

Observations medical and political, on the small-pox, and the advantages and disadvantages of general inoculation, especially in cities : and on the mortality of mankind at every age in city and country; with a comparative view and regular tables of all the fatal diseases and casualties in London, during the last one hundred and five years, ... To which is added a postscript, containing the sketch of an easy plan for new modelling and essentially improving the London bills of births and mortality ... / by W. Black.

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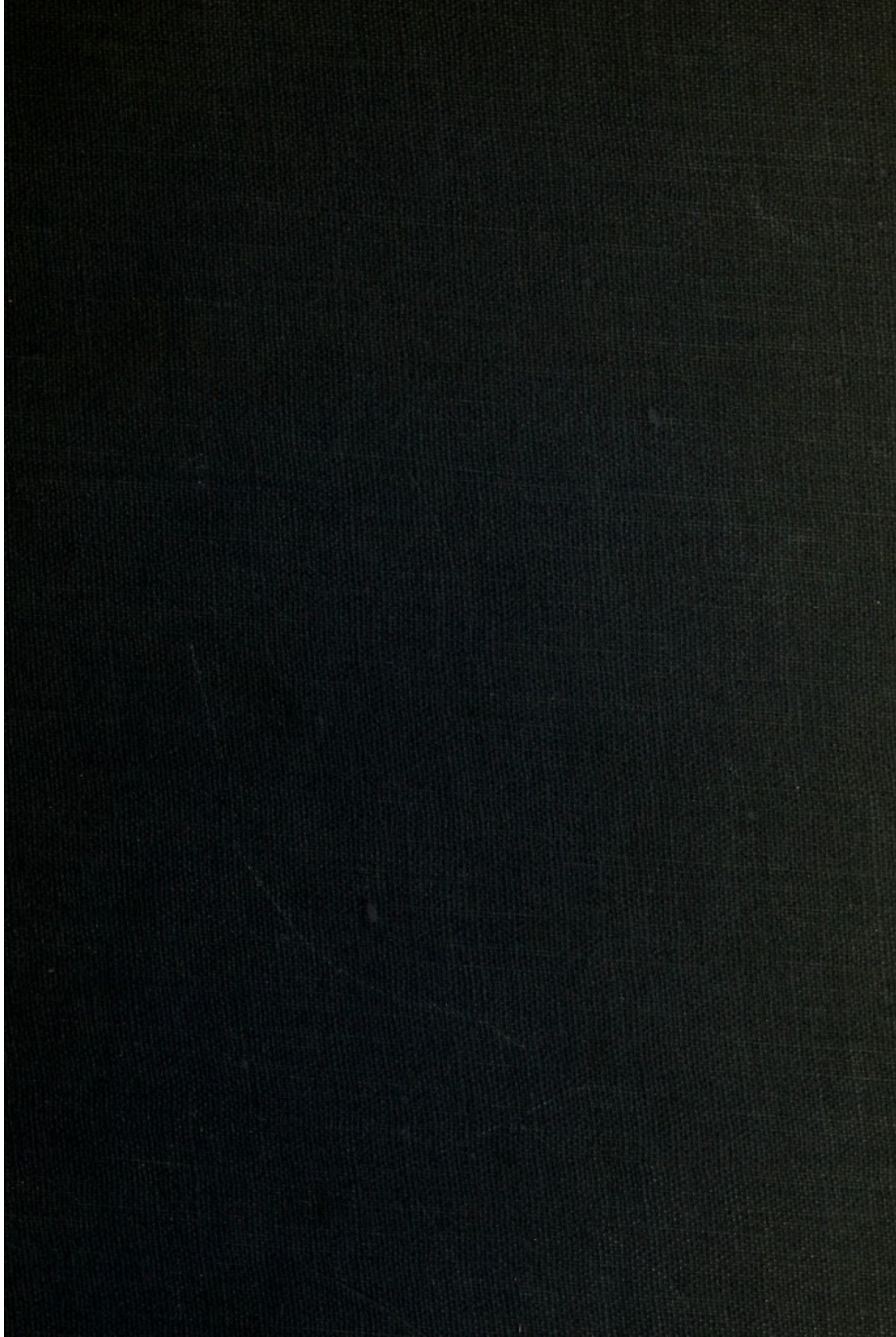
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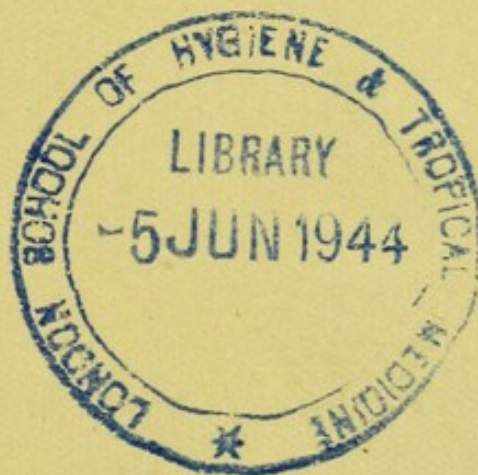




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OBSERVATIONS
MEDICAL AND POLITICAL,

ON THE

S M A L L - P O X,

And the Advantages and Disadvantages of General INOCULATION, especially in Cities:

AND ON THE

MORTALITY of MANKIND at every Age in City and Country;

WITH A

Comparative View and regular Tables of all the fatal Diseases and Casualties in London, during the last One Hundred and Five Years, by which about Two Millions and a Half of the HUMAN SPECIES have been exterminated:

INCLUDING AN

Attempt to demonstrate, in what Manner LONDON may save *Two Thousand*, GREAT-BRITAIN and IRELAND between *Twenty* and *Thirty Thousand*, and EUROPE about *Three Hundred and Ninety Thousand Lives Annually*.

TO WHICH IS ADDED A

P O S T S C R I P T,

Containing the SKETCH of an easy PLAN for new-modelling and essentially improving the LONDON BILLS of BIRTHS and MORTALITY.

The SECOND EDITION Greatly Enlarged: with several ALTERATIONS and CORRECTIONS.

BY W. BLACK, M. D.

L O N D O N:

Printed for J. JOHNSON, N^o 72, in St. Paul's Church-yard.
M.DCC.LXXXI.



31264

E R R A T A.

Page. Line.

- 61 15 *for remnant, read portion.*
139 last *for yearly of births, read of yearly births.*
206 19 *for Convulsions, read Consumptions.*
227 last *for 1 of 5, read 1 of 5½ Lunatics ;*
228 6 *for 5, read 5½.*
238 5 *for relaxtion, read relaxation.*
254 22 *for irritating, read imitating.*
265 11 *read, were the mortal diseases of London correctly, &c.*
267 16 *read, as a defence.*
272 19 *for ambiguity, read obscurity.*

C O N T E N T S.

C H A P. I. Page 1.

The Origin of the Small-pox and Measles: the Treatment of the former Disease by the Arabians and East Indians; and of Inoculation in India and China. The Transportation of the variolous Infection to America; Inoculation when introduced into Europe; its Advantages stated; together with the Proportion who die in the Natural and Inoculated Small-pox, 27, & seq. The Controversy stated, whether general Inoculation in London and other great Cities, at the private Houses of the Inhabitants, would be beneficial or hurtful to the Community at large, 47, & seq. Baron Dimsdale's different Publications on this interesting Topick examined, and as the Author conceives refuted: comprizing an Attempt to demonstrate in what Manner London may save two Thousand, Great-Britain and Ireland between twenty and thirty Thousand, and Europe about three Hundred and ninety Thousand Lives annually. ib.

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Bills of Mortality: when established in Europe: their Defects. Of the Mortality at different Ages in City, Town, and Country; of Marriages and Births, and the Medium of Children produced by City and Country Marriages; of the Comparative Numbers of the two Sexes, and their respective Mortality; of the Numbers alive at different Ages in any Nation: of the Proportion between City Town and Country Inhabitants, 120, & seq. Various Tables in Illustration of the Comparative Mortality,

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P O S T S C R I P T. Page 268.

The Sketch of a Plan proposed for new-modelling and essentially improving the LONDON BILLS of BIRTHS and MORTALITY, and equally well adapted to every other great City.

OBSERVATIONS MEDICAL AND POLITICAL.

CHAP. I.

The Origin of the Small-pox and Measles: the Treatment of the former Disease by the Arabians and East Indians; and of Inoculation in India and China: the Transportation of the variolous Infection to America: Inoculation when introduced into Europe: its Advantages stated; together with the proportion who die in the Natural and Inoculated Small-pox. The Controversy stated, whether general Inoculation in London and other great cities, at the private Houses of the Inhabitants, would be beneficial or hurtful to the Community at large: Baron Dimsdale's different Publications on this interesting Topick examined, and as the Author conceives refuted: comprizing an Attempt to demonstrate in what manner London may save two Thousand, Great-Britain and Ireland between twenty and thirty Thousand, and Europe about three Hundred and ninety Thousand Lives annually.

THE Roman Empire in Italy and the West of Europe, was finally overturned by the Northern Barbarians in the sixth century of the Christian era: from that event literature and arts lay for many centuries after, buried in the ashes of Rome. To the crash of this immense Colossus, another memorable catastrophe soon succeeded; a new
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religion appeared in the East, the Arabians under Mahomet, (p. C. 622) sallied forth sword in hand to propagate his religious doctrines; and with rapidity subdued several great kingdoms and provinces to the Mahometan yoke.

THREE new diseases, the Small-pox, the Measles, and the Spina ventosa, are first described by the Arabians: the two former diseases had never before been seen in any part of the globe, frequented by Europeans; at least no history is found of them in any ancient medical author, poet, or historian of either Greece or Rome. Mahomet's followers are said to have exported those two specific poisons from the deserts of Arabia. The most remote written traces, which I can find of Small-pox, is in Egypt, during the reign of Omar, Mahomet's successor. Aaron, a native of Alexandria, is mentioned by Rhazes as having, nearly about that time, published a treatise on the symptoms and cure of this disease. Variolous poison was soon spread by the Mahometans through Palestine, Syria, Egypt, Persia, Spain, and wherever they carried their victorious arms. Many centuries after, the crusades or holy wars were

were instrumental in diffusing this exotic venom more widely over Europe; and on the return of the christians from these frantic expeditions, Rhazes and Avicenna the two earliest writers of repute on the Small-pox and Measles, were introduced into our region of the globe.

RHAZES (p. C. 900) and Avicenna, both give a correct history of the distinct and confluent, or more properly of the benign and malign Small-pox, of the diagnostic and prognostic, the favourable and bad signs, and the method of cure. Rhazes was by birth a Persian, and practised at Bagdat. His treatise on the Small-pox and Measles, is translated from the Arabic, by the care of Dr. Mead, and may be seen entire in the latter's works, or in a separate dissertation. He appears in many instances to have treated them judiciously, and recommends the cooling regimen to a degree which physicians, practising in northern climates, might not unreasonably think bordering on excess.

I SHALL, so far as facts and history enable me to proceed with any probability, endeavour to investigate the origin of the Small-pox and Measles; two distempers which have

unpeopled more of Europe than all the fiercest wars, and bloody exploits, with which its annals are stained: after which I shall give a sketch of the Arabian and East-Indian practice in the Small-pox. Doubts and controversies have arisen, whether or not those pests of mankind were engendered in the Arabian deserts. If they had been known in Greece, Rome, Alexandria, in any of the wide dominions of the Roman Empire, or even in Persia, we must conclude that the Greek and Roman physicians, who described every disease down to the most minute, would not have omitted the history and cure of two so conspicuous and fatal. Rhazes and Avicenna, notwithstanding, treat of them as diseases familiar in their time, and without any intimation of novelty; the earliest Arabian accounts convey no suspicions of this nature; and therefore lead us to believe, that they were much more ancient than the epoch of Mahometanism. Rhazes, who entertained a profound reverence for Galen, says that, although that author left no description of, nor regular practice in the Small-pox, yet he supposes, that Galen alludes to the disease under the name of pestilential

lential carbuncle and confluent inflammation: this more probably meant putrid fore throat and scarlet fever; and physicians are at present universally agreed, that neither the Greeks nor Romans in their writings, have taken the least notice of Small-pox or Measles.

WE cannot but consider it as a most extraordinary and even a miraculous circumstance, that two diseases, whose infection is so extremely contagious, especially that of Small-pox; the poison of which adheres to cloaths, linen, woollen, cotton and porous materials during a long time, and has in this way been conveyed to very distant kingdoms; that such a disease could have been circumscribed, and its ravages confined for several thousand years to a small corner of the globe, not divided by sea, from the rest of Asia, is altogether unaccountable. If Small-pox had distilled its venom upon Arabia alone, until the era of Mahomet, that kingdom from the creation must have had very little or no communication with the rest of its neighbours; and it is one proof that Arabia and its inhabitants had not undergone many revolutions. The intercourse of distant nations was then cer-

tainly rare and difficult; but whether the existence of the universe is dated sixty, or according to the Christian code, only about six thousand years back in antiquity, it is inexplicably singular, that Small-pox did not much earlier find a vent from Arabia, and that the disease should not be altogether 1200 years known to Europe.

DR. Mead thinks, that the Small-pox were first generated in the hot climate of Ethiopia, and together with the plague, transplanted from thence across the narrow channel of the Red Sea, into the opposite continent, Arabia: this is weak conjecture, unsupported by proof or probability. If Small-pox had been a disease anciently known in Ethiopia, which no one has proved, there were various opportunities for the infection being carried down the Nile into Nubia and the heart of Egypt, countries bordering on Ethiopia, and of the remotest antiquity in arts and cultivation. Sesostris, one of the Egyptian Kings, made himself master of Ethiopia, and left behind him several stone statues and monuments of his power; he also conquered Palestine and Scythia. On the other hand, Sabacon, one of the Ethiopian Kings, in the early period
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of Egyptian history, is said to have conquered the latter country, and to have reigned over it fifty years. The Queen of Sheba, who came to visit Solomon at Jerusalem, 1000 years before Christ, is generally thought to have travelled from Ethiopia or Arabia. Cambyfes, the son of Cyrus, after subduing Egypt, sent Ambassadors, or rather spies, into Ethiopia, and with his army sailed up considerably beyond Thebes; a scarcity of provisions, it is true, obliged him to return back without penetrating across the deserts, but he conquered some of the Ethiopian provinces bordering on Egypt. When Herodotus the Greek, and the father of history, made the tour of Egypt, he was informed that several of the natives had travelled into the heart of Ethiopia; and this venerable historian, who lived upwards of 400 years before Christ, gives a rude geographical chart of that country.

THAT Small-pox should not have burst over the boundaries of Arabia, until the irruption of Mahomet, is marvellous and inexplicable. The northern Arabian princes had waged war with the Egyptians, the Persians, and the kings of Assyria. Cyrus,

Cambyfes, and afterwards Alexander the Great, reduced fome of the northern Arabian provinces, to a temporary fubjection. In the reign of Auguftus, and the epoch of chriftianity, before Celfus wrote, and one century and a half before Galen, Arabia to the north was fubjected to Rome. Auguftus' generals penetrated even into Arabia Felix, and into Ethiopia. In the fucceeding or fecond century, the fleets of Trajan ravaged the coafts of Arabia, bordering on the Red Sea; and in this emperor's reign, feveral of the northern provinces were tributary to Rome. Befides, the Romans, in the height of their glory, and after the conquest of Egypt, carried on a confiderable trade with Arabia and India: One hundred and twenty veffels failed annually down the Red Sea, traversed the Arabian coafts, and arriving at the Malabar fhores in India, and the ifland of Ceylon, returned from thence loaded with cinnamon, pepper, ginger, filk, pearls and diamonds. Mecca too, the Mahometan prophet's birth-place, ftands on the borders of the Red Sea. Throughout all this intercourfe, variolous infection feems not to have difperfed itfelf over any other country.

ON whatever side we cast our eyes, to explore the cankered embryo of Small-pox and Measles, we wander through a labyrinth of surmises and conjectures. Let us now direct our enquiries and researches to India.

MR. Holwel, a gentleman of respectable rank and character in the English Company's service, and who resided great part of his life in India, (Indoستان) published some years ago, a very sensible treatise on the practice of Inoculation, and the medical treatment of inoculated Small-pox in that country. It is believed, says he, in India, that Small-pox raged there time immemorial, and that the Bramins or Priests, time out of mind, have practised Inoculation. In confirmation of this, he quotes the Gentoo Code of Laws, and their scripture, which, according to the Bramins, has been now promulgated at least three thousand, three hundred and seventy years, by their original lawgiver, Brama. In this code there is a form of divine worship and prayers, instituted to be offered up to the *Goddeſs of Spots*, a supposed female divinity. These ceremonies and religious practices, are still faithfully observed during the continuance of Small-pox, Measles, and other
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epidemical diseases accompanied with eruptions on the skin; and certain it is, that no people upon earth have, through a revolution of ages, adhered so uniformly and scrupulously to the established ceremonies and institutions of their ancient legislator, as the East Indians.

SUSPICIONS and difficulties still start up in our progress to evolve, this not only curious, but interesting subject from obscurity. In the first place, chronology, which depends upon oral tradition, is not to be received without many doubts and scruples. The Goddess of Spots is also a vague term: the spots might signify any eruptive or cutaneous disease. Mr. Holwel says, that Inoculation in India is a practice, the origin of which is too remote to be traced back: this likewise probably rests upon the imperfect and dubious records of tradition. We know that in England, Inoculation is just sixty years introduced, and at that time it had been but forty years known at Constantinople, and about one century earlier in Greece. The Turks again ascribe the origin of the practice to Circassia, one of the Asiatic provinces of Turkey, where its antiquity is not ascertained

ed by any written memorials. Enquiry hitherto has been pushed no further back; but perhaps it is to India that Europe is originally indebted for this important discovery, through the medium of the Circassians.

NEITHER Rhazes, Avicenna, nor any of the Arabian physicians, who wrote in the ninth and tenth centuries, make the least mention of Inoculation. Had variolous poison been transported from India to Arabia, the physicians of the latter nation could not have remained ignorant of a practice, according to Indian tradition, so universal and ancient, and attended with such happy consequences: at least, we may fairly presume that the Arabian writers would not have observed a profound silence upon Inoculation, if they had heard of its use in any part of the world.

THE question therefore remains to be determined, whether Small-pox and Measles were first engendered in the climates of Arabia or India; or whether both countries did not give birth to those scourges of the human race; for to derive them from the burning sands of Ethiopia is mere romance. We know that the variolous disease is not bred
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in the human frame, but that it is propagated from one to another by contagion : America, neither in the cold nor torrid regions, had ever known Small-pox, until they were carried to that continent by Europeans. Thousands in this island, and in other countries who keep out of the sphere of variolous infection, live to a great age, without undergoing the disease.

RHAZES when recommending cooling syrups in Small-pox, adds, " Perhaps the syrup of pearls, which the *Indians* describe, and of which they boast more than they could have experienced, may be more powerful ; for they say, that if any one drinks of that syrup, though *nine pustules* have already appeared, there will not come out a tenth." If Indians mean the people of Indostan, which is highly probable, this is rather in favour of Mr. Holwel's idea as to the antiquity of Small-pox in India ; but let it be considered, that Rhazes lived in Persia above two hundred years after it was subdued by the Arabians ; and in that interval the contagion might have been disseminated amongst the inhabitants of India.

SUPPOSING for a moment, that Small-pox and Inoculation were as ancient in India, as the Bramins and Mr. Holwel assert; we are extremely puzzled to conceive how the disease could have raged from the time of Brama, above two thousand years, without ever being heard of in Europe, or ever crossing over into Persia: there was no sea, nor obstacle to prevent the communication between the two contiguous nations; and the kings of Persia possessed a small portion of India. Much of Asia, says Herodotus, was discovered in the reign of Darius: he sent ships, which sailed down the river Indus into the Indian Ocean; and we are assured collected a larger annual tribute from the different parts of India subject to the crown of Persia, than from any other of the twenty great Satrapies, or governments into which he divided his immense Empire. Alexander afterwards (a. C. 356) conquered some of its northern provinces, and sailed down the whole course of the Indus with a large army.

ALL the reflections which I am capable of making upon this subject, are now laid before the reader. I can only answer for myself, and confess, that many of my doubts
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are still unsatisfied: without new materials, which I have neither leisure nor opportunity to collect, my opinion must remain in suspense. Some of our Oriental travellers, and Antiquarian correspondents, may possibly favour us with additional lights to illuminate this dark subject, and to conduct to the original source of variolous poison.

THE Arabian practice in Small-pox, as recorded by Rhazes, and more especially the East Indian management of this disease, with the manner in which Inoculation is at present performed in India, as described by Mr. Holwel, are highly worthy of medical attention. I shall dispatch both with all possible brevity.

IF the feverish heat and symptoms in Small-pox raged with violence, Rhazes directed copious blood-letting, not only before the eruption, but even after it, if the fever had not abated. In imitation of Galen, young persons under fourteen years of age were cupped only. Water cooled with snow was given for drink in large draughts; and if this did not pass off by urine or sweat, or the fever abate, he directed that the water should be forced up by vomiting. To promote

mote the eruption of pustules, the sick person was wrapped up in warm cloaths, his body rubbed all over, and cold water given for drink. For the same purposes two basons of hot water were placed one before, the other behind him, and the body slightly covered with a shirt; the hot vapours ascending were expected to soften the skin, and to facilitate the eruption. This vapour was not suffered to cool upon the surface of the body, but was wiped off with great diligence. Where the skin is hard, as in the legs and feet, they were bathed in warm water, and sometimes emollient poultices were applied to the feet.

SEVERAL applications were prescribed to defend the eyes, if redness and itching indicated a crowd of pustules directed to those tender and important organs. He also took great care to protect the throat from numerous pustules by gargles; and if great hoarseness with straitness of breathing threatened future suffocation, blood was drawn. To ripen the Small-pox, basons of warm water were employed as before described. Pustules in the legs, that were large and matured, he directed to be opened by an incision.

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Should the pustules be large and numerous, he says, they are to be dried up, or the fluid contained in them soaked up with fine cotton. In other cases where the Small-pox abounded with moisture, the sick were laid on powdered roses, rice meal, or a mattress stuffed with these ingredients.

ALL flesh meat, fish, hot or high seasoned things, and milk were forbidden. Barley water mixed with sugar, or decoction of raisins, figs, and fennel seeds were given for drink; and in violent fever, the cooling acid juice of pomegranate seeds boiled with sugar, and a small portion of gum arabic; the chamber was also kept cool. He describes the composition of many syrups and oxymels given in the Small-pox: they were a mixture of the juices of several acid fruits and vegetables, to which vinegar and sugar were superadded; and sometimes a small quantity of camphire made one ingredient in the cooling syrups and electuaries.

THIS is nearly the substance of the ancient Arabian practice in the Small-pox: I am next in chronological order to treat of the East Indian practice, following Mr. Holwel as my guide.

INOCULATION

INOCULATION in India is performed by a particular tribe of Bramins, who are delegated annually for that purpose, and who make a tour or separate circuits in travelling parties to inoculate all the distant provinces; arriving at the place of their destination a few weeks before the usual return of the natural disease. The inhabitants who mean to have themselves, or children Inoculated, know the time of the Bramins arrival, and abstain according to established rules universally known, for one month before the Inoculators periodical visitation, from fish, milk, and a kind of butter made of Buffalos milk: this is the invariable and only preparatory regimen.

UPON reaching the place of destination, the Bramins proceed from door to door to Inoculate; going down one side of the street and returning up the other side. The fee for each person is about one penny, and they are constantly employed from morning until night. They Inoculate generally on the outside of the arm, the males about the middle, between the wrist and the elbow; the females between the elbow and shoulder. The operator first rubs the part with a dry cloth, during eight or ten minutes; then with a small

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instrument made like a crow-quill, and sharp at the point, he makes, in a small space, which might be covered with a silver groat or six-pence, several slight scratches, so that the smallest appearance of blood may be perceptible: a pledget of cotton impregnated with variolous matter is then applied, after being a little wetted with water from the *Ganges*, (every country has its superstitious follies) over all a bandage is rolled; six hours after the bandage is removed, and the cotton left to fall off of its own accord.

VARIOLOUS matter taken from Inoculated Small-pox of the preceding year, is generally used for Inoculation; but is never received nor preserved from natural Small-pox, however mild and distinct. There are many instances, says Mr. Holwel, of the variolous matter entangled with cotton, and kept close stopped from the air in a bottle during five or six years, at the end of this period proving active.

THE same prohibitory regimen in diet is continued through the disease, as before Inoculation: but what will appear still more singular, and to us at first sight rash, every morning before Sun-rise, and every evening
after

after Sun-set, the patients, from the first day after Inoculation, are stripped naked, and sluiced over the head and body with buckets of cold water : in this manner the diurnal cold bathing is continued until the eruptive fever comes on, which by such means is rather hastened, and commences about the close of the sixth day. Then a few days during the eruptive fever, they desist from cold bathing, lest fermentation should be interrupted, and at that particular time they conceive that the blood should not receive any additional commotion : but on the pustular eruption coming out to the surface, which is generally a process of three days, they again resume the cold water, and continue it to the end of the disease, in order to expel all the remains of noxious matter from the internal parts.

MR. HOLWEL affirms, from his own experience in India, that when pustules have sunk, and the sick appeared in the most imminent danger, he has seen marvellous effects from a few gallons of cold water thrown over the head : the pustules which had subsided filled again suddenly by this simple remedy, as if by enchantment. In cases of

Measles, which did not come out freely, and where there seemed great anxiety and proneness to faint, Rhazes advised frictions and immersion in cold water. In India, the water is poured out of buckets by servants without intermission, and at the distance of six or twelve inches above the head. In this mode of application, its shock and severity is said to be much greater than by immersion of the whole body in a cold bath. The Bramins suppose that the sudden shocks hasten fermentation, and, by increasing the motion of the heart, drive all offensive particles from the internal parts, to the surface and extremities.

THE variolous pustules, when ripe, are all opened with a small pointed thorn. In this work the Bramins persevere with astonishing patience and diligence, for several hours at one time; opening, by degrees, all the pustules, whether the disease be mild or otherwise, and whilst the matter is in a fluid state. This evacuation, they say, prevents inflammations, weakness of the eyes, boils, and other eruptive disorders, which frequently follow Small-pox; it also prevents, or at least mitigates, the danger of secondary fever in the height and turn of the disease. In the confluent
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Small-pox, it has been observed, that the pustules sometimes fill suddenly and repeatedly after being opened, *five, six*, and even *eight* times: a few hours, however, are suffered to elapse, before a second repetition of the same operation, and which, in the artificial disease, I presume is very seldom required. By these apertures the corrupted fluids are successively emptied, and room allowed for what remains to discharge by the outlets which nature points out. Every pustule is considered as a small abscess, or boil, that has reached the point of maturation, and whose matter should be drained off, by an external opening. About a dozen pustules are opened with great gentleness at one time, then the matter is absorbed with a linen or cotton rag dipped in warm water and milk; in this way they proceed gradually over the whole body, face, and extremities. The slender conical thorn is preferred to a broader instrument, because the external air is not admitted through so small an orifice, to close up the excretory vessels, and the further secretion of variolous matter. If the pustules were rudely torn open, a violent inflammation might be excited

A COOLING diet is prescribed through the disease. The Inoculated are forbidden to confine themselves to the house, and are exposed to every wind that blows: all the fruits with which the climate abounds are permitted, such as plantain, sugar-cane, and water-melons; and cold water, or rice gruel, used for common drink. The number of pustules from Inoculation in that country, are generally from *fifty to two hundred*. A discharge from the scarified part where the variolous poison is inserted, generally follows throughout the disease; but even if this running ensues with a few pustules about the wound, yet none upon the rest of the body, the person need have very little apprehension of being ever again seized with the disease. This exactly coincides with the observations of European Inoculators.

MR. Holwel informs us, that Inoculation in India has to encounter prejudices as in Britain, but almost all recover: he also assures us, that the disease is very little spread from this artificial stock of poison, and that it does not exasperate the malignity of the natural Small-pox, which in that country are exceedingly fatal.

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THIS ingenious gentleman during twenty-eight years, in which he resided in the province of Bengal, observed that every *seven* years, Small-pox returned periodically, and always proved of a malignant kind. If the septennial recurrence should, after a longer trial, a century for instance, be found a constant law, it would be an additional circumstance in favour of the influence of the Pythagorean or harmonic number. During the hot season in March, April, and May, this periodical Small-pox rages with unbridled fury amongst natives and foreigners, until the rains in June abate its fury. For this reason the Inoculators usually begin their work in February, before the return of the natural disease is expected, and that disposition of the air favourable to rouse the dormant venom into activity. In the rainy season there, Mr. Holwel has seen a malignant Small-pox, which killed numbers, so early as the second or third day. He has remarked in this pestilential species, that turkeys, capons, fowls, poultry, and other species of the feathered tribe, were seized with the infection and died in considerable numbers, as in cases of the plague. A parrot that died of

this disease he opened, and found the intestines lined with pustules. Authors have mentioned some rare instances in England, where a highly malignant Small-pox infected poultry and pigeons.

LET us now carry our inquiry to the extremity of Asia, and search for further information respecting the Small-pox and Inoculation, amongst a nation which disputes antiquity and chronology with the Egyptians.

In the *Lettres Edifiantes & Curieuses*, written in the present century, we are informed by a missionary Jesuit then residing at Pekin the capital of China, and who, with several others, had embarked on the fruitless errand of converting that nation to Christianity, that Inoculation had been practised there from about the middle only of the last century. The Chinese method was to roll up in cotton a few of the dried scabs, which had fallen off from the variolous pustules, and which were kept ready for use in a bottle close stopp'd with wax: small pledgets of these were put up the nostrils, where the skin is thin, and in that way the artificial disease was in a few days communicated; or the dried
scabs

scabs powdered and snuffed up the nose, answered the same purpose.

THE letters above alluded to relate, that during the year 1724 a virulent Small-pox was ravaging Tartary, and that the emperor of China, with a laudable humanity, had dispatched the physicians of his court to Inoculate the Tartars. The success of the physicians, our author concluded, was great, as they returned back loaded with rich presents. In the same letters we are told, that Inoculation was first practised on the eastern coast of China towards Japan, and in the province of Kianan, and therefore on the opposite side of that extensive empire to India. Indeed there is no similarity in the East Indian and Chinese Inoculation, that could induce us to think both to be derived from the same original: chance in all probability gave rise to the discovery in both nations; reason and observation afterwards improved this fortuitous hint.

So far as I can learn we do not know how ancient Small-pox is in China; nor in my opinion, have we yet sufficient evidence to date the origin of Inoculation in that country. Travellers have been too frequently imposed upon, and have so often trespassed upon
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the credulity of their readers, that it is prudent in matters of consequence, and without corroborating testimony, to receive their reports with caution and distrust.

The beginning of the 15th century, every one knows, is one of the most brilliant epochs in the annals of the world ; but mankind did not receive the fruits of the new and illustrious discoveries then begun in geography, literature, and arts, without some alloy. In 1492 Hispaniola, an island situated at the western verge of the Atlantic, was discovered by Columbus, and by other adventurers in succession, the contiguous extensive continent of America. A general exchange of diseases, remedies, and natural productions, soon ensued between Europe and this new discovered continent. In return for the Venereal disease, a distemper never before heard of in any part of the old world, the Europeans *first* communicated to the American Indians that dreadful scourge of the human race, Small-pox. There, at different intervals, it committed such inexpressible carnage amongst the unseasoned natives, as had nigh depopulated that continent. In 1520 the infection was carried into Mexico by a negro slave of Spain, when

when half of those infected died of the distemper: in 1588 it was carried into Peru, and still later into Paraguay, where Small-pox are said to have proved more fatal to the natives than in any other part of the world, hardly any recovering from the disease: amongst the adult Indians of Brazil, who used to go naked, and to paint their skin, it was generally certain death.

EUROPE and America were but lately supplied with the only safe and defensive shield, worthy of divine original, against this inveterate enemy. Our earliest information in Britain of Inoculation, and its utility in surprizingly diminishing the mortality of Small-pox, was from Emanuel Timoni, a Greek physician, in a letter to Dr. Woodward, and dated at Constantinople, 1713. In 1715, in another epistle from the same author to the Royal Society of London, he says, that forty years before the above date, Inoculation had been introduced into the capital of Turkey, from two of the Asiatic provinces bordering on the Caspian Sea, Circassia, and Georgia. An account of the Circassian practice may be seen in Mottraye's Travels to that country in 1712. Another eye-witness of Inoculation
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in Turkey, Kennedy, an English surgeon, in the same year with Timoni, published some observations on the subject. Pylarini's account of Inoculation at Constantinople, where he then practised medicine, was published at Venice, 1715; in which year several thousands were inoculated in the Turkish capital. The Turks themselves as Mahometans and fatalists, and obstinately attached to the dogmas inculcated in the alcoran, which command them not to fly even from the plague, rejected inoculation, and it was adopted only amongst the Greeks, Armenians, and Christians. In Greece and the adjacent island of Candia it had been a practice during one or two centuries earlier. At Egypt, Tripoli, Tunis, Algiers, and other provinces of Africa subject to Turkey, Inoculation had likewise been long known, and had extended so far south on the African continent as the river Senegal: probably the practice was first carried to these countries, by the provincial soldiers, sent from Circassia to the remote garrisons.

BESIDES the security afforded by Inoculation, we learn that the Circassians and Georgians were induced to this practice by an additional

ditional and powerful motive, avarice, in order to preserve the beauty of their female children, and to sell them at higher prices to the rich Turks and Persians as mistresses. The variolous matter they transferred by a small scratch made in different parts of the body, previously dipping the point of the needle into a ripe pustule, or into a nut-shell full of variolous infection. Many Greek women at Constantinople exercised the function of Inoculators. They also unnecessarily made four or five scratches, resembling in most respects the Circassian method; and accompanied the operation with some superstitious ceremonies and tricks, to render it more acceptable to the vulgar and religious notions; a plaster was then laid over these punctures, and after seven or eight days, a slight fever or sickness ensued, succeeded by an eruption of pustules; but seldom or never any violent symptoms or secondary fever, so fatal in the natural Small-pox at their height, were observed to accompany the Inoculated. Timoni reports, that they were indifferent whether the variolous infection was engrafted from natural, or artificial pustules.

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IN 1717, Lady Mary Wortley Montague, the elegant letter-writer, and wife to the English Ambassador at Constantinople, had her son Inoculated in that capital, by Maitland, an English surgeon. 1725, Dr. Mead and Mr. Maitland made the experiment of Chinese Inoculation upon one of seven condemned criminals in Newgate, and of the Turkey practice upon the other six, all of whom by that means obtained a pardon from the king, and recovered; but in the former case the brain was dangerously affected, and in all probability the Chinese practice will not be hereafter revived nor imitated by any other nation. On Lady Montague's return to England in 1722, her young daughter was Inoculated by a slight incision on each arm, and is the first person of any rank inoculated in this island. Timoni had substituted this simple mode of conveying the artificial disease. A few months after Miss Montague, the Princess Royal and some others of the Royal Family were Inoculated.

1722 Inoculation was carried to Boston in North America, and attended with the same happy effects as in London, amongst the
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the handful who had the resolution to entrust their lives to that protection.

FEARS and strong prejudices almost universally prevailed against a practice so novel. Several physicians wrote against Inoculation: they condemned it as a hazardous experiment, as tending to multiply infection, and, as they argued, the number of deaths: they also alleged, that in the small portion of variolous poison, inveterate hereditary diseases might be communicated. Many divines and foolish bigots, inflamed with a mistaken zeal, preached against the practice as impious, and an insult to the divine decrees; they exclaimed that it bore a stronger resemblance to magic than to physic; and to crown this fiery rhapsody, that the devil had Inoculated Job. Others with ignorant effrontery asserted, that Inoculation would not prevent the attack of the natural disease. A variety of objections and falsehoods were invented to depreciate this important discovery. In 1723, a considerable mortality happened in London by Small-pox, which the opponents ascribed to Inoculation; but Dr. Jurin, its fostering patron, proved, that the mortality by this disease was in January and February, and that

no person was Inoculated before the twenty-seventh of March, and then a very small number. The severity of this natural epidemic notwithstanding contributed with the causes before mentioned, to increase the public distrust in this island, and to turn Inoculation into discredit.

DR. Jurin, from 1723 to 1727, published several detached papers in the Philosophical Transactions, comparing the mortality of natural Small-pox, and the numbers lost by Inoculation. From a great mass of materials, and many thousands of sick in different parts of England, he found that *one of five or six*, at a medium, died by the natural disease; for in its malignity, there is every where in different years various gradations: this is the general measure of many years mortality, and is the result of later and more enlarged calculations. In Turkey, in the northern parts of Europe, and in Africa, throughout the whole extent of the Mediterranean coast, Small-pox is still more rapacious: in several instances it has been so virulent, as to kill nearly one half of the infected.

AGAIN, of those then Inoculated one of fifty died: but amongst them were included
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young infants, many of whom are cut off by convulsions, which was laid to Inoculation; and some aged persons, pregnant women, and valetudinarians. Besides, a very few trials only had been made of its success: Jurin's list of all the Inoculated in London, and other parts of England, from 1721 to 1727, amount only to seven hundred and sixty-four.

I SHOULD not omit to mention, that in a part of our Island called Wales, a custom prevailed before the introduction of Inoculation from Turkey, of engrafting the Small-pox, and sometimes with superstitious practices. A small wound or scratch was made on the hand or arm with a pin, or a knife, and the variolous matter rubbed in; now and then the pocky scabs were merely rubbed in the hollow of the hands. Dr. Williams, a physician of Pembrokehire in Wales, first informed Dr. Jurin by letter of this practice; it was there a very ancient custom amongst several individuals, and could not be traced back to its origin by the oldest persons: the same fact is well authenticated by collateral evidences. A similar custom prevailed in some parts of Denmark in the last century,

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and is related by Bartholine; but the bulk of both nations, and medical men universally seem to have been entirely ignorant of, or to have overlooked this domestick practice: it appears to have been very seldom exercised, and its peculiar advantages over the natural disease, concealed from the world, until we received illumination from Turkey.

INOCULATION from 1727, languished in England and America until 1738, when it was again revived, and this island had the courage and good sense to set the example to the rest of Europe. (1738) of two thousand Inoculated in the counties of Suffex and Hampshire, but two died; in the same year of one thousand Inoculated at all ages in one province of North America, South Carolina, and in the most unfavourable season during the sultry heats of June, July, and August, but eight died. The havock then made by the natural distemper drove the inhabitants to adopt the only remaining resource from destruction. Middleton in England Inoculated eight hundred, and lost but one. Other Inoculators lost one out of three and four hundred. In the West India island St. Kitt's, of three hundred negroes Inoculated,

lated, not one died. Ranby Inoculated a thousand in England and without one blank. In 1746, a small charitable Hospital was erected at Pancras, in the environs of London, for the double purpose of Inoculation, and to receive during their sickness, persons of indigent circumstances who should be seized with natural Small-pox. Of eighteen hundred Inoculated in this hospital in the course of several years, but eight died. At another period, of four hundred and ninety-six Inoculated at this asylum, but one was lost. In the year 1759, the numbers Inoculated at Pancras were, five hundred and ninety-three, and many of those adults, yet but one died. The Suttons of late years, by their own computation, Inoculated throughout London, and many parts of England, about forty thousand, and as they assert did not lose one hundred. In Pennsylvania and other provinces of North America, of 8000 Inoculated only 19 died, or 1 of 467.

I SHALL follow the reception and success of this signal discovery throughout the other kingdoms of Europe. In 1748 Inoculation was introduced into Amsterdam by Dr. Tronchin, who began the experiment upon his

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own son, and before 1754, Inoculation had spread into several other towns of Holland. In 1754 a malignant Small-pox was committing severe ravages in the Ecclesiastical State of Italy; and on this alarming extremity, several mothers trembling at the impending destruction of their whole family, from the uncommon mortality of the natural epidemic, Inoculated their children when sleeping, and with the desired success. At Leghorn, where some English families were settled, Inoculation had been a few years earlier in use. Haller and Tissot, near the same time, laboured strenuously to introduce the practice into Switzerland: on the other hand, De Haën, of Vienna, and physician to the royal family, wrote impetuously against the innovation, but was ably replied to by Tissot. Some years after, Dr. Gatti, a professor of medicine in the university of Pisa, in Italy, Inoculated one thousand, and without a single miscarriage.

In 1723, a few physicians and patriots of France, had proposed to introduce Inoculation into that kingdom; and nine Theological Doctors of the Sorbonne, who were consulted upon the occasion, declared in favour

vour of the experiment.—Of these humane efforts, one Dr. Hecquet, a sworn foe to all modern innovations in medicine, and an impetuous partizan, declared his disapprobation. The Royal Cenfor, or Reviewer, also stamped this conceited trash of Hecquet's with the seal of authoritative ignorance, and conspired with him in the condemnation of Inoculation. Jurin's Essays were not translated nor published in Paris before 1725, and then they were accompanied with the comments and invectives of his fiery opponent, the notorious Wagstaaf.

FROM 1724 until 1752 no person in the medical profession in France wrote upon Inoculation: throughout that long interval it slept in profound oblivion, when the English publications, and enlarged experience of Inoculators were revived, and exposed to view as a recommendation of the practice.

1754 the public attention of France was further awakened by Mr. Condamine's excellent papers read before the Academy of Sciences, in vindication of Inoculation; and in 1755 and 6 a few of the principal nobility were inoculated at Paris. Numerous pens in that kingdom were then waging

warfare in defence and proscription of this novel experiment; and at the end of four years, Mr. Condamine could collect a list of 200 persons only Inoculated throughout all parts of France. So precarious was its establishment for many years, that at one time Inoculation was interdicted in Paris by an order of the parliament, and was tolerated in the suburbs only.

IN 1755 Mr. Shultz returned to Stockholm from London, where he had been sent by order of the Swedish court, to enquire into the success and mode of Inoculation, particularly at our Inoculating hospital; and in that year a small building for a similar purpose was erected at Stockholm. Of 1200 Inoculated in Sweden before the year 1764 not one died. Denmark adopted the practice about the same time with Sweden. What little progress Inoculation may of late years have made in Poland and Russia, or in two southern kingdoms of Europe, Spain and Portugal, I have not good information.

FROM the different registers of success and miscarriage under Inoculation, and at this day it would be an easy matter to multiply piles of similar examples, we are well authorized to

to draw the following conclusions. According to the immature calculations of Jurin, of those Inoculated *one* of *fifty*, and of Dr. Mead *one* of *every hundred* died; but by the accounts of later date, collected by practical Inoculators and Physicians, on an average, only *one* of *every five hundred* Inoculated die: from the general tenor of Mr. Holwel's Pamphlet, this last porportion would seem to be very moderate also in India; and in support of this calculation, which I believe to be undervalued, a variety of facts have been laid before the reader.

THOUGH the success of Inoculation is unparalleled in affording security from a dangerous disease, and in operating almost as a miracle for the preservation of mankind, yet long habits, ignorance, and superstitious prejudices obstructed its admission for a long time; it had to encounter in every kingdom an host of opponents, and by very slow degrees got a footing. The practice even at present is far from being so universally diffused and encouraged as it merits. I shall hereafter demonstrate, that in England, but more particularly in London, Inoculation is

unfortunately yet in its infancy, and by no means so general as writers have supposed.

AMONGST the vague objections urged against Inoculation, it was affirmed, that the natural disease might afterwards return, Maitland, and all the writers who were acquainted with the practice in Turkey, flatly contradict this loose assertion. The veracity of the few rare cases of that kind produced, are extremely suspicious, and do not probably amount to one in a hundred thousand: some equally singular cases are related of persons undergoing the natural disease a second time; but they both happen so seldom, as to be trifling exceptions to a general law. The pustular eruptions which have been mistaken for the real Small-pox probably gave rise to this error: they are merely what the English call *Chicken-pox*, the French *Verole Volante*, and the Italians *Ravaglione*; they do not often occur, and are seldom dangerous. It has often been tried in Turkey, and other kingdoms of Europe, by a second Inoculation, and by putting them into a bed with persons ill of natural Small-pox, but in either way found impracticable to renew the disease.

OTHERS

OTHERS surmised, that infectious and hereditary diseases might be instilled together with variolous infection. Universal experience proves these to be chimerical conjectures, and in the natural disease there is greater danger of such imaginary combination of Infections; for inchusing variolous matter it is easy to select it from healthy constitutions. Experiments have been made with variolous matter taken from persons labouring at the same time under the venereal disease, yet the latter infection was not ingrafted with Inoculated Small-pox. The true Scurvy, however virulent, every common seaman knows, is neither contagious nor infectious, neither is the Scrophula.

RELIGION was also distorted, and a superstitious stumbling-block thrown in the way to discourage the world from Inoculation; because, say they, a few happen to die from the artificial disease; granted, but the argument can influence blind bigots, or weak minds only; for it is much more powerful against matrimony and population, about three of every two hundred women dying in child-bed, or of diseases attending that state.

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INOCULATION seldom or ever fails to convey the disease. The pustules are in general few; and although only one or two should appear, the person is ever after seasoned against that disease. In Europe and India, there have been numerous instances where no pustules appeared, but only a slight inflammation, and afterwards a suppuration of the scarified part, in which the variolous matter was ingrafted; yet no Small-pox have afterwards ensued.

EXCLUSIVE of the immediate havock by this direful disease in the natural way, numbers who survive are disfigured; an object in the female Sex of more consequence both to the happiness of individuals, and in a political view, as impeding population, than some stoical reasoners may pretend: in multitudes of others, the natural disease is followed by complaints of the breast and consumptions, and a considerable number too annually in this island are from Small-pox deprived of their eyesight. No bad symptoms of this kind follow Inoculation; seldom any considerable sickness or secondary fever attend it. Infection has been taken from a virulent malignant Small-pox,

pox, and in the way of Inoculation produced a mild disease.

CALCULATIONS make but a very small share of adults to have escaped the attack of Small-pox: in great cities perhaps fewer live to mature age, and resist variolous infection. In them especially it is prudent to anticipate surrounding danger and certain hazard. Entire families have frequently been crushed in one general wreck by this distemper; and certainly both sexes arrived at the age of puberty, who have not passed over this perilous abyss, cannot but feel, on many occasions, uneasy sensations of apprehensions and dread.

IN the precise mode of ingrafting variolous infection, Authors and Inoculators are not agreed: the Bramins, and several of the European professed Operators make only one simple incision; others with us make one gentle incision on each arm, to be sure of conveying the poison, and to prevent a possibility of miscarriage. Dr. Tronchin removed the thin external skin by a small blister alone. Cotton is used by some, by others a thread, each impregnated with matter from a ripe pustule; these are laid on the scratch or wound,

wound, and over all a plaster. Some again dip the point of a lancet, others a needle or pin into a ripe pustule, and by a slight scratch in both arms convey the disease to another person: this may be done to children during sleep, and no plaster is required: but in approaching too near the sick to be Inoculated from one of their pustules, there may be danger of catching the natural disease, or it may be caught from the attendants. Care likewise should be taken not to Inoculate from the Chicken-pox, lest the true natural disease should afterwards return. Dr. Sims assures me, that he has seen several instances where Inoculation took effect from this spurious Infection, after which the same persons were Inoculated from the real Infection, which produced the usual symptoms and appearances. The Bramins use the *artificial* matter of the preceding year, preserved in a bottle close stopped; Inoculators with us generally employ fresh matter, and taken indifferently from natural or artificial pustules. Some prescribe elaborate and complicated preparation by diet, mercurials and purges, previous to inserting the variolous infection. Dr. Gatti, before
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mentioned, and who wrote a sensible treatise on this subject remarks, and I believe justly, that the more simplicity is used in transferring the disease artificially, the practice and public benefit are likely to be more universal. His only care was to see that the subject was in health: fresh air and amusements were the only severities of his regimen throughout Inoculation. Several of our European Inoculators often, with officious industry, exercise a superfluous preparatory parade of professional and scientific craft: young children especially may dispense with many of these redundant ceremonies.

WITH respect to the proper season for Inoculation, the custom with us is to avoid the extremes of heat and cold—in the northern kingdoms of the continent the heat is seldom too intense to prevent this operation. A universal rule is, or should be, that where the natural disease appears in the neighbourhood, we are to disregard season; and whether the air is chilled with frost, or scorched with heat, we are of the two evils to chuse the least, and to fly instantaneously to Inoculation.

THE introduction of Inoculation into England, and into other parts of Europe, the authors, and controversies in support and detraction of the practice, may be learned from Dr. Jurin's papers, from Dr. Kirkpatrick's History of Inoculation, from "*Histoire de l'Inoculation, par Mr. de La Condamine,*" and from the Authors already quoted in this general historical sketch.

AN alarm has of late years been created against general Inoculation in London and other great cities, at the private houses of the inhabitants, and in printed treatises it is represented as big with danger to the public safety: such I have reason to believe is the opinion of many medical men. I hope, notwithstanding the high authority of many foreign writers, of Baron Dimisdale in London, of the Critical Reviewers, and some periodical magazines, effectually to remove every objection to general and universal Inoculation; and that upon perusal of the following section, which is dedicated to that subject, the broachers and leaders of this ruinous alarm may be converted to as public a recantation of their errors.

S E C T. I.

Whether general Inoculation in London and other Cities, at the private Houses of the Inhabitants, would be beneficial or hurtful to the Community at large.

THE London Bills of Mortality show, that within the last hundred years, in this city alone, upwards of two hundred thousand persons have been cut off by one single disease, Small-pox. As in all other epidemical diseases, so in Small-pox, there is a fluctuation in the deaths, some years they are high and in others lower; but examine the London Bills so far back as 1629, when the different diseases of those who died were first inserted, you will not find in all the interval from that down to the present time, that deaths by Small-pox in any one year, ever amounted to four thousand. 1772, which is the highest rise, they stand at three thousand, nine hundred and ninety-two: “communibus annis” about two thousand annually are destroyed in London by this unrelenting foe.

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WE are to remember, that in several populous parishes the births and deaths are not registered, otherwise the London catalogue of funerals would appear considerably greater; and that from 1629 to 1733, twenty large parishes have been added to the original bills; to judge fairly therefore of the effects of Inoculation in London, we should not go far back into those records.

LET it be supposed, that two thousand annual deaths by Small-pox fall out of six hundred thousand inhabitants in London, and contained within the bills. I only mean to settle gross proportions, and to come near the truth; and computing the inhabitants rather more numerous than what some calculators will allow, is for our purposes a safe error. If out of six hundred thousand inhabitants, two thousand die annually of Small-pox; then throughout *nine* millions in Britain and Ireland, *thirty* thousand annual deaths may be set down to this disease. Numbers without doubt in the country live and die at an advanced age, without undergoing this distemper; on this account diminish the entire national and annual loss of the two kingdoms, if you think proper, to a half of thirty; still it will be obvious,

obvious, that by constantly operating, many more of the inhabitants of a nation are swept away by Small-pox alone, than by the most bloody wars, which break out at distant intervals only, after a hollow truce of several years pacification.

BARON Dimfdale had the honour to be sent from England in order to Inoculate the present illustrious Czarina of Russia. He there published a treatise on the Small-pox and Inoculation; and since that it has been reprinted in London with the Baron's additional annotations. This Author says, page 15th, " we see that even in London, where
 " the climate is temperate, the disease well
 " known, and the treatment of the sick
 " very ably conducted, this *single disease*
 " *destroys more than the eighth part of the in-*
 " *habitants;*" and in page 16th, he proceeds thus: " If therefore in London, which en-
 " joys the many advantages already recited,
 " *more than two thousand persons die annually*
 " *of Small-pox,* we may surely suppose that
 " the loss which Russia in its whole extent
 " sustains in the *same space of time* amounts
 " to *two millions* of souls."

THE Baron's last proposition is egregiously erroneous, it is an exaggerated calculation, repugnant to fact and reason. Allowing that through Great-Britain and Ireland, the mortality by Small-pox keeps pace with London, and that out of nine millions of inhabitants, thirty thousand fall annual sacrifices to this disease; how many can we rationally conclude would be the total mortality by the same distemper, throughout Europe, in an equal period? Mr. Voltaire, if I recollect right, calculates the inhabitants of Europe at one hundred and seven millions; probably one hundred and twenty millions, the number formerly said to be contained in the Roman Empire under Trajan and the Antonines, will be a more exact estimate. On this supposition, and taking Britain and Ireland as a radix, the annual deaths by Small-pox throughout all the kingdoms of Europe, will amount only to *four hundred thousand*.

RUSSIA by several calculations contains fourteen millions of inhabitants: no authentic enumeration that I have consulted, makes the subjects of that Empire to exceed sixteen millions; and in these are included all who inhabit the extensive and inhospitable deserts
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of their Asiatic dominions in Siberia. It is therefore impossible that *one eighth* of those, or two millions, can be annually cut off by all the diseases united: 1 of 32 to 35, embracing Town and Country, is nearer the usual decrease. There is no kingdom in Europe comparatively, that suffers one third, very few one fourth of the annual waste by every deadly disease combined, which Baron Dimsdale assigns to Small-pox alone in Russia. An "actual Counsellor of State," a title annexed to Baron Dimsdale's Russian honours, should be a little better informed in history and political arithmetic, and particularly in the number of the Russian inhabitants; but "*one of the Body Physicians to her Imperial Majesty,*" stands inexcusable in promulgating such wandering notions of subjects intimately connected with his own profession.

I CAN readily grant, that in Russia the disease is more fatal than in Britain; but yet when we reflect upon the wide and dreary extent of the Russian Empire, the small proportion of inhabitants, their imperfect communication and difficult intercourse, and that many parts are rude and uncivilized; great

numbers there must be supposed to live and die without being visited by variolous contagion. I am willing to make every concession in favour of Baron Dimisdale; let Small-pox in Russia be as inhuman as he chuses, and armed with the most incredible ferocity; if one eighth or two millions of the inhabitants are annually destroyed by it, then in the short space of a single year, all other diseases sweeping away the remaining seven parts, every human soul in the Czarina's dominions would be entirely exterminated, the country reduced to a desert, and over-run with wild beasts.

A QUESTION of infinite magnitude and importance to mankind, now remains to be discussed, whether by Inoculation in London and other great Cities at the private houses of the Inhabitants, contagion is not more likely to be dispersed, and upon the whole the community at large to be more injured than benefited by the practice?

LATELY this subject has been canvassed in printed publications by medical gentlemen of great professional abilities. One side has recommended general Inoculation throughout Town and Country, and a Dispensary has been

been erected upon those humane motives, in order to render the effects more extensive. All the poor who chuse to apply for themselves or families are to be Inoculated gratis, and where the case is attended with any danger, they are to be furnished with medicines and medical advice at their own habitations.

THIS scheme and effort of benevolent humanity and disinterested patriotism, has been opposed by Baron Dimisdale, and unfortunately for the public with too much success; the attempt is calumniated by him with considerable heat, and passionate zeal. Public appeal has been made. Baron Dimisdale has printed several pamphlets on the back of each other, to represent the general Inoculating institution as "rash, inconsiderate, and highly dangerous." He arraigns his medical antagonists with "urging artful untruths, "and notorious falsehoods; he accuses them of "wanting common honesty and humanity;" and in some of his latest pamphlets, he suggests as a simile in point, "that an action of damages would lie against a person, who, "by Inoculating *horned cattle* for a contagious disease, should spread it in the neighbourhood." We are to observe, that Ba-

ron Dimfdale's interdictions are "solely directed against Inoculating the poor, laborious, and middling classes of people at their own houses," for in all his publications he allows that the "*rich and gentry may secure their families by timely Inoculation.*" Indeed it is a principal part of his own practice in London.

I SHALL endeavour to state, with equal candour, and with as much brevity as possible, the arguments advanced by each of the disputants. Of all the publications upon this controversy, I shall exhibit to view but two, that of Baron Dimfdale, and another, the joint production of two very learned Physicians, Dr. Watkinson, and Dr. Sims; the two gentlemen who first recommended a Dispensary, and who, together with another Physician of distinguished abilities, Dr. Letsom, offered their services without fee or reward, to render Inoculation more general and useful to London and to the nation.

BARON Dimfdale, the leading and ardent champion against general Inoculation in London, "at the houses of the laborious poor, and middling trades people," rests his opposition upon the following principles: I
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give the abstract and substance in his own words. I must also do the Baron the justice to say, that seemingly, he has devised, urged, and exhausted every specious argument on that side of the dispute. On that account, I have singled him out, because, in refuting his objections, I shall silence all the ordinary herd of writers, and opponents against the universality of Inoculation.

“ THOUGH the loss under Inoculation is
 “ very inconsiderable, *almost the whole* of those
 “ that are Inoculated recovering, yet by
 “ spreading the disease, a greater proportion
 “ take it in the natural way: *more lives* are
 “ now lost in London than *before Inoculation*
 “ *commenced*, and the community at large sustains a greater loss: the practice therefore
 “ is more *detrimental* than *beneficial* to society. In the last four years preceding
 “ 1776, the London Bills from Small-pox
 “ arose at a medium to two thousand, five
 “ hundred and forty four: this increase is
 “ truly alarming. The disease by general
 “ Inoculation throughout London, spreads
 “ by visitors, strangers, servants, washer-
 “ women, doctors and Inoculators; by
 “ means of Hackney Coaches, in which the
 E 4 “ sick

“ sick are sent out to take the air, or by
 “ found persons approaching them in the
 “ streets.

“ THE poor in London are miserably
 “ lodged; their habitations are in close alleys,
 “ courts, lanes, and old dirty houses: they
 “ are often in want of necessaries, even of
 “ bedding. The Fathers and Mothers are
 “ employed constantly in laborious occupa-
 “ tions *abroad*, and cannot attend the Ino-
 “ culated sick; should they neglect their oc-
 “ cupations, food and necessaries would be
 “ deficient, and the medicines and diet or-
 “ dered by the physicians would not be re-
 “ gularly complied with. The air in
 “ their houses is impure: they have neither
 “ areas, gardens, nor *carriages* for the
 “ convenience of ventilation, and taking
 “ fresh air.

“ SAILORS and sea-faring people, many
 “ of whose lodgings are miserable in the little
 “ houses bordering on the river, would be
 “ liable to catch the distemper, and either to
 “ fall sick there without friends or assistants,
 “ or perhaps being infected on shore, to car-
 “ ry it to sea in their contaminated cloaths,
 “ and afterwards falling sick without care or
 “ attendance,

“ attendance, might spread the disease in foreign climates.

“ COUNTRY people coming to town for markets, visits, or pleasure, would all be subject to the danger of infection. Persons coming from the sick to the general (Inoculating) Dispensary, for medicines or advice, by intermixing in the streets, the *public* danger from their infected apparel would be *great* and inevitable: the whole neighbourhood would be exposed, and in imminent danger, by having the Small-pox brought to their doors. The gossiping disposition of the poor will spread it further, and after the sick recover falling forth in their infected cloaths, is certain to add to the mischief. The children who are able to run about will intermingle in the streets, immediately upon their recovery, with their play-fellows: the success therefore derived from general Inoculation will be beneficial to a *few* only, but involve a great number of others in danger, to which they would otherwise be less exposed.”

As a remedy against all those inconveniences and dangers from Inoculating the poor
and

and middling trades people at their own houses, Baron Dimsdale addresses himself
 “ to the legislature of Great-Britain, and to
 “ the charitable contributions of the rich
 “ and humane, to enlarge the Inoculating
 “ Hospital at Pancras, adjoining to the city.”
 This Hospital at present (if I am not misinformed) makes only *one hundred beds*, and none are admitted under seven years of age.

“ THE *rich* (continues Baron Dimsdale)
 “ availing themselves by timely *Inoculation*,
 “ *secure their families*, but the loss falls
 “ chiefly on the offspring of the inferior
 “ trades people, and labouring poor. To encourage partial Inoculation amongst them
 “ would be only spreading the disease amongst
 “ their neighbours, and increasing the evil.
 “ In Country Towns, large Hospitals will
 “ not be required: it will be *necessary only* to
 “ obtain the *unanimous consent* of all the inhabitants of a town, district or parish to
 “ be Inoculated at one and the same time:
 “ for if some only are Inoculated, and others
 “ excluded, the disease will spread through
 “ the vicinage, and be fatal to many. In
 “ London and other great cities, such *general*
 “ *consent* of those who have not undergone
 “ Small-

“ Small-pox, cannot be had to submit to
 “ Inoculation.” This the Baron justly con-
 sidered as an impracticable chimera, and never
 to be accomplished. “ He adds, that before
 “ Institutions of this kind (the Inoculating
 “ Dispensary) should be tolerated, the le-
 “ gislature ought first to be consulted.”

THE danger of multiplying and spread-
 ing variolous infection by general Inocu-
 lation, is obviously the main pillar and
 prop, upon which Baron Dimsdale builds
 all his arguments and rhetorick. To ob-
 viate this suppositious danger the gentlemen
 who patronize general Inoculation amongst
 the poor and laborious orders at their own
 houses assert, “ that the instances are ex-
 “ tremely rare, where the disease is spread
 “ from Inoculated persons so as to excite
 “ Small-pox in the natural way:” to prove
 this they appeal to facts and experience; they
 quote a number of eminent Authors, practi-
 cal Inoculators, and other vouchers of repu-
 tation not only in Britain, but in different
 parts of Europe, all of whom expressly main-
 tain, “ *that from the Inoculated, few if any*
 “ *catch the disease in the natural way.*” Mr.
 Holwel’s observations in India, where Inocu-
 lation

lation is very general, corroborate this proposition.

IN reply to those proofs, Baron Dimisdale, from his *own authority*, and instances which fell under his personal inspection, contradicts their facts, and affirms, that infection may be communicated by Inoculated persons, and excite the natural disease. The Circassians or East Indians would be good evidences to this point of dispute. The gentlemen further say, and are confirmed by the testimonies of all experienced Authors, “ that a
 “ certain disposition of the air (not well understood) is necessary to give the contagion
 “ of Small-pox activity, and to propagate
 “ infection in the natural way. They say
 “ too, that from an Inoculating Hospital,
 “ the remedy proposed by Baron Dimisdale,
 “ children under seven years of age can
 “ derive no advantage; and that in large
 “ Hospitals the air is rather more impure
 “ than in the meanest private houses.”

THERE never was in my opinion since the origin of physic, a medical controversy agitated of more consequence to mankind. It is not only a medical, but also a political, and a great national question, and is well
 4 entitled

entitled to the most serious attention of the legislature, and of the discerning public. Intellectual wars without number have been waged in Literature, Philosophy, Medicine and Metaphysics, from which few, except perhaps Booksellers, have derived any active benefit. The present subject is not a matter of indifferent speculation: abundant evidence has been laid before the reader of the immense carnage made by natural Small-pox, and of the inconsiderable number lost by Inoculation; but if Baron Dimisdale's arguments are well founded, the advantages of this glorious discovery will be limited to a very small remnant indeed of the community: nay, the Baron leaves it extremely doubtful and problematical, whether the universal advantages resulting from Inoculation, are not more than counterbalanced by its disadvantages—against its utility in cities his arguments (for I do not mean to insult him by appealing to his daily practice) are peremptory and decided.

I SHALL endeavour to answer all Baron Dimisdale's objections one by one; in doing which, I trust to prove, beyond contradiction, that his ideas of this subject are capricious,

cious, superficial and short-sighted, and that his favourite project (an Inoculating hospital) is crude and exceedingly faulty. All great cities in Europe are deeply interested in the decision of the utility, or injury from general Inoculation; the arguments which apply to London are equally valid in every metropolis and in lesser towns. I proceed therefore to this solemn trial, upon which the reader is to sit in judgment.

“ THOUGH the loss (says Baron Dimsdale)
 “ under Inoculation is very inconsiderable,
 “ almost the whole of those that are Inocu-
 “ lated recovering; yet by spreading the
 “ disease a greater proportion take it in the
 “ natural way, *more lives are now lost in Lon-*
 “ *don than before Inoculation commenced,* and
 “ the community at large sustains a greater
 “ loss; the practice therefore is more detri-
 “ mental than beneficial to society.”

SUCH were the terrors held out to dissuade every nation from encouraging Inoculation amongst them, upon its first introduction from Turkey. If the argument is good for any thing, it must militate in every case against Inoculation in private houses, particularly in London and other cities, and even in
 the

the country, whether rich, gentry, or poor; because, according to Baron Dimfdale, the infection is in that way spread, and the public loss is greater. Why therefore it may be asked, does Baron Dimfdale labour all in his power to increase the disperſion of variolous infection, and to injure the community at large, by Inoculating all rich perſons in London and its vicinity, who employ him? Do not his actions flatly contradict his oſtenſible cares for the public ſafety? I am hurt at being under the neceſſity of deſcending from the dignity of my ſubject, and bringing home an argument rather perſonal; but the reader will perceive it is entangled in the diſpute, it is extorted from me and inevitable. When Baron Dimfdale ſtood forth the medical Goliath againſt Inoculation in London, he ſhould have foreſeen that men would be confounded with ſuch glaring inconſiſtency upon being told, that few phyſicians Inoculated ſo many at private houſes in this city, and its neighbourhood, as himſelf.

“ IN the laſt four years preceding 1776,
 “ the London Bills from Small-pox aroſe at a
 “ medium to two thouſand, five hundred and
 “ forty-four: *this increaſe is truly alarming.*”

BARON

BARON Dimisdale lays this increase at the door of general Inoculation disseminating variolous infection. As an effectual answer to this aspersion, I refer the reader to the London Bills of mortality *four* years immediately preceding 1720. In 1715, Inoculation had been mentioned in a letter to the Royal Society; but for several years after, no persons submitted to the practice in London, nor in England. Now the deaths by Small-pox in these *four* years amount to eleven thousand, seven hundred and forty-one, or nearly to three thousand annually, before Inoculation commenced. Go still further back into the Bills, and before Inoculation was heard of in England; in some years Small-pox deaths swell to two, and even to three thousand: in 1710, they amount to threethousand, one hundred and thirty-eight, 1686, to two thousand, four hundred and ninety-six; 1681, to two thousand, nine hundred and eighty-two; 1674, to two thousand, five hundred and seven. In 1721, so cautious and fearful were they of Inoculation in London, that in that year experiment was made of its effects upon six condemned malefactors in Newgate, who by that means re-
deemed

deemed their lives. From 1722 to 1727, Dr. Jurin could collect but seven hundred and sixty-four persons Inoculated in all that interval, including London and other parts of England; yet notwithstanding in twelve years only, from 1715 to 1728, Small-pox deaths in London amount to twenty-seven thousand, three hundred and sixty-seven; or nearly to two thousand three hundred annually. These facts surely are sufficient to exonerate Inoculation from adding to variolous mortality in the metropolis.

FOUR years besides is too short a period to erect substantial conclusions upon: there is an ebb and flow in natural Small-pox as in all other diseases, especially of the febrile class, those left behind in former years are often in the succeeding swept away. Epidemical and particularly contagious diseases, cannot be expected to keep upon an annual equality. In some years of the London Bills the burials have been double the births; here is more real reason for *alarm*: nor does Small-pox keep pace with the general mortality: in 1741, the annual burials of the metropolis were thirty-two thousand, one hundred and

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sixty-

sixty-nine, and in this number Small-pox but one thousand, nine hundred and seventy-seven. In many other diseases, both acute and chronic, the mortality of each varies in some degree annually: it cannot be expected to be quite so regular as the motions of time, or the revolutions of the planets.

LONDON inhabitants fluctuate, which may occasion some difference: besides, in the last *twenty* years the total annual mortality has considerably decreased, and this is one reason why Small-pox appear in the four years picked out by Baron Dimsdale *comparatively* greater than formerly, amounting, as he says, to one eighth of the deaths. From 1720 to 1759, the proportion of deaths by Small-pox to all other annual deaths in London, were as 1 to 11, 12 and 13; and forty years is a better foundation to build upon than four. One to 13 and 14 is also the proportion of Small-pox mortality in Paris.

AGAIN, when two thousand, five hundred and forty-four have died in one year by Small-pox in London, it is demonstrable that the greatest number of the sick must have been seized with the *natural* Infection; for out of *one million* Inoculated, rating the blanks at
one

one of five hundred, agreeable to the modern and broadest calculation, so many deaths would not have happened. Now attend to the deduction from this plain proposition. The annual deaths by Small-pox in London being two thousand, five hundred and forty-four, and one out of six dying of the natural disease, which is the usual average in Britain; in this case fifteen thousand, two hundred and sixty-four, or near to that amount, underwent the distemper each year, in the natural way in this metropolis. This is nearly equal to the annual births in the same register. How many more were Inoculated, I cannot pretend to alledge. Such a multitude of variolous sick could not possibly be confined to the new annual recruits from the country; and as the majority of those emigrants are advanced near the age of puberty, or have passed that period, we may infer, that numbers of them have already escaped through the perils of Small-pox. Therefore, where fifteen thousand, or even twelve thousand have in one year been infected with natural Small-pox, without adding the Inoculated; is there not a copious magazine of contagion in London to spread the dis-

ease? During one hundred and fifty years that is since the diseases were first marked in the Bills, London has never been *one* year free from variolous infection. Baron Dimf-dale, in his anxious solicitude and alarming apprehensions lest the poor Inoculated at their own houses should disperse the infection, seems entirely to overlook those fifteen thousand persons labouring annually under natural Small-pox; their families, friends, and visitors probably amount to treble or quadruple this number: here is a large army to propagate variolous infection, and which cannot be smuggled into a narrow corner, or penn'd up in a few streets.

BARON Dimfdale speaks of Small-pox in London, as if the infection was either imprisoned in the variolous Hospital; or as if he carried the whole poison in his waist-coat pocket, enclosed in a small box or vial, and enveloped in a little cotton or thread for the use of private Inoculation amongst certain ranks of the inhabitants: cannot the contagion find any exit from the house of a rich man amongst the rest of the community? Or will any rational person consider variolous infection in this city in the same light as an
Egyp-

Egyptian plague just landed, and confined to a single bale of goods? In fact the numbers required to be Inoculated in London, would not considerably exceed those who now undergo the disease in the natural way; and when we reflect upon the small proportion of pustules in the Inoculated compared with the natural disease, so far from variolous infection being multiplied in absolute and gross quantity by general Inoculation, it would be greatly diminished.

CERTAINLY there is every year in London, abundant variolous infection to diffuse the disease over the universe, provided the communication was open, and the intercourse general: the enemy is in every corner of the city, and leaves behind melancholy marks of his visits; at least no obstacle prevents the infection from being daily scattered through the metropolis amongst sound persons, by all the luxuriant train of carriers expatiated upon, and painted with such strong poetical colouring by Baron Dimisdale: “ by
 “ visitors, strangers, doctors, inoculators, ser-
 “ vants, washer-women, by servants in the
 “ streets in search of doctors or medicines, or
 “ employed in other necessary avocations, by

“ hackney coaches in which children take
 “ the air, by children on their recovery mix-
 “ ing with their play-fellows,” &c. The
 danger in this case is much greater to the
 public, from the infection of natural Small-
 pox being dispersed, than if it had been
 emitted from Inoculated.

“ THE poor in London are miserably
 “ lodged; their habitations are in close al-
 “ leys, courts, lanes, and in old dirty houses;
 “ they are often in want of necessaries, even
 “ of bedding; the father and mother are
 “ employed constantly in laborious occupa-
 “ tions abroad, and cannot attend the sick;
 “ should they neglect their occupations, food
 “ and necessaries would be deficient.”

To this I reply, that few in London of
 the laborious classes are so poor as to be to-
 tally destitute of the necessaries of life and
 bedding. I mean, that a very small number
 die in the year, immediately at least, from that
 cause. In my fourth table of the London
 Bills during fifteen years, the number starved
 amount only to 53, and in the fifth table,
 an equal period, to 57.

By this observation, I have no intention to
 insinuate that the laborious poor live so com-
 5 fortably

fortably as should be wished. It would give me sincere pleasure, if every man in England could sit down daily to roast beef and a tankard of ale, but my wishes are of no consequence. Luxury and necessaries likewise in different ranks of life have very different significations; nor do the sick of young children, such as those proposed to be Inoculated, require any expensive food; their diet in fevers, and in health, is simple and not costly.

THE parents cannot both be employed abroad in labour, if they have any young children; the mother must remain at home to nurse, and to cook victuals: neither is it probable that they would be destitute of necessaries and food, though once in a child's life-time the mother gives it constant attendance during the illness of Small-pox. After one week, or at most a fortnight, all danger from Inoculated Small-pox will be over. If the Baron's argument was of any real force, "poor women, and middling trades people's wives," who annually bring forth children, and are usually confined to bed, or at least prevented from doing any laborious work for three weeks or a month should all be starved,

by lying in at their own houses; it would frustrate the first law of nature, and a principal intention of society. Besides, when two or three children of a family are Inoculated at one time, all danger and expence will be over in two or three weeks; but in the natural Small-pox the family generally fall ill alternately, and if numerous, linger some months in affliction: here the apprehensions of starving are much more serious and better founded.

“ MEDICINES and diet ordered by the
 “ physicians would not be regularly com-
 “ plied with: the air in their houses is im-
 “ pure: they have neither areas, gardens,
 “ nor carriages for the convenience of ven-
 “ tilation, and taking the air.”

VERY few of the poor can afford to consult physicians, those only excepted, whom public Dispensaries, or private humanity may send to their aid. A physician's fees, unless they attended as Dr. Sims and Watkinson generously propose, gratis, would make a compleat famine in a poor man's house for several months. Great delicacies, and a heap of medicines are very seldom necessary in In-
 inoculated

oculated Small-pox. In Circassia the women are the physicians and Inoculators,

WITH respect also to the impurity of the air in their houses, and their being destitute of gardens and open areas, so are several hospitals in this city; and I apprehend, that the poor in sickness would prefer their own humble cabins, or as the Baron is pleased to term them, dirty houses, unless the disease should happen to be lingering and protracted to a great length of time, or in sudden accidents which require expert surgical assistance. The modern public Dispensaries which humanely supply the poor with medicines and advice, and when necessary, attendance at their own habitations, are much more cordially resorted to, than large hospitals. Poor persons may not possess the means of purchasing all the necessaries and delicacies suited to their weak and sick appetites, yet they will be more contented to remain in their domestic cells with their families and friends, than to be placed under the care of old callous nurses, exposed in the open wards of an hospital, disgusted often with offensive sights, perhaps loathsome diseases, disturbed by the groans of twenty other sick in the same apartment,

partment, their minds too frequently alarmed, dejected, and shocked at the gloomy spectacles and horrid assassinations of death. If Inoculation is to be with-held in London from the poor until they get "gardens, and areas to their houses, and *coaches* "to take the air," they may wait to the day of judgment, for the completion of this extraordinary metamorphosis.

CUSTOM has powerful effects both in air, food, and manner of life, when persons are advanced a short way in years. At all events, bad impure air will be more hurtful in natural and malignant Small-pox, than in the mild artificial disease. The impurity of London air is also equally strong through infancy; particularly until children reach seven years of age. Some thousands before this period are annually poisoned by the London atmosphere, who would have survived, had they been nursed in the country with equal tenderness and attention. London children after arriving at that stage, are tolerably seasoned and habituated to their native element. This is obvious by consulting all the tables of comparative mortality at different ages, in the second chapter of this work.

" SAILORS

“ SAILORS and sea-faring people, many of
 “ whose lodgings are miserable, in the little
 “ houses bordering on the river, would be
 “ liable to catch the distemper, and either to
 “ fall sick there without friends or assistants,
 “ or perhaps being infected on shore, to
 “ carry it to sea in their contaminated
 “ cloaths; and afterwards falling sick with-
 “ out care or attendance, might spread the
 “ disease in foreign climates.”

SAILORS are not the poorest class of people; their owners and captains will always be ready to supply them with money in this short sickness, and to provide them with nurses and medical advice: besides their lodgings on the side of the river would have one excellent advantage in being airy, and constantly ventilated by the tide. As to the falling sick afterwards at sea, the danger is rather imaginary; I know of no instance, (and I have read not a little upon that subject) since the introduction of Inoculation into this country, where either a British army, or grand fleet, suffered any considerable mortality by Small-pox, though that disease has broke out in a virulent degree, amongst
 a small

a small number in camps, and on board ships of war.

PRINGLE, Lind, and Monro, three standard medical authors upon army and navy diseases, never mention Small-pox as one of the principal epidemic causes of mortality; and we may presume, it could not have been kept a profound secret from gentlemen of their knowledge and penetration. Lind gives a catalogue of diseases, (not deaths) in the naval hospital at Portsmouth, during two years: out of five thousand, seven hundred and forty-three sick seamen, only fifty-three are set down as infected with Small-pox. To some of the North American troops, in which country great prejudices still prevail against Inoculation, and until lately the contagion was guarded against as a plague; this disease has during war, proved more fatal. It is another extraordinary argument to express such fears about sailors carrying the disease to foreign climates: what kingdom or climate is free from variolous contagion? The Baron is under great anxiety lest a sailor, or a merchant vessel should transport, and spread the disease in foreign climates; but in London, where twelve or fifteen thousand have annu-

annually been ill of the natural infection, he talks of the public danger as great and inevitable, should the laborious and industrious class be Inoculated at their own houses.

“ COUNTRY people coming to town for
 “ markets, visits, or pleasure, would all be
 “ subject to the same danger: persons com-
 “ ing from the sick to the general Dispen-
 “ sary for medicines or advice, by intermix-
 “ ing in the streets, the public danger from
 “ their infected apparel would be great and
 “ inevitable: the whole neighbourhood would
 “ be exposed and in imminent danger by
 “ having the disease brought to their doors.”

COUNTRY people coming to London will undoubtedly be more exposed to contagion; but even in country villages, I imagine that very few are grown up to the age of twenty, who either have not had the Small-pox, or have not been several times exposed within the sphere of variolous effluvia: but if Inoculation was universal in the early parts of life, all danger of spreading the disease to this description of persons, and to every other denomination arrived at maturity, would subside: it is because Inoculation is yet partial, that the public safety is in danger.

If there is any meaning in Baron Dimf-
dale's terrible apprehensions, "*that the pub-
lic danger would be great and inevitable,*" &c.
it implies that by general Inoculation at pri-
vate houses, London would be in imminent
danger of being ravaged and depopulated
as by a true pestilence, in which one, some-
times two thousand have perished in a single
day, or in a week: the interpretation may admit
of a milder construction, but yet something
analogous, and possibly inferior in virulence.
This alarm I believe is advanced without
mature consideration. I build my opinion
upon the two following solid reasons: Small-
pox in the course of the last hundred years, has
destroyed at a medium in London, about two
thousand annually; consequently at least six
times two or twelve thousand (or probably
more) were every year afflicted with the na-
tural disease, and a small number compara-
tively remained behind untouched; many
of the new settlers must also have passed
over this danger before their arrival in the
capital: my second reason is, that in the
space of one hundred and fifty years, in all
which time London has never been one year
exempt from Small-pox, the annual deaths
by

by this disease have not amounted to four thousand, although during sixty years of this time Inoculation has been known.

MR. Condamine and other writers remark, that at Rome, in the year 1754, a highly mortal and malignant Small-pox raged, and that four thousand died of the disease: 1 out of 3 are said to have been the victims of this malign infection, and of course about twelve thousand underwent the disease. The total annual deaths at Rome then, and for many years after stand at five, six, and seven thousand: (Mr. Condamine has underrated the burials.) In London, though *four* or *five* times more populous than Rome, the mortality by Small-pox, within the Bills, never has reached four thousand in one year. At the Cape of Good Hope, and also in Brazil, Mexico, Peru, Paraguay, and in a few districts of the northern parts of America, Small-pox has tyrannized with the virulence of a true plague, because none of the inhabitants were seasoned, or had passed through that disease; but in the British metropolis, and other great cities of Europe, the case is totally different

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" THE gossiping disposition of the poor
 " will spread it further, and after the sick
 " recover, falling forth in their infected
 " cloaths is certain to add to the mischief:
 " the children who are able to run about
 " will intermix in the streets immediately
 " upon their recovery with their play-fellows:
 " the success therefore derived from general
 " Inoculation would be beneficial to a *few*
 " only, but involve a great number of others
 " in danger which they would otherwise be
 " less exposed to."

DR. Watkinson and Dr. Sims, I apprehend, intended that general Inoculation in London should take place a short time before children begin to cut teeth, provided they are healthy and strong; or immediately after cutting the first sett, between two, and at the utmost four years of age; or even during the interval of teething, if not attended with any extraordinary pain or in disposition of the child. The younger class of these persons will not be liable to spread the disease in London streets amongst their play-fellows. Children carried to the Dispensary to be Inoculated, could not possibly convey the distemper to others in the streets,

nor

nor until after the eruption, which will be from nine to eleven or twelve days after the infection is engrafted: besides, children recovering from the natural Small-pox, fall forth, and intermix with their play-fellows, and disperse the infection in all degrees of virulence: there is no law that I know for their being imprisoned during forty days after their recovery, as is frequently done in cases of plague. “ That *general* Inoculation should be beneficial to a *few* only, and “ involve a great number of others in danger, to which they would otherwise be less “ exposed, is to me a paradox.” What class or proportion of the inhabitants of a kingdom would be involved in danger, if Inoculation was general in the early parts of life? Where we are constantly enveloped in variolous contagion, such arguments are futile and absurd. In great cities no persons can reasonably flatter themselves with hopes of escaping the disease: the voracious foe incessantly keeps possession, and sooner or later is sure to prowl through every street, lane and alley.

BARON Dimsdale next “ addresses himself to the legislature, and to the affluent

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“ and

“ and charitable to enlarge the Inoculating Hospital.” This is the public and only Afylum which he affigns to the poor and middling trades-people to fecure them from the deplorable defolation made by Small-pox. Paris has great reason to curfe its enormous hofpital, the Hotel Dieu, that feminary of corruption and difeafe. Another unanswerable objection to a variolous hofpital is, that under feven years of age no children are admitted, before which period Small-pox will have made its principal depredations amongft the native progeny of London. Should infants at the breaft, or under three years old be admitted, the mothers or nurfes muft alfo be taken in; the young families at home would be then deserted during three weeks or a month, and the expences of the hofpital multiplied. Very few mothers of the laborious inhabitants and middling trades-people, would confent to entruft their young children to the care of ftrange nurfes, at leaft without being permitted to vifit them in ficknefs, and by this means the difeafe might be conveyed in their infected apparel to paffengers in the ftreets, to goffiping neighbours, &c. nor
would

would one fourth of this industrious description, submit to have their young offspring crowded into an Inoculating Hospital, to be buried in a hot bed of variolous infection and diseased exhalations.

“ LARGE hospitals will not be required in country towns: it will *be necessary only* to obtain the unanimous consent of all the inhabitants of a town, parish, or district, to be Inoculated at one and the same time; for if some only are Inoculated, and others excluded, the disease will spread through the vicinage, and be fatal to many.”

THIS *only* seems to signify, that it is an extremely easy matter in country towns, or large districts of open country, to obtain the unanimous consent of all the inhabitants to be Inoculated at one and the same point of time. A considerable number possibly would permit the infection to be conveyed to their children; many grown up persons who had hitherto escaped, would fly away; others from various scruples and prejudices would refuse their assent; and for my own part, so far from thinking the proposal would readily and unanimously, without many “veto’s,” be complied with at one and the same time,

that I should expect with as much facility, by turning a preaching missionary, to convert the nation to one religion. Baron Dimsdale boasts of his having in this way successfully Inoculated two towns in the neighbourhood of London, Hertford and Ware; but this is a reproach to his own pretended humanity, and a flat contradiction to his system: for what could prevent the infection from being spread amongst the adjacent villages, and to be dispersed by the numerous daily passengers, stage coaches and travellers through London, and through every country town of England.

“ THE wealthy and rich availing themselves of *timely Inoculation* secure their families; but the loss falls chiefly on the offspring of inferior trades-people, and the labouring poor: to encourage partial Inoculation amongst *them*, would be only spreading the disease and increasing the evil.”

IN the name of common sense and humanity, why are not the *poor* to secure their families by *timely Inoculation* equally with the rich? why is Baron Dimsdale so active in Inoculating the latter in London, in rendering
Inocu-

Inoculation *partial* and spreading the evil. Are there no “gossipers, visitors, doctors” and attendants to disperse the infection “from the houses of rich persons?” Partial Inoculation the Baron exclaims is rash, inconsiderate; it endangers the public safety. Good God, that men can be so blind and partial to their own actions, and that they can suffer either a bigotted attachment to a preconceived hypothesis, selfish interest, or stubborn pride, so grossly to distort their judgment. If the Baron is serious in considering *partial* Inoculation as injurious to the community, it is highly criminal in him to be one of the most active instruments in their destruction. In a matter of so great moment, in which the dearest concerns of mankind are linked, I feel myself warmed and provoked to stigmatize such double dealing with exemplary reprehension.

WHILST the opulent classes in London are permitted to practise Inoculation, others will imitate them. It is natural for every parent, rich or poor, it is their duty to aim at preserving the lives, and even the beauty of their children. I can see no reason why poor persons or middling trades people should

hazard the lives of a young family, because their neighbour has scruples against Inoculation, and obstinately persists to reject that certain means of security. So long as Inoculation is confined to a few, so must its benefits: we mean it to be universal. The Baron in the close of this last paragraph, where he raves against *partial Inoculation*, is inconsistent with himself, and without being sensible of the contradiction, is evidently pleading the cause of general Inoculation.

WHERE the inhabitants of country towns are all Inoculated at one and the same time, unquestionably the neighbourhood and travellers will be less exposed to danger, and the disease may not return back again to that vicinage until several years have elapsed; but in London, we are never without an immense magazine of poison from natural and Inoculated Small-pox; a very small spark of which is sufficient to kindle up the disease, and to multiply itself in a favourable disposition of the air. The case mentioned by Baron Dimisdale, but copied from Dr. Mead, is one of many other proofs to this effect, and is as follows.

“ IN 1718, two or three children had
 “ caught the infection of Small-pox in the
 “ East-

“ East-Indies, and on the voyage were taken
 “ ill: the disease was violent: the linen
 “ which they wore in sickness was put into
 “ a box unwashed, and landed at the Cape
 “ of Good Hope, where it was sent on
 “ shore to be washed by the natives. On
 “ opening the box, the infection was com-
 “ municated; Small-pox broke out, spread-
 “ ing into the country, and carried off vast
 “ numbers of the inhabitants, so that the
 “ country was almost depopulated.”

IT was mentioned in a former part of this
 work, that a single negro slave first carried
 variolous infection amongst the Mexicans,
 who had until then been strangers to the
 disease, and by which incredible multitudes
 of the inhabitants were exterminated. In
 India, I said, upon Mr. Holwell's authority,
 that the matter of Inoculation has been pre-
 served seven years entangled in cotton, and
 close stopped up from the external air; after
 that interval of time it will convey the in-
 fection by the artificial mode. The maxim
 of Celsus, that medicine is a circle, often
 strikes me very forcibly. To take a compre-
 hensive survey of this particular part of the
 subject, we should examine the nature of

different specific contagions, of pestilential and jail infection, and of variolous poison, the length of time they can be preserved in woollen or porous materials, and the remote distance to which they have sometimes in this way been transported.

TAKE what precautions we can in London to prevent communication of variolous contagion, it will be impossible and nugatory, where there is such a constant stock of infection; where twelve or fifteen thousand are annually ill of natural Small-pox, which has been the case one hundred years without interruption: add to them their families, friends and visitors, amounting in all to treble or quadruple the number of sick, and to whose clothes or persons infection may adhere, what fears should London inhabitants have of general Inoculation? To prevent variolous contagion in Dr. Dimisdale's theoretical plan from being transported through London, the inhabitants should have their doors barricadoed, old clothes men, retailers of rags, and those who hawk about old woollen apparel through the streets, should all be hanged, or sent to the gallies; Inoculators and doctors should suffer the same punishment,

nishment, or be avoided as a pestilence, and, like Cain, some distinguishing mark should be set upon them; stage coaches and post-chaises filled with passengers that go out and return every day, from all the parts of the kingdom, should be put a stop to, none should enter, nor go out of town without certificates of health; goods and merchandize should all be subjected to inspecting officers, and detained, and guards should be posted at every avenue. This would be treating Small-pox somewhat similar to the plague, but it would establish a medical tyranny more rigorous and horrible than the religious inquisition of Spain; every office of society would meet with intolerable interruption, the London inhabitants would drag through a miserable life of slavery, under everlasting terror and quarantine. At present ten thousand avenues are daily left open to the merciless invader, and I can see no certain security or retreat in this city, but to render ourselves invulnerable by early, and universal Inoculation.

“ BEFORE institutions of this kind (the
 “ Inoculating Dispensary) are tolerated, the
 “ legislature ought first to be consulted.”

I most

I most cordially join issue with Baron Dimsdale, in imploring the attention of the legislature to the subject of Inoculation. It is not many years ago, since a contagious disorder amongst the horned cattle was recommended from the throne, as a subject sufficiently important for their immediate deliberation; nor do I introduce this comparison in a ludicrous light: but every man not deaf and callous to reason and feeling, must view the ruinous devastation by Small-pox amongst his fellow-creatures, as infinitely more terrible in its consequences. The publick at large, and the great national council notwithstanding seem hitherto to have dozed over Inoculation, and to have looked on at the daily carnage made by Small-pox with stupid insensibility and indifference.

BARON Dimsdale has couched another meaning under this invocation to parliament: he wishes merely to crush those who would distribute the benefits of Inoculation to every class of the people. But no legislature that is not arbitrary and unjust, can in this case presume to make one rule for themselves, and another for the poor and middling trades-people; at least without a
flagrant

flagrant encroachment on the rights of mankind, they cannot interfere to prevent them from Inoculating their children, if it is permitted to the higher and opulent ranks in London.

I CAN perceive but three or four ways, in which the legislature could possibly intermeddle in laying any *restraint*, or enacting regulations respecting Inoculation. One way is, either to prohibit the practice in London amongst the rich and poor, and to tolerate it in the country alone, or in Small-pox lazarettos built for that use at some distance from the capital. In this mode, the opulent class retiring to their country-houses, would disperse infection according to Baron Dimf-dale's system over the kingdom, and in what inconsiderable degree Small-pox lazarettos could secure the laborious inhabitants of London from danger, I shall soon demonstrate. Another way, in which the legislature might interpose their authority is, by ordaining that general Inoculation in London should only be performed in certain seasons of the year, in imitation of the Bramins in India, during two or three months, that afterwards all afflicted with this disease, rich
and

and poor, should be removed and immured as in cases of plague, their infected goods and apparel washed, and purified by fire and smoak. Banishing Inoculation alone from the capital, or from the kingdom, would not banish Small-pox; we have many centuries uninterrupted experience of the contrary. The legislature might also enact a law, to oblige separate parishes to defray the expences of Inoculating the indigent poor at their own houses, and in country towns, and open districts it might be practised every two or three years, or even sooner, should natural Small-pox break out in the neighbourhood. Of all these different modes, the practice of the Bramins, and supporting the indigent poor during Inoculation, are alone entitled to any serious consideration.

HAVING now with patience replied to all Baron Dimisdale's objections, I have yet in reserve, facts and mathematical proofs, which I conceive must alone overfet the whole superstructure of the Baron's argumentative opposition, to general Inoculation at the private dwellings of the poor and middling trades-people in this city. I deny that an Inoculating Hospital is the effectual means to lessen the
publick

publick danger and mortality in London, from natural Small-pox: it is a paltry temporizing palliative, totally inadequate to the magnitude of the evil: or if the Baron will indulge me to use a few of his own softest and emphatical phrases, “ it is rash, and in-
 “ considerate, it would be beneficial to a
 “ *few* only, and involve a great number of
 “ others in danger.” The reader will be so indulgent to favour me here with his particular attention. I shall take up the matter in the most favourable point of view for Baron Dimfsdale. Suppose therefore that by the bounty of the legislature and private contributions, an Inoculating Hospital large, and endowed with every necessary, is erected in this city, that Baron Dimfsdale is enthroned supreme superintendant and dictator, that upon his single authority, all the poor and middling trades-people have refrained from Inoculating their families until they are *five* years old, when as many as survive shall be taken into this lazaretto: how many lives now from *five* to *twenty* years of age, could in this way be annually saved to the metropolis? This Baron Dimfsdale must allow to be liberal; it is giving in two important additional

ditional years of infancy from five to seven, and stating the argument as strong as possible against myself. Please to attend to the following table of comparative mortality, at all ages in London during fifteen years, by Dr. Short: I could have added another, and to the same effect, of thirty years.

Dr. Short's table from January the 1st 1728 to 1743, a period of 15 years, died by the London bills at all ages, taken at an annual medium, in the following proportions :

Years of Age		Died.
Under 2	—	9910
from 2 to 5	—	2411
5—10	—	980
10—20	—	851
20—30	—	2060
30—40	—	2471
40—50	—	2510
50—60	—	2231
60—70	—	1675
70—80	—	1200
80—90	—	634
90—100	—	117
		—

Total annual medium
of deaths in this period } 27058

THE annual medium of deaths in Short's bill were much greater than at present, amounting in all to upwards of twenty-seven thousand; out of which number more than twelve thousand died annually under five years of age, but from *five to twenty* in the same time, not *nineteen hundred*, including every death and mortal disease. In this case, following even Baron Dimfdale's overcharged calculation, if one *eighth* died of Small-pox out of nineteen hundred, then in London from five to twenty years of age there would die annually, even of the natural Small-pox, but about two hundred and forty.

EVEN this small decrease is overrated, for of late years the total annual deaths in London are, (it is not necessary to be exact) we shall say twenty-two thousand; of which number, from five to twenty, about 14 or 15 hundred die: one *eighth* of 15 hundred deducted for Small-pox, makes not quite two hundred deaths in London, in this long interval of life of the natural disease. One *eighth* I remarked was too large a proportion for Small-pox; it was formed upon four years only of the bills, selected by Baron Dimfdale; one tenth or twelfth

was the average during forty years. This therefore still detracts from the inconsiderable number of Small-pox deaths in this stage of life, from *five* to *twenty*. That the Inoculating Hospital had no effect whatever in diminishing the proportion of deaths in this fifteen years period of Short's bill is evident, because that hospital was not erected until 1746. Another subtraction must also be made for several of the new settlers, visitors and strangers, who, under twenty, no doubt die in London of Small-pox.

I do not wish to substitute the least conjecture in any part of the above proposition; nor do I venture positively to assert, that Small-pox will bear an exact ratio of one eighth or twelfth to all other diseases in the fifteen years, from five to twenty: sure I am, that no person in his senses will pretend to alledge, that all who die in London in this interval of life, perish by Small-pox alone; and were we to admit such a ridiculous supposition, their entire numbers are greatly inferior to various mortality. In fact, without adding a large portion of Small-pox deaths, we cannot possibly by all the other dif-

diseases commonly incident to young children, account for the mortality under five years of age in London. Persons born in the Metropolis, who have continued from birth to *twenty*, to resist the impressions of variolous infection, though encircled daily in this poison, will not in all probability at the latter age enter into an Inoculating Hospital: their numbers as I have already represented, cannot be very considerable. Those more stricken in years, and the aged, who have also escaped, will trust as usual to Providence.

NONE, says Baron Dimisdale, should be Inoculated in London and other great cities, at the private houses of the poor, laborious and middling trades-people; as many of their children as have waded through danger seven years, are to be received into an Inoculating Hospital: in country towns and open districts too, all must consent at one and the same time to receive the infection, otherwise it will be spread through the neighbourhood, do infinite mischief, and should not be attempted. So that upon the whole, as the inhabitants of cities and towns, are in proportion to those in the country, as one to three and an half, and Inoculation in both

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clogged

clogged with so many difficulties, interdictions and impracticabilities, that by Inoculating even country villages, there is imminent risk of spreading the disease, and propagating the natural infection in the neighbourhood, that at private houses in cities, it is tolerated only to a handful of the rich and affluent; I appeal to the understanding of sensible and impartial men, whether Inoculation is not effectually restricted and fettered from operating as a great national benefit or diminution of mortality, and whether thousands are not wantonly doomed to destruction, and pushed headlong down a precipice?

DAVENANT's estimation, rated the houses in England and Wales at one million, three hundred thousand, near the beginning of the present century: the cottages then were five hundred thousand: now they are both greatly decreased in number. We have probably at this time, a more plentiful proportion of rich and opulent inhabitants in this island, than any other kingdom of Europe. In 1777, the houses that paid for seven windows, and consequently the window tax, are rated, by Dr. Price, at one fourth of the others. Even in this country we must see

that the laborious and middling trades-people, make up the great hive of the nation. All their families in London are to be incarcerated during Inoculation, by Baron Dimf-dale's orders, or to be debarred its advantages. If poverty in this capital is made a mighty objection against Inoculation at private houses, it will be much stronger at Paris, where one third of the inhabitants die annually in their public hospitals: it would damn not only Inoculation, but also propagation throughout all the lower and laborious ranks in Scotland and Ireland, numbers of whose miserable peasantry are condemned to subsist during a great part of the year, principally upon oatmeal-gruel, or potatoes and salt.

To a small number of indigent persons and their children, exceeding seven years of age; to a few strangers destitute of money and friends, who may happen to be seized in London with the natural Small-pox, a various hospital will during their sickness, prove a useful Asylum. Of those likewise who are Inoculated in that receptacle, the blanks and prizes will be in the ordinary proportion; but as a national saving from *five*, and much

less from *seven* to *twenty* years of age, cannot amount to above one, or at the utmost, two hundred annually. What proportion of the new annual settlers have had the Small-pox, and how many are so poor as to make it necessary for them to enter into an hospital, are equally uncertain. If the whole had come to London without previously undergoing the Small-pox, it would not for that reason be incumbent on the London inhabitants to neglect the safety of their own families, lest the new settlers might catch the disease from Inoculated infection.

DR. Price, in his Treatise on the Causes of Depopulation in Cities, thinks, that a great number of the new emigrants are cut off by the foul air, vices, and debaucheries of London; he says nothing of Small-pox. I am induced by various considerations to believe, that whatever share of Small-pox mortality takes place in London amongst persons turned of twenty years of age, is almost solely confined to the new annual settlers or recruits, who are necessary to repair the waste of London, and the majority of whom arrive in the capital from twenty to forty years of age. Call this annual supply 6000; imagine

gine that one third of them, or 2000, are not seasoned, but that they are assailed every year by the natural Small-pox; even in this case the annual decrement, stating it at one of six, will not exceed 320. This allowance however, I conceive is too large, and for two reasons: first, because a considerable number of the new recruits, servants, apprentices, and so forth, are under twenty years of age, and will fall into that small class of those who die under twenty: secondly, because not more probably than one fourth instead of one third of the annual settlers, especially of those arrived at maturity, are oppugnable by variolous infection.

IF London, by births and recruits, is supposed to require an annual supply of twenty-nine thousand to repair the annual loss by deaths, and if all those were Inoculated each year, then according to the old calculation of 1 to 100, 290 would be the decrease by Small-pox; but by the more enlarged and modern calculation of 1 to 500, out of 29,000 Inoculated, 58 deaths only would ensue. Extend this calculation to Great-Britain and Ireland; by Davenant's estimate, the annual births amongst 9 mil-

lions of inhabitants in these two islands will amount to about 300,000: a few thousands more is immaterial for our gross valuation: if all these 300,000 were to live to be Inoculated, and 1 out of 500 to die, the nation, instead of 30,000 Small-pox deaths annually, in this and her sister island, would lose but 600: and expanding the same calculation to all Europe, the blanks would amount to about *eight thousand*: consequently *three hundred and ninety-two thousand lives* would be annually preserved.

SHOULD Inoculation take place universally amongst the inhabitants of Great-Britain and Ireland in the early parts of life, that is under five years of age, and all beyond that stage have undergone the disease by the same precautions, in this predicament the infection, however virulent, could not extend itself in the natural way, but to a diminutive number of the community; for out of nine millions of inhabitants, those under five years of age will not exceed *fourteen hundred thousand*, and probably not one half of these are, in one year fit subjects for the operation.

UPON the first introduction of Inoculation, physicians, divines, and innumerable other writers cried out, that the infection would be spread, and the community suffer a greater loss; but after sixty years experience, we should expect those arguments, as well as the writers, had all died away, and that at this day, the same stale dregs of ignorance and obstinacy would not be again retailed. To traduce general Inoculation, to increase the prejudices of the lower orders, and bulk of the community, against the practice, is, in my idea, neither wise, politic, nor humane. The general notion of all illiterate persons is a kind of irresistible fatality, and they are too apt, in diseases, to commit all to God, as the stupid Turks do the plague, without "taking timely precaution, to secure their families." Possibly many years must yet elapse, before the whole kingdom will be awakened to a just sense of its interest and safety; before custom and prejudice are done away, and ignorance enlightened. To render Inoculation an early and universal practice, the legislature and the clergy should add their venerable sanction, influence, and assistance to the

feeble exhortations, and active humanity of medical men. It appears to me the most certain, expeditious, and cheap method of reinstating in a few years a number of subjects equal to those squandered in the present unfortunate war.

EVERY life saved by this practice is so much solid treasure and strength added to the nation. There is no disease where we have it so much in our power and command to lessen mortality, as in the Small-pox by Inoculation. It is a bridge, furnished by Providence, to pass over a yawning gulph, a raging whirlpool, in which millions of the human species have been wrecked. Baron Dimsdale is shocked, and his choler roused, at the proposal of permitting liberty to travellers of every rank and description to escape by this secure rout. Fortune must have been so kind and bountiful to favour those who pass that way with a golden key. Whether this reverence for titles and rich persons proceeds from the Baron's natural disposition, or was acquired by his short tour to Russia, I neither know nor care: the commonalty, and middling trades-people in this metropolis, who are not of the elect, will
not

not probably thank this Imperial physician for such exotic sentiments. If Baron Dimf-dale is candid and ingenuous, he should desist from Inoculation in London, and in villages contiguous to the capital; he should return all his fees to some charity, as a small expiation for the public injury he must already, according to his professed creed, have committed in the exercise of that vocation, and as an unequivocal proof of his sincerity, and contrition for wilfully besmearing his hands with human sacrifices. His arguments, if they were of any real validity, would seal the final doom of Inoculation in every case and situation, whether in city, town, or country.

WHEN men's actions or writings seem fairly and honestly directed for the public good, and without any sinister bias, I can pardon their grossest errors, or animadvert upon them with mild censure, and without displeasure. In this tender and indulgent light, I can smile at the proposal of an old pragmatistical Greek philosopher, who, observing many diseases to ensue from changes in the temperature of the air, exhorted mankind to live in dens and caverns under ground, where

where the sun-beams and changes of the air could not pierce; and in one of which gloomy abodes, this crazy projector is said to have lived many years: but had he, with foolish presumption, proposed to bury the poor, laborious, and middling classes in such subterraneous cells for the benefit of their constitutions, and have left the rich and himself above ground, to bask in snug houses, I should have spurned, if not with indignation, at least with contempt at the philosophy and the philosopher.

BARON Dimsdale hints, “ that an action
 “ of damages would lay against a person,
 “ who, by Inoculating *horned cattle* for a
 “ contagious disease, would spread the infection in the neighbourhood.” The plain interpretation of this polished remark is to recommend the patrons and physicians of the Inoculating Dispensary as objects deserving of prosecution, and as criminals who should be punished by the laws. I am not under the least apprehension for their fate, and let Baron Dimsdale beware, lest another person should, in this ordeal, be convicted as the principal culprit. I will also suggest to the Baron a friendly admonition, that before he consigns over these
 gentlemen

gentlemen to dungeons and gibbets, to read the story of the celebrated Galileo, who, as all men of literature know, was imprisoned by the ignorant monks of the inquisition, and threatened to be burnt alive, for having asserted the rotatory motion of the earth. It is very singular, that Baron Dimfdale makes use of many of the same phrases formerly employed by Wagstaff, who wrote strenuously against Inoculation upon its first introduction, and with libellous invectives inveighed against its patrons. Wagstaff called the Inoculators public murderers, and with outrageous acrimony invoked the legislature to punish them.

To the reader and to the public I humbly submit the final decision of this important controversy, in which the interest and security of mankind are so materially involved: a state of indifference and neutrality is incompatible with sound policy and humanity. I wish my arguments to be deliberately weighed, and after mature examination and severe scrutiny, to be received or rejected, as they are built upon facts, supported by specious or solid reasoning, and as they appear to conduce to the safety and benefit of the nation.

tion. I flatter myself with having laid those spectres which Baron Dimfdale conjured up to affright the metropolis, and the nation from general Inoculation. No man has so often thrown down the gauntlet in that cause, and braved defiance, as the Baron: he is in truth (what a witty author said of the metaphysicians) a furious gladiator, that fights hood-winked, and with a bandage bound fast over his eyes.

My observations upon this subject shall now close, by propounding a *quere* for public discussion, which the reader, if he chuses, may call a revery. Would it not be possible and adviseable to eradicate the Small-pox from Europe, to banish it to its original birth-place in either Arabia or India, and to set up barriers against its return and communication, as we shut out the plague? Should the contagion be once exterminated, and no remains of the specific "nidus" left behind, there certainly appears no power in the climate, soil or air, at least of Europe, again to regenerate such a disease. To make this proposition clear and intelligible, I should treat of specific contagions; but medical and professional

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men are no doubt sufficiently well informed on that head.

IF Small-pox had seized upon a person more than *once* in life, and the body afterwards, as in cases of other infectious fevers and of plague, had still been susceptible of injury from variolous infection; either the human species would have presented a frightful spectacle of corroded scars, and mangled deformity, or what is more probable, the greatest part would, long before this time, have perished by Small-pox; but to prevent such deplorable consequences, mankind would have been under the necessity to unite with one general consent, to oppose and chain down this inexorable foe.

THERE is no prospect of our ever getting rid of variolous poison, unless some general, or rather universal league of this nature should be entered into. To save four hundred thousand lives annually slain in the European region alone by a single enemy, is an object which merits the attention of all the different legislators and philosophers of Europe. One kingdom singly could not, consistent with propriety, and for obvious reasons, attempt such a critical experiment. Either

Inoculation

Inoculation should be universal in the early parts of life, or (if practicable) Small-pox, like the plague, plucked up by the roots. The last I throw out merely as a cursory idea, but as a subject not unworthy of future investigation. I find that I have insensibly run to a much greater length than at first setting out, I either expected or wished.

C H A P. II.

Bills of Mortality: when established in Europe: their Defects: of the Mortality at different Ages in City, Town and Country: of Marriages and Births, and the medium of Children produced by City and Country Marriages: of the Comparative Numbers of the two Sexes, and their respective Mortality: of the Numbers alive at different Ages in any Nation: of the Proportion between City, Town and Country Inhabitants: various Tables in Illustration of the Comparative Mortality, and Decrease of Mankind at every Age in City and Country: of Great Cities, and the Principal Causes of Depopulation in them;

them; exemplified by London: with additional Remarks on the Defects of the London Bills.

THE births, genealogies, and deaths of Adam's descendants, down to Noah, and the Patriarchs, are recorded in Scripture: some chapters of Genesis are plain registers of births and mortality. The Israelites were at distant intervals mustered and numbered by Moses and his successors; and in a few uncommon pestilences the devastation is ascertained in the Jewish history. The descent and pedigree of Kings and other great men, have also been kept in most nations who had made any progress in civilization; but general annual registers of births, diseases and deaths, are modern establishments, and were unknown to the ancients.

On the continent registers were instituted, fifty or a hundred years before their introduction into England: 1538 exact records of weddings, christenings and burials, were first ordered by the king and council to be kept in every parish church in England, by either the vicar or the curate. This order was very negligently obeyed in many parishes,
until

until 1559 in Queen Elizabeth's reign, when to prevent registers from rotting in damp churches, they were directed to be written on parchment. At first they seem, both in Germany and in England, to have been designed to prove the birth, death and descent of private persons, and the right of inheritance in property or lands. In 1592, a year of pestilence, bills of mortality for London were instituted; but were discontinued till 1603, another year of desolating pestilence, which was the only distemper then taken notice of in the printed reports. In 1629, the different diseases and casualties of those who died, together with the distinction of sexes were added and published: 1728, and not sooner, the different ages of the dead were ordered to be specified in the London bills. Upon first establishing the distinction of diseases and casualties in the bills of the metropolis, the primary intention I believe, was to discover the numbers destroyed by the plague, and to detect concealed murders. At Vienna and Berlin, registers are kept nearly similar as I understand to those in London: Edinburgh, Norwich, Northampton, and some other towns of this island,

oath to make a true declaration, and afterwards negligently enquire from the relations the name of the disease, adding the age and sex. These records, together with the christenings, in the latter of which the searchers have no concern, are deposited with the respective clerks of each parish church, and by them the christenings of the established church, and the burials in their respective parochial church-yards alone, are carried once every week to a general hall in the city: on the following day the weekly bill, comprehending these partial returns, is printed and published, and at the end of the year a general annual bill, in which all the weekly returns are consolidated.

FROM bills conducted with more accuracy, and upon a larger scale, physicians and statesmen might both draw ample sources of information. If, as Dr. Price, and as Voltaire, and many other writers have observed nearly to the same effect, every seventh year, an account was taken under the direction of government, thro' every town and parish in the kingdom, the force, strength, population, increase, decrease, resources, trade, and health of the inhabitants might
be

be known. It should comprize a numerical list of every rank and order ; of the married, unmarried, widows, widowers, ages, sexes, weddings, christenings, &c. In the medical columns should be given, the state of the weather and seasons in that year ; and in the dreary columns of death, the specific diseases which destroyed life. From such an authentic magazine of facts and materials, national health, mortality, the diseases most fatal to a nation, their growth or declension, the effects of diet, drinks, of medical practice, the ratio of population, and a multitude of political and medical questions still entangled in doubts and intricacy, might be evolved.

A PLAN so general, individual industry alone, however indefatigable, cannot accomplish without ministerial power, and assistance to carry it into execution : the church, or a few useless state sinecures, may without any inconvenience spare a sufficient revenue to carry it into effectual practice. In London, and indeed in all the large towns throughout the kingdom, no intermission should take place in the bills, as in the case of septennial periodical registers: all the numerous dissenting religious sects, and the church-yards

hitherto excluded, should be comprehended in the annual bills of the metropolis, both in respect to births and burials, and the function of inspecting the dead committed to medical men with moderate salaries. Annexed to *each* disease should be the numbers dying at *different ages* of that malady. Males grown up to maturity who die, should be distinguished either as married, widowers, or bachelors; and females of this description either as married, widows, or virgins. Such authentic data are greatly wanted by calculators of annuities, and reversions of lives. At present we have, even in London, but partial and confused views of the exact amount and ratio of births and burials, and much more so of the slaughter by diseases. We must too frequently suspect, not only the report and capacity of the searchers, but also the negligence of the parish clerks, in carrying their returns to the general hall.

CALCULATIONS of human propagation, existence, and mortality, derived from a prodigious mass of observations and registers in various parts of Europe, have been published by several eminent philosophers and mathematicians. The prospects of life and death

death are now systematically adjusted, and calculated for all ages, with as much exactness and probability by the annuitant and insurance offices, as the chances on dice, or the blanks and prizes in a lottery-wheel. Graunt, somewhat later than the middle of the last century, first wrote a treatise on the London Bills of births and mortality, and was followed soon after by Petty and Davenant. This I apprehend was the epoch of a new science in politics, philosophy, and medicine. Graunt had many difficulties to encounter in this useful, but unprecedented attempt; and from a scantiness of authentic vouchers and materials, wanders frequently into random conjectures. The present century has produced a number of excellent treatises upon the same subject. The most celebrated are Dr. Halley's, De Moivre's Treatise on Annuities, Sufmilch's Calculations, Simpson's Select Exercises, some essays in the Philosophical Transactions abridged, Short's Observations on various Bills of Mortality, Dr. Price's Essays, Birch's Collection of the London Bills to 1759; and lastly, the original sources, the bills of large capitals, and smaller towns.

It is necessary to premise, and to caution the reader, that the tables of mortality in different countries, and collected at distant periods disagree considerably, and of course the calculations drawn from such materials, are at variance. We cannot treat the subject with that accuracy which its extensive importance requires; but to enumerate all the reasons for our inability would be too tedious, and even voluminous. For medical purposes indeed, it is not indispensibly requisite to bring the matter to the same mathematical nicety, with the insurance offices for lives and annuities.

CALCULATIONS which measure the annual decrement, in every period of town and country life, enlarge the physicians ideas respecting diseases and mortality; without them prognostics must be very imperfect. In the next chapter, an attempt is made to form a gross estimate of the proportional havock by different diseases; these interesting facts will, I trust, naturally lead intelligent readers to a variety of new reflections upon medicine, and medical practice, and the probable means of stemming mortality. Physical writers have in general neglected, or at most barely skimmed

med the surface of these subjects: the public registers of births, diseases, and deaths are shamefully overlooked by Boerhaave, Hoffman, and all the great modern systematic authors. They leave us equally ignorant of the actual and comparative force of those fiends, which haunt and ravage the world. To speak in metaphorical phraseology, in medical books, the extensive desolation of the most rapacious tyrants and conquerors, are confounded with the uninteresting history and petty depredations of a robber. In the course of many years attendance upon medical lectures, in different universities, I never once heard the bills of mortality mentioned.

THE detached observations of physicians, or other literary individuals, confined perhaps to a small town or parish; a meagre detail of village remarks, afford in many instances a foundation too slight to erect upon them any general or permanent conclusions. To form useful Tables of the ratio of mortality at various ages, to determine upon the relative havock by different diseases, upon the general effects of seasons, climates, and situations, of diet, drink, modern luxuries, and new manners, we should extend our

views far beyond the narrow bounds of a parish, or even of a province; we should also take in an interval of many years, and include large groups of mankind.

BILLS of mortality demonstrate this awful truth, that very few of the human species die of old age, or natural decay; by far the greatest proportion are prematurely cut off by diseases. Of all the animal tribe who bring forth one at a birth, none die in such numbers in infancy as the human species. In London, and all the vast capitals of Europe, upon an average, one half of the children born, die under three years of age; at Vienna, by the bills, half die under two years old; but in country towns and villages, the proportion of infant mortality greatly decreases. At Manchester, a country town of England, half of the children die under five years of age: at Norwich, half die under six; and at Northampton, a country town, smaller than either of the two former, half the infants born survive to ten years of age. London therefore will have lost a number in the intermediate space, from three to ten more than Northampton.

ATTEND

ATTEND next to the small proportion of infant mortality in country districts. By Dr. Short's bills, in several small country villages of England, the major part born live to 25: 27: 33: and to 40. In many healthy country parishes and open districts, half the inhabitants born, live to mature age, to 40, and 46, and in a few even to 50, and beget large families of children: in some extensive country districts of Switzerland, similar observations have been made. Here is an astonishing disparity between the duration of town and country life, but particularly, let it be engraved upon the memory, in the early stages of infant existence, life then is extremely brittle; infants in cities resemble tender, delicate plants, excluded from fresh air, or fish confined in muddy stagnant water; they perish, before acquiring a solidity and seasoning to endure the adulterated quality of the surrounding element.

AT birth an infant is not only ushered into a new world, but every function of its body instantaneously undergoes new changes: an element of many thousand pounds weight presses upon the surface of its body; this element, adulterated in cities with various

ous mixtures and impurities, is drawn into its lungs, its diaphragm and muscles of the breast act, the lungs expand, and respiration commences; the passage between the two auricles of the heart is then closed up, the sphere of the circulation is extended, and the whole blood in its revolution passes through the lungs; the circulation through the navel-string now closes, nourishment is taken in by the mouth, the digestive and all the secretory and excretory organs begin to perform their different offices: the tender creature is exposed to sounds, in a few days to light, and with its delicate machinery has soon to encounter pain and diseases.

WHAT will be the annual decrease, at every age, out of any given number, one thousand, or fifteen hundred, for example, from birth to a hundred years old, in cities and country districts, appears distinctly in the tables inserted near the end of this chapter. The mortality amongst infants in the first year after birth, is greatest of all: a London infant at birth has but an equal chance of living to three years old, but in the country half born arrive at full grown

maturity: upon reaching the third year in great cities, infants are somewhat seasoned, and the mortality abates: there is not afterwards out of equal capitals, that prodigious disproportion of deaths between city, town, and country, they approach gradually nearer to a par.

FROM the tables of Dr. Short, and of Birch, it is manifest, that more die in London under two years old, than from 2 to upwards of 40, and more under 5 years old, than from 5 to between 50 and 60: yet under 5 there are but an inconsiderable number alive compared to those above that age; the deaths are greatly disproportioned to the living numbers or capitals. From 5 to 20, mortality in city, town, and country is very small. From 8 to 16 years of age, 1 out of 70 $\frac{3}{4}$ of the Christ school boys are said to die: Davenant rates the decrement in these years at only 1 per cent. From 20 to 30 more die in London and other great cities than in the 15 preceding years, and the deaths continue swelled to 60. One principal reason (though not the only one) of the great swell in the London bills from 20 to 40 is, that within this interval of life
the

the majority of the new settlers or recruits arrive, and consequently raise the deaths from 20 to 40 beyond their due proportion. After passing the meridian, and in the evening of life, the seasoned inhabitants of cities seem rather to have the advantage of the country in health and longevity. That is to say, the numbers alive in the country, at 65, 70, and 80 years of age, are greater proportionally than in cities; but the latter class arrived at those years in London, have surer expectations of life. In both the few survivors at 90 years of age, out of every 1000 will have lost almost all their fellow travellers in the journey long before reaching that goal.

SINCE the days of Moses, human existence has been circumscribed within the same narrow bounds. In the London bills of mortality, during a period of 30 years, that is, from 1728 to 1758, the total deaths amount to 750,322; and of all this number, 242 only reached beyond 100 years of age; one of whom arrived at the age of 138. In some races and families of mankind longevity seems to be hereditary, and his age, though little more than a dream, exceeds that of all other

other living creatures, a few only excepted. Amongst the quadrupede creation, the elephant surpasses man in longevity: amongst the birds, the swan and a few others are found to live upwards of a century: the age of fishes is determined with more ingenuity than certainty: some seem to equal man in years, but the fecundity of numbers of the finny race is almost incredible: amongst the numerous vegetable tribe, the oak, the chesnut, and many other great trees live several centuries.

WHEREVER the number of inhabitants in any kingdom, city, or village, continues the same without increase or decrease; it is evident that there the annual births and deaths will be equal, and the supply proportioned to the waste. If any town just supports itself by procreation only, as many will die at all ages in the year, as are born in that year. In all the large cities of Europe, in London, Paris, Vienna, Rome, Dresden, Berlin, Amsterdam, Edinburgh, Dublin, and in almost all country towns of considerable size, the total burials annually exceed the births; but in country parishes, small villages, and open districts of country, the
annual

annual births exceed the burials: from this redundancy, a recruit is furnished for the consumption of cities, armies, navies, war, extraordinary epidemical sickness, colonization, and other contingencies: the country surplus prevents depopulation. In the country district of Vaux in Switzerland during 10 years the deaths were 2504, the births 3155. The country, says Graunt, has 6339 christenings for 5280 burials. In the rigorous northern climate of Norway, and the district of Christiana (in 1761) the burials were 6929, the christenings 11024; and of the former no less than 394 had lived to 90, and 65 to 100 years of age. In the little fertile island of Madeira, according to Dr. Heberden, the inhabitants double themselves within eighty-four years. In North America, if Dr. Franklin's calculations are authentic, the inhabitants, in a few of the southern provinces, have doubled themselves in the short space of 15 years, and in some of the more northern provinces of that continent in 22 and 25 years. On the contrary, it is calculated, that in London, within the last 150 years, near to 1,000,000 more of the human species have been wasted, beyond
 what

what were raised by its own original growth and procreation.

THE aggregate annual deaths of every kingdom including town and country, must be somewhat inferior to the annual births, otherwise depopulation would be the consequence: an adequate supply of foreign emigrants could alone prevent such an event. In the kingdom of Prussia from 1715 to 1718, at an annual medium were baptized 78,826; buried 55,852, married 20,520½. In Sweden the total annual average of births for 9 years ending in 1763 was 90,240, of deaths 69,125. In France during 3 years, and ending in 1772, the annual average of births was 920,918, of deaths 780,040: this is more than double, and nearer to treble the annual births and burials in Britain and Ireland. These different surveys were made by order of the Prussian, Swedish, and French courts, but I will not vouch for their correctness: they are mentioned by Dr. Short and Dr. Price.

TAKING the whole mass of inhabitants in different great cities, and afterwards in towns and country districts, from birth to one hundred years, and upwards, they are computed to die in the following annual proportion to
the

the living. In London, one of $20\frac{3}{4}$: Rome 1—23: Vienna 1— $19\frac{1}{2}$: Berlin 1—26: Amsterdam 1—21 or 22: Dublin 1—22. This is Dr. Price's calculation; but Susmilch and Dr. Halley, make only 1—24 to 29 to die annually in great cities. In Edinburgh, although containing not more than fifty thousand inhabitants, yet the deaths through the different stages of life, agree nearly with London. *Cæteris paribus*, the mortality in cities will bear a proportion to their size; but the inhabitants of Edinburgh are crowded into a very small space, many families dwell together in the same house; these, with some other inconveniencies and uncleanness, render it more unwholesome: perhaps bad nursing and neglect of cleanliness so inimical to the health of infants, is there more prevalent amongst the lower class. In Norwich, which contains about thirty-six thousand inhabitants, the annual average of deaths is 1---24: Northampton 1---26: smaller towns 1---30. In several provinces and country villages of European kingdoms, the proportion of annual deaths to the living, is estimated from 1---32 and 33 to 41, 45, and 50. In the island of Madeira, to 1---50. In
upwards

upwards of 1000 country parishes on the continent mentioned by Sufmilch, during six years, on an average 1 of 43 of the inhabitants died, and in 106 other parishes 1 of 50. Within those different short intervals of time, will have died in the respective cities and country places alluded to, a number equal to the total amount of the inhabitants. One out of thirty-two, thirty-three, and up to thirty-five, is supposed to be near the decrease of a society at large throughout Europe, comprehending together cities, towns, and country; “that is, mankind enjoy amongst them from “about 32, 33 to 35 years each of existence.”

THE Abbé Reynal, that elegant and philanthropic French historian, calculates that 1-7th of the African negroes die annually in the West India islands, which he ascribes not so much to the climate, for that certainly is preferable to Africa, but to the oppression of their masters. He computes, that out of nine millions of those injured men, dragged by violence from their own country to eternal slavery in America, and the West India Islands, and compelled like horses or mules to exhaust their blood and sweat, to pamper avaricious

ficious tyrants in idleness and luxury, scarce one million and a half now survive. This astonishing decrease, with deference to that amiable author, I believe is principally to be imputed to doubts and prejudices entertained by the planters, whether it would not be more profitable to import grown-up negroes, than to propagate the breed in their different plantations. From this inhuman and barbarous policy, fewer wretches now survive to linger in misery.

I SHALL present in several other important points of view both medical and political, the general laws which govern propagation, population, and mortality. Susmilch found that in all Pomerania during nine years, one of six persons who married were either widowers or widows: that is, one of three was a second or third marriage on the side of the man or the woman. Calculators are unanimous that “marriages in the country seldom produce less than four children each, generally between four and five, and sometimes five; but in towns, seldom above four, generally between three and four, and sometimes under three.” In Short’s survey of a variety of small towns and country parishes,

parishes, he found that each marriage produced 4 $\frac{1}{2}$ children, *at a medium*; for some married pairs have only one or two, others again have six, eight, and a few a dozen children, and a small remnant are barren and improlific.

NATURAL children are included in the births, and raise their proportion to the legalized and registered weddings higher than they would, without this extraneous addition, appear. In some German registers Short found that out of 333,655 births, the illegitimate amounted to one thirty-seventh part; and in an inland town of England, that out of 10,337 births, 284 were illegitimate: applying this last proportion to the annual births in Britain and Ireland, and stating them at 300,000, the illegitimate would amount to upwards of 8000 annually: perhaps in London they are more numerous than in the country. To ascertain the proportion between single births, and twins, Short examined the registers of 3 large parishes during a series of years: the single births amounted to 11,415, the twins and tergemini to 311, or about 1 of 35. Accocheurs may possibly make some use of this observation.

PROVIDENCE has ordered, that through the various nations of the world, at least of Europe, a few more males should be born than females; and indeed the waste by wars, intemperance, and other casualties, to which the former are more exposed, render such a surplus necessary. In Dr. Arbuthnot's table printed in the Philosophical Transactions of the difference between the sexes born: in 46 years were baptized of males 329,742, of females 308,644: excess of males 21,098. By the London bills from 1657 to 1776, I find that there have been born of males 10,41,149, of females 983,061: or 18 to 17; and the excess of males in this long interval of 120 years is only 58,088. Amongst nine millions of people in Britain and Ireland, the total births of males and females in six years would not probably surpass this sum of two millions; and it demonstrates, that the excess of male births above the female, is not so considerable as some books of calculation have represented. In volume the seventh of the Philosophical Transactions abridged, there is an account of the births during several years at Vienna, Breslaw, Dresden, Leipfick, and Ratisbon; in these cities male and female births

were

were as 19 to 18. More males also are brought forth stillborn, and throughout infancy and childhood, *especially*, the deaths of males are said to preponderate over the other sex.

Dr. Price in page 271 of his valuable work, says, " It appears that at Northampton, tho' "
 " *more males* are born than *females*, and nearly "
 " the *same* number die; yet the number of "
 " living *females* there was greater than the "
 " number of males in the proportion of 39 "
 " to 30: this cannot be accounted for with- "
 " out supposing that males are more short- "
 " lived than females." It is with the utmost diffidence that I venture to put my opinion in opposition to so truly respectable authority as Dr. Price: but in this instance I conceive, that if more males were born at Northampton than females, and yet their deaths were *equal*; the excess of females there cannot be ascribed to any other cause than to the greater export and emigration of males: every one who has resided but a few days only at either Northampton, Birmingham, Manchester, Norwich, or other great manufacturing towns of this country, knows that they are the great nurseries of our armies; there

is a constant drain of the vigorous youth from them in profound peace, and much more so during war. From 1702 to 1752, during 50 years, I find the proportions of male and female deaths in London as follows: deaths of males 618,076: of females 626,692: majority of female burials 8,692—whence does it happen that female deaths preponderate over the male, seeing that certainly more of the latter are born, and as Graunt, Dr. Price, and other calculators maintain, that the mortality of males at *all* ages is greater than that of females. I think the only rational solution of this difficulty which seems to have embarrassed calculators, is by supposing a greater exportation of males than of females from London. When we reflect upon the almost incessant wars by sea and land, in which this island has been engaged for many centuries, the unwholesome climates to which soldiers and sailors have been sent, with the emigration, and even transportation to new colonies, this devouring consumption would fully require all the redundance of males, and it is not wonderful that females should be more numerous.

CONSIDERING

CONSIDERING the perils of child-bearing, and many other vexatious diseases to which the female sex are subjected by their particular formation, and that physicians have many more female than male patients, we might hastily conclude that the chances of living longest was in favour of the husband; but the contrary is the fact. In Breslaw, during 8 years 5 married men died to 3 married women. Sufmilch in a review of several kingdoms and principalities of Germany, found that 3 married men died to 2 married women, and consequently that widows were much more numerous than widowers: Short also found by several German registers, comprizing Breslaw, Dresden, and Leipfick, that 46 married men were buried for 29 married women. Dr. Price estimates the chance in favour of the wife, being the survivor of marriage, as 3 to 2; and upon this calculation, the society of clergy in Scotland established funds to support their widows. From a return of the clerical widows and widowers, in that part of the island, the latter were only in the proportion of twelve to twenty, which shews, that more husbands have died. Davenant makes the widows in England still

more numerous, compared to the widowers. By an enlarged survey of several principalities and cities of Germany, and recorded by Susmilch, the widows were as 3 and 4 to 1 widower. At marriage it is true, there is generally a disproportion of years; the man is commonly from 6 to 12 years older than the woman, and therefore should die sooner: perhaps also more widowers in proportion enter into a second marriage, which will reduce their numbers.

UPON a survey of Edinburgh, and some other cities it appeared, that the total of living females were more numerous than the males, as 4 to 3. Davenant's calculation for London, makes the females exceed the males, as 13 to 10, and in other cities and towns, as 9 to 8. At Berlin and Northampton, by accurate accounts, the females also constitute the majority: but in country districts Graunt and Susmilch agree, that the two sexes approach nearer to an equality. I took the liberty in one of the preceding pages, when speaking of Northampton and London, to alledge the greater exportation of males, as one cause of thinning their numbers.

AT Berlin, calculators remarked, that more married women were alive at great ages, than

those who continued single. I observe in a late history of Iceland, by Van Troil of Sweden, that in this island too, the women are said to live to a greater age than the men, and those especially who have had many children. Philosophers suggest with good reason, that following the salutary dictates of nature, and uniting in matrimony, contributes to the health and longevity of the female sex.

DR. Halley thinks the number alive in any kingdom under 16 years of age, constitute about one third of all living above that standard; and that those between 20 and 42 years of age make about one third of the whole inhabitants. Dr. Price supposes nearly an equal proportion living, under sixteen, and above that age, but that the latter are the most numerous: other calculators, as Davenant, fix the mean about twenty. I should imagine, that in great cities, where there are comparatively fewer breeders, and children, than in open country districts, Dr. Halley's or Davenant's calculation is more exact.

DAVENANT says, if the inhabitants in this part of our island called England, are supposed at 5,500,000, the total yearly births at 190,000, the sundry ages of all those inhabitants

habitants will be as follows: under one year old are living 170,000: under 5 years old 820,000: under 10 years old, 1,520,000: under 16 years old, 2,240,000: this is not one half of the inhabitants. Above 16 years old are 3,260,000: of which last number he reckons 600,000 to have passed 60 years of age; whereof are males 270,000, females 330,000. It is easy to extend these calculations to 9,000,000 of inhabitants, or to all Europe.

SUSMILCH collected with great care a multitude of materials in several kingdoms of the continent, to enable him to determine with probability, the proportion between the inhabitants residing in town and country. If the result of his enquiries can be depended upon as a general rule for other European nations, the inhabitants of the country exceed those in cities and towns, as $3\frac{1}{2}$ to 1.

To determine the exact amount of inhabitants in any kingdom, the most certain method would be by making an actual and universal survey through every house: this is often done in several kingdoms, and in none more culpably neglected than in this island: English calculators therefore have been under the necessity,

cessity, by other laborious processes, to make at least plausible conjectures of the *national* population. One way is by taking the number of houses, and by allotting 5 inhabitants to a house: in a multitude of large country towns and open districts in England, Holland, Switzerland, Italy, &c. and registered in the writings of Short, Price, and many others, 5 inhabitants to a house, at a general medium, is not far from the truth. In great cities, however, we should err prodigiously by forming similar conclusions. Berlin not many years ago contained 16 inhabitants to a house: Paris consisted of 28,000 houses, and nearly about 16 inhabitants to a house: Edinburgh and Vienna are also crowded; in the latter an entire family has only a single floor for a dwelling: London likewise in the winter season contains perhaps more than 6 to a house. Besides, in large kingdoms it is difficult to procure a correct register of all the houses. Another way of computing the number of inhabitants in towns, is by the annual births and burials: when they are equal, and consequently there is no increase or decrease of the inhabitants, multiply the usual prospect or decrement of life in that city or town, by the medium yearly of births, which
will

will give the total local amount of the inhabitants: but as it rarely happens that the births and burials are equal, or that we can ascertain the exact amount of either, this process is imperfect. In great cities 1 at least out of 5 families will die annually at a medium, and in small country towns and open districts 1 out of 7, 8, 9, and in a few healthy places 1 only out of 10 families.

GREAT BRITAIN and Ireland contain about 9,000,000 of inhabitants; half of those are females, at least we shall set them down as such to avoid fractions; remain then four millions and a half of males, young and old: of this last lot, one half are under 16, or at most 20 years of age: those on the other side amounting to two millions and a quarter may be called fighting men; but out of them must be deducted for aged, infirm, diseased, and cripples; for a diversity of trades, arts, and manufactories; for agriculture, merchandize, and commerce; for literary professions, such as divines, physicians, surgeons, medicators, and lawyers; for idle gentlemen, and men of independent fortune: how many able fighting men in the vigour of life after all deductions, could such a nation support

support in her armies and navies for any considerable time, without greatly injuring trade, and depopulating the two kingdoms. Soldiers and sailors do not contribute to the general procreative stock, in any degree equal to husbandmen and mechanics. Graunt and Davenant have some curious schemes and calculations of this nature; they are it is true chiefly of a political tendency, though not altogether foreign to medical enquiries; and at the utmost I cannot be accused of making above one page of excursion from the text and subject of the chapter. Throughout this concise disquisition, I have attempted to sketch the outlines and skeleton merely of a most important but novel branch of medical studies: I wish to usher it into more general notice and familiarity amongst professional men.

THE following tables will exhibit a distinct prospect of the fates clipping the mortal thread of life: but we are not to suppose, that in every instance there will be annually a regular arithmetical diminution in the exact proportion, adjusted by calculators in their tables for city, town, and country mortality; some years fewer may happen to die, and in other years a greater number.

DR.

DR. Short's Table, from January 1st, 1728 to 1743, a period of 15 years, died by the London bills at all all ages, taken at an annual medium in the following proportions.

Years of Age.	Died.
Under 2	9910
from 2 to 5	2411
5 — 10	980
10 — 20	851
20 — 30	2060
30 — 40	2471
40 — 50	2510
50 — 60	2231
60 — 70	1675
70 — 80	1200
80 — 90	634
90 — 100	117
<hr/>	
Total annual medium of deaths in this period	27058

A TABLE of 30 years, taken from the London bills, beginning with 1728, and ending with 1757, shewing the *total* number of deaths and decrease in this period at every age.

Years of Age.	Died.
Under 2	272903
from 2 to 5	64745
5 — 10	25912
10 — 20	22891
20 — 30	58474
30 — 40	71502
40 — 50	73258
50 — 60	59872
60 — 70	47269
70 — 80	33679
80 — 90	16948
90 — 100	496
100 — 138	242
<hr/>	
Total deaths in this period at all ages	750322

A TABLE

A TABLE of Dr. Price's, from the bills of one parish, in the small country town of Northampton, beginning with 1735, and ending with 1770; a space of 36 years. In this interval were christened 3242, buried 3690.

Years of Age.	Died.
Under 2	1206
from 2 to 5	276
5—10	155
10—20	155
20—30	297
30—40	257
40—50	297
50—60	300
60—70	293
70—80	285
80—90	155
90—100	14
Total 3690	

THE following Tables are selected from several authors, but may be found in Dr. Price's works, intermixed with a mass of other calculations, chiefly relative to annuities and pecuniary transactions: they are here employed for a much more momentous purpose: their medical utility in illustrating the ratio and gradations of mortality in cities, towns, and country, will be evident at first view. The first column o points out the age, the second column 1000 the number living at that age, the third column 320 the numbers who die in that year, and so on

on to the end. The number of living persons in the second column at the head opposite to 0 are supposed to be all born together on the first day of the year, and in like manner those living opposite to 1 are supposed all just to have attained to one year of age.

The following Tables are selected from several authors, but may be found in Price's works, intermixed with a mass of other calculations, chiefly relative to annuities and pecuniary transactions: they are here employed for a much more important purpose; their method is only illustrating the ratio and gradations of mortality in cities, towns, and countries, will be evident at first view. The first column shows the number living at that age, the second column 20 the numbers who die in that year, and 10

Shewing

Shewing the Probability of the Duration of Life
in LONDON, deduced by Mr. *Simpson*, from ob-
servations on the Bills of Mortality in LONDON
for 10 years, from 1728 to 1737.

Ages.	Persons living.	Decr. of Life	Ages.	Persons living.	Decr. of Life.	Ages.	Persons living.	Decr. of Life.
0	1000	320	27	321	6	54	135	6
1	680	133	28	315	7	55	129	6
2	547	51	29	308	7	56	123	6
3	496	27	30	301	7	57	117	5
4	469	17	31	294	7	58	112	5
5	452	12	32	287	7	59	107	5
6	440	10	33	280	7	60	102	5
7	430	8	34	273	7	61	97	5
8	422	7	35	266	7	62	92	5
9	415	5	36	259	7	63	87	5
10	410	5	37	252	7	64	82	5
11	405	5	38	245	8	65	77	5
12	400	5	39	237	8	66	72	5
13	395	5	40	229	7	67	67	5
14	390	5	41	222	8	68	62	4
15	385	5	42	214	8	69	58	4
16	380	5	43	206	7	70	54	4
17	375	5	44	199	7	71	50	4
18	370	5	45	192	7	72	46	4
19	365	5	46	185	7	73	42	3
20	360	5	47	178	7	74	39	3
21	355	5	48	171	6	75	36	3
22	350	5	49	165	6	76	33	3
23	345	6	50	159	6	77	30	3
24	339	6	51	153	6	78	27	2
25	333	6	52	147	6	79	25	
26	327	6	53	141	6			

The total number of inhabitants, probably about
650,000. One half born died under 3 years age.

Shewing the Probabilities of Life in LONDON
for all Ages. Formed from the Bills for 10
years, from 1759 to 1768. By Dr. Price.

Ages.	Persons living.	Decr. of Life	Ages.	Persons living.	Decr. of Life	Ages.	Persons living.	Decr. of Life.
0	1518	486	31	404	9	62	132	7
1	1032	200	32	395	9	63	125	7
2	832	85	33	386	9	64	118	7
3	747	59	34	377	9	65	111	7
4	688	42	35	368	9	66	104	7
5	646	23	36	359	9	67	97	7
6	623	20	37	350	9	68	90	7
7	603	14	38	341	9	69	83	7
8	589	12	39	332	10	70	70	6
9	577	10	40	322	10	71	70	6
10	567	9	41	312	10	72	64	6
11	558	9	42	302	10	73	58	5
12	549	8	43	292	10	74	53	5
13	541	7	44	282	10	75	48	5
14	534	6	45	272	10	76	43	5
15	528	6	46	262	10	77	38	5
16	522	7	47	252	10	78	33	4
17	515	7	48	242	9	79	29	4
18	508	7	49	233	9	80	25	3
19	501	7	50	224	9	81	22	3
20	494	7	51	215	9	82	19	3
21	487	8	52	206	8	83	16	3
22	479	8	53	198	8	84	13	2
23	471	8	54	190	7	85	11	2
24	463	8	55	183	7	86	9	2
25	455	8	56	176	7	87	7	2
26	447	8	57	169	7	88	5	1
27	439	8	58	162	7	89	4	1
28	431	9	59	155	8	90	3	1
29	422	9	60	147	8			
30	413	9	61	139	7			

The reader may find in Dr. Price's works a separate essay
on the proper method of constructing tables for determining
the rate of mortality.

Shewing the Probabilities of Life at VIENNA,
formed from the Bills for eight Years, as given
by Mr. SUSMILCH, in his *Gottliche Ordnung*.

Age.	Living.	Decr.	Age.	Living.	Decr.	Age.	Living.	Decr.
0	1495	682	31	364	6	62	129	6
1	813	107	32	358	5	63	123	7
2	706	61	33	353	6	64	116	7
3	645	46	34	347	7	65	109	8
4	599	33	35	340	8	66	101	8
5	566	30	36	332	8	67	93	8
6	536	20	37	324	8	68	85	7
7	516	11	38	316	9	69	78	7
8	505	9	39	307	9	70	71	6
9	496	7	40	298	8	71	65	5
10	489	6	41	290	7	72	60	5
11	483	5	42	283	6	73	55	4
12	478	5	43	277	6	74	51	4
13	473	6	44	271	7	75	47	5
14	467	6	45	264	8	76	42	5
15	461	6	46	256	9	77	37	5
16	455	7	47	247	9	78	32	5
17	448	6	48	238	9	79	27	4
18	442	6	49	229	9	80	23	3
19	436	6	50	220	8	81	20	2
20	430	5	51	212	7	82	18	2
21	425	5	52	205	7	83	16	2
22	420	5	53	198	7	84	14	2
23	415	6	54	191	7	85	12	2
24	409	6	55	184	8	86	10	2
25	403	6	56	176	8	87	8	2
26	397	6	57	168	9	88	6	2
27	391	7	58	159	8	89	4	1
28	381	7	59	151	8	90	3	1
29	377	7	60	143	7	91	2	1
30	370	6	61	136	7	92	1	1

Contains upwards of 200,000 inhabitants; one half born
died under 3 years of age.

Shewing the Probabilities of Life at BERLIN, formed from the Bills during 4 Years, from 1752 to 1755, given by Mr. SUSMILCH, * in his *Gottliche Ordnung*.

Age.	Living	Decr.	Age.	Living	Decr.	Age.	Living	Decr.
0	1427	524	33	361	7	65	112	6
1	903	151	34	354	7	66	106	7
2	752	61				67	99	7
3	691	73	35	347	8	68	92	6
4	618	45	36	339	9	69	86	6
			37	330	10			
5	573	21	38	320	10	70	80	6
6	552	15	39	310	10	71	74	6
7	536	13				72	68	6
8	523	9	40	300	10	73	62	5
9	514	7	41	290	9	74	57	5
			42	281	8			
10	507	5	43	274	7	75	52	5
11	502	4	44	266	7	76	47	5
12	498	4				77	42	5
13	494	4	45	259	7	78	37	5
14	490	4	46	252	7	79	32	4
			47	245	7			
15	486	4	48	238	7	80	28	4
16	482	5	49	231	7	81	24	3
17	477	5				82	21	2
18	472	5	50	224	7	83	19	2
19	467	6	51	217	7	84	17	2
			52	210	7			
20	461	6	53	203	8	85	15	2
21	455	6	54	195	8	86	13	2
22	449	6				87	11	2
23	443	7	55	187	8	88	9	2
24	436	8	56	179	8	89	7	1
			57	171	8			
25	428	9	58	163	9	90	6	1
26	421	9	59	154	9	91	5	1
27	412	9				92	4	1
28	403	9	60	145	8	93	3	1
29	394	9	61	137	7	94	2	1
			62	130	6			
30	385	9	63	124	6			
31	376	8	64	118	6			
32	368	7						

* This writer has also given the bills of the parish of St. Peter's at Berlin, for 24 years; and a Table formed from them, agrees nearly with this.—The number of inhabitants when this bill was formed were about 115,000.

Shewing the Probabilities of the Duration of Life, as deduced by Dr. *Halley* from Observations on the Bills of Mortality of *BRESLAW*.

Ages.	Living.	Decr.	Ages.	Persons living.	Decr. of Life.	Ages.	Persons living.	Decr. of Life.
0	1000	145	31	523	8	61	232	10
1	855	57	32	515	8	62	222	10
2	798	38	33	507	8	63	212	10
3	760	28	34	499	9	64	202	10
4	732	22	35	490	9	65	192	10
5	710	18	36	481	9	66	182	10
6	692	12	37	472	9	67	172	10
7	680	10	38	463	9	68	162	10
8	670	9	39	454	9	69	152	10
9	661	8	40	445	9	70	142	11
10	653	7	41	436	9	71	131	11
11	646	6	42	427	10	72	120	11
12	640	6	43	417	10	73	109	11
13	634	6	44	407	10	74	98	10
14	628	6	45	397	10	75	88	10
15	622	6	46	387	10	76	78	10
16	616	6	47	377	10	77	68	10
17	610	6	48	367	10	78	58	9
18	604	6	49	357	11	79	49	8
19	598	6	50	346	11	80	41	7
20	592	6	51	335	11	81	34	6
21	586	7	52	324	11	82	28	5
22	579	6	53	313	11	83	23	4
23	573	6	54	302	10	84	19	4
24	567	7	55	292	10	85	15	4
25	560	7	56	282	10	86	11	3
26	553	7	57	272	10	87	8	3
27	540	7	58	262	10	88	5	2
28	539	8	59	252	10	89	3	2
29	531	8	60	242	10	90	1	1

The number of inhabitants 34,000—1238 was then the annual medium of births at *Breslaw*, and 1000 is the number living at 1 year and *under*: therefore about 900 only should survive to 1 year of age. The numbers living in the *early* parts of life are given too high in this table.

Shewing the Probabilities of Life at NORTH-
AMPTON. By Dr. Price.

Ages.	Persons living.	Decr. of Life.	Ages.	Persons living.	Decr. of Life.	Ages.	Persons living.	Decr. of Life.
0	1149	300	31	428	7	62	187	8
1	849	127	32	421	7	63	179	8
2	722	50	33	414	7	64	171	8
3	672	26	34	407	7	65	163	8
4	646	21	35	400	7	66	155	8
5	625	16	36	393	7	67	147	8
6	609	13	37	386	7	68	139	8
7	596	10	38	379	7	69	131	8
8	586	9	39	372	7	70	123	8
9	577	7	40	365	8	71	115	8
10	570	6	41	357	8	72	107	8
11	564	6	42	349	8	73	99	8
12	558	5	43	341	8	74	91	8
13	553	5	44	333	8	75	83	8
14	548	5	45	325	8	76	75	8
15	543	5	46	317	8	77	67	7
16	538	5	47	309	8	78	60	7
17	533	5	48	301	8	79	53	7
18	528	6	49	293	9	80	46	7
19	522	7	50	284	9	81	39	7
20	515	8	51	275	8	82	32	6
21	507	8	52	267	8	83	26	5
22	499	8	53	259	8	84	21	4
23	491	8	54	251	8	85	17	4
24	483	8	55	243	8	86	13	3
25	475	8	56	235	8	87	10	2
26	467	8	57	227	8	88	8	2
27	459	8	58	219	8	89	6	2
28	451	8	59	211	8	90	4	2
29	443	8	60	203	8	91	2	1
30	435	7	61	195	8	92	1	1

The number of inhabitants 5156.

Shewing the Probabilities of Life in the Country District of
VAUD, SWITZERLAND, from the Registers of 43 Pa-
rishes, given by Mr. Muret, in the First Part of the Bern
Memoirs for the Year 1776.

Age.	Living	Decr.	Age.	Living	Decr.	Age.	Living	Decr.
0	1000	189	31	558	5	62	286	12
1	811	46	32	553	5	63	274	12
2	765	30	33	548	4	64	262	12
3	735	20	34	544	5			
4	715	14				65	250	14
			35	539	6	66	236	16
5	701	13	36	533	6	67	220	18
6	688	11	37	527	7	68	202	18
7	677	10	38	520	7	69	184	16
8	667	8	39	513	7			
9	659	6				70	168	15
			40	506	6	71	153	13
10	653	5	41	500	6	72	140	11
11	648	5	42	494	6	73	129	10
12	643	4	43	488	6	74	119	10
13	639	4	44	482	6			
14	635	4				75	109	11
			45	476	7	76	98	13
15	631	5	46	469	8	77	85	14
16	626	4	47	461	10	78	71	13
17	622	4	48	451	10	79	58	12
18	618	4	49	441	10			
19	614	4				80	46	10
			50	431	9	81	36	7
20	610	4	51	422	8	82	29	5
21	606	4	52	414	8	83	24	4
22	602	5	53	406	9	84	20	3
23	597	5	54	397	9			
24	592	5				85	17	3
			55	388	11	86	14	3
25	587	5	56	377	13	87	11	2
26	582	5	57	364	16	88	9	2
27	577	5	58	348	17	89	7	2
28	572	5	59	331	17			
29	567	4				90	5	1
			60	314	15			
30	563	5	61	299	13			

In this country province were 112,951 inhabitants, and
one half born lived to the age of 41.

Shewing the Probabilities of Life in a Country
Parish in BRANDENBURG, formed from the Bills
for 50 Years, from 1710 to 1759, as given by
Mr. SUSMILCH, in his *Gottliche Ordnung*.

Age.	Living.	Decr.	Age.	Living.	Decr.	Age.	Living.	Decr.
0	1000	225	31	482	5	62	260	12
1	775	57	32	477	5	63	248	12
2	718	31	33	472	5	64	236	12
3	687	23	34	467	5	65	224	11
4	664	22	35	462	6	66	213	11
5	642	20	36	456	6	67	202	12
6	622	15	37	450	6	68	190	12
7	607	12	38	444	6	69	178	12
8	595	10	39	438	6	70	166	13
9	585	8	40	432	5	71	153	15
10	577	7	41	427	5	72	138	16
11	570	6	42	422	5	73	122	15
12	564	5	43	417	5	74	107	14
13	559	5	44	412	6	75	93	13
14	554	5	45	407	6	76	80	12
15	549	5	46	400	6	77	68	9
16	544	5	47	394	6	78	59	8
17	539	4	48	388	7	79	51	7
18	535	4	49	381	7	80	44	6
19	531	4	50	374	7	81	38	6
20	527	5	51	367	8	82	32	6
21	522	5	52	359	8	83	25	6
22	517	5	53	351	8	84	21	5
23	512	5	54	343	9	85	15	4
24	507	5	55	334	10	86	11	3
25	502	4	56	324	10	87	8	2
26	498	3	57	314	10	88	6	2
27	495	3	58	304	11	89	4	1
28	492	3	59	293	11	90	3	1
29	489	3	60	282	11	91	2	1
30	486	4	61	271	11	92	1	1

One half born lived to 25 years of age.

FROM these different Tables may be told the odds or probability of a person in health, and of any given age surviving a specified number of years. For example, in the Breslaw Table a person aged 25 has the odds of 560 to 7 of not dying in one year; for out of 560 of that age only 7 die in the year, as is seen in the third column. Again, that the same person aged 25 will live 10 years, see at the age of 35 how many are living, and how many have died from 25 to 35, the decrement is 77: it is therefore 490 to 77 that he lives 10 years. The ultimate prospect of life is determined nearly in the same manner; for example, at 30 years of age are living 531, and between the years 57 and 58 this set is gradually reduced to one half: 27 or 28 years is therefore the probable prospect of existence for a person of 30 at Breslaw.

OF THE CAUSES OF
DEPOPULATION
IN
GREAT CITIES.

THE causes of depopulation in cities are so intimately interwoven with the subjects treated of in the three chapters of this work, that it would be unpardonable to pass them over in silence: I shall aim to concentrate the scattered rays into a narrow focus. Great cities, if we exclude Rome and Constantinople, are of modern date in many kingdoms of Europe. In the ninth century, a few had been built in Germany; but in England corporations and considerable towns are posterior to the Norman conquest. Even in the reign of Harry the Second, London contained only 40,000 inhabitants. Cities, associated communities, and towns, during the religious fever of Crusading, and after the termination of this epidemical distemper, were

were Asylums from Aristocratic tyranny; and when of a moderate size are seats of refinement, emulation, arts, and society: but when overgrown, they check population, they are drains of the human species, and the graves of young infants. Wherever any city or town of considerable size afterwards doubles or trebles its inhabitants, of which there are thousands of examples, that whole addition has been made from other towns, or from country districts. The first great and universal cause of the depopulation in cities and large towns, must be imputed to their foul and turbid atmosphere, and its poisonous effects upon infants; to close streets, alleys, lanes, and habitations of the poor, where free ventilation and circulation of the air is obstructed. In the construction of these human hives, health and population has been criminally overlooked; but no one cause alone will account for their waste, we can trace it to a multitude of sources. In attempting therefore some illustration of this subject, which is absolutely necessary to the clear understanding of the preceding and following chapters, my few desultory observations will be pointed to the British metropolis.

LONDON

LONDON bills by no means give an exact register of births and mortality; they are intended to comprehend the births alone of those belonging to the established church, and the burials of such only who are interred in the parochial church-yards: Jews, Quakers, Papists, and Protestant Dissenters, are not included in the yearly christenings, and great numbers of their burials, and burying places, not only of the dissenting, but likewise of the established church, are omitted; of the former 32, and of the latter 33, according to Short's list: the large, modern, and increasing parishes of Pancras and Mary-le-bone, in one of which stands the Foundling-Hospital, are excluded from the bills. Maitland (1729, see his History of London) discovered 181 religious congregations whose christenings were not published; and 63 burying places in and contiguous to the metropolis, where 3038 were annually buried, but excluded from the registers. Six hundred abortive and still-born, who have arrived at an age thought deserving of burials, are set down to the deaths, but omitted in the list of births: young infants who die before baptism are also not registered in the births.

I said

I said that none of the christenings of the dissenting sects were included in the public registers, but several of them are buried according to the formalities, or at least in the cemeteries of the established church, which must increase the list of deaths. Another defect in the burials is, that numbers are carried into the country who are not accounted for: it is agreed that several hundreds more are annually carried out of, than brought into London for interment. Even in the parish returns there is, as I shall hereafter prove, too much reason to suspect frequent omissions. The increase or decrease of religious dissenting sects must have considerable effect on the baptisms and burials; and finally, the proportion of emigrants from London to the sea and land service, and to distant colonies, rests upon conjecture—such alas! are the imperfect and confused materials from which we form our calculations for the British metropolis. Dr. Price rates the present annual deficiency of the London burials at 6000, and of the births somewhat greater, neither of which are brought to account in the public registers: so that upon the most probable average, there is every year an excess of deaths above the

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the births, in this metropolis, of 5 or 6000: in the last 10 years, this waste seems by the bills a little abated.

LONDON Bills at a medium annually.

Years	Christenings	Burials
From 1671 to 1681	12325	19144
1681 to 1691	14439	22363
1691 to 1700	14938	20770
1700 to 1705	15758	21091
1706 to 1710	15489	21832
1711 to 1715	16204	22178
1716 to 1720	18019	25641
1721 to 1725	18828	26513
1726 to 1730	17578	28472
1731 to 1735	17517	25491
1736 to 1740	16145	27494
1741 to 1745	14419	25351
1746 to 1750	14496	25351
1751 to 1756	15119	21080
1759 to 1768	15710	22956
1770 to 1780	17218	21000

DAVENANT calculated the number of houses in the metropolis and the county to be more numerous in the year 1690, than Dr. Price will admit them to be at present.— If London, before the beginning of this century, consisted of so many distinct though small, compared to the present houses, with separate families, and at this time, the number of houses are decreased 10, 15 or 20,000, with an *equal* number to each house, then

without doubt, contrary to the evidence of our senses, we must believe the metropolis to have been more populous 80 or 90 years ago. One true fact seems to be, that the London inhabitants are now much more widely dispersed, and to an immense extent, in small villages, retirements and country houses over all the different surrounding counties.

COMPARE the London births and burials of the last 30 years, with the 30 preceding; the deaths of late are greatly decreased in proportion to the births. Might not therefore this alledged diminution of population, from now finding a material decrease in the burials, and in a lesser degree in the births, be accounted for, by supposing that formerly the city was close confined and unhealthy, especially to infants, that then too perhaps more breeders proportionally supported the metropolis. I admit, but merely for argument, that the bills have been kept correct. London streets are now widened, the inhabitants live less crowded together, the houses stand upon double or treble the ground which they formerly occupied, ventilation is freer, the city is more plentifully supplied with water and fuel, both extremely necessary in preserving health, in preventing sickness

ness and infectious fevers originating from foul stagnant air, filth and uncleanness; the streets and foot-paths are better paved; sewers and drains are made to carry off moisture and corruption; there are many more country-houses and agreeable outlets, if not in the same county, in the vicinity of London, where families and children may enjoy fresh air and exercise; the high roads round the capital, and throughout the kingdom, are greatly improved, and invite more to exercise; academies for the education of children are increased in the environs, and in the country; the better and middling classes of people at least, drink less than formerly. In vain we look for any compliment to the standing forces of *Æsculapius*, to modern discoveries and improvements in medicine. Calculators re-echo the decay of population and of inhabitants: they are nevertheless pleased to allot some subordinate degree of merit, to bricklayers, commissioners of sewers, street paviours and scavengers.

BESIDES the pernicious effects of foul city atmosphere upon young infants, and in a smaller degree upon grown-up persons, particularly in sickness; other causes conspire to sink the births beneath the standard of the burials:

als: amongst the most apparent I include fewer breeders in cities. Our own senses and observation may here be consulted in lieu of doubtful calculations. In proportion to the easy means of acquiring a moderate subsistence for children, the population in general will be accelerated: this was lately the happy condition of our North American colonies. Another reason which tends to increase country population is, that there, in the unmarried condition, life is a languid pilgrimage, and for a variety of reasons, they enter into the state of wedlock with fewer scruples: but in large and populous cities, men (and women if they chuse) have unmolested opportunities of revelling in dissipation and vice; in their younger days they are seduced by the deceitful allurements of courtezans, and until the fire of youth is somewhat blunted, are more averse to early matrimony than those placed in *remote* parts of the country, who are not yet infected with the manners of a corrupt metropolis: in these tranquil abodes, the mind is less debauched, and fewer opportunities present to indulge in licentious gratifications. The expences of a household, and the prospect of increased burthens, in providing

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handsomely for a family, the difficulties again amongst the lower and laborious orders in cities, of subsisting, as the necessities of life rise in price, with the easy means of gratifying the sensual passions, all contribute their share in London, and other great capitals, to discourage matrimony. Even amongst the higher and middle orders where taxes are enormously multiplied, where shows, public amusements, extravagance, and dissipation are fashionable, and one of the darling objects of gratification, where selfish interest and fruition are all part of the marked outlines and features of the nation, numbers of both sexes are frightened from, or are insensible to, any charms in disinterested wedlock, and population is checked.

LONDON and Paris contain multitudes of maids, batchelors, and professed courtezans, useless drones, who add no increase to the common stock, in respect of procreation. The increase of the army and navy, of law, commerce, and private fortunes, and the commodious agreeable manner of travelling, draw numbers now to the British capital for occasional business, pleasure, or curiosity; more foreigners visit us; the number of large houses in London are multiplied, where we
may

may find a long train of unmarried domesticks; all those different descriptions of persons, which probably are rather augmented, will have some effect in detracting from the annual proportion of births. On the other hand, by improvements in the roads the London inhabitants are now not so constantly resident and pent up as formerly, which must affect both the births and burials. Probably, likewise, in cities, it is in some degree from the dissipation, and incontinence of the married state, that fewer children are produced than by country marriages; but the principal reason I imagine is, that in the latter, they enter earlier into matrimony, and afterwards perhaps, from the less expence of rearing and educating children, or from other causes, have fewer cloudy apprehensions of over-stocking their house.

HIGH refinement and large cities are obstacles to population, so is a wild state of nature. A few tribes of American Indians with difficulty find subsistence in a large tract of woody uncultivated country; the savage husbands are cold insensible mortals; the allurements of dress, delicacy, and edu-

cation are also wanting to give a spur to the passions. In North America, the infants of the Indians are suckled several years, a practice not unfrequent amongst the indigent in our own country to retard conception; and after nursing two or three children, the period of propagation is almost finished: the fatigues and perils which they are obliged to undergo in procuring subsistence, would not permit wandering Indians to support two or three young infants at the same time. A medium state between high refinement and rude savageness, is most favourable to population: in the country, and particularly in the back settlements of North America, they seek out early for a domestic partner, and breed a numerous progeny.

I FIND upon many occasions, the propriety and force of Celsus's maxim, that medicine is a circle. An attempt fully to explain the causes which may with probability be concluded as necessary of late years to the diminution of mortality in London, is warped with medical questions, and with a general survey of diseases. We should examine the effects upon different ages of a foul atmosphere, of animal effluvia, of uncleanness,

liness, of contagion, whether bred in jails or hospitals, or by filth in private houses, of moist vapours emitted from the earth, and of the diet and liquors now consumed. Before the beginning of the present century, very few vegetables were eat in London, and scarce any public gardens to rear vegetables had been planted round the city; the surge and decrease of diseases, the state of medicine, and discovery of new remedies, improvements in the nursing of infants, particularly as to loose dress and cleanliness, the modern and laudable institution of public dispensaries should all be taken into the account: these heads of inquiry would lead into a wide ocean, and are more closely connected with the matter of the following chapter.

FRESH air next to food, seems to be an element, the purity of which materially conduces to the health and life of young infants. By respiration alone, a gallon of air is one minute corrupted. The fatal consequences of city atmosphere upon such delicate constitutions are universally notorious, even amongst nations conspicuous for sobriety. The laborious class cannot afford time to carry

their infants out daily to the open areas and suburbs to breathe a little wholesome air, or even to enjoy a necessary degree of exercise; myriads of them are either suddenly extinguished in convulsions, or they pine away like young plants buried in a noisome cellar. Perhaps too in great cities, more comparatively of the parents of young infants, have injured their constitutions by precipitate irregularities, fornications, and debauchery; their offspring we may conceive will be more debilitated and frail, than those of strong healthy parents, accustomed to industry, sobriety, and regularity. The recovery likewise of infants from Small-pox, Measles, or any other sickness, will be greatly checked and rendered more hazardous, by a thick atmosphere of sea-coal smoke, emitted, at least in winter, from several hundred thousand chimnies; contaminated besides by animal respiration, perspiration, and by innumerable other feculent vapours and mixtures.

NEXT to the mortality of infants, Dr. Price assumes it is an as established proposition, “ that the *second* great cause of depopulation “ in London, takes place amongst the new

“ *annual*

“ *annual settlers*, to whom the air, modes
 “ of life, and debaucheries of the metropo-
 “ lis, are particularly hurtful and pernicious;
 “ and that (exclusive of their greater num-
 “ bers) this is one of the principal reasons
 “ why the bills swell after 20 years of age.”

THE annual waste of London is supposed to require about 5 or 6000 recruits. The new settlers Dr. Price alledges to arrive chiefly from 20 to 40 years of age, and this afflux it is evident must swell the burials in that interval of life, by adding to the number of inhabitants, and raising the deaths above the due proportion, when compared to the mortality before 20. Certain it is, that numbers come from the country to London under 20 years of age, to serve apprenticeships in trade, law, mechanical professions, and as servants; but Dr. Price is of opinion, that they are more than counterbalanced by those sent out of the metropolis under puberty for education, to schools and universities: yet even on this supposition, which may well be disputed, the polluted air of London should exert its pernicious effects upon the young strangers, much more than upon the original and half seasoned inhabi-

tants arrived at the same years. A large part likewise of the annual recruits to London composed of natives and some foreigners, we must imagine have been born and reared in cities and towns, either as artizans, mechanics, or idle people. We have convincing proofs of this during the septennial or general election of a new parliament. I am inclined to think, that Small-pox has some share in increasing the mortality of the new settlers. Were they to fall off according to the usual annual decrement of persons in this interval of life, that is at 2 or 3 per cent. the annual addition to the burials out of 6000 would amount only to about 200; and it is obvious by consulting the preceding tables of Short and Birch, that such small addition would alone go but a short way in accounting for the surge of mortality after 20 in London.

WHEN we attentively reflect upon the excess of infant deaths under 5 years of age in London, and the small number of breeders, a great surplus of deaths by new recruits will not be required to account for the London waste. The majority of the new settlers will probably be unmarried persons, who
do

do not so soon form matrimonial connections, as if they had remained in their original habitations, with their friends and acquaintances. The small portion of breeders I before observed, was a principal cause why out of 9,000,000 of negroes exported to America, and the West-Indies, 1,500,000 only now survive.

LONDON atmosphere and debaucheries, I shall not deny, are fatal to a small number of the new recruits; but after a year or two, men become habituated to great changes and diversity of situation and climate; within that time, Europeans are tolerably well seasoned, even in the East and West-Indies. I apprehend that from 20 to 40 is universally a more mortal period, than from 10 to 20, though in a less severe degree in the country than in large cities; and in this respect, the bill of a parish in a small country town, Northampton, given by Dr. Price, corresponds with London. From 18 to 35 and 40 is the principal consumptive age amongst both sexes, inflammatory fevers and chronic diseases begin to exercise their greatest tyranny after puberty; debaucheries and irregularities are then most prevalent; the venereal
disease

disease is probably more fatal to London than to the rest of the nation; in all pulmonary complaints likewise, and indeed in sickness of every denomination, pure country air contributes essentially to the recovery.

NUMEROUS cities, towns, and harbours, have been built upon low unhealthy situations, surrounded with hills or morasses; most cities seem to have grown up by time, accident, and chance; the streets are irregular, and not sufficiently pervious to ventilation, and the inhabitants crowded into too small a space: all these are objects of the first legislative magnitude in every nation. There are moderate sized towns, and even country districts so ill situated or unwholesome, as to make the burials exceed the births; I need not travel to new uncultivated countries, or rank tropical climates for proofs. Dr. Short found, from their registers, some country towns of Norfolk, Essex, and some country districts in the Isle of Ely, before the morasses were drained, in this predicament. Few great capitals in Europe can be compared to London in healthy situation and other conveniencies; yet we may remark, that the comparative proportion of its burials

rials (if the registers of each can be relied upon) rather exceed those of Amsterdam, which stands in the midst of slime, mud and morasses. Custom and habit we know season men to unwholesome climates and stations: but besides, there are fewer people by one third in Amsterdam, the streets are more regular and open to ventilation than the old buildings of London; there is also less luxury, licentiousness, and profligacy to impede population.

DAVENANT calculates, that before the beginning of the present century, England and Wales contained 1,300,000 houses and cottages. Dr. Price estimates the houses and cottages now rather under 1,000,000. This certainly indicates an alarming depopulation in the kingdom. The subject however is more of a political nature, and of infinite extent: it is connected with the state of government, of legislation, of religion, of foreign colonization, and of emigration to remote parts of the Empire; with trade, agriculture, the inclosure of commons, the monopoly of farms, and unequal distribution of property; with the frequency of wars, the increase of taxes, luxury and refinement

ment in the higher and middling classes, and with all the causes before enumerated, which more or less diminish the national stock.

C H A P. III.

The Diseases which annoy, and occasion the principal Mortality amongst Mankind; with a few Tables, each of equal Periods, 15 Years each, shewing by the London Bills, all the fatal Diseases, Casualties, and Deaths at every Age, in this Metropolis, during the last 105 Years, and which exterminated about 2,500,000 of the human Species: At the same Time exhibiting a distinct View of the Ratio of Mortality by each Distemper and Casualty: Critical Reflections upon those Diseases and Casualties, and upon the Bills, and upon the different Periods of Life at which each predominates: And concluding with a novel Attempt to form a gross Estimate, of the Numbers annually destroyed by different Diseases and Casualties throughout Great-Britain and Ireland.

IN the preceding chapter it has been confirmed by mathematical demonstration, that an inconsiderable handful of mankind survive

survive to 70 or 80 years of age; a few it is true have reached 100, or even 150, Jenkins lived to 165. It is also observable, that those who enjoyed such uncommon longevity, had no settled systematic rules of diet. In Bacon, Lord Verulam's history of long lives, both males and females, their climate, diet, manner of life, appetites, exercises, studies, passions, habits, and dispositions were exceedingly dissimilar. Throughout Europe, Africa, Asia, and America, the rich, the poor, the inhabitants of town and country, with very different climates, constitutions, complexions, nourishment, soil, and conveniencies, all seldom exceed the usual term of life allotted in holy writ to man. Seventy or eighty is mentioned by Moses, in the 90th Psalm, as the ultimate goal of human existence. The term is very short, and we are all hastening to the brink of our earthly duration. It would be unjust and fruitless to repine, seeing that so many
 " who set out with us in the journey have
 " been cut off. The awful period advances
 " by slow and imperceptible degrees: uni-
 " versal

“ verfal ruin and the laft blow, will come
 “ and clofe us up in the grave.”

I PROPOSE now, in imitation of the geographers, to lay out, and to review in one general map, the enormous brood of difeafes which difgorge their virulence over the earth, and with frightful rapacity wage inceffant warfare with mankind: by this means we fhall, to ufe a military phrafe, reconnoitre more diftinctly our enemies, and be led to make the beft difpofition and preparation for defence where the greateft danger is apprehended, and the moft formidable affaults to be fufained. Armed with difeafes, the grim king of terrors appears in the moft hideous afpect: under thefe various morbifick forms, I fhall track him grappling with mankind, and with his tremendous fcythe mowing down generations.

“ SOME philofophers confider difeafes not
 “ as the original intention of nature, but
 “ that they are, without doubt, in general,
 “ of our own creation. That were there
 “ a country where the inhabitants led lives
 “ entirely natural and virtuous, few of them
 “ would die without meafuring out the
 “ whole

“ whole period of present existence allotted
 “ to them, pain and distempers would be
 “ there unknown.” This proposition may
 be useful to encourage morality, but it will
 not bear a medical scrutiny.

IN the rude state of science and medicine,
 it was usual to ascribe most diseases to the
 immediate resentment of some invisible de-
 mon, or to divine displeasure and chastise-
 ment: learning and philosophy in every
 country discarded such supernatural agents.
 It is not more than two centuries ago, when
 the people of England could with difficulty
 be persuaded that the jail distemper, com-
 municated at the Oxford assizes from the pri-
 soners to the spectators, was not kindled up
 by witchcraft. In the age of ignorance,
 superstition, and credulity, distempers were
 imputed to demons and necromancy; on this
 account, in all barbarous nations their phy-
 sicians have been a set of stupid conjurors.
 Others again, equally err in supposing diseases to
 be unsteady motions of the human machine,
 excited by something hurtful: this popular
 error seems to originate from confounding
 diseases themselves with the practice of phy-
 sicks: they are each beyond dispute presented

to us over and over again, in nearly the same form and shape : the diseases delineated 2200 years ago, by Hippocrates in Greece, at this day retain the same essential marks and prominent features ; though in degree and violence, there unquestionably are gradations and shades which may vary the picture.

INFANT deaths every where furnish a vast supply to the gloomy realms of Pluto ; and this calamity is infinitely aggravated by the noxious atmosphere of cities and towns. The diseases of early infancy (Small-pox, Measles, and a few others excepted) are in the London bills, principally accumulated into two aggregate heaps, Convulsions and Teething ; upon which I shall presently animadvert.

PHYSICIANS have unanimously agreed, that the febrile class of diseases, comprehending all the different genera in one tribe, are the most universal and fatal ; but throughout all countries, in epidemical diseases there are barren and fruitful years, when they are more or less prevalent. Great national calamities from epidemical distempers are rare, none are ever diffus'd over a whole kingdom,
(catarrh

(catarrh in a few rare instances, and cases of general famine excepted) they sometimes spread from province to province, but all are never attacked at once, nor probably are large populous kingdoms ever totally exempted from them. Fevers of different generic forms, as agues, remittent fevers, dysenteries, malignant and infectious fevers, putrid sore throat, Small-pox, measles, &c. may be local and circumscribed to one city, or district, whilst others in the vicinity continue healthy, the disease dissipating its force within a small boundary.

DR. Short, from one hundred and fifty-one different parish registers, calculates that in a certain period some have had from eight to fourteen sickly years, whilst others in the same interval have had but one. Five, six, and eight years distance he estimates as a common period for the visitation of epidemical sickness, even in remote country parishes. In one of those intervals it is usual for Small-pox and Measles, exclusive of some other epidemics, to make their periodical circuits. By the country registers it appears, that a few parishes have had the good fortune to escape from any unusual mortality,

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during

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during

during ten, twelve, and some few twenty, and even thirty years. In all the sickly seasons of country parishes, the burials exceed the christenings, and according to the nature of the epidemic, and morbid state of the season, the mortality varies in degree. In the London bills we frequently observe, that in certain months the deaths rise double or treble above equal periods of the same year.

UPON comparing the annual average of deaths in a sickly year of London and other great cities, with sickly years in country parishes, Dr. Short finds, that cities and towns in this respect have the advantage of the country. In large open country places where fatal epidemics broke out, according to this author, more died in one year, than during 6, 10, 12, or sometimes even 15 years of health; whereas in London and such cities, seldom above a third, fourth, or fifth beyond the ordinary consumption are carried off. (The plague is certainly now and then an exception to this proposition.) The Doctor adds, that mortality is more constant and regular in cities, and not so many destroyed "per saltum" from sweeping epidemics as in

in the country. In pure open air he suggests, that contagion or other adulterated effluvia are more virulent: or perhaps he should have said, that in cities where the atmosphere is charged with a load of heterogeneous vapours, emitted from fires and other effluvia, epidemical poisons may be blunted, decomposed or annihilated. In cities too, human bodies may be more seasoned and habituated to noxious impressions from this source: Doctors and Nurses seem to be fortified by habit. Small-pox and Measles in particular, are constant residents in great capitals, and consequently the decrease from these diseases is more equal than in the country, where several years intervene between their periodical invasions. At present I studiously shun any prolix discussion of causes.

THE principal and most general epidemics which infested England during two entire centuries, are enumerated in a short syllabus, by Dr. Short. They are either plagues, agues, remittent fevers, spotted putrid fevers, slow fevers, summer and autumnal dysenteries, pestilential and contagious peripneumonies, small-pox, measles, fatal spring pleurifies, peripneumonies, and epidemical

catarrhs, all of the febrile class. De Haën computes, that out of 2000 sick taken into the hospitals at Vienna, 700 laboured under acute diseases, fevers of various kinds. Out of 5743 sick, taken into Haslar Hospital, at Portsmouth, by Dr. Lind's account, about 3000 were ill of fevers. Cleghorn estimates the summer fevers of Minorca to constitute 3-4ths of all the diseases in that island. Lind calculates, that of all the numerous Europeans who visit the sultry climates of Africa, of America, of the East and West Indies, 19 out of 20 who die in those regions are destroyed by fevers and fluxes; and probably he should have subjoined, or of chronic diseases, the consequence of those fevers. The reader will presently ascend to a much more elevated prospect of this subject.

THE plague, a febrile demon, cannot at present be called one of the mortal epidemics of Europe, except in the South East extremity possessed by the Turks. The two greatest pestilences on record happened in the 6th and 14th centuries of our era, when millions over the globe were overwhelmed in one universal deluge of putrefaction. In London, before the general conflagration in

1666, the plague was very frequent; since that event, or at most 2 or 3 years after, it is extinguished and unknown in this city. From 1592 to 1665, the plague appears from the bills, to have had annually more or less share in the mortality of the metropolis. In 1665, which is the most furious plague in the London annals, the deaths amounted to very near 100,000, but in the 8 preceding years to 113 only. According to Dr. Hodges, this last infection was imported from Smyrna to Holland, and from thence to England. Registers in other parts of Europe shew, that this disease has committed direful havock. At Marseilles, they reckon up 20 general plagues which have from time to time desolated that populous city. Many cities and towns in different nations of Europe have severely smarted by pestilence, since our emancipation from this formidable tyrant. In the Mediterranean ports they are, from fatal experience, extremely vigilant to guard against infection. So late as 1743 and 4, the beautiful city of Messina, in Sicily, was almost entirely depopulated: 70,000 inhabitants were in a short time exterminated by

the plague, which had been introduced by a few bales of infected goods clandestinely landed from a ship in the harbour.

FORMERLY the plague in London, and in most other cities, was rendered infinitely more terrible and destructive, by the injudicious internal regulations of police. It is evident by the London bills, that a mere handful at any time died in the Pest-house; consequently, every corner of the city was polluted with infection. If instead of immuring the sick and sound together in the same house, where the plague had broke out or was suspected, they had instantaneously, as is the modern practice, removed them to proper houses or lazarettos, destroying all their goods and materials capable of harbouring infection, the disease might have been soon extinguished. Confining the whole family, sick and sound promiscuously together for several weeks, until all were either dead or recovered, and with this forlorn motto on the door, "*Lord have mercy upon us,*" was a barbarous policy: many escaped in spite of their guards, or by means of a bribe, and spread the infection. This absurd mode also effectually prevented an early alarm and discovery

covery of pestilence, which as in cases of fire, is of the first importance, and when it might have been suppressed with very little loss. The filth and narrow crooked streets of London in the last century, no doubt contributed to foster and to propagate this exotic disease.

TRUE plague is now chiefly confined to Grand Cairo, and Alexandria, the two hot-beds and nurseries of pestilence; particularly the former crowded and filthy city, to many parts of Syria, to the European and Asiatic coast, bordering on the Archipelago, to Constantinople, and to some maritime towns of Arabia and Persia, which traffic by the Red Sea. About 2 years ago, Constantinople lost 100,000 inhabitants by this single disease. Their ignorance of philosophy and stupid notions of irresistible predestination, with other peculiar customs, subjects the Turks more than any other Mediterranean nation to pestilential contagion. The plague now seldom gains admittance into other European sea-ports, and even if imported to our shores, the wise precautions and regulations adopted by quarantines, check its irruption: this is a most important improve-

ment in the police of modern states, for the original institution and rough draft of which about 300 years ago, we are indebted to the Venetians. The internal ordinances, however, enacted to prevent the dispersion of pestilential infection, were, until the present century, extremely erroneous and impolitic. Fortunately for mankind, the infection of plague spreads to a very small distance thro' the air, without some contact or adhesion to infected goods and porous materials, or by personal communication of the sound inhabitants with the diseased: a neighbour shutting himself up at a few yards distance from an infected house, may escape unhurt. If the contagion of plague could be so suddenly and widely scattered over a kingdom, as epidemical cartarrh or influenza, the earth in a few months would be converted into an enormous church-yard, and filled with dead corpses.

NEITHER can the Sweating-sickness be now considered as an epidemic cause of mortality. Somewhat more than 300 years ago, this singular and contagious disease broke out, for the first time, in the army of Harry the Seventh, on his return to Milford-Haven in Wales, from an expedition against France,
and

and in four hours sickness numbers were snatched off: but if they kept warm in bed under profuse sweats, and survived 24 hours, the danger was usually surmounted. The same infection was brought back again to England at several subsequent intervals: happily its greatest devastation was always of short duration, and it has long since disappeared from this island, and from Europe.

AMONGST the universal febrile maladies, are those Intermittent and Remittent fevers, of unwholesome tropical climates, particularly in the rainy seasons, and of all woody uncultivated countries, placed under tropical heats, and abounding in morasses and swamps: in the sultry summer, and autumnal seasons of Europe, in low and marshy situations more especially, these are also the prevailing epidemics: armies in camps are at that time often grievously infested with them, and the dysentery generally accompanies them. Over all the middle regions of the earth, from cancer to capricorn, intermittent and remittent fevers, and dysenteric fluxes are the most general form of fevers: throughout this wide extended tract they may be called the locusts, which devour

devour whole crops of mankind. They destroy not only numbers immediately, particularly of the new European settlers, but when improperly treated, or when convalescents fall into repeated relapses, these fevers often terminate in chronic complaints, such as dropfies, jaundice, visceral obstructions, swellings and scirrhus of the liver, and broken constitutions: relapses into them are frequent through every season of the year, upon premature exposure to cold, hardships, or irregularities in living. Since the discovery of antimonials and bark, few now die of this fever compared to the number of sick; but except consumptions, small-pox, and perhaps an infectious fever which I shall soon mention, it may be doubted, whether any other single genus of disease, destroys more of the human species.

EVEN in most of the driest countries and situations, after a close sultry summer, and long continued heats, we often observe such fevers and fluxes to ensue: the humours are then corrupted, and the solids relaxed; and in such a disposition of body, irregularities in diet, wet cloathes, and damp night air, may give rise to fevers: but in such situations they
are

are infinitely less frequent, and generally less characterized and fatal. It is true indeed, that in Minorca, where great part of the soil is dry and rocky, but the heat excessive, summer fevers and fluxes have raged with great severity. In the rank equatorial regions, the remittent fevers are sometimes so precipitate, as to kill in 1 or 2 paroxysms, unless sooner stopped; the doctor, lawyer, and priest quickly succeeding each other in their visits. Without the dysentery in conjunction, they are seldom contagious; even when stamped with livid spots, and the strongest marks of putrescency.

AUTHORS have given various appellations to those intermittent and remittent fevers, which are in essence the same, and cured nearly by similar remedies: they are denominated tertian, semitertian, double tertian, triple tertian, hæmitritæa, amphimerina, autumnal epidemic fever, pestilential tertian, marsh fever, camp fever, bilious, and gall sickness, remittent fever of warm and tropical climates, putrid remittent fever, tertian fever, accompanied with several irregular symptoms, and from the symptoms most predominant and urgent, the fever has received different names.

ANOTHER

ANOTHER fever varying considerably in symptoms and violence, is widely dispersed over the earth; it is not so much governed or influenced by the seasons or sensible qualities of the air, as the preceding and some other fevers, but in all countries may arise at every season of the year, whether hot or cold, and like the plague or small-pox, is often communicated by contagion, from one person to another, either by approaching too near the sick, or through the medium of infected goods, cloaths and moveables. It is frequent in jails abounding in filth, filled with animal steams, and where free ventilation is excluded: it is frequent in large hospitals, particularly military hospitals during war, crowded tumultuously with sick, with putrid sores, mortifications, or with dysenteries; and in such cases, hot weather will sooner give it activity: it is very frequent, especially if wet or stormy weather should happen, and the hatches are then necessarily kept close shut, on board of ships, squadrons and large fleets, particularly when hastily fitted out: in cities we can frequently trace it to the prisons, perhaps sometimes to the hospitals, to the houses of the poor, to filth, rags,

rags, squalid poverty, and adulterated air. Cities and towns, also for obvious reasons, seem to be more exposed to it than the country. Authors call it jail fever, hospital fever, putrid malignant fever, spotted and petechial fever, infectious fever, &c. Some, not without foundation, have surmised, that slow nervous fevers are in general derived from the same origin, and that they differ in degree only from the former: spots on the skin are by no means constant symptoms, but when they appear, they point out the disease more unerringly, and its greater malignity. The ignorance of the searchers in medical matters, prevent us from determining the precise mortality by this genus of fever in London.

PUTRID sore throat, a species of malignant infectious fever, has been called plague, with carbuncle in the throat resembling buboes in the groin. Its mortality is not confined to any season of the year, but although the fever is extremely precipitate and fatal to those whom it seizes, particularly children, it seldom extends over a large tract of country; a single city, or a province at most, bounds its malignity. The revolutions of this infectious disease are irregular and uncertain. In 1748, a considerable number
in

in this country fell victims to putrid fore throat: scarlet fever is very generally connected with it—in the London bills I suspect that they rate its mortality rather too low, and I imagine it is sometimes confounded with putrid, scarlet, spotted, and malignant fevers.

ANOTHER very different order of fevers, both in their nature and cure, are the Inflammatory. The simple Inflammatory is one genus of this tribe, whose mortality is trifling compared to some of the former fevers: it is commonly complicated with some topical pains and inflammation; and then is properly distinguished as a different genus. Pringle observes, that in military camps, Pleurifies and Peripneumonies, two rapid and dangerous diseases, accompanied with local or topical inflammations in the lungs, are the most frequent forms of fever with inflammation, and next to those acute Rheumatisms. The majority of these fevers originate from colds, and prevail most in the winter and spring, and in rigorous seasons, or where cold and moisture predominate, and are infinitely more general in the cold northern, than in the southern and tropical climates.

NEXT

NEXT to the lungs, the liver seems to be more subject to inflammation than any other internal viscus:—in the East-Indies it is a very frequent disease, but in this island, and in most parts of Europe, it is, compared to the preceding inflammations, rare.

IN the southern climates of Europe, and most certainly over all the equatorial regions, intermittent, remittent fevers, and fluxes destroy the greatest numbers: without the tropics also, in the marshy countries of Hungary and Italy, where the summers are long and intense, and in that great northern morass, Holland, these fevers often make dreadful desolation. Fevers with inflammation, and the bilious remittent, are greatly regulated, not only by climates and latitudes, but also in the same country by the different seasons of the year. In summer and autumn fevers tend in various gradations to affect the stomach and bowels with sickness, they then become more or less remittent, and less of an inflammatory nature. In Holland (says Pringle) towards June, a healthy month, the inflammatory fevers begin to recede, and the bilious, putrid, or remittent, often succeed through
the

the summer and autumn, until the return of winter, when the inflammatory again recommence, the seasons and diseases insensibly intermixing and running into each other.

THESE few preliminary and general observations, will render the subsequent Tables of the London diseases and the criticisms more intelligible: the relative mortality of all deadly diseases and casualties, at least in this metropolis, is the future object of this essay, and is reduced in some measure to mathematical exactness.

I COULD have exhibited tables with the diseases and mortality of the last century, in London, from 1629 to 1670; but for a great part of that time the metropolis was insignificant in size compared to its present magnitude, 23 new parishes have since been gradually added to the bills: there is also a hiatus of 10 years, in which the registers of diseases are lost: again, London until 1665 and 66, was infested with the plague, which disease, previous to that date, seems to have been one primary object of the bills; and to adopt Graunt's and Dr. Short's sentiments, the registers, from various political and religious obstacles, were then very negligently managed. The kingdom,
during

during the early part of this interval, was distracted with civil war, which ended in the beheading of King Charles; and after the great pestilence in 1665, London must have required some few years to recruit. For these and many other reasons, I formed *five* regular tables only of diseases in the present century, when London is more stationary in numbers, and more populous than at any preceding period of equal duration: by this means the actual and comparative magnitude, rise, or declension of different diseases, will be more conspicuous in each table; and by proportioning the mortality to the population, we are enabled, with certain precautions and exceptions, to make the diseases and casualties of London serve as a morbid barometer to the whole nation.

HAD I attempted to form similar tables for even the latter part of the last century, the reader would have been embarrassed to no purpose, and such an attempt must ever prove abortive. For example, in one and the same title, are often intermixed in the registers of mortality, flog, small-pox, and measles; consumptions and tiffick; cancer, canker, and thrush, and sometimes wolf, cancer, gangrene,

grene, and fistula, or cancer, gangrene, fistula, and mortification: additional specimens of their absurdity, and of the gross stupidity of the searchers and registering clerks, are gout and sciatica; vapours and water in the head; quinsy and thrush; teeth and worms; sores, ulcers, bruised and broken limbs; cough, cold, and chin-cough. Notwithstanding this rabble of diseases, in commenting upon the bills of the present century, I have referred back, and have contrasted the majority of them with the bills of the last 30 years, in the preceding century; so that as near as the imperfection of the materials would admit, the mortality of 105 years in London is exhibited, and at one view presents all the acute, the chronic diseases and the casualties which destroyed about 2,500,000 of the human species. Where no considerable difference appeared in the diseases and mortality of each 15 years interval of the 30 in the last century, I added the two together to prevent unnecessary arithmetical multiplication, and it is easy to divide 30 into two equal parts: or if we wish to know the annual destruction by each disease in the metropolis, there is no difficulty in dividing that disease in 15 equal portions.

SEVERAL

SEVERAL authors on bills of mortality have obscured their works in a cloud of arithmetick and calculation: the reader must have no small portion of phlegm and resolution to follow them through with attention; they often tax the memory and patience with a superfluity of figures, even to a nuisance. Those who will peruse the following *five* tables with attentive curiosity, would have been startled at the voluminous sight of their detached contents in 105 separate pages. Another very particular and important meaning I have in view, in forming each table of London diseases and casualties for *fifteen* years, in preference to any other number, is, that the *annual* havock by *similar* diseases and casualties throughout Great-Britain and Ireland, may be computed with some probability, by each *fifteen* years mortality in London. Multiply 600,000 by 15, the product is 9,000,000.

THE Diseases, Casualties, and total Deaths,
by the London Bills of Mortality during *fif-*
teen years, beginning from 1701, and ending
with 1716.

Chrisoms	850	Cholick	-	1360	Rising of the	
Infants	—	315	Twisting in		Lights	1219
Head mould-			the Guts	125	Spleen	—
shot	-	386	Bloody Flux	133	Vapours	—
Water in the			Gripes in the		Child-bed	3560
Head	-	223	Guts	-	12183	Evil
Convulsions	91660	Looseness	-	181	Leprosy	-
Teeth	-	18478	Vomiting	-	161	French-pox
Thrush	—	839	Flux	—	178	Scurvy
Rickets	—	3916	Worms	-	697	Rash
Chin cough	63	Bleeding	-	87	Scald Head	9
Small-pox	22219	Diabetes	-	37	Inflamma-	
Measles	-	1972	Apoplexy	1154	tion	-
Ague	—	86	Suddenly	1074	Imposthume	790
Fever	-	49189	Lethargy	-	105	Mortification
Purples	-	189	Megrims	-	13	Gangrene
Spotted Fe-			Pally	—	332	Fistula
ver	—	1498	Head-ach	—	21	Sores and Ul-
Scarlet Fever	54	Lunatic	—	412	cers	-
Malignant			Dropfy	-	11420	Cancer
Fever	—	15	Tympany	-	206	Canker
Pleurisy	—	384	Liver-grown	76	Bursten	-
Quinsey	-	226	Jaundice	-	1261	Ruptures
Rheumatism	368	Gravel and			Wen	—
Consumpti-			Strangury	66	Swelling	-
ons	—	42541	Stone	—	721	White Swel-
Cough	—	56	Gout	—	313	ling
Asthma	—	424	Stoppage of			
Tiffick	-	4660	the stomach	4139		

CASUALTIES in the above period.

Self-murder	445	dents	-	828	Poisoned	-	2
Murdered	135	Drowned		907	Over-laid		817
Stabbed and	} 15	Burnt	-	90	Surfeits	-	685
killed by a		Scalded	-	19	Excessive Drink-		
sword		Strifed and suf-			ing	—	19
Killed by falls,		focated	-	13	Found dead		388
bruifes, and		Frighted		8	Executed	—	
several acci-							

Abortives 1436. Still-born 7318. Aged 27, 341.

THE Diseases, Casualties, and total Deaths,
by the London Bills of Mortality during *fif-*
teen years, beginning with 1717, and ending
with 1731.

Head-mould-	Asthma and	Gravel, stone, and
shot, horse-	tisick 7938	strangury 868
shoe head,	Cholick 1473	Gout - 645
and water	Twisting of the	Stoppage of
in the head 2374	guts - 356	the stomach 2557
Infants and	Griping in the	Rising of the
chrisoms 606	guts - 9203	lights - 1239
Convulsions 114718	Vomiting 386	Spleen - 52
Teeth - 25199	Vomiting and	Child-bed 3894
Thrush - 1191	looseness 92	Evil - 519
Rickets 1383	Looseness - 682	Leprosy - 53
Hooping cough	Flux - 200	French-pox 1372
and cough 632	Bloody Flux 248	Scald-head 15
Small-pox 34448	Worms - 662	Scurvy - 28
Chicken-pox 12	Bleeding - 69	Rash - 128
Measles - 2618	Diabetes - 48	St. Anthony's
Ague - 198	Apoplexy and	fire 73
Fever - 51998	suddenly 3013	Inflammation 67
Spotted fever,	Lethargy - 126	Imposthume 624
scarletfever,	Megrims - 10	Gangrene,
malignant	Pally - 550	and mortifi-
fever, and	Head-ach & pain	cation 2857
purples 1332	in the head 32	Cancer - 1059
Pleurisy - 602	Lunatic 513	Canker - 131
Quinsey - 169	Grief - 210	Sores and ulcers 485
Rheumatism 447	Dropsy 15276	Fistula - 202
Cough - 123	Tympany 154	Bursten and
Consump-	Liver-grown 95	rupture - 309
tion 49680	Jaundice - 1793	Swelling—

CASUALTIES in the above period.

Self-murder, or	bruises, frac-	Bit by mad dogs
made away	tures, & vari-	and cats 3
with them-	ous accidents 917	Over-laid 1180
selves 667	Drowned 1193	Surfeit - 131
Murdered 109	Burnt - 54	Excessive drink-
Stabbed, killed	Scalded & burnt 36	ing - 267
with a sword,	Smothered and	Starved - 17
wounded, and	suffocated 34	Found dead 557
shot 32	Frighted - 14	Executed—
Killed by falls,	Poisoned - 7	

Abortives 1230.
Bed-ridden 104.

Still-born 9001.

Aged 34,708.

THE Diseases, Casualties, and total Deaths, by the London Bills of Mortality, during *fifteen* years, beginning with 1732, and ending with 1746.

Head-mould-shot, & water in the head	2013	Cholick, gripes, and twisting of the guts	3739	the stomach	2286
Convulsions	111966	Bloody Flux	167	Rising of the lights	197
Teeth -	20274	Vomiting and looseness	248	Spleen -	20
Thrush -	1512	Worms -	161	Child-bed	3412
Rickets -	954	Bleeding -	57	Miscarriage	47
Cough, and hooping cough	1692	Diabetes -	19	Evil -	426
Small-pox	29462	Apoplexy and suddenly	3287	Leprosy -	69
Measles -	2858	Lethargy	116	Scald-head	29
Ague -	82	Palsy -	621	French-pox	1663
Fever, malignant fever, scarlet, spotted, and purples	57595	Lunatic	777	Scurvy -	14
Pleurisy -	811	Head-ach & pain of the head	6	Itch -	42
Quinsey -	287	Dropfy and tympany	16036	Rash -	47
Rheumatism	310	Liver-grown	75	St. Anthony's fire	36
Consumptions	66009	Jaundice -	2032	Inflammation	698
Asthma and tiffick -	9460	Gravel, stone, & strangury	710	Imposthumè	381
		Gout -	765	Mortification	3362
		Stoppage of		Cancer -	774
				Canker -	123
				Sores & ulcers	402
				Fistula -	210
				Bursten and rupture	304
				Swelling	47

CASUALTIES in the above period.

Self-murder	693	Drowned	1444	and cats	14
Murdered -	147	Burnt -	90	Over-laid	1293
Stabbed -	13	Scalded -	45	Surfeits -	59
Killed by falls, bruises, fractures, and various accidents	936	Smothered and suffocated	62	Excessive drinking	678
		Frighted -	8	Starved -	96
		Poisoned -	7	Found dead	668
		Bit by mad dogs		Executed—	

Abortive and Still-born 8793. Aged 30,058.

THE Diseases, Casualties and total Deaths.
by the London Bills of Mortality, during *fif-*
teen years, beginning with 1747, and ending
with 1761.

Head-mould shot, horse- shoe head, & water in the head 1022	Asthma and tissick 5699	Stoppage of the stomach 304
Convulsions 85196	Cholick, gripes, and twisting of the guts 1475	Rising of the lights 39
Teeth - 13978	Bloody Flux 94	Child-bed 3005
Thrush - 1391	Flux - 252	Miscarriage 56
Rickets - 212	Vomiting and looseness 134	Evil - 197
Cough, and hooping cough 2755	Worms - 115	Leprosy - 39
Small-pox 29165	Bleeding - 70	Scald-head 22
Measles - 3099	Diabetes - 16	French-pox 997
Ague - 99	Apoplexy and suddenly 3271	Scurvy - 59
Fever, malig- nant fever, scarlet, spot- ted, and purples 45621	Lethargy 105	Itch - 31
Pleurisy - 407	Palsy - 1021	Rash - 59
Quinsy - 214	Lunatic - 1126	St. Anthony's fire - 63
Sore Throat 92	Grief - 87	Inflammation 894
Rheumatism 175	Dropsy - 13376	Imposthume 191
Consumpti- ons 61729	Tympany - 34	Mortification 3083
	Liver-grown 23	Cancer - 682
	Jaundice 1729	Canker - 77
	Gravel, stone, & strangury 421	Sores and ulcers 253
	Gout - 803	Fistula - 134
		Bursten and rupture - 163
		Swelling - 49

CASUALTIES in the above period.

Self-murder 555	Burnt - 127	Over-laid - 414
Murdered - 71	Scalded - 51	Surfeit - 31
Killed by falls, bruises, fractures, & various ac- cidents 1084	Smothered and suffocated 90	Excessive drink- ing - 189
Drowned 1718	Frighted - 13	Starved - 53
	Poisoned - 24	Found dead 336
	Bit by mad dogs and cats 15	Executed —

Abortives and Still-born 8820. Aged 25, 109. Bed-
ridden 56.

THE Diseases, Casualties and total Deaths, by the London Bills of Mortality, during *fifteen* years, beginning with 1762, and ending with 1776.

Head-mould-shot, horse-shoe head, & water in the head	337	Consumption	68949	Stoppage of the stomach	179
Convulsions	89221	Asthma and		Rising of the lights	10
Teeth -	11918	tisick	6154	Child-bed	3186
Thrush -	1101	Cholick,		Miscarriage -	49
Rickets -	104	gripes, and		Evil -	198
Cough, and		twisting of		Leprosy -	15
hooping		the guts	796	Scald-head—	
cough -	4252	Bloody Flux	93	French pox	1016
Small-pox	36276	Flux -	341	Scurvy -	42
Chicken-pox	39	Vomiting and		Itch -	11
Measles -	3319	looseness	120	Rash -	24
Ague -	199	Worms -	56	St. Anthony's	
Fever, ma-		Bleeding -	114	fire -	69
lignant fe-		Diabetes -	5	Inflammation	1394
ver, scar-		Apoplexy and		Imposthume	84
let, spot-		suddenly	3353	Mortification	3023
ted, and		Lethargy -	74	Cancer -	719
purples	48594	Palsy -	1020	Canker -	61
Pleurisy -	321	Lunatic	1048	Sores and ul-	
Quinsey -	143	Grief -	77	cers -	236
Sore throat	166	Head-ach -	18	Fistula -	119
Rheumatism	128	Dropy -	14038	Bursten and	
Cold -	56	Jaundice	2089	rupture -	140
		Gravel, stone,		Swelling -	37
		& strangury	429		
		Gout -	1010		

CASUALTIES in the above period.

Self-murder	519	Drowned	1781	and cats	6
Murdered -	77	Burnt -	132	Over-laid -	95
Shot -	10	Scalded	40	Surfeits -	27
Killed by falls,		Smothered and		Excessive drink-	
bruises,		suffocated	68	ing -	69
fractures, &		Frighted -	2	Starved -	57
various ac-		Poisoned -	10	Found dead	133
cidents	1065	Bit by mad dogs		Executed—	

Abortives and Still-born 10,241. Aged 22,032. Bed-ridden 115.

CONVULSIONS form a dreary catalogue of astonishing magnitude in the London funerals; and are principally noxious to infants under 2 years of age. Convulsions and teething are terms too indefinite. Every infant disease, not immediately obvious to the senses, is thrust into those two articles by the ignorant searchers. From pains, acidities, and disorders of their stomach and intestines, which are extremely delicate and irritable, convulsions frequently ensue: in cutting teeth too infants may die convulsed. If we consider the term scientifically, convulsions, in numerous cases, convey no more intelligence of the disease, than if they had said the child died from want of breath. Christoms and infants (who die in the first month after birth) since the year 1726, are intirely left out of the bills, and are now ingulphed in convulsions.

WHETHER the increased consumption of spirituous productions, imported from our West-India islands and other countries, and swallowed undiluted by many of our laborious ranks of suckling mothers and nurses in London, has operated to the great extent

tent usually imagined, in augmenting infant mortality and convulsions, may on several accounts, be doubted. Towards the middle of the fourth table, that is about 1750 and 51, the use of spirituous liquors and gin was notoriously prevalent in the metropolis, as can be proved by the Excise books; yet upon comparing the births in that table or interval with the mortality by convulsions and teething, the latter diseases seem to have decreased. It is necessary to contrast the deaths by convulsions and teething with the christenings, for if more children are born, more should be expected to die in infancy; and in this way alone the augmentation or decrease of these two diseases should be determined. Again, the French, Italians, and Spaniards, both men and women, are remarkable sober nations, but upon due examination, infant deaths in Paris, Rome, or Madrid, would probably be found not far inferior in proportion to their numbers and population to London. Tea in this country at present is an article not merely of luxury, but of ordinary diet amongst almost every rank, especially in cities and towns; more also of that malt liquor,
called

called porter, is ingurgitated in London: has the general propensity for these two articles no effect in diminishing dram drinking and convulsions? I lament and acknowledge not only the indecency, but likewise the atrocious criminality of the practice; my meaning is only to represent it as an evil, vastly subordinate in its noxious effects to the poisonous atmosphere of cities.

ANOTHER circumstance overlooked, so far as I know by the different calculators and criticks on the subject of infant diseases in London, is this: cholic and gripes of the guts in the first table, amount to 13668, but continue through every table to decrease, and in the last or fifth table they dwindle to 796 only. What is understood by this complaint, gripes of the guts; is it dysentery? Bloody-flux, we observe, makes a separate article in the bills. Are the two diseases confounded together in the searchers reports? May we not suppose, that several infant diseases and deaths were formerly crowded into cholicks and gripes? I am aware that in reply it will be said, that drains, sewers, drier lodgings, less damp, and change in diet, particularly the more general use of
2 fermented

fermented liquors and vegetables, have diminished dysenteric diseases in this city; that Dr. Sydenham likewise describes an autumnal dysentery annually prevailing in London, and usually about two months in duration, during the years 1670, 71 and 72: still I suspect that a number of infant deaths have been crammed into this article; for going back into the bills of the last century, the deaths under this title are enormously great: proceeding backwards from 1700 to 1685, in 15 years, gripes of the guts amount to 28226, and from 1685 back to 1670, 15 years also, to 41573. In each of these last intervals too, Bloody-flux, Scouring, and Flux, make separate titles, and conjointly amount in 30 years to 1690, and Cholick and wind to 2374. Now we know that vomiting, acidities in the stomach, Cholick and griping of the guts are extremely frequent and tormenting diseases of infants, from which they often die convulsed. I cannot think that dysentery alone destroyed altogether so many in London; and if my suspicions are well founded, it will detract from the ostensible magnitude of convulsions in the present century, in which article many deaths

deaths formerly laid to gripes in the guts, are probably swallowed up, and have deceived calculators.

TEETHING deaths must happen between six months and about two years of age: some children do not begin to cut teeth before the ninth or tenth month; but it is seldom so late as three years, before the first set are all protruded. In forcing with difficulty through the tender gums, they often excite exquisite pain, fever, and sometimes convulsions.

How many of the mortal Thrush cases affected infants and adults? In all probability, infants, very shortly after birth, were the greatest sufferers: Thrush almost never seizes adults, but as a symptom amongst many others of fever. In some rainy years, and marshy countries, during a wet and warm summer, this disease is much more epidemical and frequent; but in the southern climates thrush is a rare distemper: when of a malignant sort, numerous round ulcers cover the tongue, and line the mouth and intestines, terminating in successive layers of tenacious shining, and in the worst species, black crusts. Is canker only a different name for Thrush? I am dubious; but inclined to think they denote the same disease.

COUGH

COUGH and Hooping-cough has increased with astonishing havock: is the Croup a rare disease added to Chin-cough? are any other different pulmonary complaints, under the title of cough, intermixed with this teasing, and often epidemical disease, so peculiar to infancy and childhood? Luckily, like Small-pox and Measles, it attacks the same person but once in life.

RICKETTY deaths from 1670 to 1701 amounted to 11415, whereas in the last table of 15 years in the present century, they shrink to 104. Does this indicate more maternal attention, and also more propriety in the suckling and rearing of infants? or has the disease actually withered? Is implicit reliance to be placed upon the searchers reports in discriminating this disease? Is it ever confounded with convulsions? In the interval from nine months to two years of age, rickets commonly make their appearance, beginning with leanness, muscular weakness, large head, and prominent belly; and terminating, if not cured, in death, or in curvature of the bones, and deformity.

AFTER devoting an intire chapter expressly to Small-pox, nothing more will be expected from me on that head. The deaths
from

from Measles are generally to those of Small-pox, in the ratio of 1 to 10, 11, and 12. Few escape this disease in infancy or childhood, and as we find 1-10th fewer to die of Measles than of Small-pox, we may conceive the blanks of the former as 1 of 60. Sydenham long ago observed, that the Measles, *if* skilfully treated, are attended with little danger: he should at least have added immediate danger; for in their future consequences, Measles, especially in cities, are not without hazard, and are not unfrequently followed by hecticks.

VERY few now die of Ague in London: towns in general are less harrassed with this disease than country places. Pringle remarks, that during the campaigns of the British troops in the marshy countries of Flanders and Holland, where agues and remittent fevers from moist and putrid vapours are so frequent, the soldiers quartered in towns kept freer from those diseases, than the troops detached in country cantonments: the fires, sewers, drains, and paved streets, prevented an exuberance of moisture; and if the men slept in the upper part of the house, they were more secure from sickness. Agues generally tyrannize in spring and autumn, and
in

in these different seasons, different modes of cure are required. The vernal agues, and those occurring in the beginning of summer, are of a mild nature; those of August and the autumnal are more obstinate and dangerous, and sometimes terminate in jaundice, dropsies, or consumptive emaciations.

IN the preceding century, Ague and Fever were joined together, and Spotted Fever and Purples in a separate parcel; their proportion of mortality in 30 years, from 1670 to 1701, were as follows: ague and fever 87645, spotted fever and purples 5744.—From 1699, fever, malignant fever, scarlet, spotted fevers, and purples, have all been promiscuously included in one title; and it is equally impossible from this indiscriminate crowd, to determine either the specific nature or genus of these febrile diseases, or the respective fatality of each. How many of them were simple Inflammatory Fevers, and how many were accompanied with topical inflammations in the lungs, called Pleurisy and Peripneumony, to which may be added the inflammation of the Diaphragm: how many were summer Bilious, or autumnal Remittent Fevers; and finally, how many were of the Malignant infectious, or the slow Nervous tribe?

tribe? All must be sought for in this miscellaneous group; there is no other magazine where they can be heaped up. As to the mortal fevers of women shortly after delivery, they fall under a future article, Child-bed.

I WISHED to determine, if possible, with some degree of authenticity and probability, as I have done in Small-pox, Measles, Child-bed, and several other diseases, the magnitude of havock in London by each of the different genera of fevers. I knew that most of our hospital registers were in this particular part defective; on that account I applied to Dr. Sims, one of the three able physicians who superintend the Aldersgate Dispensary; where by private subscriptions of the humane and charitable, the poor and laborious ranks are supplied with advice and medicines, and when necessary, attendance at their own houses. Dr. Sims, with great affability, procured me the books and registers of this charity during six years, from October 1774 to October 1779, and in them I perused over the diseases of 29,511 sick, who in that period had applied for medical or surgical advice: but though no gentlemen are better qualified

P

fied

fied to discriminate and cure diseases, yet in the bustle and haste of prescribing for such multitudes daily, I found that too often the genus of fever was not marked, but only by the general outlines or class *febris*. This laborious search therefore to my regret proved unsuccessful; except that in ascertaining the reigning proportions of some female complaints, not mentioned in the London bills, I converted it to some use and advantage, as will afterwards appear.

It would be of the utmost importance to mankind, and to this city, could we compute the proportion of devastation by the different genera of fevers. Is it probable that in London, and still more so in the country, but above all in the northern parts of the kingdom, that winter and spring inflammatory fevers destroy more than the summer bilious, and autumnal remittents? The most intricate question is to know, how many are cut off by Infectious, Malignant, and by slow Nervous Fevers? I believe, that fevers from this species of infection, are much more destructive than is generally supposed: their treacherous mildness, often at the attack, has, in innumerable instances, deceived

ed practitioners. Independent of antimonials, bark, and blisters, remedies of sovereign energy in such infectious fevers, we know that jail infection, and even that of Small-pox, can be annihilated by fire and smoke confined a proper length of time; the heat of a baker's oven continued twelve hours, extinguishes these noxious poisons when concentrated in woollen, or any other porous materials.

THE mortality by Pleurisy and Peripneumony, is totally obscured in the London bills, and I conceive is greatly under-rated. Haller and Morgagni's dissections, prove them to be only different degrees of the same disease. They chiefly prevail after puberty, and in vigorous athletic constitutions, are extremely precipitate, especially the true peripneumony; a few days suffered to elapse without skilful advice, or without a prosperous crisis by the precarious efforts of nature, the event is often rapid and fatal, or at the best lingering and unfortunate. Even in the southern climate of Minorca, where, in the coldest seasons, ice is an uncommon appearance, the Pleurisies and Peripneumonies of winter and spring often make great destruction, and require profuse blood-letting.

SIMPLE inflammatory Quinsy, if early advice is had, and it is treated with any tolerable skill, commits but petty depredations: are any cases of putrid sore throat confounded with quinsy? The true inflammatory quinsy generally invades between the spring and summer, particularly when the weather is then unusually cold. Under this genus of guttural inflammation, may also be arranged a most precipitate species, where the top of the wind-pipe and glottis are alone inflamed, but without any external signs of quinsy: happily this dangerous species which threatens hasty suffocation, is very rare.

RHEUMATISM may be supposed to comprehend every species of this disease, whether febrile or chronic. Though a very frequent torment, it is in general rather a painful and obstinate anguish, than dangerous to life; I speak comparatively only. Adults, and those advanced in years, are chiefly subject to rheumatism; and above all, soldiers and sailors during war, when they are exposed to heats and colds, to wet clothes, and cold quarters.

CONSUMPTIONS make a most awful appearance in the London funerals. How many of the true pulmonary consumption, or phthisis, were included in this catalogue, is difficult

difficult to guess; but from the concurrent testimony of physicians, and of experience, we may safely affirm a very large proportion: there are few families in this kingdom, whom it has not one time or other plunged into tears and distress, and deprived of relations or friends, multitudes of them nipped in the florid blossom, or in the full ripeness of beauty and vigour. Physicians have marked the prevalent consumptive stage from 18 to 35, and 40 years of age.

EXCLUSIVE of hereditary constitution, (the worst of all species) of neglected colds, or stubborn coughs, of scrophulous lungs, of narrow chest, of sanguine plethora and spitting of blood, of bruises on the trunk of the body, of topical inflammations within the breast, neglected or ill cured, all which in their turn most generally give birth to the pulmonary phthisis, various complaints of the fair sex, originating from obstruction, or from a contrary fault, terminate not unfrequently in this disease. Has not the increase of law and mercantile transactions, and consequently of young writing clerks, added to the consumptive list? Strong whale-bone stays, and tight lacing, are also justly repro-

bated by the writers on phthisis, as augmenting the dismal catalogue.

CONSUMPTIONS and coughs are terms too lax and undefined. Into the consumptive gulph, without doubt, are thrown every febrile and slow hectic wasting of the body, from infancy to old age, whether from causes not well known, from a general atrophy, from the dregs of the natural Small-pox and Measles, from the whooping-cough, and from various other febrile and chronic distempers. Sydenham observed, that consumptive symptoms, as they are called, do not always shew a disease seated in the lungs: they may indicate a debilitated drooping habit; and in such symptoms, following after tedious fevers, he often found wine, and generous diet, the best remedies. Several other causes of hectics might be added, such as profuse evacuations, scrophulous mesentery, and internal ulcerations: a juvenile vice sometimes brings on tabes dorsalis: the hectic fever of infants is described by many authors: in them too wasting of flesh, may be the consequence of diseases in their stomach and bowels, and sometimes of curdled clots of milk, preventing due recruit and nourishment.

SEEING

SEEING that such multitudes die of consumptions in London, and knowing that pure air is at least equal to diet or medicines in this direful distemper, would not 2 or 3 hospitals, built for consumptive patients, at a few miles distance from London, save hundreds of lives annually? Each great town hospital, and above all, those buried in the centre of the metropolis, should contribute their share. There are great numbers in such indigent circumstances in London, that to save their lives, they could not afford the expence of country lodgings. Perhaps a fund appropriated to support the consumptive in the country, would answer equally well, or even be preferable. Another hospital erected at Bristol, where the sick would enjoy pure air and those waters, so celebrated in certain species of consumption, might render the institution still more useful.

HAVING now with some care analyzed Fevers and Consumptions, immediately after them will be the proper place to propose two important questions for discussion: First, Is the winter mortality in this country, and in most other European nations, greater than that of summer? And secondly, Is it true what philosophers of high repute assert, Dr. Price

and many others, that almost all diseases spring from luxury, excessive delicacy, and refinement. I shall barely glance at the solution of these difficult and complex questions.

DR. Short, from a variety of country registers, found that mortality generally begins its reign in December, that at March it is in its zenith, and at May in its declension. Another proof of this in great cities, is recorded in the *Recherches sur la Population, par M. Messance*; the total sick admitted into the Hotel Dieu in Paris, from 1724 to 1763, (40 years) were in the 4 winter months December, January, February, and March, 314,824; and in the 4 summer months June, July, August and September, 238,522, or as 4 to 3. In London too the undertakers harvest is in winter. There is one good reason indeed, why in every metropolis, the winter mortality should exceed that of summer, from the greater concourse of inhabitants; but exclusive of additional population in winter, the same law seems to take place in country towns.

To the prevalence of what diseases should we ascribe the greater torrent of the winter, than of the summer mortality: is it in part to inflammatory fevers, or rather more probably to colds, coughs, and consumptions, and even

in some lesser degree to chronic distempers, and sickness of every denomination? Is a cold cloudy atmosphere, damp weather, and unelastic air, equally injurious to young infants? The winter atmosphere of Britain is often cold, foggy, and loaded with moisture, and the heat and cold is unsteady: dry springy air, however rigorous, is much less hurtful. Many violent fevers generated in summer and autumn, may have imperfect crises, and the sufferers may linger until winter, when several are cut off; but in those of stronger constitutions, the disease and debility may be protracted to the next spring and summer, when they begin to recover. For consumptive complaints winter air, especially if cold and moist, is exceedingly unfavourable: Dr. Sydenham, when recommending riding in such rapturous praises, as a specific in the phthisis, should not have omitted this observation.

AN exception to the greater mortality of winter than of summer, may be mentioned amongst armies during active campaigns: but this is readily accounted for, when we consider the new manner of life into which soldiers in the field are precipitated, the innumerable hardships which they undergo,

dergo, and to which men in peaceable society are not inured: soldiers are then exposed to heats and colds, to wet clothes, to open and night air, and to every inclemency of weather; to cold damp quarters, to the effluvia of morasses, to crowded hospitals, to hunger, to unusual perturbation of mind; and in sickness, or during the convalescent state, are often negligently attended, or furnished with proper accommodations and necessaries.

As to the second question, with submission to better judgments, I doubt whether luxury, as it is called, is so inimical to the lives of mankind as is commonly imagined: (population is here out of the argument) indeed the diseases from luxury are not so conspicuous in the mortality. I am of opinion, that we shall find convulsions, the entire febrile class of diseases, and even consumptions, at least equally diffused amongst the lower and laborious ranks: those arrived at maturity are in the same predicament of hardy soldiers, both in active service and in winter quarters; who are more exposed to heats and colds, to wet clothes, to poor diet, to cold and damp habitations or quarters, and to various other hardships, than the officers, and are *always* more

more sickly. The officers live in warmer drier lodgings, have comfortable bedding and clothes, feed on more generous diet, drink fermented liquors and wine, and through winter and summer, in the field and in garrison, are much less liable to fevers, colds, and sickness than the common soldiers. Pringle's observations all confirm this: he mentions, that flannel waistcoats given one winter to the soldiers prevented many colds, rheumatisms, fevers, and consumptions; and that the peasants of Holland were always greater sufferers by the summer, autumnal, marsh fever, than those of the more opulent class. The poor too from their straitened circumstances, are more obnoxious to infectious fevers. Perhaps also it would not be unreasonable to infer, that the better medical advice which the affluent and independent can command in sickness, may contribute its share in giving them advantages over the indigent ranks.

CATARRH and influenza are irregular assailants, and do not form a distinct article in the Bills. No other epidemic spreads so suddenly and universally over a kingdom; in 1743, it passed over Europe: nor in any other epidemic

epidemic do so few die in proportion to the number of infected. Its continuance is generally short, and what inconsiderable depredations it commits, are principally upon declining, consumptive, and asthmatic persons, upon worn-out constitutions, and those whose lungs are nearly consumed: in such forlorn complaints, catarrh hastens the final dissolution sooner than it would otherwise have happened. Others who in recent catarrhs live without any care, or perhaps in riotous irregularity, may fall into a peripneumony or consumption. Persons too, recovering from agues and fevers, upon catching influenza, have often suffered relapses. I here speak of general catarrhal coughs, from some epidemical state of the air: for as to common slight colds, few in this country, at one time or other in the year, are totally exempted from them.

ASTHMA and tiffick form rather a confused combination of diseases; formerly it was consumption and tiffick, without any mention of asthma. I do not in the least doubt, that this chronic difficulty of breathing, which we call asthma, will accumulate to this formidable group. It is principally

pally amongst adults, and much more so amongst those in the decline of life, that we must seek for the mortality by asthma. The three species into which authors divide this disease, seem only to differ in degree of difficulty in respiration, and severity of the paroxysms. Besides these gradations of morbid respiration, they distinguish it into the humid, the spasmodic, and the flatulent.

WHAT extensive ruin do fevers, and diseases of the lungs and chest yet spread, notwithstanding the improvements of the moderns in the alphabetical part of medicine; that is in anatomy, physiology, chemistry, botany, &c.

I HAVE already in the preceding comments upon convulsions, ventured a few new conjectures upon that obscure medley of diseases called Cholic, Gripes, and Twisting of the guts. The devastation under that title appears in the two last tables very inconsiderable; but what shares should be apportioned to children and to adults, to dysentery, to the true ileus or inflammation of the bowels, excited by volvulus of the intestines, by hardened feces, or other obstructions in that canal, by lead, copper, or by a translation of irregular gout, I confess my inability to solve. From Bloody-flux,
Vomit-

Vomiting and Looseness very few comparatively die at present in London. Must not the Cholera morbus, a disease principally occurring in July and August, come under the mortal title of vomiting and flux? Are inflammations of the stomach also to be ranged in this list?

WORMS infest children until 14 years of age, much more than grown-up persons: in all the tables the disease decreases. Is it now set down amongst gripes and cholics, or amongst hectic emaciations? I am persuaded that the bills are defective in assigning the due share of mortality to worms. In the 30 years preceding the present century, the mortality by worms amounted nearly to about 1400: possibly hectic emaciations and consumptions may now comprehend several true worm cases. Children are very little infested with worms before they begin to use solid and promiscuous food, that is, about two or three years old: the children of the poor from their indifferent diet, seem to be more obnoxious than those of the rich to these intestinal insects, which authors properly distinguish into three species; the round and most frequent resembling the
earth-

earth-worm, the broad tape-worm, called the tinea, often of an astonishing length, and found principally in adults; and lastly the small worms resembling needles, called ascarides, which in great numbers infest the lower intestines. In the autumnal marsh fevers, worms are merely one symptom of a bad fever, but not the cause of the disease.

I AM well satisfied, that the bills rate deaths from Hæmorrhage and Bleeding, greatly too low. Most of the fatal hæmorrhages, or floodings from the uterus in the advanced state of pregnancy, or shortly after delivery, are indubitably carried to childbed, and a few to miscarriages: even from the lungs alone I should have thought hæmorrhages more fatal: indeed, for the most part, spitting of blood, before the tragical catastrophe, terminates in a consumption.

DIABETES is omitted in the bills until 1684, and in the succeeding 16 years, 27 only appear to have died of that distemper. I suspect that formerly, the few cases of diabetes which occurred, were thrown into hectic or consumptions, which is commonly the fatal issue of this profuse and emaciating urinary discharge.

APOPLEXY

APOPLEXY is generally a disease of maturity and old age. From 1671 to 1701, apoplexy and suddenly stands at 3010, lethargy at 488, and megrims or vertigo, the frequent preludes of apoplexy, now discontinued, at 45. Many sudden and instantaneous deaths are also thrown in amongst the truly apoplectic. Apoplexy is usually said to have increased by more immoderate indulgence in spirituous liquors; but the London tables of the present century do not show any alarming surge. Drunkenness and beastly intoxication, is not probably in this island, certainly not in the metropolis, an increasing vice of the high and middle ranks of life: besides, apoplexy in many instances, is brought on by plethora, either from habitual evacuations suppressed, or from sloth, indulgence and luxurious living, by frequent intoxication, by intense contemplation and study, and by local disorders of the head: corpulency, a short neck, gluttony, inebriety, and passions of the mind will act either as predisposing or exciting causes of a fit: the same event has followed repelled gout, scorching insolation, and exposure to the confined vapour of charcoal. Lethargy and Palsy are nearly allied to apoplexy: severe strokes of
 apoplexy,

apoplexy, not speedily fatal, that is within a few hours, or at the utmost a few days, too often terminate in the loss of muscular motion, and in impairing the functions of the brain. What proportion of those two obstinate diseases are cured by medicine or by nature? From 1671 to 1701, the mortality by palsy is but 630: in this century it has considerably increased.. Probably the mechanical arts, where either lead or quicksilver are employed, whose fumes are so poisonous to the human nerves, may have some share in the rise of paralytic diseases.

LUNATIC deaths, it is painful to observe, are more than doubled in the two last tables, compared to the two preceding. In the last century, distracted and lunatic was the joint title in the bills, and from 1671 to 1701, amount to 554: the former word distracted is now left out. Such dismal objects must be numerous in London, when so many are reported in the registers of mortality. We should reflect, that two of the largest lunatic hospitals in Europe, Bethlem and St. Luke's, stand in this metropolis, exclusive of several private mad-houses, which of late years are increased in the suburbs, and in which many persons of for-

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tune and independent circumstances are confined. Bethlem, built two centuries ago, but since enlarged, contains 270 patients; and St. Luke's, erected 30 years, 110 patients. Mad persons are sent from various remote parts of the kingdom to receptacles of confinement in London, at a distance from their friends. Perhaps those also whom nature originally, or disease afterwards, branded as idiots, are enrolled amongst the true melancholic and maniac lunatics. The coroner's inquest generally returns suicides as lunatics, after however reciting the manner of their death: the searchers and the bills of mortality have invariably ranged lunatics and self-murder under two distinct heads. I have good foundation to alledge, that many lunatic deaths in London, are not included in the bills: from St. Luke's several are carried to the burying-grounds of dissenters; and from the private mad-houses I suspect, that after death, several are removed to the country, or perhaps to places of interment not within the bills.

It was not until after great difficulty and trouble in the pursuit, that I at length procured an *authentic* annual register of Bethlem hospital during the last 30 years: I shall

not tire the reader with a detail of this fatiguing search.

A CORRECT register of Bethlem hospital during 15 years, beginning with 1751 and ending with 1766, the years commencing and terminating at Easter.

Admitted	Buried	Cured, Relieved, and Discharged
2733	700	2138

A CORRECT register of Bethlem hospital during 15 years, beginning with 1767, and ending with 1781.

Admitted	Buried	Cured, Relieved, and Discharged
3045	544	2634

To make the *admitted* to tally with the *buried, cured, relieved and discharged*, we must divide the usual standing stock of Bethlem, (270) into *two* equal parts, and add one to each interval of the admitted.

Of the 270 patients in Bethlem, 100 are incurable, male and female lunatics, (and nearly equal in numbers) confined in the two extreme wings of that majestic edifice. In the first table we find, that about 1 of 4, and in the second 1 of 5 lunatics die annually:

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by this measure, if we can ascertain the numbers in any city, province, or kingdom of the annual lunatic deaths, a tolerable guess may be made of the total amount of the *living* lunatics: it is simply to multiply the lunatic burials by 5. I conceive, however, that this mean or multiplier would give the living numbers considerably too low, because it is formed upon the most desperate cases, almost one half of which are incurables; 1 of 8 or 10 is probably a more just mean: there are many lunatics so inoffensive, as not to require confinement.

IN the last 15 years, the burials at Bethlehem are decreased. Perhaps it may be considered, rather as a misfortune to themselves, to their friends, and to the community, that so many survive to old age, under this humiliating degradation and wreck of reason. In a short conversation, which I had with one of the gentlemen concerned in the management of Bethlehem, he communicated to me several reasons for the diminution of mortality in that hospital. All must remember, that until within the last 12 years, Bethlehem was open to every person upon paying a trifling and stipulated sum, and was daily crowded with idle or with curious persons of every degree;

degree; some of whom flocked there as to a puppet-show, and others to indulge the gloomy pleasure of staring at spectacles so mortifying to human reason and pride: the patients then breathed foul air, were much more confined and debarred of exercise, and in this scene of riot and confusion, not only enjoyed little quiet, but also committed many irregularities. The governors have now very properly excluded all visitors, except the friends and relations of the insane. Another late improvement is, that at all seasons the patients are much more plentifully supplied with vegetables, and when any are seized with Small-pox, they are instantaneously, on discovery, sent out to the variolous hospital.

WHAT proportion or average of lunatics in Bethlem are effectually *cured*, the eminent physician alone, Dr. Monro, who superintends the medical department of that hospital can resolve. The relieved, cured and discharged, are jumbled into one list; but it is only necessary to extract part of the printed annual address of the governors to the public, to be convinced, that numbers of the discharged have received no benefit. The governors say, "That in order to make room
" for such as may probably be restored to
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“ their senses, they are obliged to reject, and
 “ to turn out many indigent objects, who
 “ upon examination, or after some time of
 “ trial appear to be incurable, and whose
 “ cases are therefore the more deplorable as
 “ to themselves, and often dangerous to
 “ others.” The incurable wards are by no
 means adequate to contain, nor the hospital
 funds to support them; and they are again
 sent back to their friends, or to the parish
 workhouses. Of those also who are said to
 be annually cured, it is difficult to say in how
 many this may be only a lucid interval of
 reason: a transitory calm of this mental in-
 surrection.

LUNACY, even when hereditary, seldom
 germinates, or becomes visible before puber-
 ty. The Greek medical writers have accu-
 rately distinguished various species of mad-
 ness, and seem to have known as much of
 the cure as we do at present: their practice
 in several instances is well worthy of imita-
 tion.

IN 30 years, from 1670 to 1700, 35 deaths
 only are set down to Epilepsy and falling sick-
 ness; and in the first 45 years of the present
 century, they dwindle to 13: of late years,
 the title and disease is totally excluded; yet
 medical

medical men know, that great numbers in this city and island are afflicted with epileptic fits. Is this horrible and obstinate convulsion no more inimical to the springs of life : is it merely a periodical round of frightful paroxysms and lingering torture ; or are any epileptic confounded with lunatic deaths, as both are considerably under the lunar influence ? Violent repetitions, and long continued epileptic fits, often end in idiotism or lunacy. In infants and children, epilepsy, when suddenly mortal, is probably cast into convulsions. The Jews could only ascribe epilepsy and demoniac madness to the malicious rancour of an infernal devil. It is devoutly to be wished, that remedies could be discovered more efficacious than the present, against this disease.

THE Locked Jaw is a singular spasm which seldom happens in this country ; but in the sultry climates is fatal to many young infants, and above all in the tropical regions, after amputations and wounds, it suddenly destroys numbers.

DROPSY prowls with obstinate desolation throughout all the tables : this too, like consumptions, is often the final termination of obstinate agues, and of various other febrile

and chronic distempers, of intemperance and broken constitutions, besides many internal derangements which I do not here propose to expatiate upon. Tympany is a very rare disease compared to the former. From 1671 to 1701, the mortality by dropfy and tympany is 23,366, and liver-grown 488. The three principal, and most general collections of water, called dropfies are, that in the Breast, that in the Abdomen, and that in the external cellular membrane the Anasarca: under the abdominal dropfy, I also include that species peculiar to women, the dropfy of the Ovaria. What deadly share, each had singly, or the several "genera" in conjunction, is concealed in profound obscurity.

THOUGH dropfies sometimes occur in infancy and youth, yet it is chiefly upon adults, and those in the decline of life, that they exercise their slow but sullen destruction. In marshy countries they are more frequent than in dry situations. Sydenham alledged, that women, and particularly after the period of parturition is past, were more subject than men to dropfies.

FROM 1671 to 1701, the mortality by Jaundice is 2169: if the bills therefore can be depended upon, the disease increases.

Jaundice

Jaundice is a frequent consequence of diseases in the liver, of obstinate agues, and remittent fevers, and particularly of stones, sand, or other obstructions in the biliary ducts.

DEATHS from Stone, Calculus, and Strangury, in the last 30 years, are diminished: is this to be ascribed to more successful methods of performing the operation of lithotomy, or to a decrease of calculous cases? Or as strangury is included in the same title, are diseases and obstructions of the urethra from the venereal disease, venereal gleet, or other causes more skilfully cured; have modern bougies any share of the merit? With respect to lithontriptic medicines, notwithstanding the parliamentary reward of 5000*l.* for a pretended nostrum, and that ten weights of paper are annually fouled upon the subject, yet in fact we seem at least by *artificial* elaborations, to have approached as near the discovery of dissolvents, as the chymists have to the philosopher's stone. In the preceding century, the bills mark the mortality alternately under these fluctuating titles, cut of the Stone and Stone, Stone and Strangury, Stone, cut of the Stone, Gravel and Stone, and generally Strangury in a separate title. From 1670 to 1701,

1701, the total deaths under these different heads are 1796: they may also be supposed to comprize not only all mortal cases of Stone in the bladder, but also all fatal Nephritic paroxysms, and Inflammations of the kidneys, ureters, and bladder.

AN intelligent physician of Liverpool, Dr. Dobson, lately collected a list of persons cut for the Stone, in different county hospitals through England: out of 192,394 sick of various diseases, medical and surgical, 430 underwent the operation of lithotomy. Upon this general survey, it was not found that the counties where cyder is drank in great abundance, had more calculous complaints than other counties, where they seldom taste of this liquor. We may likewise conclude, that most of those who enter into hospitals, are of the indigent orders, who, perhaps, never drank a single quart of wine. Sedentary toppers undoubtedly are more severely punished with calculous diseases of the kidney and bladder. In Holland, the physicians impute the excruciating afflictions principally to the gross air and diet, and to bad waters. Infancy and childhood, are seldom tormented with Stone in the urinary organs.

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THE Gout rather gains strength, and for this small addition we may find sufficient cause in the growth of indolence and luxurious living, in the increase of hereditary infirmities, and in some degree of literati, of studious sedentary professions, or of men immersed in other mental lucubrations, who neglect due exercise. It is almost superfluous to remark, that the regular paroxysms of this disease, in its infancy, are very seldom attended with danger, unless unskilfully treated: many die at an old age who were subject to this disease, and consequently are reported amongst the aged. The irregular assaults, chiefly of chronic gout storming some of the internal and important organs, can be supposed to make up the funeral catalogue in London. The gout even when hereditary, seldom or never attacks before 20 years of age; but the middle age, and decline of life, are principally harraßed with this tormenting companion, which commonly accompanies them to the grave. Females from their peculiar constitution, and temperance in living, and all the active, industrious, and lower ranks, are very rarely crippled with gout. In the last century, gout was confounded with sciatica.

STOPPAGE of the stomach, so far as I know, indicates no specific disease, but is a symptom of many: it is a vulgar name sometimes for indigestion and rejection of food; and there are few diseases, in which the stomach does not more or less sympathize. I enquired from two of the searchers what they meant by this phrase, but they honestly confessed that they knew nothing of the matter. It is not what medical men call "dysphagia" or difficulty in swallowing, a rare disease arising from different obstructions in the Esophagus, and sometimes from spasmodic, or from paralytic affections of that tube. In the last 30 years of the preceding century, stoppage of the stomach is rated at the amazing number of 12,046, and rising of the lights in the same interval at 3840. The mortality in the last table of the present century, compared to the former, is not 1-70th part so great. It would baffle the ingenuity of an antiquarian, to decypher the true import of these two terms; severe sickness, or the word abracadabra, would be full as intelligible. What proportion of infants, of adults, and of the two sexes, are crowded into these two immethodical articles? Are any cases of hysterics com-
prehended

prehended under either of them; or is this teasing convulsion, peculiar to the fair and delicate sex, and so alarming in appearance, rarely attended with any immediate danger to life? By long continuance, hysterics will no doubt injure the constitution, and occasion chronic distempers.

I collected from the Dispensary books of Aldersgate-street, before-mentioned, in a preceding page of this chapter, an exact list of the numbers who had applied for advice in the following female diseases, which are overlooked in the London bills of mortality. The total sick, or diseased during six years, were 29,511; and by far the greatest proportion of these, were adults, and more females than males. Of the above list were afflicted with Profluvium Menstruum, 270; with Fluor Albus, 446; with Menstruum Obstructio, and Chlorosis, 254; and with Hysteria, 1104. Under hysteria, however, I perceived, and was afterwards informed, that the physicians arranged all female Nervous complaints, without particularly attending to a pathognomonic symptom of hysterical paroxysms, the globus or round ball, rising up to the throat: hysteria served as a short, convenient, technical

cal distinction, in their hurry of consultation and prescribing for so many patients: under fluor albus also, a few cases of gonorrhœa were concealed. From the above curious facts it is reasonable to infer, that relaxation predominates as a female complaint *in London*. Amongst the higher, indolent, and luxurious ranks, and particularly in cities, all these diseases are more frequent. The hysterical disease rarely, if ever, manifests itself before puberty and the period of menstruation, which with us is commonly about 14, 15, or 16: from that period to the decline of life, we may find many women single and married, subject to this infirmity. The true Hypochondriacal disease of males, and nearly analogous to the hysteria of women, is by no means so general and frequent.

FROM 24 years of the London bills, and from several country registers in England and Germany, Dr. Short calculates, that upon an average, 1 of 60 women die in Child-bed; others, upon better foundation, make the proportion 2 of 300. Every person may satisfy himself respecting the validity of this estimation, by comparing the deaths in Child-bed, and by miscarriages throughout

throughout the five London tables, with the births and abortives in the same interval; making allowances at the same time, for greater omissions of births and miscarriages in the public registers. Another circumstance to be taken into consideration is, that amongst such a multitude of women, a small part must be supposed to have died annually, independent of the pregnant state, and its dangers.

WHAT were the several diseases before and after delivery, which occasioned this mortality amongst the female sex, and how many died from mere difficulty in labour, we cannot learn from the bills. From difficult and laborious births, where instruments are directed, or at all required, I venture to assert, a very diminutive part of this lot perished: this is consonant to all the best modern accoucheur treatises, in which instruments and rude violence are more and more reprobated. Profuse Floodings may precede, accompany, or immediately follow the efforts of labour and parturition: Milk fevers, and sometimes Inflammations of the womb, Suppression or deposition of the milk on some vital part, sudden and premature suppression of the Lochial flux, or other dangerous diseases,

eases, such as Miliary fever, with red or white eruptions on the skin; and in rare instances, a Malignant infectious fever may succeed delivery. It is under the title Childbed we are to collect the mortal event of these different diseases. Between the third and fifth day, is reckoned a critical period after delivery; and should the woman escape until the ninth day without any of the foregoing accidents supervening, danger is then commonly over. Particular years appear to be more fatal to breeding women than others. Is the first labour commonly the most hazardous?

EARLY miscarriages, from the second to the fourth or fifth month, though not recorded in the public registers, are much more numerous than in the latter months of pregnancy, but happily they are infinitely less hazardous to women. Exclusive of frights, violence, or several other faults on the part of the mother, foetuses in their delicate rudiments in the womb, are sometimes like vegetable blossoms, easily blighted; but the mature Abortions and Still-born, are alone thought deserving of burial, or noticed in the bills. To carry a diminutive embryo of two, three, or even four months old to the church-yard, when
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it will not equal a Lilliputian in size, and to bury it with funeral pomp and obsequies would be too ridiculous. Without doubt, a very considerable part of the still-born, probably the majority, had arrived at their full time and growth, and were strangled during tedious labours, through the ignorance or rash practice of midwives.

BRAZILIAN women are said in Smollet's collection of Voyages to be very fruitful, and to have so easy labours, that immediately after delivery, the woman rises up, walks to a neighbouring river, and there purifies herself; the husband in the mean time goes to bed in her place, and is nursed with as great tenderness, during the first 24 hours, as our European women when lying in. By Mr. Brydone's description of the Sicilian women, they suffer very little in delivery, and next day admit female and male visitors to their bed-chambers. In this country, and most parts of the continent, we religiously enjoin rest and quiet during the first eight or nine days after delivery: and I conceive in so doing, we act wisely and prudently.

I SHOULD rejoice to see a few schools established in this capital, and in some other

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large towns, for the instruction of female midwives, where in one year's time they might be taught all the necessary rudiments of the profession. In almost every clumsy mechanical art, it is thought indispensibly requisite to be initiated by a regular apprenticeship; and it is the extreme of absurdity to suppose, that the obstetric art can be learned by inspiration. Nature undoubtedly is, in most instances, the principal operator and physician in labour; if this was not the case, the human race must have been annihilated in a few centuries; but Nature may want assistance, or by ignorance, is much oftener unnecessarily interrupted, disturbed, and exhausted. Child-bed fevers are frequently kindled by officiously harrassing, or over-heating women with cordials, by neglect of cleanliness, and by stewing them in close rooms, where, as was formerly done in the Small-pox, they are sweated and suffocated in foul effluvia. To the ignorance of midwives, must be imputed the loss of many tender lives of the Abortives and Still-born during labour, and arrived at full maturity, or at least at eight months old: their number, as is obvious at the bottom of each

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table,

table, is very considerable. In several cases, either a wrong position of the child, a preternatural enlargement of its head, its large size, or its being dead; a ricketty pelvis of the mother, her weakness, a flooding coming on, some faults in the uterus, and in a word, a variety of other impediments and threatening dangers may render manual and judicious aid indispensable. In the various critical emergencies following upon the heels of parturition, untutored midwives are equally embarrassed; danger is often not suspected, nor detected in time.

By means of such a general institution, where women should be regularly and wisely instructed in all the material knowledge of midwifry, I firmly believe, that many thousand lives might be annually saved to these two islands. This establishment would answer other valuable purposes: it would prevent a superabundance of that mixed gender of male midwives, together with unbecoming indelicacies, and connubial trespasses, which some writers, I know not how justly, have alledged to be the consequence of married women wantonly and unnecessarily employing men in these familiar offices.

THE Evil or Scrophula, apparently decreases throughout the tables: From 1671 to 1701, deaths by the Evil amounted to 2261. Has the more general use of vegetables in diet, any effect in repressing this glandular and hereditary depravity? It often terminates fatally in consumptions.

LEPROSY is now almost eradicated and worn out of the metropolis. In the 30 years preceding the present century, the mortality by this loathsome disease amounts only to 33. During and after the Crusades of the twelfth century, Europe was deluged with this filthy judaical scurf imported from Palestine: lazarettos for the confinement of the unclean abounded in several kingdoms, in France alone stood 2000. At present, in the cold northern island, Iceland, a sort of lepra arabum, is congenial to the natives from their diet, climate, and manner of life.

IT is not quite 300 years since the first discovery of America, and the importation of the Venereal Disease into the old world. Before the discovery of the Indian remedy, the decoction of guaiacum, and a few years still later, of mercurial unction, Europe was alarmed with universal consternation at
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the hostile inroads of this disease: multitudes perished under the corroding ulcers, presenting before death horrid spectacles of cadaverous corruption and deformity.

IN the 30 years immediately preceding the present century 2360, died in London by the French pox. The disease is even at present more baneful, at least to London, than medical men, acquainted with the infallible remedy and mode of cure, would suspect. For this, two probable reasons may be alleged: the swarms of ignorant vermin called Quacks, who burrow themselves in all large cities, and the increasing multitude of common prostitutes, who disseminate the infection, many of whom from irregular living, negligence, poverty, exposure to cold and hardships, or application to those insidious assassins, disguised under the mask of M. D.'s, and surgeons, perish miserable victims to this disease. Credulity has made murder a profitable traffic, and his Majesty's letters patent, prostituted by his ministers and servants to common sale, give an additional encouragement to the venders of every trash and poison; they lay their snares in every thoroughfare, and kill the unwary

with as much indifference, as undertakers afterwards carry them to the church-yard. There is not perhaps any other disease where professed quackery is so often resorted to, and where its decoys are so fatal to the inhabitants of this metropolis.

WOULD it not be possible to cut up this American poison by the roots through the kingdom? Some possibly may consider it in the light of a penal statute against vice and debauchery, but I am not satisfied that morality could be in the least endangered by its radical extermination; and to require whole hecatombs of human sacrifices annually, is too bloody and severe an expiation for that transgression. Should it not be found practicable or adviseable to eradicate the disease, would not two distinct hospitals, sufficiently large to contain male and female venereal poor, rescue numbers from the artifices of impostors, and from ruinous destruction? Separate apartments might be laid out for others not altogether in indigent circumstances, and who, upon entrance, should pay down a small sum for their maintenance and cure. Many of the young laborious class (I speak of the female sex) not yet hack-
neyed

neyed in profligacy, are plunged into irretrievable distress, in consequence of catching this distemper. Many constitutions of our dissolute young men, might probably by this means be protected and preserved from venereal depredation. Some regulations are wanted, and I humbly recommend the suggestion of an adequate and practicable remedy to the reader's consideration. Are any pox cases concealed under consumption, or under sores and ulcers, either by deceiving the searchers, or by means of a small bribe?

TRUE Scurvy is seldom or ever mentioned by any writer, before the long voyages first began three centuries ago by the moderns; that is, on the discovery of the passage to Asia by the Cape of Good Hope, and the discovery of America: then, in consequence of living long on salted and gross diet, and the want of fresh vegetables or fruits, together with their ignorance of the true cause and cure, this disease made severe havock amongst naval squadrons. The ancient navigators, who seldom ventured out of sight of land or capes, and who probably were not under the necessity of subsisting long on salted food, do not appear to have suffered by, nor even

to have known the disease. Hippocrates is by many supposed slightly to allude to scurvy under the name of large spleen, accompanied with putrid spongy gums, and offensive breath: it is also, though indistinctly, noted by Pliny, as affecting a Roman army, encamped on the banks of the Rhine.

THROUGH all the northern kingdoms of Europe, particularly in the winter season, and in Holland, amongst those who fed chiefly on salted fish and gross diet, who drank bad waters, and dwelt either in morasses, or near the sea-coasts, and were exposed to cold and moisture, scurvy, in the two last centuries, made cruel ravages. Several armies and besieged garrisons in Germany, intercluded from fresh vegetables, were devoured by scurvy: numbers of the new settlers in the northern colonies of America, and at Newfoundland, were cut off by this disease. The North Americans at length were taught by the Baltickers and Swedes, the sovereign benefit of drinking spruce beer, which is an excellent substitute, when fresh vegetables cannot be procured: the industrious Dutch made drains and canals to carry off water, and trusted the rest of the cure
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or prevention to four crout: in some of the northern kingdoms of the continent, acidulated bread, and a four drink used by the Russians, powerfully resist scurvy. By these and other precautions, this foe is now much less formidable on land; but at sea, no other is so inimicable to navigators: on that element, it is yet the sea monster and tyrant. The effectual antidotes, and certain cure, are now so well known, for no disease yields more successfully to remedy, that I dare to maintain multitudes of the lives lost by the Scurvy at sea, are sacrificed to gross negligence, or to impolitic and inhuman œconomy.

FROM 1671 to 1686, the deaths by Scurvy are in the London bills, 9451, and in the succeeding 15 years, 569 only. It is common I know for persons ignorant of medicine, or for smatterers in this science, often to call various cutaneous foulness of the skin, by the name of scurvy. Whether all those therefore died of the genuine scurvy, I cannot decide. Another suspicion of some weight with me, is this: the theory of the last century imputed many diseases to this specific "cacoethes" as they called it; perhaps this fuliginous theory and prevalent opinion may
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in some degree have influenced the searchers report. The scurvy, the liver, and the nerves, have been convenient hiding-places for frothy and pompous ignorance. Quackery too at this day, is indefatigable in its infernal artifices, in puffing off nostrums for a disease, which avarice and self-interest prompt them falsely to represent as the latent and grand disturber of health. In the present century, scurvy has destroyed very few in London; and even of this small number set down in the bills, the disease in several, may have been bred at sea: in London, the lodgings are now warm and dry, and the people in general well cloathed; animal meat is eat fresh; vegetables, though perhaps not universally consumed in sufficient quantity, are certainly in great abundance; beer, fermented liquors and tea, are drank by all ranks: these, in conjunction with exercise, powerfully resist the tendency to scorbutic corruption.

WHAT proportions of Inflammations, Imposthumes, and Mortifications, were external or internal, and what organs or parts of the body they affected, is left in the dark by the bills. Inflammation magnifies in an unusual and unaccountable rate throughout the five tables, and imposthume or abscess constantly

stantly decreases ; mortification also is a very conspicuous and formidable enemy. I consign over this whole group to the medical or surgical reader, to extricate from the labyrinth of ambiguity, in which it is at present enveloped.

SHALL we never be so fortunate as to discover any remedy for that deplorable and excruciating disease, the Cancer, which sets medicine, and too often that dreadful alternative of surgery, the knife, at defiance? Shall we never be able to blunt this caustic poison in the body, as certainly and successfully as we do the scurvy, or the venereal disease? All our present medicines cried up for the cure of cancers, appear to me of as little real efficacy, as those usually prescribed for dissolvents of the stone: they are jaded routines, hackneyed repetiturs, and nauseous trash, upon which we may ring the changes to eternity, with very little benefit to mankind. The female sex are most annoyed by this venomous scorpion, particularly in their breasts, and not unfrequently in the uterus.

SORES and Ulcers have decreased; were any of them venereal, or scorbutic? Are we indebted to mercury, to surgery, or to whatever causes for their diminution? Bursten
and

and Ruptures decrease throughout all the tables. From 1671 to 1701, they had swelled to 917. Are we indebted to modern steel trusses for having lessened the number of victims to this disease? Perhaps too, though in a diminutive degree, to more skilful methods in relieving desperate intestinal protrusions. Were infants equal sufferers with adults?

SELF-MURDER, a peculiar gloomy passion and propensity of the English, as they alledge on the continent, has increased in the present century, and surpasses the number of those sacrificed at that infamous human slaughter-house, Tyburn. The ancient Romans were notorious for the same crime: to explore the probable causes, we should launch into an intricate digression upon national character, passions, and manners. From 1671 to 1701, the bills have rated those who hanged, and made away with themselves, at 556: they are now doubled. In a treatise published not many years ago, by Sir S. Theodore Janssen, he calculated the wholesale carnage of human flesh at Tyburn, at 678, in the space of 23 years. It is rare for either of those violent and shocking dissolutions, to happen before puberty.

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THE murdered from 1671 to 1701, were 432; it is with pleasure that in the two last tables of the present century, we behold this dreadful crime on the decrease. Are we indebted for this, in some degree to the streets and suburbs being better lighted, watched, widened, and paved; or are the lower class also now less barbarous: in these days our robberies are seldom accompanied with cruelty. That modern and magnificent establishment, the Foundling Hospital, for the reception of young, and especially illegitimate infants, has perhaps rescued many of these new-born strangers from violent deaths. This noble institution, had its first beginning in 1741.

THE numbers drowned in London from 1671 to 1701, were 2182; and when we behold the multitude of sailors, watermen and passengers, on the river Thames, many disasters of this sort, must naturally be expected. Drowned persons formerly, in order to revive life, were often suspended by the legs, or laid in a prone posture, with the face and head downwards, and rolled over a cask or cylinder, from an erroneous idea, that the stomach and lungs were filled with water.

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These rude methods tended to load the head with blood, and answered no good purpose.

ON such sudden accidents, the most important and effectual directions, first published and inculcated by the Dutch, and lately in imitation of them by the Humane Society in London, are, instantaneously to strip off all the drowned persons clothes, to wipe him dry, and to lay him in a heated bed between several layers of warm blankets, using afterwards incessant friction with heated flannels alternately on the breast, back, belly, and over all the extremities: Volatile Salts, Spirit of Sal Ammoniac, or in defect of them, any other strong stimulants, should be frequently applied to the nose and temples, and bottles of warm water or heated bricks, repeatedly renewed, and laid to the soles of the feet: another assistant is to apply his mouth to the nostril of the patient, or through a wooden pipe forcibly to blow in air to inflate the lungs, irritating the *short* alternate motions of respiration, and forcing the air out again. Heated fumes of tobacco, if convenient, may be blown up the anus; and blood, if practicable, drawn from the arm or jugulars, but not too lavishly. The attendants are to persevere without intermission, in the labour

labour of friction and applying heat, and of blowing in and pressing out the air; and are not to despair of reviving the circulation and the vital powers, though to all appearance extinct, until after at, at least, two or three hours ineffectual exertions. Many who had lain under water a quarter, a half, and a few three quarters, and as they report even a full hour, were afterwards, by such means, happily respited from the grave. The same methods used, but with more gentleness, when infants after a tedious labour are brought forth apparently dead, or in other cases, of sudden privation of sense and motion, might probably recover several again to life.

FREQUENT conflagrations of houses in London will account for those burnt. More now seem to perish by that dreadful death than formerly.

By Poison, and the Bites of mad animals, very few are, apparently at least, deprived of life. From 1670 to 1701, 68 deaths are set down to poison: were they accidental or premeditated?

THE Overlaid are greatly decreased: is this owing to more care of suckling nurses and mothers, or to erroneous reports formerly of the searchers, respecting the cause
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of infant deaths, or to what other cause? I confess my ignorance.

FROM frequent Surfeits and repletions, and that filthy disease gluttony, many lives are shortened. Surfeits in the last century make a monstrous article in the chronicle of London deaths: from 1670 to 1690, they amount *annually* to 3 and sometimes to 400: in the last table of 15 years, they sink down to 27: yet good eating and gormandizing are not worn out of fashion in this city. Medical men know, that surfeits and intemperance are often merely predisposing or occasional causes of diseases; they may on some occasions rouse up latent disorders, or dispose the body to receive noxious impressions from without: the searchers therefore, as I suspect, have formerly made many of their reports from the ostensible cause which they supposed gave birth to the disease and to the mortality. At the same time, I am not contending for the delicacy and moderation of our fore-fathers appetites; they were unquestionably in the last century, and partly indeed from the cheapness of flesh meat, and the scarcity of vegetables, more carnivorous in their diet, than the present London generation.

EXCESSIVE drinking is not mentioned in the bills before the year 1700: was it until then included under forfeits, or totally omitted? In the first 27 years, the deaths from this cause were 190: but from 1731 to 1747, in 15 years they swell to 678; in the following 15 years, they sink to 189; and in the last table to 69 only.

IN the above instance, may we not doubt whether so great a change took place in national manners and potations, as to occasion this sudden flux and reflux in the mortality by excessive drinking. A continued round of intoxication, in its ruinous consequences, I am convinced, sends many more to their graves than are specified in the last tables: these, I presume, are instances merely of precipitate deaths from brutal inebriety. Our libations are become more temperate and decent, as we advance in civilization and refinement. With more rational variety in our employments and entertainments, has not tea also contributed its share to the sobriety of the nation, and partly to expel these Gothic customs? Coffee, in some other European nations, may lay claim to the same merit. The southern nations of

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Europe,

Europe, (the Swiss excepted) the French, Italians, Portuguese, Spaniards, and Turks, are all noted for sobriety; but in several northern kingdoms of the continent, and perhaps in a contiguous island, Ireland, many thousands are destroyed by this beastly intemperance. Distilled spirits undiluted, and drank to excess, are much more sudden and mischievous in their effects than malt liquors. Numbers of the North American Indians have been cut off by their unbounded rage for strong spirits: a savage there would never voluntarily stir from the dram bottle. Our barbarous ancestors the Germans, as described by the elegant pen of Tacitus, filled up the languid interval of war, in the savage luxury of disorderly drinking, feasting, and gaming; and after wallowing days and nights in all the extremes of gluttony and coarse inebriation, their noisy feasts generally terminated in battles and bloodshed. There are few good things which some men do not abuse: notwithstanding the impotent interdictions and puritanical cant of four bigots or affected writers, mankind, I believe, may without any injury indulge, in the moderate use of those exhilarating and

social friends, whether extracted from the grape, from the apple, or from malt, provided they are unadulterated.

It appears rather extraordinary, that when libraries bend under the weight of our laws, and that even our criminal and penal statutes are so voluminous and severe upon the most petty thefts, that the adulterators of wines, fermented liquors, tea, and bread, should not have been considered as the most atrocious villains, who wilfully and deliberately perpetrate, at the same time, both fraud and murder.

THOSE set down as found Dead, are in the last 30 years, much less numerous than in the preceding 30: whether this in some degree is to be ascribed to better regulations respecting the poor, or to what other causes, I leave to the reader to discuss and settle. Several, no doubt, of this unhappy list, perished through nakedness, cold and hunger: but is it credible that the majority were suffered to expire by this miserable death. In the last century, the bills expressly mark found dead *in the streets*, and from 1670 to 1701; they amount to only 283, and the starved to 19.

HEAD-ACH and Grief, are two diseases which I have hitherto passed over without

any remark. The cure or ease of the former frequent and tormenting pain, appears to me too little attended to by medical men. The lives of numbers are rendered wretched and burthenfome from this affliction; and some of the ancient medical authors, are very prolix in recommending different modes of relief and cure. I do not here speak of head-ach as a transient symptom of fever, or of other diseases; but as a chronic, primary, or at least the principal distemper.

GRIEF, and the various melancholy or corroding passions of mind, especially if too strong and long continued, and unremittingly rivetted upon a single object, though slow in operation, are immensely more fatal than the bills point out; but to treat this subject with accuracy, would require a separate dissertation. To mental sources, originally may be traced many cases of madness and self-murder, many stomach, hypochondriacal and nervous disorders: we should find them in many instances weakening and wasting the nervous and muscular vigour, disturbing the hours consecrated to rest, impairing the appetite and digestion, by degrees deranging the
other

other wheels of the human machinery, and at length breaking down the constitution.

IN large civilized and polished societies, the various groups and orders of mankind, that is, those advanced beyond the age of childhood, are kept more or less employed by three principal spurs, dire necessity, avarice and ambition; or from a mixture of these incentives to corporeal and mental exertions: a lust for pleasure of one kind or other, seems to be a passion common to every degree; but in all, there are innumerable shades and gradations. The passions are more acute, and exert their sickly tyranny more severely over the middle, and especially the higher ranks of life: from their independent or affluent circumstances, they are sometimes cloyed with satiety and tumultuous enjoyment, or preyed upon by listless and irksome inactivity; in other cases the restless fervency of the mind, incessantly bent upon one ambitious or avaricious pursuit, is often not withdrawn, nor its tide and force diverted and broke, by bustling and providing for immediate necessities or moderate luxuries, nor by any other official and active employment. Intense application of mind, and deep medi-

tation over books, without any agreeable vicissitude or relaxation, from whatever motives, are equally noxious to the stomach and nerves, and often give rise to the hypochondriacal complaint. In all the above-mentioned cases relating to the passions, and to ardent contemplation or study, it must be remembered, that a sedentary life will much sooner give them root and energy; and that in different constitutions, the same causes will produce different effects: the passions for the most part exercise their noxious and malignant sway after the years of puberty, and much more so after the meridian of life. A licentious and dissolute excess in venereal dalliance, is an early and a late vice, too frequently rebellious to all the exhortations of moralists, and by which numberless constitutions are injured, and many ruined.

AMONGST the wealthy and elevated classes, many diseases are engendered from their own vices, intemperance, or indolence: to explore them thoroughly, would lead into a prolix disquisition: exclusive of the gnawing passions, they are entangled with other considerations. Thus indolence, late hours, riotous dissipation, luxurious living, want of sufficient

ficient exercise, and studied effeminacy of pampered mortals, will account for many cases of gout, of hypochondriacism, and hysterics, of vapours and female relaxations, and valetudinarian infirmities.

AGED in the bills Dr. Short demonstrates, must signify those advanced to 69 or 70 years of age, and upwards. With respect to the dilapidation by time, much will depend upon constitution and manner of life; some are worn out at 60, whilst others at 70 are healthy and vigorous. The variation in the number of aged through the different tables, probably depends in a great measure on the capricious returns of the parish searchers.

WE are not to estimate the relative number, frequency, or proportion of certain diseases compared to others by the absolute mortality of each. For instance, Apoplexy has killed rather more annually in London than Measles; but the latter disease is infinitely more general and diffused amongst the community, and consequently less dangerous to life. Cancerous and Venereal cases are widely different in the annual number which are afflicted with each, although the deaths are not far distant from an equality. Epi-

lepsy is a more frequent disease than Apoplexy, although very few deaths are set down to the former convulsion: the same may be said of Rheumatism compared to the Dropsy, and of Cholic compared to Asthma. These observations will apply to a great many other diseases; but I am fearful of fatiating the reader by superlative minuteness, and unnecessary prolixity.

I AM now drawing to a conclusion, and am about to advance a curious and comprehensive proposition. Six hundred thousand inhabitants within the bills of mortality, Dr. Price considers as too large an allotment; but to make the London inhabitants more numerous than what he allows, is erring on the safe side, and enables us to form a convenient numerical radix. If the inhabitants of Great-Britain and Ireland, including London, amount to 9,000,000, and if diseases, deaths, and casualties were equally diffused and fatal to the whole community, then in this case the London bills would serve as a scale or index of mortality to both nations: as many would die *annually* of every disease and casualty throughout *nine* millions, as are cut off in *fifteen* years in London; because

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6 multiplied by 15, gives 9,000,000: but we are sensible, that in London infant deaths under 5 years of age, far exceed those of the country, and the city has proportionally fewer breeders: again, in the fenny countries, Agues abound more than in the metropolis, and in the naval hospitals during war, the scurvy: with these and some other exceptions, which will occur to medical men, and to gentlemen of reflection, were the mortal diseases correctly discriminated, some distant guess and probable conjecture might be formed of the annual proportion destroyed by similar afflictions throughout Great-Britain and Ireland. The same general rule may be applied to measure the national proportion of abortives and aged.

AT present, medical men must deplore the defects and inaccuracy of the London bills: the data from them, in numerous instances, are so dubious and perplexed, that it is impossible to form beyond probable calculations and propositions. Such as they are, I have in my arrangement, interpretation, and reflections, exerted considerable study and industry to render them of more general utility. There are altogether between 80 and 90 dif-

90 diseases and casualties distinguished in each of the tables; these I have disentangled as well as I was able into their separate genera. In so extensive a range, embracing nearly the whole circle contained in Nosological Systems, a few local diseases of the Eyes, Ears, Teeth, Voice, and some external deformities excepted, I met with repeated difficulties in adhering to my original and settled plan, which was to select and to condense into a narrow compass, a multitude of useful facts. I trust it will not be thought presumptuous in me to alledge, that a more perspicuous and comprehensive view of the London diseases is here exhibited, than has hitherto been done by preceding writers. I have made some new attempts to measure the ravages by death through every period of life, to present the king of terrors, with all his frightful band of pain and diseases, arranged in hostile front, to compute the number and force of his infernal cohorts, and to point out the inroads by which his principal assaults and carnage may be expected. Except what little has been done by Dr. Short, mathematical prognostics are also a new part of medicine: in such emergencies, the constant appeal has been to aphorisms

rifms and venerable opinions. Without any de-
 ceptious pretensions to the knowledge of Noſ-
 trums, or of Alchymy; or without being de-
 luded by any romantic reveries and imprac-
 ticable chimeras, I flatter myself with hav-
 ing, in the courſe of this work, demonſtrat-
 ed in what manner multitudes of lives may
 be at leaſt reſpited from the grave, until after
 diſcharging important duties in ſociety, na-
 ture by flow and imperceptible gradations,
 ſhall better reconcile their ſubmiſſion to the
 tyrant's inexorable and final blow. London,
 and every great City in Europe, who in imi-
 tation of the Britiſh Capital, had reſted their
 principal ſecurity upon an Inoculating Hoſ-
 pital, a defence againſt the maſſacre of Natu-
 ral Small-pox, will, I preſume, reap advan-
 tages from my labours on that ſubject: the
 elucidation and demonſtration of that impor-
 tant propoſition, impartiality muſt allow me
 to claim as my own.

P O S T-

P O S T S C R I P T.

The Sketch of a Plan proposed for new-modelling and essentially improving the LONDON BILLS of BIRTHS and MORTALITY, and equally well adapted to every other great City.

IF any material instruction is in future expected from the London bills of births and mortality, they must undergo a total reformation: should they be continued in the same imperfect and negligent manner, politicians, philosophers, physicians, and the community at large, will, at the expiration of 100 years hence, glean a very insignificant addition of edification or benefit by their continuance, beyond what we are at present in possession of: they are Gothic ruins, which it is wasting time to prop and plaster. The Model I shall offer is extremely simple, can be executed with great facility, and supported without any additional tax or expence.

AFTER

AFTER the care already bestowed upon this subject, very little remains to be added, in order to make the reader perfectly comprehend the inaccurate management and police of the London bills: a few observations were reserved for this place. The law ordains, that every person, of whatever sect, who dies in London or the suburbs, is to be inspected by the two parish searchers, and reported to the parish clerk, who then grants his certificate for the interment: this was originally intended to detect the plague and concealed murders, in both which respects, for the last 100 years, the parish clerks and the searchers have been almost totally useless. Even in the preceding century, when the plague raged in London, the searchers report was rarely trusted without a physician or surgeon attending to prevent mistakes. On complaint to the coroner, that a corpse was buried without previous inspection by the searchers, that officer might now order the grave to be re-opened, the friends of the deceased would be put to expence, and perhaps suspicions of an unfair death might be alledged against them: or, if the corpse is carried away to a different parish for interment,

interment, the searchers report, and the clerk's certificate are equally necessary, otherwise, that parish where the corpse is buried, is liable to a prosecution and to some fine.

NOTWITHSTANDING this ceremony of inspection by the searchers, and of making their reports to the parish clerk, it does not hence follow, that the clerk makes the return of the death to the general hall, *unless the corpse is buried in his own ground, or parochial church-yard.* If the corpse is carried to any dissenting ground, and to various other places of sepulture not within the bills, the death and disease is so much waste paper, and is never heard of amongst the burials. Again, if the corpse is carried to a different parish, together with a certificate, then if such burying-ground is within the bills, the death and disease is returned to the hall by the clerk of that parish, where the corpse is interred.

I MADE it my business to find out and to converse with a variety of parish clerks, in different parts of this metropolis: most of them agreed in opinion with me, that besides radical defects, both in the christenings and burials, there were many other gross
omissions,

omissions, arising from scandalous neglect in some of their brethren. One instance I shall mention, and many more, though perhaps not altogether so flagrant, I am confident might be collected. The parish clerk of St. Matthew's, Bethnal-Green (in which by the bye stand three private mad-houses) made no return to the general hall during the last year, of either births or burials, and in the year 1769 he returned only four burials; whereas in former years this parish alone usually returned 3, 4, and sometimes 500 burials. I was assured, that the company of parish clerks, in their corporate capacity, *even if willing*, want power to compel their perverse brother of Bethnal-Green to make more regular and correct returns: it seems almost optional. This fact alone shews, with what diffidence calculators or physicians should build up general propositions upon such suspicious foundations; especially, when they undertake to reduce those calculations to extreme nicety, even to minute fractions.

SEVERAL, indeed the majority of the parish clerks, however reserved and niggardly they might be in communicating their information,

formation, conversed with me on the subject of the bills with civility: the only exception was the parish clerk of St. Paul's, Covent-Garden: he told me quite abruptly, that every thing relating to the bills was a secret known to the parish clerks alone; that he would not divulge either the parochial or corporation mysteries; and with all the vulgar airs and gestures of opinionated ignorance, emphatically added, that the parish clerks were a *corporate body*; and if I was about to write any thing to injure the corporation, he would subscribe *five hundred* pounds to a fund for the purpose of carrying on a prosecution against me. I entertained too great contempt for his little knowledge, his ridiculous affectation of importance, or his threats, to continue the conversation, and departed.

EVERY ambiguity respecting the present complicated police of the London bills, being cleared, I proceed to offer my plan of reformation. The parishes, (but not all the burying-grounds in those parishes) now comprehended within the London bills of mortality, amount to 147; of which 97 are within the old walls of the city; 17 without the walls, but within the city liberties; 23 out-parishes

parishes in Middlesex and Surry, and 10 out-parishes in the city and liberties of Westminster. All the 97 parishes within the walls, have not for many years past, at a medium buried 2000 annually; some of them do not make a return of a single burial in several years. We may name several parishes without the walls, any two of which united, return a number of annual deaths, equal to the 97 parishes within the walls: such are St. Giles's, and St. James, Westminster; St. Margaret, Westminster, and St. Martin in the Fields; St. Leonard, Shoreditch, and St. Mary, Whitechapel, &c.

WITHOUT attending to these absurd and unequal parochial boundaries, I propose, instead of an uninformed rabble of 147 parish clerks, and 294 female searchers, to exonerate the bills from this cumbrous machinery; to divide the metropolis, suburbs, and contiguous villages, into 27 or 28 equal districts; in each of which, for a few years back, there have been 1000 deaths. If therefore the annual mortality of the metropolis and suburbs amounts to 27 or 28,000, 28 inspectors only of the dead will be required, to each of whom I would at first allot the moderate sum of 60 l. per annum salary; and they should be chosen

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from amongst medical men, surgeons or apothecaries. As the funds increased, which to a certainty I shall demonstrate they would, the inspector's salary should be raised to 100 l. annually, which is barely an adequate recompence for their trouble. The inspector's view of the dead body, and his certificate, should be indispensable previous to interment; and instead of a mutilated register of mortality, of whatever religious sect, the deaths should be reported to the general hall. Those carried out of town for interment, together with such foundling and parochial children who die at nurse in the country, and are buried there, should likewise be reported. Again, instead of appointing a person ignorant of the principles of calculation, and still more so of medicine, to superintend the general hall, to arrange and class diseases, I propose to fill that important office with an able physician, and to allow him the reasonable sum of 200 pounds, annual salary.

THERE appears to me at present, no use nor necessity to return or to publish weekly bills: this was originally enacted, to warn the inhabitants and the government of the numbers destroyed by the plague, and the parishes that were infected. *Monthly* returns of
births

births and burials would be sufficient; and in the general yearly bill, the monthly mortality should be kept in distinct pages or parchment sheets, in order to point out the seasons most noxious, and the reigning diseases: or, if I may so express myself, to mark the hurricanes, and the monsoons of mortality. In infancy, and the early parts of life, when the tide of devastation is strong and rapid, the mortality should be measured in shorter intervals. The first year from birth should be divided into 2 or 3 interstices, from birth to 3 months; from 3 to 6 months, when teething commences; from 6 months, to 1 year; from 1 to 2; 2 to 3; 3 to 4; 4 to 5; 5 to 10 years; and so on to 100. Those who die in the first month before baptism, and of course are not included in the christenings, should be distinguished, in order to determine more accurately the amount of the births. The mortality at different ages, by the same disease, should also be marked.

IN the general, monthly, and annual bills of births, weddings and mortality, and comprizing the sum of all the district returns, names and places of abode, are to be buried in oblivion; and in these bills I pro-

pose to arrange and to class diseases in a much more comprehensive and methodical manner than the present, which, in too many instances, are a mere farrago of diseases and mortality. By carefully perusing the two preceding chapters, the reader may see the vast circumference of medical, political, and philosophical knowledge, which I would have the London bills to embrace. To leave no vacuity in the history of epidemical diseases, the physician at the general hall should keep a short general register of the weather, seasons, winds, the state of vegetation, and of the spring and harvest in the neighbourhood of the metropolis; these, together with any remarkable astronomical observations, to be printed in separate columns, and contrasted with the monthly and annual mortality.

ALL that is wanted to render the returns of births and christenings for London compleat, is, that the clergymen of every religious sect, should be compelled by law to make a monthly return of their christenings and weddings, to an appointed church in the neighbourhood or district, specifying their religious sect: these returns to be carried monthly with the deaths, by each inspector, to the general

neral hall. In the christenings, twins and tergemini should be distinguished from single births, and when practicable, the illegitimate: this would at least nearly ascertain the ratio of prolific amours, and the fertility of matrimony. If the London inhabitants were also numbered every seven years in the fullest season of winter, and in summer when the town is most deserted, it would make the register of births and burials still more valuable; and by means of the clergy, churchwardens, and other parish officers, would be attended with no expence.

I do not here enter into many less important minutiae of regulations proper to erect and to conduct this establishment; these might speedily be adjusted. All therefore that can be offered to obstruct this, or some superior scheme from being immediately adopted, is the want of funds to pay the physician and inspectors. This difficulty may easily be surmounted. At present, the lowest sum allotted by law to the two female searchers is eight-pence, but they seldom receive less than 1 shilling, and from those of better circumstances, half a crown, or more. Now 28,000 shillings amount to 1400 pounds, which

which is 50*l.* to each inspector. If half a crown is made the legal fee to those in good circumstances, and judging of this by the window tax or parochial rates, it would considerably raise the inspector's salary: and as it is a tax which does not happen *once* in several years, no one can think of it as a grievance, especially as it is now paid voluntarily.—To defray the expences of a writing clerk at the hall, of printing, paper, parchment, &c. the profits on the sale of the monthly and annual bills would be fully competent: so that 200*l.* only are wanting to compleat the bills upon a rational plan. This small pittance surely is no object to the metropolis: the savings from the feasts, iniquitous exactions, and frauds of a single parish, would be amply sufficient; but are not the only resources that can be well spared for so public a use.

EXCLUSIVE of an intolerable roll of national taxes, and of iniquitous parochial rates for various purposes, an enormous sum is raised annually upon this metropolis by burials, by undertakers bills, and what is called church dues. For instance, the open burying-ground in some church-yards is

two

two guineas for an adult, half that sum for a child, and double fees when the person has not been a resident inhabitant of that parish. What small dividend of the church dues the parish clerk may receive, I know not; he is paid 1 shilling for each certificate. But as by my plan the unwieldy multitude of searchers would be disbanded, and the amen clerks, as they are vulgarly called, would be another useless fraternity, I propose, that the profits of the sinecure which the clerks would then enjoy, be equally divided between them and the searchers during their lives; and as each arrived at the end of their terrestrial journey, the fees to be appropriated to the inspectors, and to the support and economy of the bills. In imitation of the court disposal of their idle pensioners, I would mount the two old female ladies behind each parish clerk. Neither do I wish to deprive the clerk at the general hall of his intire salary during life: to rob an individual in his old age of his principal support, is not my intention: but the parish clerks are not in the same predicament; all of them follow some trade or vocation, and many of them several trades in conjunction, with very little interruption

interruption from the bills of mortality; their wives equally well officiating in receiving the searchers reports, and granting certificates.

A SMALL tax upon that motley multitude who in London subscribe themselves undertakers, would amount to a considerable sum; and as many of these gentlemen live and grow rich by death, it is but fair that they contribute a small pittance of their large profits to the bills of mortality.

It is most devoutly to be wished, both for the health and comfort of the metropolis, that all, or at least the majority, of the burying-grounds were ordered to be formed in some dry spots of ground, at the different extremities of the city, and that the dead were more detached from the living. No one whose curiosity for information has led him to these melancholy wrecks of human vanity, and to behold the yawning mouths of sepulchres, can think without pain on the manner in which 28,000 corpses are annually crammed together into various holes, corners, and public thoroughfares of this city: a feeling mind must shudder at, and shrink from, the description. Let a reasonable

able tax be paid to the church in those new burying-grounds. I know the difficulties of reformatation when it attacks sacerdotal perquisites, and I am willing to continue to them their revenue upon burials.

SUCH are the outlines of my scheme for rescuing the London bills from ignorance and anarchy. By this institution the annual waste of the metropolis, which must be recruited from the provinces and country towns, would be exactly known; a knowledge in which all the kingdom are equally interested: a rich fund of medical and political knowledge would in a few years be amassed, which we may in vain squander our health and eye-sight in search of, in the drudgery and barren industry of wading through unwieldy volumes: calculators of annuities and reversions of lives, would then be furnished with certain data; and if general annual returns of christenings, weddings, and burials throughout the kingdom were likewise to be conducted in currents to the general hall, it would serve as a deep reservoir of the most important intelligence—the population of the kingdom, and the numbers of different re-

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ligious sects might by that means be pretty correctly computed.

I wish to place this medical and philosophical observatory, or factory if you please, under the controul and direction of the Royal Society, who should chuse the physician and inspectors: and it would not be unworthy of being taken under his Majesty's protection, and of having small apartments for a general hall in the new buildings at Somerset-house. From this source infinitely more than can be collected, *upon the same subjects*, from the shreds, fragments, and meagre essays of unconnected individuals, however learned and assiduous, the Royal Society might aggrandize their annual publication, and excite an avidity for each volume of the Philosophical Transactions amongst the literati of Europe. To the patronage of that learned body, and of the Lord Lieutenant, and Members of Parliament for Middlesex, and the British metropolis, with all due humiliation, I consign this rough sketch: their superior wisdom will suggest many additional improvements.

THE

THE Sketch of a PLAN for Clergymen's Reports of Christenings.

1781 January.	Numbers christened in this month.	Place of abode.	Name.	Sex.	Twins or ter- gemini.	Illegitimate if known.	Religious sect.
1	1						
2	2						

THE Sketch of a PLAN for Clergymen's Report of Weddings.

1781 January.	Numbers married in this month.	Place of abode.	Names of each.	Age of each.	First, second, or third marriages, and on what side.	Religious sect.
1	1					
2	2					

THE reader will please to observe, that no draft is here given of the general monthly bills, or of the yearly bills to be issued from the general hall, and comprizing a return of all the districts in the metropolis, both with respect to christenings, weddings, diseases, burials, &c. &c. A correct methodized table of *monthly* and *annual* mortality should embrace every disease and casualty known in the vocabulary of medicine, and regularly classed.

F I N I S.

A P P E N D I X

TO THE

FIRST CHAPTER OF OBSERVATIONS MEDICAL and
POLITICAL, &c. &c. By W. BLACK, M. D.

C O N T A I N I N G

*The Outlines of a PLAN, for instituting a DISPENSARY, in
order to distribute the Benefits of INOCULATION to the
Offspring of all the indigent and laborious Orders through-
out London, Westminster, and Southwark.*

VARIOUS Dispensaries, Public Societies, and Hospi-
tals, have been wisely and humanely instituted, by the
benevolent and affluent in London, to relieve the necessitous,
who labour under diseases or affliction, and to preserve the
lives of the community: such are those for lying-in wo-
men; for persons drowned; asylums for the blind, which
in a great measure might have been prevented by inocula-
tion; a magnificent palace for a few hundred lunatics, and
a great many others. If we compare, and it is far from
my intention to do it from any invidious purpose, the im-
portance of those different institutions, with an Inoculating
Dispensary, we shall find the latter entitled to the first
consideration, both in the light of humanity and national
policy. For instance, on an average, there do not die in
one year in London, above two hundred women in child-
bed, and of all the diseases immediately attendant upon that
state; nor are there drowned annually above one hundred;
whereas, by the small-pox, including every parish and burial-
ground, there die annually between two and three thousand;
and there is no other disease conspicuous in the destruction
of mankind, where we can produce mathematical demonstra-
tion of being able to rescue so many lives from the grave.

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Contagious diseases amongst the horned cattle, have attracted the attention of the legislature ; but hitherto the parliament, the metropolis, and the nation, have beheld with insensibility and indifference, the carnage of a contagious disease amongst the human species.

In the preceding chapter (*of Observations, &c. &c.*) it has been demonstrated, that Inoculation at the expiration of sixty years, since its first introduction, has made very little progress in London ; that to effect any material diminution of mortality by the Small-pox in cities, inoculation must be practised at an early age, and at the private houses of the inhabitants of every rank ; and that the alarms and apprehensions of doing more public injury than benefit, by dispersing the infection from Inoculation, are ill founded. As one proof out of many others, that the arguments advanced in support of the above important proposition are unanswerable, they have seemingly, at least, produced a sudden conversion and total revolution in the ideas of one of the greatest English champions against general Inoculation in London, and other cities ; I mean Baron Dimsdale. Since the publication of my *Observations, &c. &c.* the Baron has been very lately at the expence of a new edition, of what was formerly called his *Thoughts on General and Partial Inoculations* ; for the glaring purpose of erasing every page and syllable in that work, which militated against general Inoculation in London ; and in support of which pernicious doctrine, he has persisted so many years in writing books and pamphlets ; the Dedication to the Empress of Russia, and a detail of the Baron's tour to that country, make one half of this last hasty production to which I allude ; immediately after, and in the center, are buried what was before called his *Thoughts on General and Partial Inoculation* : the title page however is changed ; the Baron himself has changed sides, and makes several lame excuses for his former errors ; concluding at last with his hopes, that Inoculation may become general at private houses in cities. As the Baron has thought it prudent to suppress the name of the author, from whom he manifestly received his information and correction, such conduct lays me under the necessity of stating the true fact with this public notoriety.

Nothing now remains, but to chalk out, and to erect some simple and general institution, to distribute the benefit of Inoculation, *gratis*, amongst the young offspring of all the laborious and indigent class in the metropolis, and by that means

means alone, to preserve near two thousand lives annually. An Inoculating Dispensary, must be a separate and distinct institution, and cannot, for obvious reasons, be incorporated with any other public Dispensary. That such a plan is easy and practicable, and can be effectually supported by a trifling expence, I shall now clearly demonstrate: this is only a rough outline, and is submitted with great deference to the amendments, and alterations, of men of judgment.

For the convenience of Inoculation, and of visiting the sick, this great metropolis may, I presume, be divided into the *five* following *Circles*. In forming the partitions, I have taken to my assistance, the map and geographical chart of London, and the Bills of Mortality: I have attended in some degree, to the poverty and opulence of different quarters, their extent, compactness, and situation: fractional exactness cannot be expected; nor as I have shewn at full length in my Observations, should the burials be taken as an exact index of population.

WESTMINSTER DISTRICT.

Two Physicians, one Apothecary, containing two Circles.

UPPER WESTMINSTER CIRCLE, including the parishes of Pancras, Marybone, Paddington, St. George's Hanover-square, St. Ann's, Westminster, and St. James's, Westminster.

A line drawn from Charing-Cross, through the Haymarket, and ending at the foot of Tottenham-Court Road, divides this circle from the rest of the metropolis.

LOWER WESTMINSTER CIRCLE, including the parishes of St. Margaret's, Westminster; Petty France and Pimlico; St. John the Evangelist, St. Martin in the Fields, St. Paul, Covent-Garden; St. Mary-le-Strand, St. Giles's in the Fields, St. George, Queen-Square, and St. George, Bloomsbury.

A line drawn from Temple-Bar to the end of Gray's-Inn-Lane, divides this circle from the city. The central part of this District is somewhere near Soho-Square.

CITY OF LONDON DISTRICT.

Two Physicians, one Apothecary, containing two Circles.

CITY of LONDON CIRCLE, including ninety-seven small parishes within the walls; also St. Sepulchre, St. Bartholomew the Great and Less; St. Botolph Aldgate, Aldersgate, and Bishopsgate; St. Bride's, St. Giles by Cripplegate, St. Dunstan's in the West, St. Andrew, Holborn; St. James, Clerkenwell; St. John, Clerkenwell, and St. Mary, Islington.

This circle extends on the river side, from Temple-Bar to the Tower.

WHITECHAPEL and WAPPING CIRCLE, including the parishes of St. Mary, Whitechapel; St. Luke, Middlesex; St. Catherine near the Tower; Trinity in the Minories; St. John, Wapping; Christ Church, Spitalfields; St. Leonard, Shoreditch; St. Matthew, Bethnal Green; St. Dunstan's, Stepney; St. Paul, Shadwell; and St. George, Ratcliffe Highway.

N. B. Hackney being too remote, is not included.

The central part of this District is somewhere near Moorfields.

BOROUGH of SOUTHWARK and
SURRY DISTRICT,

Extending from Vauxhall, Lambeth, and Newington, including five parishes of Southwark, and Rotherhithe.

One Physician and one Apothecary.

The central part somewhere near London-Bridge.

Three small houses of easy rent to be hired, one in *Westminster*, one in the *City*, and one in the *Borough*; which I call the three *Inoculating Districts*. In each of these houses, medicines are to be kept, prepared, and distributed. From the extremity of any one District to the Inoculating

lating House, or Dispensary, which should be in the centre, will not be one hour's walk ; and to preserve the life of their child, is no extraordinary effort of parental labour : in like manner, the Physicians residing in each *Circle*, will not have half an hour's journey to the extreme of their visiting boundary. Each Circle has one Physician ; each District one Apothecary ; *in all, five Physicians, three Apothecaries* : at first, they are all to officiate *gratis* : Inoculation to be performed by the Apothecary, at the Dispensary, in presence and under the direction of the Physician : after Inoculation, none are to be brought back again to the Dispensary ; but when necessary, attended at their own houses : their parents or friends alone are to attend to consult the Physician, either at his own house, or at the Dispensary, where each Physician will attend three days in the week, two hours each day. Should any three families, in a contiguous neighbourhood, agree to have their children inoculated *at one time*, the Physician and Apothecary, on regular notice, and a Governor's recommendation, will wait upon them at their own houses, and there ingraft the infection. The Governor's printed letter will specify each Physician's Circle, his days of attendance, and place of abode. The Apothecary to reside constantly at the Dispensary to perform Inoculation, and to make up prescriptions. The trouble of Inoculation will be very light, and requires no anatomical skill. Supposing that *eighteen* each day were to be inoculated in London, that is, six to each Apothecary, and which can be done in a few minutes ; eighteen times three hundred and sixty-five, makes in the year six thousand eight hundred and seventy ; a number in all probability greater than will apply to a charitable Dispensary. Visiting the sick, is the most laborious office, and falls to the Physician.

The fundamental intentions of instituting an Inoculating Dispensary in London, are to inoculate at an early age, that is, under five years old, to inculcate the transcendent importance of this maxim upon the heads of families, to exhort and spur them to the practice, and to rouse them from their fatal lethargy. Upon an average, more than fifteen thousand annually undergo the Small-pox in the metropolis : suppose that one-third of these, or five thousand, are of the laborious and indigent class, who would apply to a Dispensary ; yet even then, one half, or perhaps two-thirds of this five thousand, will escape after Inoculation, without the necessity of Medical Prescriptions ; at least, the consumption of drugs will be trifling : the medicines being confined to one single disease, which attacks the same person

person but once in life, will also be very few in number, and not costly, nor indeed would young children swallow many medicines. Therefore, as in the infancy of the institution, it is proposed, that the Physicians and Apothecaries officiate gratuitously, an extremely small sum will be sufficient to defray the expence of drugs, and of three small houses, and to distribute the illustrious benefits of Inoculation, and of *skilful* medical advice on emergencies, amongst all the laborious and indigent orders through every quarter of this metropolis. I pledge myself to find able Physicians and Apothecaries, who will undertake this duty. Many humane Gentlemen will offer themselves to act alternately as clerks, to enter regularly in a book to be kept at each Dispensary, the names, ages, and place of abode of those inoculated, with their recovery and death: from this book the monthly and annual returns are to be copied and published.

After the perseverance of a few years in supporting this Institution, there cannot be a doubt, that prejudices and interested opposition would be overcome; that Inoculation, which is yet in its infancy in London, would become a general practice in the early part of life; and that in a very short time, either by the bounty of the legislature, or private contributions, salaries could well be spared to the Inoculators of the laborious and indigent orders. I would fix the salaries as low as possible; one hundred pounds annual salary to each Physician, fifty pounds to each Apothecary, and house-room in the Dispensary for the latter. The whole united salaries of Physicians and Apothecaries, the expenditure for house-rent, drugs, and every expence whatsoever, would not exceed *nine hundred pounds*. It is therefore an indisputable fact, that more lives might be annually preserved by this Institution alone, than there would be pounds spent in support of it. A much greater sum is every year raised by voluntary contributions, for a single, and I should add, a most valuable and well-conducted charity in the City, the Aldersgate Dispensary, and five times that sum for several hospitals.

This Institution is to be solely appropriated to Inoculation, and none labouring under the natural Small-pox, to be recommended as patients. The latter are at present admitted as out-patients of the different Dispensaries and Hospitals, and are either prescribed for, or visited: so little success, however, has the best advice and prescriptions in the natural Small-pox, that it is right and prudent to warn the Inhabitants,

tants, not to trust to that precarious and ruinous mode of protection.

Subscribers of one guinea to be annual Governors, of ten guineas Governors for life; each to recommend, in the course of one year, four patients, or three families *at one time*, to be inoculated: experience will best determine the numbers proper for each to recommend. All the rules respecting Treasurer, Governors, Select Committees, and Elections, and all other Regulations proper for conducting this Institution, may readily be copied from the other Dispensaries already erected.

It will be proper, that a small concise pamphlet be published by the Medical Gentlemen, who associate for the above humane purpose, to be printed at the expence of the public funds, to shew the inhabitants the necessity and importance of general and early Inoculation, and the inefficacy of Inoculating Hospitals: one of these pamphlets to be given to each Subscriber, others to be distributed to the poor, others to be sold at the low price of six-pence, or at the utmost, one shilling each; and it would be adviseable to send a copy to coffee-houses, and to each of the different clergymen in London, who, in a variety of ways, have it in their power to instruct and to enlighten the public in this essential subject, and to increase the Dispensary funds. Such a cheap publication will be necessary on other accounts, to silence envious or interested opponents to the practice of general Inoculation, and to remove the prejudices of the ignorant and uninformed. At the end of the pamphlet, the Scheme and Rules of the Dispensary, the names of the Physicians, Apothecaries, Governors, and Subscribers, to be annexed. It is, perhaps, superfluous to observe, that every other great City in Europe, in proportion to the size of each, may adopt a similar plan for General Inoculation.

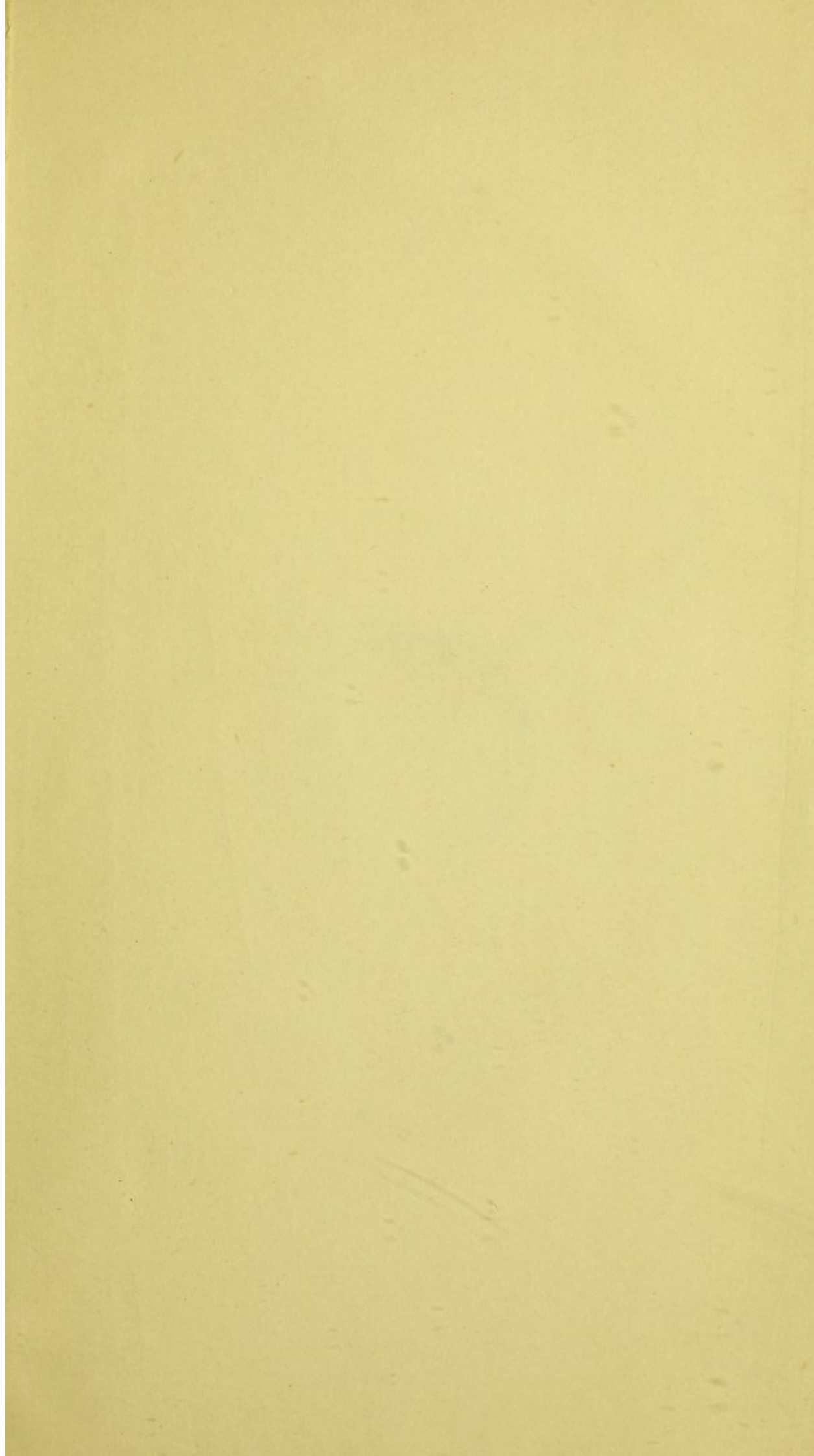
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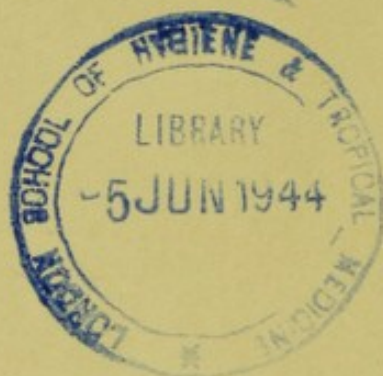


and to the end of the world.

The first of these is the fact that the world is not a uniform whole, but a collection of many different parts, each of which has its own life and its own history. The second is the fact that the world is not a static whole, but a living whole, which is constantly changing and growing.

The third is the fact that the world is not a simple whole, but a complex whole, which is made up of many different parts, each of which has its own life and its own history. The fourth is the fact that the world is not a uniform whole, but a collection of many different parts, each of which has its own life and its own history. The fifth is the fact that the world is not a static whole, but a living whole, which is constantly changing and growing.





Background

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