotland.

The eldest son of the late "Liberator" of Ireland, Mr. Maurice O'Connell, had, one Thursday evening, appeared in his usual health in the House of Commons; on the Friday at midnight he breathed his last, in Half-Moon Street, Piccadilly.

We are still in June, and we are hurried through the sad list of friends and acquaint-

ances departing prematurely from amongst us. Thomas Johnson, of Lincoln's Inn Fields, one of the sons of our late esteemed colleague, Dr. James Johnson, died suddenly on the 3rd of June. Captain Graves drops down dead while on parade at York; and next occurs Bransby Cooper's instantaneous death at his club. Not less sudden or awful was the departure of Sir Frederick Adam. The gallant General had been on a visit to his brother Sir Charles, at Greenwich, and had just entered one of the carriages of the Greenwich Railway, on his return to London, when he was suddenly struck with death. And so were Sir James Thomson, K.C., Physician-General, who died of apoplexy while presiding at the medical board on the 25th of August; and Roger Johnson Smyth, M.P., and a magistrate, at the age of thirty-eight years, on the 19th of September; and Captain Dalling, of the Royal Navy, at Earsham House, Norfolk, on the 10th of October.

Not quite three weeks after, the Rev. Walter Bury had reached the railway terminus at Coventry, on a visit to his brother, the surgeon in that city, when he dropped lifeless; while on the 8th of the same month (November), Tobias Wallis Sturge dies "very suddenly" at his residence, Linden Villa, Leatherhead, of whom it is recorded that his remains were conveyed for burial to the Cemetery of the Society of "Friends," *followed by their carriages*, without any farther notice of the deceased's good qualities.

Two young peeresses are next struck down, —the one in Ireland, at Alloa House, by a "sudden and unexpected" death after long suffering:—the other in Scotland, at Eglinton Castle, by a no less "sudden dissolution;" and thus fell the Countess of Mar on the 15th, and the Countess of Eglinton on the 16th of December!

Now let us hasten to the conclusion of this too long and sad review of the many who

have departed on a brief summons. Let us close the list of our FACTS. Their eloquent language too plainly and truly tells how unquestionable is the assertion, that "in the midst of life we are in death."

I take up my obituary notes of December, 1853, again; and first I find it recorded that on the 9th, at Manchester, John Phillips, only surviving son of the alderman of that name, and who had recently returned from a tour in Egypt and other parts of the East, whither he had accompanied Sir John Potter, had suddenly expired at the breakfast-table, having risen in very good health and his usual spirits. Also that Dr. Harrington, the Principal of Brazenose College, who, up to one o'clock P.M. of the 12th of that month, had been in the enjoyment of his usual health and spirits, was seized with a violent attack of hiccough and spasm, and died before eight A.M. the next morning. The reverend doctor was only fifty-three years old, and almost, up

to the last moment, had been engaged in the examination of students and candidates for fellowships recently vacant at his college.

Captain Warner, he of the long range, and whose destructive inventions were just about having their application in a good cause, fails us at the very nick of time, snatched away by that instantaneous death which he had compassed all his life against the enemies of his country. He expired suddenly on the 5th of December.

Peaceably and tranquilly, yet not less instantaneously, departed this life on the 15th, the second surviving daughter of the late George Ward, of Northwood Park, Isle of Wight, who in the times when Lord Robert Seymour, the Nashes and the Wards flourished in that isle, as we recollect, used to be called "the King of Cowes." To him and to another excellent gentleman was due the introduction of the first steamer that made a regular passage between Cowes and Southampton.

On the Sunday preceding the last-mentioned decease, the following impressive scene was taking place not very far from the last-mentioned city. A stout and healthy middle-aged yeoman was crossing Ovington Park, on his way to evening church, which he never reached. Returning from divine service the park-keepers found him seated with his back to a tree, his hat on, his umbrella under his arm: DEAD! with no appearance of convulsion or previous struggle.

The 29th of December Louis Napoleon decreed that there should be an imperial commission to superintend the construction of the great edifice, "pour l'exposition universelle des produits de l'agriculture, de l'industrie, et des beaux arts," presided over by the Heir presumptive to the throne. Visconti, the eminent architect, son of the late still more eminent antiquarian, received, on that day, his nomination as a member of that commission. He attended its first meeting on the

afternoon of the 30th, or following day, at the *Palais National,* and was returning thence home, at five o'clock, in his carriage. On reaching the house, and the door of the carriage being opened, Visconti was found dead!

How little in accord with a season of festivities is the intrusion of death! Yet the gay season of 1845, at Cheltenham, witnessed, in the very vortex of a bachelors' ball at the Assembly Rooms, R. Leicester, Esq., of Cambridge Villas, seized with vertigo, expiring in ten minutes, on the 3rd of February.

And the following month brought its own contribution to the registry of sudden deaths, by recording that of the fourth son of the Rev. J. S. D. Serres, of Easebourne, near Midhurst, at the age of twenty-seven years, at Calais; and, again, equally instantaneous, that of a young naval lieutenant, son of a noble and wealthy marquess, which took place on the 21st, whilst he was stepping on board his vessel, ready to sail for the scene of

the impending conflict in the Baltic; and lastly, the death, in a railway carriage, only two days before, of Colonel Gordon, of the Royal Artillery, while on his return to Scotland.

But the commencement of March was to be marked by a far more impressive event of this class, in the instantaneous death of Mr. Justice Talfourd, aged fifty-eight years, while in the act of delivering a charge to the Grand Jury, at Stafford, on Monday, the 13th. Although my province in the present Section is to deal with the death-facts only, and not to weave funereal panegyrics on the dead, I cannot resist the melancholy satisfaction of quoting the very expressive, terse, and eloquent words in which the above melancholy occurrence is alluded to in one of the weekly journals of the day, remarkable, above all others, for those distinguishing characteristics of good writing.

"It is something less than five years" (observes the "Examiner") "since the assembled

bar at Stafford were witness to their beloved leader's elevation to the bench. In the midst of his duties on a circuit which he held for thirteen years, and while actually speaking for the defendant to a special jury, Mr. Serjeant Talfourd received the Chancellor's letter, conveying to him the great reward of his honourable life, and substituting for the toils and excitement of advocacy, comparative repose in a higher sphere of duty. Engaged in that more dignified vocation on Monday last, in the same court, in the presence of the same groups of men who had reason to love and admire him, a more awful summons bore Mr. Justice Talfourd away! He passed to a higher judgment-seat, to receive, we may humbly hope, a reward far brighter and more enduring than any which human lips or hands can offer." . . . . "That such should be the end was the will of God; and never did robed or ermined judge, in an open court, in the fulfilment of his duty, meet a death so

like that of a hero. With Talfourd's name the memory of his last hour can never cease to live. It will remain on earth and be a fruitful source of good; and there is a pause in sorrow when we think that it will be remembered, too, in heaven!"

A brother Judge, Mr. Justice Coleridge, addressing, in a similar manner, the Grand Jury at Derby, a few days later, on this "awfully sudden death," as he called it, expressed himself in a not less feeling manner. "He was sitting, as I do now, discharging the same duty in which I am engaged, and in the act of addressing the Grand Jury, when in an instant that eloquent tongue was arrested by the hand of death, and that generous heart was cold. Surely nothing can exemplify more strikingly the uncertainty of life! People were trembling at the thought of coming before him: but in a minute his function was over, and he was gone to his own account."

Our recollection suggests but one other

case, though of remoter date, which, less in solemnity, was much more awful in reality, considering the scene of its enactment, and the great mass of people who were witnesses on the occasion. I allude to the fate of the highly popular actor, PALMER, whilst representing the character of the Stranger, in Kotzebue's well-known drama, on the Liverpool boards—"There is another, and a better world," he had just exclaimed, and he dropped lifeless!

But I must hasten to a conclusion, or I shall be overtaken by many more of such calamitous accounts ere the ink of my present narrative is dry. The obituaries in the public journals have recorded not fewer than eleven cases of "very sudden" death among people of consequence in the lapsed month of May alone, the majority of whom were not yet fifty years of age. Frederick Hodgson, Esq., late M.P. for Barnstaple, while dressing for dinner to meet a large party of invited

guests at his house in Paris, dropped down dead. He had drank at the Artesian wells of Homburg some of those strong waters for four or five seasons. The Vicar of Highgate, in the act of rising in the morning from his bed, to which he had retired in his usual health the night before, falls back again upon his pillow, and expires. The wife of Thomas Wooster, Esq., only forty-seven years of age, dies "very suddenly" of a congestion of the brain." Whilst, as it were in mockery of both health and youth, sudden death strikes the young son, only eleven years old, of Captain Towgood, of Reading, in the arms of his parents!

Let me hesitate but another day in closing this black catalogue, and the fresh and rapid accumulation of equally fatal occurrences will become perfectly overwhelming.

Where is the friend, where the acquaintance, or the passing associate at a club, who has not some sad story of the sort, or many

of them to tell, if once you enter on the dismal subject? From every quarter of the country, from families whom you knew to be in the full bloom of health, of individuals who were deemed vigorous and in the flower of manhood, we hear as we meet in our daily intercourse, of some one of them having suddenly disappeared from among the living! I shrink not from the responsibility of declaring, that in a large proportion of these cases, the fatal event should not have taken place; the truth of which assertion will be made manifest, when I come to speak, in a future volume, of the manner by which impending blows of this kind may be seen coming, and may be averted.

VI.

WHAT IS SUDDEN DEATH?

BEFORE a reply can be given to such a question, another and much more important should first be resolved—What is life?

On no other topics, perhaps, have physiologists of all ages differed more widely than in their definition of life.

A medical attendant who has witnessed the last throes of travail in his patients, suddenly finds in his hands an exquisitely formed and perfect creature just launched into the world. There it lies, momentarily cryless, breathless, motionless, the symbol of some imitation of the human form by art. She in

whose womb it was thus fashioned, has ceased to be linked to it. Their union has been severed. Her offspring is become an independent being, it is come to take its place on the earth, yet it breathes not! it cries not! it moves not! Its eyes are closed, its lips are sealed; and but for the warmth its shapely mass imparts to the hand, it might be a mere produce of the chisel. Quickly the vigilant attendant breathes into its nostrils and into its mouth, and gently presses the soft and tender breast; and lo! a deep sigh and a cry—the first cry, that seems the harbinger of suffering to come, announces that the statue lives! So we say. But what and who gave it life? Is it the breath from the lungs of the attendant that set the machinery of life on its journey, like the one gentle tapping at the pendulum of a well-mounted horologe which sets it, and the machinery it regulates, on their intended performance of motion? If so, then "breath" is life, else

without it, the infant had not lived. No other scheme, or operation, or agent could have as quickly or so surely secured such a result.

But, says a lecturer in our days before the Royal College of Physicians, "the blood is life." "It constitutes the very corporeal life and vital principle."* Is it so? Then, while dealing with the blood in our professional doings, we meddle not with a part only of the organization of man, but with his very existence; we abstract a portion of his life when we bleed him—and the blood in the cup is so much life destroyed! Or, on the contrary part, whenever an addition to the mass of blood is made, by continuous and perfect nutrition, we increase the quantity of life meted to us. For is it not notorious, that a man

* Lectures delivered before the College of Physicians in London, 1852, by Dr. Spurgin. The lecturer has but copied Andrew Combe's doctrine. See also "The Great Physician," by Gardner and Dent, Part II.

possessed, for example, of thirty pounds of blood as his ordinary share of *life*, may add to it two, three, nay four or five pounds more of that desirable commodity by food and exercise, under favourable circumstances ?

On the principle that blood is life, how is sudden death to be defined and explained ? It is evident that such a doctrine is not suited for our purpose.

The blood is not life. The embryo-man, while being fashioned in its mother's womb, has blood circulating through its organs. It is the mother's blood. It adds to the size and the development of those organs, but gives them no life. Cuvier says, " The fœtus, up to the very moment of its birth, and as long as it has no life of its own, but partakes of that of its parent, is not a being, but a germ."* Movement only is what the heart of the mother imparts and extends to the offspring,

* " Historie Naturelle des Animaux," vol. i. introduction.

as it extends it equally to the remotest end of her other limbs ; for in its intra-uterine state, her offspring is only another of the mother's limbs, subject, like the rest, to all and every one of the organic actions peculiar to herself.* But this moving mass of flesh and blood within her is not instinct with life. "L'instant où le fœtus commence à exister (observes Bichat) est presque le même où il est conçu ; mais cette existence, dont chaque jour aggrandit la sphère, n'est point la même que celle dont il jouira, quand il aura vu la lumière."

And a little farther on we read, "On a comparé à un sommeil profond l'état où le fœtus se trouve. Cette comparaison est infi-

* I am not uncognizant of a new fangled doctrine, attempted to be set up in the room of sound physiology, that the mother and fœtus are independent of each other, as far as circulation of the blood and inward movements. The doctrine runs counter to facts and common sense.

dèle : dans le sommeil la vie animale n'est qu'en partie suspendue : chez le fœtus elle est entièrement aneantie ; ou plustôt elle n'a pas commencée,"* "nous pouvons, je crois, conclure avec assurance que dans le fœtus la vie animale est nulle et que tous les actes attachés à cette age sont dans la dependance de l'organique."† Yet in these series of organic actions which endure for forty weeks, the blood performs a principal part, though it imparts no life.

One of the most industrious compilers of physiological writings of the present day, whom the whole category of medical students in this country, ah ! and of their seniors also, may consult with advantage and be thankful, has endeavoured to enunciate an opinion of his own, in two separate works enjoying much consideration, respecting the nature of "life." After animadverting in one of those works on

* Bichat, "Sur la Vie et la Mort," page 108.

† Ibid. page 116.

all that has been advanced on the subject by those who have gone before him, and even by some of his own contemporaries, Prout and Coleridge for instance, in the definition of life, this author, in his first publication, concludes by stating that, "by the term *life*, we most appropriately designate the state or condition of a being that exhibits vital actions."* Now, surely, is this clearer than to say, "Life is the act of living?" Besides, what are vital actions? The same author protests against such a term as "vital principle." In what degree are the words "vital actions" better?

But in the second and more recent publication,† the same author has propounded a still greater puzzle in the room of a definition of life. One of his chapters thus commences: "It may be stated as one of the most general

* Dr. Carpenter's "General Physiology." Third Edition, 1851. Page 24, par. 35.

† Dr. Carpenter's "Principles of Human Physiology." Fourth Edition, 1853. Chap. iii., page 96.

facts in physiology, that *vital* force can only manifest itself through those peculiar arrangements of matter which are distinguished as *organized structure*, since this alone exhibits that assemblage of material conditions which is required to concur with the dynamical agency, that is, the active principle of the whole, for the production of the phenomena of life" (!) Maugre its italics, readers will be puzzled to comprehend this passage. It certainly would be difficulty to construct, out of such a definition of life, a proper reply to the question, " What is sudden death ?"

Let us see if others among popular English writers of no very old date have been more successful in their exposition of the two great questions under consideration. What say Darwin and Andrew Combe ?

Darwin preceded the last named author (whose work, " Principles of Physiology," has been sold in untold numbers, both here and in America) by many years ; as he did many

more writers, both English and foreign, with his view of the important question of life. In preceding them, he likewise anticipated them, though in a somewhat exaggerated or poetical manner, in those sounder principles of physiology which are now considered as the discovery of more recent times. According to Darwin all the phenomena of life, the faculty of thinking even inclusive, are the result of an appropriate movement in the organic matter of man, produced by *irritation*, consequent on the application of certain stimuli to that matter: the nervous system, of course, as in the case of his predecessor's view (Dr. Cullen's), playing the principal and essential part in the phenomena.

On the other hand, Andrew Combe considers the blood to be the source of life. "The blood," says he, "is peculiarly the vital fluid." To all such writers as maintain that life resides in the blood (nor is this a mere idle question about words to be settled), it is

incumbent to prove that life consists in the two characteristics of blood,—namely, *movement* and *nutribility;* or, in other words, that life is *circulation* of the blood from the heart, and *supply of nutriment*, with increase of the body, through digestion and respiration. This is precisely what Andrew Combe tries to prove ; but he, as well as every other writer holding the same doctrine, has signally failed in his exposition.

Experimental physiologists, such as Flourens, Serres, Rolando Berlinghieri, Edwards, Tiedmann, &c., have shown that movement, or action of the heart, will continue for some time after death. I will state my reasons for adhering to such a proposition.

In the course of some experiments I made with prussic acid, in 1822, confirmed by others repeated on the 5th of April, 1824, at the Westminster General Dispensary, in the presence of Dr. Robert Lee, Dr. Chichester, of Cheltenham, and Messrs. Parsons

and Brooks, the fact of the persistence of the action of the heart after death became incontrovertibly manifest. Although an outline of those, and some previous experiments with the same powerful agent, was communicated by me to one of the medical journals of the time, a more detailed and particular account of them was withheld from the public for reasons which concerned the self interest of a physician just entering into practice. It was at a moment, too, when the Magendie and the Orfila were held up as barbarians for wantonly torturing and spilling the blood of animals.

Times are now changed ; and as the conviction I acquired, through the experiments in question, of the fact that the movements of the heart and the circulation of the blood do not constitute life,—since I beheld them both to continue after the death of the animal,—induces me to refuse assent to the physiologists of the " movement theory of life,"

I shall in this place proceed to introduce the notes of my experiments, as I find them entered on the self-same sheet in which I set them down at the time.

"A strong and stout puppy had about twenty drops of Garden's hydrocyanic acid put on its tongue. The pulse in the femoral artery was, just before, sixteen distinctly. On the acid touching the tongue the dog stretched itself, the pupils dilated and became fixed. It yelled deep and long, and the pulsations increased to twenty, thirty, forty, fifty, in proportion as the respiration of the animal became slower, and was reduced, at last, to mere sighs, with great intervals between them. By the time the respiration had wholly ceased, the pulsations had become so rapid and so irregular that I could not count them. The animal was at last prostrate on its side, and to all appearance dead. The pulsations soon after became again slower and distinct but not at regular intervals.

The chest being open at this moment, the movement of the auricular and ventricular cavities was observed very distinctly, and I then noticed also, that the auricular preceded by a *saltus*-time only the ventricular movement; and that immediately after that of the ventricle, the pulsation under my finger at the femoral artery was felt also. These progressive pulsations were equally noticed on dividing the principal mammary artery; for the blood was seen to spirt *per saltum* each time immediately after the ventricular movement, and not *while* either the auricular or ventricular movement was taking place." A second dog exhibited the same phenomena under precisely the same treatment.

The description of the preceding experiments will remind many of my professional readers, of those, much more sanguinary, which the late Dr. Wilson Philip had published shortly before the date of my own; and in which he demonstrated (contrary to

Legallois' assertion), that even after the forcible and mechanical destruction of the brain and spinal marrow of a quadruped, the movements of the heart and the circulation continued for some minutes.

Sir B. Brodie, in his Croonian Lecture for 1810, had already come to the same conclusion, namely, that the influence of the brain is not directly necessary to the action of the heart —an opinion which he confirms by another series of experiments, to ascertain the mode by which poisons act on animals.

If it be true, according to Professor Serres' celebrated researches on the development of the brain, in the four classes of vertebrated animals, that the nervous system developes itself in the intra-uterine creature from the circumference to the centre, and that the lateral nerves of the head, the trunk, and the pelvis are already formed, whilst the spino-cerebral structure is still in a liquid state, and the brain itself is as yet incomplete (prov-

ing that the nerves, in advanced life, have certainly not their origin in, but *terminate* in the latter); it becomes evident that the nerves of the body were not destined to exercise an essential, still less a vital influence on the heart and circulation of the blood, for, according to the same great authority, the latter appears before the nerves in the development of the fœtus.

In my own experiments the abolition of the nervous power was suddenly and more generally and uniformly accomplished by the mere action of the prussic acid. Positive death had ensued before the body was opened: and yet the heart's phenomena were persistent, and continued for some time. Manifestly, therefore, the notion that the action of the heart and arteries is dependent on the brain and spinal marrow, in other words, on the nervous system, is incorrect.

Yet such was the doctrine of the eminent French physiologist Legallois, who, in a very

remarkable work on the principle of life, more especially on the movements of the heart (evidently and wrongly connecting them with life), through a series of well-conducted and varied experiments, endeavoured to convince physiologists of the correctness of his views. Legallois having thus settled the question, that the nervous, or brain-power, and the heart-power were intimately associated in maintaining life, ended by defining the latter to be "the effect of the impression made by arterial blood on the brain and spinal marrow, while death was the cessation of that impression." This is evidently an error; and the experiments I have detailed demonstrate it. Arterial blood was seen in them to spirt out in its wonted manner, through an opening made into a vessel connected with the outward circulation of the heart, long after the disappearance of every sign of life in the animal, and the autopsy of its body.

As another favourable opportunity of publishing the few remaining collateral facts, which were derived from the same series of experiments may not present itself; and as I consider those facts to bear on some important points of juridical medicine in cases of poisoning with prussic acid, I trust the readers will excuse their introduction in this place. I continue to transcribe the original notes.

"Another fact (observed in previous experiments) was confirmed, namely, the brilliant and scarlet-like appearance of the lungs and the apparently total absence of venous blood from any of their vessels—the lungs presenting one uniform vermillion colour externally. Internally the bronchi were quite pale, or rather white, and the blood-vessels uniformly gorged with blood more brilliant in colour than the arterial blood of the same animal."

"There was no coagulum in either cavities of the heart. The blood was fluid through-

out the body; but coagulated immediately on being taken away from it. The stomach of both dogs was distended brimful with large morsels of cheese, bread, and meat, mixed with a porridge-like liquid of yellowish clay-colour."

"The three distinct forms of peristaltic motion of the intestines, noticed in former experiments with grown-up cats, were observed likewise on the present occasion, and, thus far, that striking fact was confirmed. The motions continued all the time that those of the heart lasted. The bladder, in both cases, emptied itself with strong ejection, and so completely, that by the contraction, its parietes formed almost a hard solid pyriform body. In one of the dogs the rectum deposited its contents. No traces of prussic acid could be detected in the secretions by the ordinary means of analysis."

Well then, if circulation of the blood from the heart be not identical with life—no more

is its nutribility or the faculty it possesses of nourishing and assisting in the development of the animal body, the representative of life. Men and animals have been known to live for a longer or shorter period without any food, during which time no possible assimilation of fresh matter could take place.

Again, if blood were the real life, the pithing of an ox through the interstice between the vertebræ could not instantaneously destroy its life in the midst of the most vigorous circulation of an abundant mass of blood, not a single drop of which was spilt.

But the most conclusive fact against the doctrine that blood is life remains to be mentioned. Insects have no blood, yet live: neither heart, nor arteries, nor veins are to found in them. Yet what animals exhibit greater tenacity of life.* It would be a waste

* "Il est démontré par la forme des organes sécrétoires des insectes, que ces animaux n'ont pas un veritable cœur."—Hist. Natur. des Insectes par

of time to multiply references to other British writers, who assuredly have not come nearer to the truth than any of their predecessors.

We next look among our nearest neighbours on the other side of the channel, for one or two of their greatest authorities on physiology or medicine, to tell us what life is.

Bichat first presents himself, a genius in every way remarkable, of whose labours the French school of medicine is justly proud. Within the short compass of a thirty years' existence, eleven of which had been incessantly devoted to anatomical and physiological studies, inclusive of the examination of several hundred bodies in a single winter, this modern Boerhaave laid the foundation of

P. A. Latreille: Organisation Interne des Insectes, tom. ii. p. 24.

"Les insectes n'ont aucun agent de circulation." Cuvier, Mémoires de la Société d' Histoire Naturelle de Paris, an. 7.

an entirely new code of anatomical and physiological medicine, which, coupled with the new doctrine of animal chemistry applied to the functions of the human body, subsequently introduced by Liebig, may be deemed to constitute our present most intelligible, comprehensive, and rational system of the natural history of man.

Of three memorable works which this young veteran author published within two years of his death, at the commencement of the present century, the one entitled, "Physiological Researches on Life and Death," already quoted, is unquestionably the most remarkable. What, then, is his definition of life—what that of sudden death ? "La vie est l'ensemble des functions qui resistent à la mort." Bichat might as well have uttered, and with equal emphasis, the truism that life is *not* death. Who could have denied it ? But a little further on, this *ensemble*, or combination of functions, does not seem to con-

stitute life ; for, after declaring that all living beings are constantly subject to the action of external objects, which tend to destroy life, he proceeds to say that they are likewise possessed of a permanent *principle* of reaction within themselves, respecting which, the author tells us that " ce principe est celui de la vie."

Bichat admits at the same time, that the nature of *this principle* is unknown, and can only be appreciated by its peculiar phenomena, the principal of which is the habitual action and reaction between the external destructive agents and the living body—an alternate contest, the intensity of which is in the inverse ratio (according to Bichat) of the age of the individual. Thus, in children, the *reaction* surpasses the *action:* hence there is superabundance of life in children. There is equilibrium between the two actions in adults, while in old age, the offending action of external objects continuing the same, the

internal reaction diminishes gradually and progressively, until all proportion ceases and life with it.

But all such generalizations, by which it is attempted to supply mathematical and precise definitions, will not help us much in physiology. Let us try one of them, as regards infant life, for example. If, as Bichat pretends, reaction, on the part of the body, against the influence of those external agents which tend to destroy it, be *life*, and "children have a superabundance of it," how comes it, that they succomb in much larger proportions than either adults or old people ? In the year 1849, for instance, there died in England and Wales, males and females, 440,839 people, of which number more than one third were children under five years of age, viz., 161,100 !

Professor Milne Edwards, in his recent and cleverly written volume on physiology, has tried his hand at a definition of life. "Ce

qui distingue éminemment les animaux, et les vegetaux de tous les autres corps de la nature c'est LA VIE : mouvement interieur dont la cause est inconnue, mais dont les effets sont faciles à percevoir." To this we reply, that if an interior movement in the human body be life, its cause is not unknown. The example of the new-born babe, with its suddenly acquired inward movement, through the imparted breath, explains "*la cause inconnue.*"

To this day we meet with authors and lecturers who maintain the doctrine of what is called *innervation*, meaning thereby the influence which the nervous portion of the animal frame exerts over the rest, and which they consider as the real source of life. Whole volumes have been written to develope and prove the truth of this doctrine ; and many ingenious experiments have been devised and executed in illustration of its principles. As there are strong reasons for believing that the great centre of the nervous

system, the brain, is the seat and agent of sensation, perception, volition, and thought, which so eminently characterise human life, even when movement, growth, development, and many other animal functions or operations, are checked or suspended,—it was a very natural inference to draw, that the nerves of the body, and a certain supposed fluid circulating through them, constitute life.

Unfortunately, facts again start up before us to upset all such foregone conclusions. There is hardly an anatomical museum in Europe that does not present a number of acephalous children, mostly well formed, and completely constituted in all other respects. The history of some of them who have lived in that state is well known and duly authenticated. I will allude especially to one only remarkable instance of a child born without a head, and consequently without brain, described by Mr. Lawrence, the eminent surgeon of St. Bartholomew Hospital, in the fifth

volume of the Medico-Chirurgical Transactions. The peculiarities were these. There was no brain, nor cranium. Its basis, or rather a part which should have formed its basis, was covered by the common integuments, except over the great opening into the spine, where a small soft tumour, equal in size to the end of a thumb, projected about an inch, and was covered by a thin membrane, which was woven in with the surrounding integuments. This small soft tumour was the termination of the medulla spinalis swelled out into a small bulb : when the latter was pressed general convulsions ensued.

The child was perfectly formed *in all its parts*, and had attained its full size ; it breathed naturally, was not deficient in warmth, took a little food by the hand, and performed the two principal functions of the kidneys and intestines in the usual manner, while he lived, from the Sunday (the day of

its birth) to the following Thursday evening, being four full days.

It has been remarked, that although, where any principal organs are wanting in monstrous children, there is always great confusion in the subordinate parts ; as, for instance, where the heart has been wanting.* No such confusion or imperfection in the rest of the structure is to be detected in children born headless. The presence of the centre of sensation, therefore, the brain (justly observes Mr. Lawrence), is not required for, or has any share in the development of, the ani-

* Sir B. Brodie has given the description of a child born without a heart, and quotes other similar instances from authors. In all those cases, great irregularity was observed among the internal viscera, some of which, the liver for example, was wanting, but the brain and nerves were perfect The explanation given of such a phenomenon is not satisfactory. One special consideration was overlooked ; I shall give it in a future section. (See Phil. Trans. Royal Society, 1809.)

mal, and has nothing to do consequently with life. It is to the presence of the spinal chord that the formation and development of the diverse parts of the body in their perfect state are due, and it is owing to the same presence that their respective functions are executed. The brain has never been found without the spinal chord, for the former is the product and termination of the latter, which may exist, as we have just seen, without the presence of the other.

The brain and the nervous structure of animals are not in themselves sufficient to account for or explain what life is, and, consequently to throw light on the other question of premature death. But their existence, and the manner in which they have been supposed to act, deduced from many phenomena observed in the course of many ably conducted ingenious experiments, have led many to assume that there is something circulating through every portion of the ner-

vous structure, to which the name of "nervous fluid" has been given ; and this is considered by them to be *the source of life.*

Cuvier, who presents himself like a giant amidst all such authorities, admits the existence of a nervous fluid, which he paradoxically considers to be, at one and the same time, secreted and conducted by the medullary substance or nerve-matter : yet he does not ascribe the principle of life to it. His definition of life is both infelicitous and unintelligible. Life, he says, consists "in the faculty which certain organic bodies have of enduring for a time, and, under a determined form, attracting unceasingly within themselves parts of the surrounding matter, and yielding up, at the same time, to the elements, portions of their own substance." Assuredly this is a description of the act of living, and not of life. An organic body endowed with life is capable of performing the operations described by Cuvier, because it is

living, for were it not so, the operations could not be performed. Life must precede the operations, not the operations life, which must have been the case were they the parents of life. The operations are, in fact, the preservers or maintainers of life, and nothing else : and there it is where the great anatomist erred.*

An ingenious theory has been lately hazarded in one of the medical journals, by a respectable physician, who, anxious to revive the system of the chemico-physiologists, first assumes, that electricity and nervous influence must be identical, or mean the same thing ;—and, secondly, that as nothing can be more certain than that there is scarcely a tissue in the animal system less apt or likely to originate electricity than the substance of which the brain and spinal marrow consist—nerves can be conductors only

* Cuvier, "Hist. Naturelle des Animaux," vol. i. Introduction.

of that animal electricity, the true source of which (according to the same author) is in "the chemical action which takes place at the moment, and in consequence of the conversion of arterial into venous blood." He does not deny that other chemical actions in the living animal system, may assist in producing electricity ; but his inquiry is confined to the simple action before named, and, unquestionably, a large amount of electricity must be elicited in our bodies during the change of arterial into venous blood.

It is not necessary in this place, to detail the most commonly received opinion of the mode in which such a change and consequent chemical action are brought about. That change and that action are effected in the vessels situated between the termination of the arteries and the commencement of the veins ; and, as it has been demonstrated, that wherever arteries terminate and veins begin, there are also nerves distributed which con-

sist of afferent and efferent fibrils, it follows that they must, and indeed they have been proved to be, the conductors of electricity.*

Such, I believe, and, as far as I can comprehend them, are the views of the writer in question, to which I make two simple exceptions, if his theory is brought forward as the theory of life. In the intra-uterine existence of the animal there is no transmutation of arterial into venous blood; and before such a transmutation can take place in its extra-uterine life, some other act must be performed, as we have seen in the case of the newly-born. What produces that act, therefore, is the life, and not any subsequent chemical change or evolved electricity, which can only begin after life has been established. Electricity may exist (and I confess Dr. Strachan's theory of it is simple and inviting), nay, it may be instrumental in maintaining life, as, indeed,

* Dr. Strachan, "On the Origin and Circulation of the Nervous Influence." See "Lancet," 1854.

every special function or produce in the living animal contributes to that great result; but they do not constitute life, nor does death ensue when any of them ceases to act. My second exception is, that, as in many inferior animals there exists none of the electro-productive arrangements of arteries and veins, on which life is made to depend by Dr. Strachan's theory, we should be obliged to admit that there is more than one sort of life to account for the existence of such beings —an evident absurdity.

This very theory of electricity being the analogous representative of what is called the nervous fluid, has found favour with a modern Italian philosopher, far more illustrious than the writer just commented upon; I mean Professor Matteucci. His view of the mode of action of the nervous system (as it appeared in a paper laid by him before the Academy of Sciences of Paris, in 1847, through Dumas) is this: he admits the ex-

istence of a nervous fluid, says it is analogous to electricity, and he derives its origin from the muscular tissues, where it is created or excited by the chemical action of their free acid on the alcaline principles of the blood. Matteucci considers that the fluid thus produced is carried along the nerves as conductors to the mass of the brain, whence, by the influence of volition, it is distributed to the muscular system again, for the purpose of determining contraction. "Se non è vero," &c.

An ingenious living lecturer on electro-biology (whose definition of *life* by-the-bye is a mere truism) has laid it down that the mechanism of a double voltaic circuit represents perfectly what animal life is. The analogy between the two, he says, is perfect. Granted for the sake of argument. We then inquire, whence the electro-galvanic fluid in the animal? Where is the double galvanic circle? We have just seen what Dr. Strachan said as

to the former question; and we know that some modern physiologists consider nerves and muscles to be the positive and negative plates of the battery! But are not all these dreamy conjectures?

In the year 1849 Dr. Barbier, a French physician, presented to the Royal Society an exceedingly clever and well written essay, entitled "Quelques Reflexions sur la Psychologie." The main object of the writer, whose speculation is purely theoretical, and founded on no practical experiment or illustration of his own, is to establish the fact, that as in the material world there is the law of *gravitation* to explain and account for all the phenomena of the existence of matter, and there is the law of *attraction* to direct and make manifest all those changes which modify inorganic matter; so in the animal world, in the machinery, in the little cosmos of man—there is a *biogenic* law which organises and reproduces animals as well as plants.

This law Dr. Barbier pretends has been overlooked, because the name "nature," or that of "vital force," has been given to it. By some it is considered as the same thing as the soul; by others it is looked upon as the result of innervation, the produce of nervous centres, the brain, the medulla, the ganglia. But the biogenic law proper is none of those, for it neither imparts to the animal the faculty of feeling nor that of motion. It is only "organization."

Again, the biogenic law is contemporary with the organized being. It takes possession of that being the moment it begins its development in its mother. It exercises its power over it, even while in its rudimentary state; while, in fact, it is yet a germ. The latter detaches itself from the body that has produced it at a fixed period only, and when all the conditions that are requisite to ensure its individual existence are present. The biogenic law follows the new creature, and

holds it under its sway to the end; and thus Dr. Barbier defines life. Death, especially sudden death, is even more simply explained by him.

"Physicians (says he) occasionally see persons dying without being able to detect the existence of any lesion, or the smallest alteration or deviation in their organization. The body of the victim attentively scrutinised presents no material disturbance in any of its parts. The failure of life cannot be attributed to any morbid modification of the nervous centres, inasmuch as the sensations, perceptions, the will and the intellect have continued intact to the last. The muscular movements have been performed with regularity. Nevertheless life is extinguished on all points. The circulation is performed more slowly; respiration becomes painful, incomplete; all the functions which constitute life are gradually suspended, animal heat decreases, and death supervenes. The bio-

genic law has ceased to animate such a body."

This investigation as to the nature of life, it would be easy to extend much further, by referring to the several opinions held by other philosophers and sages of all nations, many of whom have treated this important question from the earliest times. But such references would not better enable us than all the doctrines hitherto set forth, to answer the question placed at the head of the present Section.

There are, however, one or two references which I may be permitted to introduce; the one tending to throw some side light on certain functions of life; the other involving an attempt to set up the heart as an independent agent and the representative of life through the nerves. I will dispose of the latter first. In a recent communication to the Royal Society there is an alleged demonstration, by a living physician, of a nervous

distribution of power to the muscular structure of the heart, hitherto unknown to anatomists, which would explain, in that writer's opinion, the real source of the action of the heart as an entire organ, from the commencement to the termination of life; and also in what manner the circulation of blood is carried on when the fœtus has, as yet, neither brain nor spinal chord. This seems to be one of those hazarded propositions which require the confirmation of much more able and reliable anatomists and dissectors, before it can be received as truth. Let us not forget the unfortunate haste with which the assertion of the existence of nerves in the fœtal placenta was promulgated and received, to be followed as quickly by a demonstration of its fallacy. *Ex uno.*

Not so with the next reference, and which relates to certain experiments made by Dr. Spurzheim, in 1811, in conjunction with Lauragais, Duc de Brancas. These were commu-

nicated to me in MS., six years after in Paris, while I was in the enjoyment of the intimacy of that remarkable and historical personage, who was then in his ninety-second year of age, in the fullest power of his intellect, and that same wit which had made him at one time the favourite of Louis XV. The main object of the experiments (which I believe were never published) was to test the truth of the recently proclaimed doctrine of Gall that the circumvolutions of the brain were the exclusive seats of the intellectual faculties, the passions, and the will. The experiments were made on rabbits, cocks, and sheep, and led to conclusions diametrically opposed to the views of Dr. Gall. Different portions of the brain matter were removed down to the ventricles, varying the size, place, and extent of the ablations, and noting the effect on the creatures, when it was proved that the animal retained his senses, the apprehensions of danger, the volition to escape from it (when set

free), and the power of motion, even after the removal of considerable portions of brain on both sides. Showing, that while the seat of the senses was in the inferior strata of the brain, that of its instinctive faculties was certainly not in its superior convolutions.

In a recent and very remarkable work, said to be from the pen of a lady, entitled, "THE PROTOPLAST," there occurs a passage so clearly explanatory of what I have always held to be the only correct view of the nature of life abstractedly considered, that I cannot resist the satisfaction of quoting it. Having previously stated that two things which ought to be kept distinct have nevertheless been too much confounded together, namely, "organization and life," the fair author goes on to say, that "organization is the arrangement, movement, and adaptation, of the particles of matter; while life is the communication of an immaterial principle. Life, or the living essence, forms no part of organization: it simply

uses it, as it finds it, as a machine subordinate to its will." The last three lines, especially, I would wish to press into my service. They bring at once before us the Creator's greatest act on the sixth day of His mighty work, when He breathed life into the *completely organized* animal man. They are confirmed by the example of the new-born infant!

But if the theory of life propounded by so many wise men does not lead (as it should do) to a natural explanation of what is meant by the awful words, "Sudden death," we might possibly find in the writings of some of those authors, or others, a direct definition of that meaning. Let us refer, then, to a few such authors, taken at random, and see if we shall be more fortunate in our research.

It is a startling subject I have undertaken to examine: yet not more startling than many of the facts, inferences, and conclusions, appertaining to it, which will successively develope themselves, and will be mentioned in

a future volume, when the investigation embraced by the present one will be continued: —an investigation in which, it is not presumptuous to say, that every class of people must feel deeply interested.

I have already stated that the subject treated of in this Section had received the serious consideration of the most eminent physicians from the earliest periods of the history of medical science. Accordingly we find, in many of their writings, opinions concerning, and descriptions of, sudden death. Taking Morgagni as the representative of the older, and Bichat of the more modern schools—their definitions of sudden death can scarcely be accepted as satisfactory. The former says, "Sudden death is that which foreseen or not, takes away a man's life suddenly, without the expectation of the event on his part;" an admirable definition for a lexicographer—for a Doctor Johnson—but not for the father of pathological anatomy. The

other, or more modern authority, Bichat, declares that the great difference which exists between "la mort de vieillesse," and that which is "l'effet d'un coup subit" is, that in the one case life begins gradually to be extinguished in every part of the body, and finally ends in the heart,—death exercising its influence from the circumference to the centre; whilst, in the other case, "la vie s'eteint dans le cœur et ensuite dans toutes les parties. C'est du centre à la circonference que la mort enchaine ses phenomènes."

This opinion of the illustrious Parisian anatomist is grounded on his peculiar system of physiology, adopted since, by the greater number of the French medical schools of the day—and in which the various functions constituting life are divided into animal and organic, or internal and external. The former acting from the circumference to the centre, whilst the action of the latter extends from the centre to the circumference.

Bichat, moreover, maintains that sudden death, no matter of what kind, always begins with one of the principal organs, the heart, the lungs, or the brain; and he explains how life is gradually extinguished in each organ, according as it has first began to cease in any of them.

Milne Edwards' definition of death is more laconic than satisfactory. "Lorsque l'espèce de tourbillon qui determine le renouvellement des materiaux dont le corps est composé" (in one word *nutrition*), "s'arrête sans retour, ce corps meurt,"* and Edwards ascribes to nutrition, therefore, what Bichat ascribes to circulation.

But it would be a pure waste of time, after having given the deliberate opinion of two such authorities as Morgagni and Bichat on the meaning of the term "sudden death," to reproduce in this place, the *dicta* of many more writers of lesser note. Most of them do but

* "Elemens de Zoologie," page 3. Paris, 1854.

repeat what their predecessors had said before them; while a few among them all, limit their inquiries simply to the question as to whether *sudden* death means death in three minutes, or three hours, or three days. The reviewer of two Italian works on sudden death, to which especial reference was made in the Section on Death-Statistics, comprehends under that denomination all cases that terminate fatally in less than three days after the attack. Such a definition would embrace apoplexy and paralysis, which often do not destroy the patient in less time than three or more days. I admit that they terminate generally in *speedy* death; but I cannot view as strictly *sudden* any other than those cases of death in which an individual, whilst in the act apparently of performing, in the most normal manner possible, his vital functions, ceases instantaneously to live; and such are all those which I have detailed in the Section entitled *Facts*, with only a very few exceptions.

We have seen, when treating of the early destruction of life, and in the Section on Death-Statistics how the coroners throughout England dispose of the difficulty of interpreting what *is* sudden death. Examples not a few will be found of premature death, differing in manner and time, which nevertheless can be considered only as cases of what has been called *sudden deaths*, whether under the terms of "Visitation of God," or of "Natural death."

All these definitions are so far defective, as they do not explain the phenomenon of sudden death with accuracy and truth. They lead one to infer, that a certain mysterious principle called LIFE has been instantaneously withdrawn from a healthy and well constituted individual, who was at the very moment, as heretofore, exercising his proper animal functions, with a regularity that promised to endure for a long continuance of years to come. Hence the "mort, ou apoplexie de

foudroyante" of the French. Such a pretended inference is an error. No such phenomenon occurs in nature, unless through accident or from violence. Under Nature's laws, there is no such a thing as sudden death. This will be demonstrated in a Section of a future volume, on the causes of the event which has received that denomination. It will be seen, that in every case where death has abruptly cut short the thread of life, there had been a preparation, more or less, antecedent to the occurrence, which must inevitably have led to it, unless interfered with by a timely and successful watching on the part of a medical attendant.

The death may have occurred unexpectedly, and in the opinion of friends and bystanders, the victim may have seemed to have been struck down dead, as if by lightning. But, in reality, the event was only the natural termination of an inward state of things, which insidiously and unsuspectedly was pre-

paring the blow. In all cases of sudden death, so called, in which an opportunity has been afforded for a farther and closer investigation, sufficient cause has been detected and clearly made out, to convince us that the instantaneous closing of life was merely the natural termination of a train of morbid opetions which had been going on within for a longer or shorter period of time ; and that, so far, such a kind of death was in no way dissimilar from that which follows the termination of a long illness.

"In the midst of life we are in death." The antithesis of these solemn and thrilling words, heard on the brink of an open grave as it receives the body of a departed friend, is well calculated to convey to our minds the idea of human existence suddenly quenched. It also bespeaks the insignificance of that existence both in value and time. "For what is life ? it is even a vapour that appeareth for a little time and then vanishes away." It

tells us of the uncertainty of our end, that we may always be prepared. "Be ye also ready, for the Son of man cometh at an hour when we think not."

These, and other passages from the "Book of Knowledge," may have been suggested to their respective writers, by the numerous examples of instantaneous death recorded in the Sacred writings.

It is satisfactory to know that in the opinion maintained in these pages, respecting what should be called sudden death, I am supported by the views entertained on the subject by Mr. Farr, of the Registrar-General's department. "No definition," observes that sagacious writer, "of the sense in which *sudden death* is practically understood by coroners, has been given." "The writers, even on medical jurisprudence, do not state, with any strictness, what they mean by sudden death, whether it be death in ten minutes, ten hours, or ten days; but it is generally ap-

plied to cases where persons, previously able to attend to business, are suddenly deprived of consciouness, and expire in less than twenty-four hours. Understood in this sense, it is a popular opinion that sudden death (when not produced by violence) is the result of apoplexy. This is a popular error. Monsieur Duvergie, the medical director of *La Morgue*, at Paris, to which place all bodies found dead are conveyed, has proved satisfactorily, by facts, that the apopletic theory rests on no solid grounds; consequently, many of the verdicts which ascribe apoplexy as the cause of sudden death, must be erroneous. Duvergie refers sudden death, after Bichat's arrangement, already noticed, to three principal organs, the lungs, the brain, and the heart."

But I have shown that in all the cases in which it has been possible to investigate the immediate manner of the termination of life, we have found the action of the heart persisting, and the brain receiving still its blood;

whilst the lungs had ceased their functions with a last prolonged *expiration*, following, after many seconds, the last deep *inspiration;* when death ensues. And such appears to be the close of life, so far resembling its opening, as described early in this Section. With a first deep inspiration life awakens ; with a last and long expiration, life sleepeth. On the coming of sudden death, the last crowning symptom of danger is a checked, halting, and suffocating respiration.

CONCLUSION.

In the course of a long and eventful life, the half of which has been spent in professional labours,—one thing has struck me as most singular :—

It is the indifference with which people, generally, hear the news of the sudden death of any one, forget it as soon as heard, and carelessly jog-on in their own mode of living, without asking themselves these two simple questions—What can have brought about this sad event ? Am I living in such wise as to render myself liable to the like fate ?

And yet there are many who, while thus

indifferent of "to-morrow," are actually under the insidious and unsuspected working of those inward changes which, sooner or later, will send them to swell the number of the cases I have brought together in the Fifth Section. With the history of not a few of those cases I was well acquainted; and the individuals to whom they relate were known by me to be so threatened. Their well understood constitution, their personal appearance, their family antecedents, their mode of living, and when, by chance, visited professionally, their ordinary state of pulse and respiration—together with their confession of certain peculiar inward sensations—all tended to impress me with the conviction that their death, whenever it happened, would be sudden.

Many such are even now, to be seen preambulating the thoroughfares of the metropolis, frequenting their clubs, or are to be met at the festive board, perfectly uncon-

scious of their own condition. But how to warn all such in words that would secure attention without alarming them; or without offending against the commonly received principles of intercourse between patient and physician, which forbid the latter ever to divulge the real truth to the former?

And yet, had the warning been given, and being given, had it been followed up by proper preventive measures, more than one of the sudden deaths I have recorded, would assuredly, not have taken place; as may be inferred from the success which has attended no inconsiderable number of cases where a precautionary course had been adopted.

This conviction of my mind induced me to put together, in the present slender and easily accessible volume, all the strong facts, personal to myself, or referable to others, with thousands of statistical corroborations of those facts, which may serve to put such individuals on their guard as are likely to be the designated next victims, by showing:—

First, that in our days apoplectic seizures, paralytic threatenings, and actual strokes, are more common than in former times.

Secondly, that neither youth nor early manhood goes free, but rather the contrary, from such calamities.

Thirdly, that these calamities are not confined merely to the larger masses, but reach the home of the better and most exalted.

Fourthly, that the proportions of such calamitous deaths to the general mortality of the country, is fast increasing.

Lastly, that as regards the sudden death of infants especially, circumstances have been found to accompany it of a startling nature, which the present inquiry has, in a great measure, brought to light, but which demand a larger investigation from the public authorities.

Should the perusal of the truths contained in the preceding pages not fail of its main object—that of producing a wholesome fear

of sudden death, and prove a warning, also, against the stealthy approaches of those derangements of the circulation, sometimes slow and sometimes instantaneous, which lead to apoplectic fits and paralysis,—the end I had in view in publishing the present volume will be accomplished.

Such readers as may consider themselves liable to the perils enumerated in the course of these Sections, will be prepared to understand and avail themselves of the contents of another series I purpose (D. V.) to publish, in continuation, at the end of the present year, and in which the causes of sudden death —the true nature of apoplexy and paralysis— the treatment and prevention of those formidable disorders by remedies, by diet, by change of air, and by mineral waters—the philosophy of sudden death—the parentage of insanity traced to the same causes that give rise to the two former diseases—and finally, the " dying of old age," or, as it has

been called, "longevity," will receive, a full, popular, and practical development and consideration.

Thus shall we be put in possession of the means Providence permits us to employ against the coming of that form of dissolution which must be viewed as an awful visitation; since it has been coupled with two other still more awful, when, in that beautiful KYRIE of plaints and supplications to God, we are taught to say:

"FROM BATTLE, AND MURDER,
AND FROM 'SUDDEN DEATH,'
GOOD LORD DELIVER US."

THE END.

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