A TREATISE ON MAN

AND THE DEVELOPMENT OF HIS FACULTIES.

By M. A. QUETELET,

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NOW FIRST TRANSLATED INTO ENGLISH.

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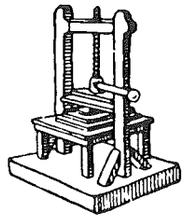

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PUBLISHERS' NOTICE.

THE present work was first printed and issued in Paris in 1835, with the title, "Sur L'Homme, et le Développement de ses Facultés, par M. A. Quetelet, Secrétaire Perpetuel de l'Académie Royale de Bruxelles," &c. &c. (2 volumes 8vo.) Previous to its appearance, the author had attained a high reputation among men of science, being distinguished peculiarly by the cautious, accurate, and comprehensive character of all his researches, and by his skill and acumen in applying the important science of numbers to every subject which he investigated. The treatise "Sur L'Homme" brought him a large accession of well-merited fame. It was the first attempt made to apply the art of calculation to the social movements of the human being, and to examine by it his moral anatomy, with the view of detecting the real sources and amount of the evils under which he labours, and, ulteriorly, of remedying them when known. Of the nature of the remarkable truths developed by M. Quetelet, it would not be proper here to speak; nor is it necessary, as the work itself will sufficiently indicate and explain them. Suffice it to state, that the impression made by the treatise over the whole of continental Europe, through criticisms, republications, and translations, has been very great. Fully convinced of its value, Messrs Chambers gladly embraced a proposal which was made to them to publish an English translation, and to present it in such a form and at such a price as might be most calculated to promote its diffusion throughout all sections of the community.

On learning that a British edition was in progress, M. Quetelet came forward in the most handsome manner, and proffered a new preface, which accordingly is presented here in a translated form. In this composition, the object of the author has been, at once to defend his treatise from objections brought against it subsequently to the issue of the original Parisian edition, and also to point out in what manner he intended, in his projected continuations of the work, to follow up and elucidate the principles already laid down by him. It will probably be admitted by the majority of readers, that he has most ably defended his views and estimate of the physical, moral, and intellectual qualities of man, with their results upon his position in society. He has refuted the objections brought against his mode of reasoning; and has cleared himself of the charge of being either a materialist or a fatalist. He shows, also, that he is no theorist or system-maker, but simply wishes to arrive at truth by the only legitimate way, namely, the examination of *facts* —the incontrovertible facts furnished by statistical data. Lastly, he conveys the important information, that the experience of every additional year, since the first publication of his treatise, proves, in the most remarkable manner, the accuracy both of his statistical tables and the inferences founded upon them. His section on crime, in particular, however startling it may have appeared to the world, has been shown, by fresh statistical information, to merit credit in every particular. On these accounts, the publishers are confident that the prefatory matter with which they have been favoured by the distinguished Belgian philosopher, will be felt by the public greatly to enhance the value of the present edition.

It seems only necessary to add, that the present translation has been effected under the able superintendence of Dr R. KNOX, F.R.S.E., Corresponding Member of the French Academy of Medicine, and Lecturer on Anatomy in Edinburgh; and that the work, in its passage through the press, has been indebted to the editorial care of Mr THOMAS SMIBERT, who has also translated the manuscript preface of M. Quetelet. Considering its native value, and these acquired advantages, the publishers present it with the confident hope that it will form a valuable addition to the philosophical literature of their country.

EDINBURGH, *November* 5, 1841.

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PREFACE OF M. QUETELET,

DRAWN UP EXPRESSLY FOR THE PEOPLE'S EDITION OF HIS WORK ON MAN.

THE plan which has been pursued by me in the composition of this work, is a vast and comprehensive one. It was therefore natural, that, before drawing up a sequel to it, I should endeavour to learn the opinions of competent persons respecting the character of my researches, and the mode of execution which had been adopted in my treatise.* But in presenting, as it were, only the vestibule of the edifice, I might justly entertain fears lest sufficient light had not been cast on the matter, and lest I should not have been able to make it clear how all the portions of the vast whole were to arrive at agreement and consistency among themselves. In this state of things, it struck me that I could not do better than show, by particular examples, in what manner it is expedient in general to proceed in this line of inquiry, and in what light I viewed the analysis of man, under the triple relations of his physical, moral, and intellectual qualities.

The development of the three examples which I have chosen, will themselves give birth to as many works, the materials of which I am collecting with all the activity and speed that other engagements incidental to my position will permit. Whilst waiting till I can terminate these labours, I have deemed it right to give here an indication of them, and this will afford me, at the same time, an opportunity of clearing up some points in my published treatise, which may have been imperfectly understood.

As regards the *physique* of man, subjects of research are not wanting; but, besides that many of these subjects—as, for example, that of population—have frequently been discussed, and by men of great ability, they do not appear to me to be all equally suited to the end which I propose to attain; some are even complicated by their intimate dependence on moral phenomena, and these I wish to steer clear of as far as possible. The interest excited by the first researches into the growth of the human being, and the happy applications made of them in England, determined my choice of a subject, leading me to direct attention to the proportions of the human frame at different ages, and the causes which modify them. The subject appertains at once to science and the fine arts; and my relations in society permitted me to count upon the assistance of men of enlightenment, who promised to co-operate with me in my inquiries.

The study of the proportions of the human frame was carried very far by the Grecian artists, but they have left us no other monuments of their knowledge than those admirable works of sculpture, which the moderns regard to this day as models, and to which they resort for their finest inspirations. The principal artists of the era of the revival of letters, such as Leon Baptista Alberti, Michael Angelo, Leonardo da Vinci, Albert Durer, with many others who comprehended what art ought to borrow from science, felt the necessity of resorting to observation, in order to rebuild in some sort the ruined monument of ancient artistical skill. They studied nature in a philosophical manner; sought to strike out the limits within which they ought to confine themselves in order to be truthlike, without taking away from each age, and one may say from any passion, its individual character; and from those profound studies which kept them ever before the face of nature, they deduced original views and new models, destined to distinguish for ever that celebrated age. The proportions of the human body did not alone attract their attention: anatomy, perspective, and chemistry, formed parts of their studies; nothing was neglected; and some of these great artists even gained for themselves a first place among the geometers of their day. Their successors have not devoted themselves to such serious studies, and hence it so frequently happens that they are reduced to content themselves, either with copying from those who went before them, or with working after individual models, whose proportions they modify according to mere caprice, without having any just or proper ideas of the beautiful.

It would be an error, doubtless, to suppose that science *makes* the artist; yet it lends to him the most powerful assistance. In general, it is difficult to keep it within due limits; and I shall even freely admit, that Albert Durer, in his work upon the proportions of the human frame, has imparted to it a certain scientific dryness, which lessens its utility. One finds there more of the geometer than the artist, and the geometer, moreover, such as he was at a time when it had not yet been discovered how much the rules of style enhance the value of scientific works, and, above all, of those which appertain at the same time to the domain of the fine arts.

After the example of Leon Baptista Alberti, whom he followed closely in the order of time, Albert Durer commences by stating the divisions of the body, in parts or proportions of the total height taken by him as *unity*. Changing afterwards his measure of proportions, he takes as unity the size of the head, and assigns successively the proportions of several individuals, giving them seven, eight, nine, and even ten heads of height [or, in other words, a body corresponding to the measurement of so many heads]. The scale thus formed by him has been received into all studios; and, without reverting *very* often to the measurements which their predecessors had taken from nature or from the works of the Greeks, artists have, for the most part, bound themselves down to follow a blind routine. Noble exceptions, however, have presented themselves. Nicholas Poussin, one of the most profound thinkers whom the arts have produced, took care to correct and regulate by the *antique* the proportions which Leon Baptista Alberti and Albert Durer had given from the living model. At a later period, also, some labours have been undertaken on this subject; and I may mention, in particular, those of the sculptor, Shadow of Berlin.

My aim has been, not only to go once more through the task of Albert Durer, but to execute it also on an extended scale. The German artist had his art exclusively in view, and confined himself to the obser-

* The work upon Man was published at Paris in 1835. In the year following, a copy of it was printed at Brussels; and, in 1838, Dr Rieoke gave a German translation of the work, enriched with notes. The Brussels copy was published without my participation, and indeed against my will; such was not the case with the German version, concerning which I had communications with Dr Riecke.

vation and exhibition of man when fully developed, and at an age when he presents himself under the most advantageous forms. In order to keep faithfully by the plan which I had chalked out, I have viewed the individual from the hour of his birth; I have sought to determine, for that epoch, the different relations of bulk, subsisting between the various parts of his frame; and to ascertain how far these relations become modified during his development, what they are in the flower of his age, and in what position they remain up to the instant of decay. It is only by long and laborious study, and by the comparison of a vast number of individuals, that it will be possible to succeed in establishing correct average proportions for each age, and in settling the limits betwixt which they can be made to vary, without ceasing to be accurate and faithful to nature—our first and great guide in this difficult study.

If the inquiry into the average bodily proportions be of high importance, in order to attain to the type of beauty in the arts, not less great is the interest attached to the subject of the limits within which variations of them must be kept, in order not to shock the taste, and in order to retain the means of giving character to individual forms, of shadowing forth strength, grace, and dignity of figure, and of preserving to art that variety which constitutes its principal charm. Although *artistical* limits will always be less extended than the *natural* limits, yet it is to be observed that, by the term natural limits, I understand those within which the human proportions may vary, not only without constituting deformities and monstrous aberrations from nature, but also without wounding the eye by a want of harmony.

In order that the taste may be satisfied, it is necessary to present to it a whole of which it can seize readily all the parts, and mark their relations of bulk. But what are the natural limits spoken of? They are doubtless difficult to establish; nevertheless, every one has an idea of them, more or less exact, which he carries with him in his decisions. It is to determiue these in a more precise manner that our endeavours ought to be directed. "This statue is beautiful," people will say; but they will agree in finding that the arms are too long. Without such a defect, it would have possessed more grace. The defect, at the same time, does not constitute a monstrosity, not even an anomaly; it may be conceived to exist in nature, and even without displeasing the taste; but it wounds the eye in a work of art, open to more severe rules of judgment.

In order to discover to what extent tastes and forms might vary in different countries, I have endeavoured to compare the proportions of the models, which, in the opinion of the artists of Paris, Rome, Belginm, and other places, united the most perfect graces of form; and I have been surprised to find how little variety of opinion exists, in different places, regarding what they concurred in terming the beautiful. Changes of bodily proportions characterise nations to a much smaller degree than differences in physiognomical expression, in delicacy and suppleness of members, and in ease, greater or lesser, of gait—all of them qualities modified singularly by education, climate, and habitudes.

Nor am I to confine myself, in my extended inquiry, to the comparison of actual models, estimated as types of the beautiful; I propose also to unite my results to those which artists left to us at the revival of the arts, and, above all, to what we can gather of the knowledge of the ancients on this point, from a study of their works. These comparisons, I conceive, will present hints interesting to history and art; they will prove of not less importance to the natural history of man. Analogous labours, undertaken in different quarters of the globe, would enable us to appreciate all that distinguishes race from race, and to discover the relative points of bulk most liable to variation; they would also furnish for the future valuable elements of comparison, not yet possessed by science.

All the sciences tend necessarily to the acquirement of greater precision in their appreciations. The study of diseases, and of the deformities to which they give place, has shown the benefit derivable from corporeal measurements, effected under enlightened views; but in order to recognise whatever is an anomaly, it is essentially necessary to have established the type constituting the normal or healthy condition. In order to be of use to science, I have deemed it necessary to direct my researches in a particular manner to the dimensions of the chest, which seem most frequently to merit consideration in the state of illness; and the same region is the one where the greatest malformations are most often to be observed.

The relative proportions of the human head merit equally our serious attention, serving, as they do at this day, for a basis, so to speak, of a new science. One of the individuals whose writings have spread the greatest interest respecting the study of phrenology, Mr George Combe, addressed to me, on the subject of the work on Man, the following words, which I shall beg leave to transcribe here, on account of the ingenious hints which they convey on the subject under consideration:—"Allow me to observe, that I desire much to see the physiology of the brain made the basis of such investigations, because I am convinced that the size, quantity, and proportions of the brain in individuals, have an influence over the development of their faculties, which is fundamental—that is to say, the brain determines the strength and the bent of the natural dispositions, and also the kind and degree of the intellectual capacity; and all external influences merely direct these to certain objects in preference to others, excite them to action, or impede their manifestations, but without changing the primitive character. Criminals, for instance, have the animal organs largely developed, and those of the moral and intellectual faculties, or at least the moral, deficient; and the causes of the regularity in the number of crimes will be found in the causes which produce a given number of defective brains annually; and crimes must be diminished by lessening the production of imperfect brains, or by treating those who have them as moral patients, and preventing them from abusing their propensities. Your researches are exceedingly interesting and useful, and all that I mean to say is, that this element is wanting to render them complete."

Nothing, doubtless, could be more interesting, above all in studying the moral development of man, than to be able to follow simultaneously the development of the organs which seem most directly connected with our actions, and to estimate to what extent the instrument is in concord with the effects produced by it. But for that purpose, it would be necessary that the science should be farther advanced than it really is; and that we should know the modifications which the head and brain of man undergo, from birth to the period of complete development, as well as the epochs at which the divers organs, regarded as the seats of such and such passions and propensities, manifest themselves, and what are their degrees of increase, actual and proportionate. This science, it seems to me, leaves as yet much to desire, and for the mere reason that it is yet in its infancy. I conceive that, in its actual condition, time would be more profitably expended in separating two kinds of studies which, in their results, might respectively control each other, than in seeking to amalgamate them, by which might be incurred the risk of falling into theoretic ideas, and quitting the path to truth. I shall explain myself by an example. Observation shows, that, in our state of society, it is about the age of twenty-five when the propensity to crime is at the maximum, especially as far as murder is concerned; this is a fact fully established, and of which new evidence is given every year by the statistical records of France. Now, supposing that phrenology had made sufficient inquiries into the development of the organs, it might be possible to determine whether or not the age of twenty-five is really that at which the destructive organs have reached their greatest development, and if they sustain a progressive diminution afterwards, or are repressed by other and more powerful organs.

In considering matters under this point of view, it would be necessary first to study the progressive and proportionate growth of the brain and its several parts, and the development also of our moral and intellectual qualities. Comparisons might then be established to determine if the development of the faculties, and of the cerebral organs regarded as specially connected with them, takes place in a simultaneous manner. But to explain the actions by the organs, to render the one subordinate to the exercise of the other, would be to ramble widely from the course I have followed; for I am less desirous to explain phenomena than to establish their existence.

I have always comprehended with difficulty, moreover, how persons, pre-occupied doubtless by other ideas, have seen any tendency to materialism in the exposition of a series of facts deduced from statistical documents. In giving to my work the title of Social Physics, I have had no other aim than to collect, in a uniform order, the phenomena affecting man, nearly as physical science brings together the phenomena appertaining to the material world. If certain deplorable facts present themselves with an alarming regularity, to whom is blame to be ascribed? Ought charges of materialism to be brought against him who points out that regularity? What I have read and heard on the subject of my work, proves to me that I have not carried conviction to every mind, and that I have frequently been judged with prejudice. Judgments upon books are formed with even more haste and levity than judgments upon men. Writings are talked of without being known; and people take up an opinion for or against, in consequence of decisions of which it would cost them some trouble to determine the source. These are evils which must be borne with patience, and the more so because they are common. "There are few works on political economy," said Malthus to me, "which have been more spoken of and less read than mine." All the absurdities which have been spoken and written respecting the illustrious English author, are well known. Certainly, by an appeal against such decisions, he would have all to gain, and nothing to lose, before a less prejudiced tribunal.

One of the facts which appears to have excited the greatest alarm, out of all pointed to in my work, is naturally that relating to the constancy with which crime is committed. From the examination of numbers, I believed myself justified in inferring, as a natural consequence, that, in given circumstances, and under the influence of the same causes, we may reckon upon witnessing the repetition of the same effects, the reproduction of the same crimes, and the same convictions. What has resulted from this exposition? Timorous persons have raised the cry of fatalism. If, however, some one said, "Man is born free; nothing can force his free-will; he underlies the influence of no external causes; cease to assimilate him to a machine, or to pretend to modify his actions. Therefore, ye legislators, repeal your laws; overturn your prisons; break your chains in pieces; your convictions and penalties are of no avail; they are so many acts of barbarous revenge. Ye philosophers and priests, speak no more of ameliorations, social or religious; you are materialists, because you assume to mould society like a piece of gross clay; you are fatalists, because you believe yourselves predestined to influence man in the exercise of his free-will, and to direct the course of his actions." If, I say, any one held such language to us, we should be disgusted with its excessive folly. And wherefore? Because we are thoroughly convinced that laws, education, and religion, exercise a salutary influence on society, and that moral causes have their certain effects. Am I a fatalist, then, when I declare that you have greater reason for so thinking than you had imagined? That is the real state of the question; we differ only about degrees. Which of us is in error? To determine this, it is necessary to examine our motives for conviction. Mine, like yours, rest first of all on observation. We both call in experience to the support of our opinions; but, in your case, the experience is based on vague uncertainties, whilst I, more circumspect, strive never to lose sight of those scientific principles which ought to guide the observer in all his investigations. My aim is not to defend systems, or bolster up theories; I confine myself to the citation of facts, such as society presents to our view. If these facts be legitimately established, it follows that we must accept of and accommodate our reason to them.

Now, what do these facts teach us? I repeat, that in a given state of society, resting under the influence of certain causes, regular effects are produced, which oscillate, as it were, around a fixed mean point, without undergoing any sensible alterations. Observe, that I have said *under the influence of the same causes;* if the causes were changed, the effects also would necessarily be modified. As laws and the principles of religion and morality are influencing causes, I have then not only the hope, but, what you have not, the positive conviction, that society may be ameliorated and reformed. Expect not, however, that efforts for the moral regeneration of man can be immediately crowned with success; operations upon masses are ever slow in progress, and their effects necessarily distant.

But, it may be again asked, what becomes of human free-will and agency? In the face of facts, I have not to occupy myself with that question, so often debated. I cannot altogether pass it by, nevertheless, in silence, because it seems to me to involve one of the most admirable laws of conservation in nature—a law which presents a new proof of the wisdom of the Creator, and of which you have not caught even a glimpse in your narrow views of the moral organisation of man. It is necessary, then, to admit that free-will exercises itself within indefinite limits, if one wishes not to incur the reproach of denying it altogether. But, with all the follies which have passed through the head of man, with all the perverse inclinations which have desolated society, what would have become of our race during so many past ages? All these scourges have passed by, and neither man nor his faculties have undergone sensible alterations, as far at least as our observations can determine. This is because the same finger which has fixed limits to the sea, has set similar bounds to the passions of men—because the same voice has said to both, "Hitherto shalt thou come, and no farther!"

What! when it is necessary to take the most simple resolve, we are under the domination of our habitudes, our wants, our social relations, and a host of causes which, all of them, draw us about in a hundred different ways. These influences are so powerful, that we have no difficulty in telling, even when referring to persons whom we are scarcely acquainted with, or even know not at all, what is the resolution to which they will lead such parties. Whence, then, this certainty of foresight, exemplified by you daily, if you were not convinced, at the outset, that it is extremely probable the empire of causes will carry it over free-will. In considering the moral world *a priori*, you give to this free-will the most entire latitude; and when you come to practice, when you speak of what passes around you, you constantly fall into contradiction with yourselves. You foretell the conduct of individuals, in whose case oscillations may take place within limits so large, that it would be contrary to all the principles of the theory of probabilities to take them for the types of calculations, or to found upon

them the most petty inferences. Be more consistent with yourselves.

Could you possibly be afraid of applying the calculation of chances to moral phenomena, and of the afflicting consequences which may be inferred from that inquiry, when it is extended to crimes and to quarters the most disgraceful to society? "I should guard myself," said a scientific friend, whose philanthropic views I otherwise respect—"I should guard myself, had I arrived at the afflicting results of which you speak, against grieving others with the relation of them. Draw a veil over the hideous spectacle; and if you believe that you possess the truth, imitate with respect to it the sage circumspection of Fontenelle." But is the anatomy of man not a more painful science still?—that science which leads us to dip our hands into the blood of our fellow-beings, to pry with impassible curiosity into parts and organs which once palpitated with life? And yet who dreams at this day of raising his voice against the study? Who does not applaud, on the contrary, the numerous advantages which it has conferred on humanity? The time is come for studying the moral anatomy of man also, and for uncovering its most afflicting aspects, with the view of providing remedies.

This study is a difficult one. Speculative philosophy has long been occupied with it; but there are questions not to be resolved by such means; speculation has its limits, as observation also has. Every propensity and every passion, develops itself in a manner more or less rapid, attains a degree of maximum intensity, and declines in general by shades not yet fully recognised. It is with the intellectual as with the moral faculties of man; they both have their laws of development. With regard to some of them, these laws march in a parallel relation; others are interwoven in their growth, or stand in manifest opposition. Now, these are the laws which it is necessary to ascertain and comprehend, not in a vague manner, but with such precision as to enable us to establish numerically the degree of intensity for each age. There lay, if I do not deceive myself, the novel feature of my labours; thence sprung, at least, the chief meed of praise, and the criticisms which I have received; and it is this principle which I must strive to justify by my ulterior labours, because I was compelled to limit myself, in a first essay, to simple indications.

The analysis of the moral man through his actions, and of the intellectual man through his productions, seems to me calculated to form one of the most interesting parts of the sciences of observation, applied to anthropology. It may be seen, in my work, that the course which I have adopted is that followed by the natural philosopher, in order to grasp the laws that regulate the material world. By the seizure of facts, I seek to rise to an appreciation of the causes whence they spring.* As I could only indicate this course summarily, and the difficulties embarrassing it, I have been desirous to show, by two examples, selected and treated in a searching manner, how the course in question should be followed. The one has for its object the examination of works of literature, philosophy, science, the fine arts, &c., and of the ages at which they have been produced, with the results to be deduced from the whole. The other example concerns the development of the propensity to crime, upon a scale more extended than I had yet had an opportunity of forming. After these last new researches, I conceive I may now confidently say, that the *tables of criminality* for different ages, given in my published treatise, merit at least as much faith as the tables of mortality, and verify themselves within perhaps even narrower limits; so that crime pursues its path with even more constancy than death. Twelve years have elapsed since the data furnished by the tribunals of justice in France were collected with great care and exactitude, and since the ages of criminals were first marked; and, in each succeeding year, they have reckoned from about 7000 to 8000 individuals accused before the courts of assize; and it is still betwixt the ages of twenty-one and twenty-five, that, all things being equal, the greatest number of persons are to be found in that position. I have taken, for the same years, and for the city of Paris, the mortality of a period of ten years, and have found, that, though my observations included a much larger number of persons, and these pertaining to a much more homogeneous population, the mortality of the capital proceeded with less regularity than the crimes of the kingdom, and that each age paid a more uniform and constant tribute to the jail than to the tomb.

An objection has been made to my views, which appears somewhat valid at a first glance. It has been forcibly reproduced by a writer of merit, who, while treating my work with liberality, has drawn together all the gravest objections brought forward against it. I shall take leave to cite his words. "We now reach the most delicate portion of M. Quetelet's work—the development of the intellectual and moral qualities, the social system. Here the field is not the same; we have no longer to do with phenomena vital and regular, or with those laws to which man is subjected along with the brutes, and which operate continually without his intervention, or constitute instincts in him too powerful to be resisted. We have to consider things which he is at liberty to do or not to do—acts which he may consummate or not consummate at choice. We enter into the domain of the human will—free, bold, and independent. Can science follow man in this new route? Will it be able to appreciate, in a manner at once comprehensive and exact, the results of the physiological and moral constitution of the mind and soul which distinguish him from other animals? Contented to follow, up to this point, the material phenomena revealed by evident facts, can science sound the heart of man, dive into the mysteries of spiritual being, and tear away for the human race the veil which the moralist can with

* This appreciation is in general very difficult, and has given rise to grave errors. One of the chief causes of these errors seems to me to spring from the *incomplete enumerations*, made when it is sought to give an account of the causes which have led to any result. Thus, it is recognised that in some locality crimes are very numerous, and an attempt is made to explain that unfavourable state of things. How do most writers and even statisticians proceed in such a case? In place of passing in review all the causes which can lead to crime, of weighing their influences, and of inquiring into those, above all, which have there acted with the greatest energy, they only attend, in the prejudiced state of their minds, to one alone, often the least influential of all, to which they ascribe the effects produced by the whole. They have been led in this manner to conclude that popular instruction produces crime, because, in such and such a kingdom, the provinces where it chiefly abounds send the greatest number of children to schools; as if the degree of instruction, and the kind of instruction, and other elements, did not all enter equally into the question. The true talent of the observer, it seems to me, whatever be the phenomena of which he seeks to estimate the causes, consists in a complete enumeration of these, and in distinguishing between such as are entitled to weight, and such as may be overlooked without inconvenience. It is this fine insight, this delicate tact, principal attributes of superior intelligences, which constitute the great observer, the true philosopher. To wander from this course is to step into error, and to become entangled in those interminable disputes which afflict the sciences, and, above all, those whose phenomena are most complex. The medical sciences offer sad examples of this evil. Maladies are in general the result of an infinity of causes; and wherefore attribute them, then, to one of these more than to another? It may be conceived that two physicians, in citing each a different cause as the origin of one disease, may be both in the right, since each may have found the cause stated by him to have predominated in the case under his notice; they only err in neglecting the other influential causes which they have not had the chance of observing, because the number of their observations was too limited. This is the history of many of the theories and systems, alternately adopted and rejected in medicine.

difficulty raise in order to judge one individual? Risks she not being stranded in the conflict with these supreme mysteries of intelligence? Upon what constant facts, upon what fundamental points, can she lean for support? The facts of birth, growth, and decay, are the same for all men; but what are held by one people to be intelligence, genius, morality, and crime, will these not be deemed by another people error, poverty of intellect, immorality, and lawful actions? Finally, will not the free-will and agency of man disconcert all calculations? Or, at least, will not the errors in such calculations be too considerable in number and extent to leave them any real value?"*

I have already spoken of free-will, and have shown how little it influences the number of crimes, and the ages of criminals; I shall not return, therefore, to that subject. The next most serious objection which seems to present itself here is, that the facts upon which one is compelled to rest have not the same identical value, as in the case of birth, death, and marriage, when the population is treated of; but that these facts may vary through many different shades, and may even be qualified amongst different nations, in consequence of what is crime with one being viewed as something lawful with another.

We must here understand ourselves fully. I can admit that a certain act, which is punished before the French tribunals, may not be so in other places, or have been so in other times. This is, then, an error of denomination which should be corrected, and which would but prove at most that virtues and crimes, estimated in relation to different times, have a contingent value merely, not an absolute one. The essential point here is, that the fact, qualified in one manner or another, should be the same. But it will be said, that it is not identically the same, and that even where the laws take care to specify and define different crimes, those which are ranged under the same head may still vary within pretty extensive limits. This is equivalent to saying, that the observations have not all the precision necessary, and that the estimate cannot be perfect. Now, this is a fact which I myself readily admit and regret; for, if the observations were precise, I should march on, in the new path which I have sought to open up, with as much assurance as in other quarters of the vast field of the sciences of observation. In every instance, it is not my method that is defective; proper observations alone fail me. But will it be ever impossible to have them perfectly precise? I believe that even at present we have them sufficiently so to enter, at least, on the great problem under consideration. Name them as you will, the actions which society stamps as crimes, and of which it punishes the authors, are reproduced every year, in almost exactly the same numbers; examined more closely, they are found to divide themselves into almost exactly the same categories; and, if their number were sufficiently large, we might carry farther our distinctions and subdivisions, and should always find there the same regularity. It will then remain correct to say, that a given species of actions is more common at one given age than at any other given age.

Is it really true, moreover, that the designation of crime may be so very arbitrary, and that that which has been set down as poisoning or assassination, for example, may testify to no evil inclination? Although we are here in a new field, where facts cannot be estimated mechanically, as in the physical sciences, the difference, nevertheless, is not to be held so great as it may appear at first sight. Even the physical sciences sometimes rest on facts which are not identically the same, as deaths and births should be; and which may lead to appreciations and conclusions more or less great. With the use even of an instrument, when one wishes to discover a temperature, a magnetic declination, or the force and direction of a wind, does one really find the quantities which are sought? When one measures an individual, is the real height positively discovered? Errors, greater or lesser, may be committed; and observation alone can recognise the limits within which they range. Has the consideration of the average life of man been rejected, because that average rests upon numbers which vary, without doubt, within limits as extended as can be conceived?

But, to reply by the same argument brought against myself, if, in place of reckoning diseases, one wished to specify their nature, and to indicate, as statisticians do, the number of voluntary, violent, and accidental deaths, as well as those produced by natural maladies, without entering at all into the classifications which might be formed of these, would not one lie open to the same objections? Must we refrain from making up a list of suicides, because death may there have been caused by unknown hands, or by accidents of which no one is cognisant, or by some natural means which have operated instantaneously, and left no visible traces behind? And how often does it happen that the author of a suicide only lends his hands involuntarily to a crime of which another has guiltily reduced him to become the victim? One would require to renounce entirely the sciences of observation, if every such difficulty in the way were to be admitted as a let and barrier; and these are only more apparent in my researches, because we are less familiarised with their character.

The same writer whom I have cited, combats me on another point. I have attempted to give an example of the analysis of the development of the passions, which tends to show that their maximum energy is reached about the age of twenty-five years. "So that," said I, "if there existed an art which, in its exercise, developed itself in a ratio with the passions, and without requiring preliminary studies, its maximum of development would occur about the age of twenty-five."* "To this reasoning let us oppose an example," says the Genevese philosopher. "If there has been a writer who has shone brilliantly, and deeply impressed the public, by reason, not of his works and learning, but of the impulses of the passions, certainly Jean Jacques Rousseau is that man. Now, it was not before the age of forty, fifteen years later than the period signalised as the maximum one of his passions, that Rousseau commenced to write." What would be the reply of the author now quoted, whose writings on population are justly esteemed, if I were to say to him in my turn, that the death of J. J. Rousseau did not take place till after the age of 65 years; that is to say, a long period after the epoch signalised by the law of mortality calculated for Geneva, and after he had long passed the average life of man. Must we then conclude that the tables of mortality for Geneva should be rejected? What does one individual example prove in such matters?

I would remark, besides, that the words cited from my work, when viewed isolatedly, are far from expressing the idea which I wished to attach to them. The works of genius upon which our judgments bear are in general complex; for there is no work, constructed by genius, which does not suppose the exercise of various of its faculties. A skilful analysis could alone make out the part of each of them; I would suggest for this purpose the idea of a work which should have for its object the analytic examination of the development of our intellectual faculties for each age. Now, I have aimed to present, in the work here reproduced, only an essay, only a particular example, of such an analysis, "which *tends* to show that the maximum of energy of the passions occurs about the age of twenty-five." The minimum is not then determined; and even when it shall be, by a sufficient number of observations, one will no more be able to apply it to any given individual in particular, than

* Bibliothèque Universelle de Genève, July 1835, p. 313. Article of M. E. Mallet.

* "On Man," vol. ii. page 119, Brussels edition.

one could make use of a table of mortality to determine the period of his decease. It should be well understood that social physics never can pretend to discover laws which will verify themselves in every particular, in the case of isolated individuals. The science will have rendered a service sufficiently vast, in giving more precise views upon a host of points, of which vague glimpses only were before possessed. Thus, men speak generally of the age of the passions; they admit, then, that there is an epoch of the life at which the passions act with greater energy? How know they this? Doubtless, by the observation of man. Well, it is observation which the science of social physics will employ, but observation conducted in a more certain manner, after scientific principles, and not resting on fugitive glances of which one can preserve no durable traces.

I trust I may be permitted to notice here another objection which has been made, on the subject of the value which I believed it proper to attribute to average qualities. "You believe, then," it has been said to me, "that the type of health would be a mean betwixt all the constitutions existing—all the states of health? But then you must grant at least that your type would be more perfect if the average were struck upon those alone who were in health." This argument may appear at first sight an embarrassing one; but, when examined more closely, it may easily be shown to rest upon no solid foundations. I believe I might even say, retorting in some measure the argument, that, if the average were taken upon all men, the healthy excepted, it would remain still the same. This only would result, that, in order to obtain that average with an equal degree of precision, it would be necessary to draw it from an infinitely greater number of individuals. We may consider maladies like deviations from the normal state, be it more or be it less; and it is betwixt these contrary conditions that the state of health would be found.

We aim at a target—an end—marked by a point. The arrows go to right and left, high or low, according to the address of the shooters. In the mean time, after a considerable number of trials, the butt, which has not yet been touched, perhaps, a single time, becomes so well pointed out by the marks around it, that they would aid at once in rediscovering it, if it should chance to be lost sight of. Nay, more than this; even aims the most unfortunate may be made to conduce to this end; commencing with those marks which are farthest away, if they be sufficiently numerous, one may learn from them the real position of the point they surround.

This figurative reasoning is applicable, it may easily be conceived, to all inquiries into the physical sciences, and even the moral also, where the point in view is to arrive at means or averages. As stated in the considerations presented at the close of my work, every quality, taken within suitable limits, is essentially good; it is only in its extreme deviations from the mean that it becomes bad. The study of these deviations or anomalies may serve to aid in the determination of the normal state, if it cannot be established in a direct manner. This presumes, it is true, that human nature, in its aberrations, has not a tendency to deviate from the mean in one sense in preference to another, as those who aim at a mark might have a tendency to shoot always too high or too low, Now, nothing proves the existence of any such tendency.

It may be imagined, after the preceding remarks, how much importance I attach to the consideration of *limits*, which seem to me of two kinds, *ordinary* or natural, and *extraordinary* or beyond the natural. The first limits comprise within them the qualities which deviate more or less from the mean, without attracting attention by excess on one side or the other. When the deviations become greater, they constitute the extraordinary class, having itself its limits, on the outer verge of which are things preternatural, or monstrosities. Thus, the men who fall, in respect of height, outside of the ordinary limits, are giants or dwarfs; and if the excess or the deficiency of height surpasses the extraordinary limits, they may be regarded as monstrosities. From the view of the human constitution, also, we may find the state of health and of sickness, and also a condition to be called extraordinary or preternatural. We must conceive the same distinctions in the moral world.

Narrow as may be the natural limits, they are yet too extended, as I have pointed out, when we wish to approach the beautiful in the arts. Artistical limits do not tolerate certain proportions, which nevertheless constitute neither physical defects nor infirmities.

The consideration of limits, upon which I insist, has convinced me more and more of the important part which they play in the social order. One of the most interesting observations which I have had occasion to make, is, that they narrow themselves through the influence of civilisation, which affords, in my eyes, the most convincing proof of human perfectibility. On the one side we approach more closely to what is good and beautiful; on the other, vice and suffering are shut up within narrower limits; and we have to dread less the monstrosities, physical and moral, which have the power to throw perturbation into the social framework. The distinctions which I had already established with care in my work, ought to have proved, methinks, to some less prejudiced judges, how far I am from a blind fatalism, which would regard man as unfit to exercise free-will, or meliorate the future condition of his race.

ON MAN.

INTRODUCTORY.

MAN is born, grows up, and dies, according to certain laws which have never been properly investigated, either as a whole or in the mode of their mutual reactions. Hitherto, the science of Man has been limited to researches, more or less complete, respecting some of its laws, to results deduced from single or insulated observations, and to theories often based on mere glimpses; and these constitute pretty nearly all the materials it possesses. It must be admitted, however, that for nearly two centuries various distinguished men have studiously inquired into the rate of reproduction and mortality of mankind; the differences which age, sex, profession, climate, and seasons, produce in regard of births and deaths, have been assiduously studied. But they have neglected to put forward, with sufficient prominence, the study of his physical development (*bodily growth*), and they have neglected to mark by numbers how individual man increases with respect to weight and height—how, in short, his forces are developed, the sensibility of his organs, and his other physical faculties. They have not determined the age at which his faculties reach their maximum or highest energy, nor the time when they commence to decline. Neither have they determined the relative value of his faculties at different epochs or periods of his life, nor the mode according to which they mutually influence each other, nor the modifying causes. In like manner, the progressive development of moral and intellectual man has scarcely occupied their attention; nor have they noted how the faculties of his mind are at every age influenced by those of the body, nor how his faculties mutually react.

It will be evident that I do not speak here of the speculative sciences, which, for a long time, have unravelled with great acuteness the greater part of the questions within their scope, and which they could attempt directly, avoiding, however, all numerical appreciation of the facts. The void resulting from this neglect must be filled up by the sciences of observation; for, either from a distrust in their own strength, or a repugnance in supposing it possible to reduce to fixed laws what seemed to flow from the most capricious of causes, it has hitherto been deemed expedient by learned men to abandon the line of inquiry employed in the investigation of the other laws of nature, so soon as the moral phenomena of mankind became the object of research. It must also be admitted, in explanation, that observations having for their object the *Science of Man*, present difficulties exceedingly great, and, to merit confidence, must be collected upon a scale far too extended to be attempted by an individual philosopher. Thus, we need not be at all surprised if facts respecting the increase of human weight and height from birth, be not readily found—if even the development of man's bodily strength be not exactly known; and it ought to excite no surprise, if, on these interesting points, the results be confined to mere sketches.

The study of the development of the intellectual qualities present, perhaps, still greater difficulties; but the result will show that these difficulties are more apparent than real.

With respect to the physical or animal forces, it is readily enough admitted that their development depends on the action of nature, and is thus regulated by laws which in certain cases admit of being determined by numbers; but it is asserted, that in respect of the moral or intellectual faculties, over which our volition exercises an influence, it would seem to approach an absurdity, to inquire into laws influenced by a cause at once so capricious and so anomalous as the human will. Hence it has happened that, in the study of man, a difficulty, seemingly insurmountable, was encountered at the very first step; but this difficulty is connected principally with the solution of a question which we shall now examine.

Are Human Actions regulated by Fixed Laws?

Experience alone can with certainty solve a problem which no *à priori* reasoning could determine. It is of primary importance to keep out of view man as he exists in an insulated, separate, or in an individual state, and to regard him only as a fraction of the species. In thus setting aside his individual nature, we get quit of all which is accidental, and the individual peculiarities, which exercise scarcely any influence over the mass, become effaced of their own accord, allowing the observer to seize the general results.

Thus, to explain our meaning by an example—we may instance the case of a person examining too nearly a small portion of a very large circle, and who, consequently, would see in this detached portion merely a certain quantity of physical points, grouped in a more or less irregular manner, and so, indeed, as to seem as if they had been arranged by chance, notwithstanding the care with which the original figure may have been traced. But, placing himself at a greater distance, the eye embraces of necessity a greater number of points, and already a degree of regularity is observable over a certain extent of the segment of the circle; and, by removing still farther from the object, the observer loses sight of the individual points, no longer observes any accidental or odd arrangements amongst them, but discovers at once the law presiding over their general arrangements, and the precise nature of the circle so traced. But let us suppose, as might happen, that the different points of the arch, instead of being material points, were small animated beings, free to act according to their will, in a very circumscribed sphere, yet these spontaneous motions would not be perceived by the eye placed at a suitable distance.

It is in this way that we propose studying the laws which relate to the human species; for, by examining them too closely, it becomes impossible to apprehend them correctly, and the observer sees only individual peculiarities, which are infinite. Even in those cases where the individuals exactly resemble each other, it might still happen that, by examining them separately, some of the most singular laws to which they are

subject, under certain influences, might escape for ever the notice of the observer. To him, for example, who had examined the laws of light merely in a single drop of water, the brilliant phenomenon of the rainbow would be totally unintelligible—it might even happen that the idea of the possible existence of such an appearance would never have occurred to him unless accidentally placed in favourable circumstances to observe it.

What idea should we have of the mortality of mankind by observing only individuals? Instead of the admirable laws to which it is subject, our knowledge would be limited to a series of incoherent facts, leading to a total misapprehension of the laws of nature.

The remarks we make respecting human mortality, may be equally extended to man's physical and moral faculties. To attain a knowledge of the general laws regulating these latter (moral) faculties, a sufficient number of observations must be collected, in order to bring out what is constant, and to set aside what is purely accidental. If, in order to facilitate this study, all human actions could be registered, it might be supposed that their numbers would vary from year to year as widely as human caprice. But this is not what we in reality observe, at least for that class of actions of which we have succeeded in obtaining a registry. I shall quote but a single example; but it merits the attention of all philosophic minds. In every thing which relates to crimes, the same numbers are reproduced so constantly, that it becomes impossible to misapprehend it—even in respect to those crimes which seem perfectly beyond human foresight, such as murders committed in general at the close of quarrels, arising without a motive, and under other circumstances to all appearance the most fortuitous or accidental: nevertheless, experience proves that murders are committed annually, not only pretty nearly to the same extent, but even that the instruments employed are in the same proportions. Now, if this occurs in the case of crimes whose origin seems to be purely accidental, what shall we say of those admitted to be the result of reflection?*

This remarkable constancy with which the same crimes appear annually in the same order, drawing down on their perpetrators the same punishments, in the same proportions, is a singular fact, which we owe to the statistics of the tribunals. In various writings, I have done my utmost to put this evidence clearly before the public;† I have never failed annually to repeat, that there is a *budget* which we pay with frightful regularity—it is that of prisons, dungeons, and scaffolds. Now, it is this budget which, above all, we ought to endeavour to reduce; and every year, the numbers have confirmed my previous statements to such a degree, that I might have said, perhaps with more precision, "there is a tribute which man pays with more regularity than that which he owes to nature, or to the treasure of the state, namely, that which he pays to crime." Sad condition of humanity! We might even predict annually how many individuals will stain their hands with the blood of their fellow-men, how many will be forgers, how many will deal in poison, pretty nearly in the same way as we may foretell the annual births and deaths.

Society includes within itself the germs of all the crimes committed, and at the same time the necessary facilities for their development. It is the social state, in some measure, which prepares these crimes, and the criminal is merely the instrument to execute them. Every social state supposes, then, a certain number and a certain order of crimes, these being merely the necessary consequences of its organisation. This observation, so discouraging at first sight, becomes, on the contrary, consolatory, when examined more nearly, by showing the possibility of ameliorating the human race, by modifying their institutions, their habits, the amount of their information, and, generally, all which influences their mode of existence.‡ In fact, this observation is merely the extension of a law already well known to all who have studied the physical condition of society in a philosophic manner: it is, that so long as the same *causes* exist, we must expect a repetition of the same *effects*. What has induced some to believe that moral phenomena did not obey this law, has been the too great influence ascribed at all times to man himself over his actions: it is a remarkable fact in the history of science, that the more extended human knowledge has become, the more limited human power, in that respect, has constantly appeared. This globe, of which man imagines himself the haughty possessor, becomes, in the eyes of the astronomer, merely a grain of dust floating in the immensity of space: an earthquake, a tempest, an inundation, may destroy in an instant an entire people, or ruin the labours of twenty ages. On the other hand, when man appears most influenced by his own actions, we see paid an annual tribute to nature of births and deaths, as regular as may be. In the regular reproduction of crime, we see again reproduced another proof of the narrow field in which he exercises his individual activity. But if each step in the career of science thus gradually diminishes his importance, his pride has a compensation in the greater idea of his intellectual power, by which he has been enabled to perceive those laws which seem to be, by their nature, placed for ever beyond his grasp.

It would appear, then, that moral phenomena, when observed on a great scale, are found to resemble physical phenomena; and we thus arrive, in inquiries of this kind, at the fundamental principle, that *the greater the number of individuals observed, the more do individual peculiarities, whether physical or moral, become effaced, and leave in a prominent point of view the general facts, by virtue of which society exists and is preserved.* It belongs only to a few men, gifted with superior genius, to alter sensibly the social state; and

* The following is the result of the reports of criminal justice in France, &c.:—

	1826.	1827.	1828.	1829.	1830.	1831.
Murders in general, -	241	234	227	231	205	266
Gun and pistol, - -	56	64	60	61	57	98
Sabre, sword, stiletto, poniard, dagger, &c.,	15	7	8	7	12	30
Knife, - - - - - -	39	40	34	46	44	34
Cudgels, cane, &c., -	23	26	31	24	12	21
Stones, - - - - - -	20	20	21	21	11	9
Cutting, stabbing, and bruising instruments,	35	40	42	45	46	49
Strangulations, - - -	2	5	2	2	2	4
By precipitating and drowning, - - - -	6	16	6	1	4	3
Kicks and blows with the fist, - - - - -	26	12	21	23	17	26
Fire, - - - - - - -	..	1	..	1	..	..
Unknown, - - - -	17	1	2	..	2	2

† See page 43 of the *Recherches Statistique*, &c., 1009; page 176 of the fifth volume of the *Corresp. Mathematique;* page 214 of the same collection, in the observations on the constancy observed in the number of crimes committed; page 80 of the *Recherches sur le Penchant au Crime*, &c. [Inquiries into the Propensity to Crime, &c.] After having repeated positively the same statement so many times, I read the following words I confess with surprise, in 1838, in an Essay on the Moral Statistics of France (*Statistique Morale de la France*), the author of which honours me with his correspondence, and is acquainted with my writings:—

"Each year reproduces the same number of crimes, in the same order, in the same regions. Each class of crimes has its peculiar and invariable distribution, according to the sex, age, season; all are accompanied, in equal proportions, with accessory facts, unimportant in appearance, and, but for their return, inexplicable. It becomes necessary to give examples of this fixity in this constancy in the reproduction of facts *hitherto considered as inexplicable* (insaisissables dans leur ensemble), *and as being subject to no law.*" I shall make only *one* observation, which is, that I never considered the number of crimes invariable. I believe, on the contrary, in the perfectibility of the human species.

even this alteration, or action, requires a considerable time to transmit fully its effects. If the power which man possesses of modifying his actions, was communicated immediately to the social system, every kind of prevision or prejudgment would become impossible, and we should expect in vain to find in the past lessons for the future.* But it is not so: when active causes have once established themselves, they display an evident action, even for a long time after efforts have been made to oppose and destroy them; and too much care, therefore, cannot be bestowed in pointing them out, and in suggesting the most efficacious means to modify them in a useful manner. This reaction of man upon himself, is one of his noblest attributes; it offers, indeed, the finest field for the display of his activity. As a member of the social body, he is subjected every instant to the necessity of these causes, and pays them a regular tribute; but as a man, employing all the energy of his intellectual faculties, he in some measure masters these causes, and modifies their effects, thus constantly endeavouring to improve his condition.

How the Laws relative to Man ought to be Studied and Interpreted.

We have just seen that man is placed under the influence of regular and periodic causes, affecting not merely his physical qualities, but likewise his actions; and that these lead to effects equally regular and periodic. Now, these causes, and their mode of action, or the laws to which they give rise, may be determined by a close inquiry; but, as has been already said, in order to succeed, we must study the masses, with the view of separating from our observations all that is fortuitous or individual. Every thing being equal, the calculation of probabilities shows, that in the direct ratio to the number of individuals observed, we approach the nearer to the truth.

By the manner, then, in which these laws have been determined, they present no longer any thing individual; and, consequently, can be applied to individuals only within certain limits. Every application which one might attempt to make to a man in particular, must be essentially false, in the same way as if we were to pretend to determine the precise period of a person's death by looking into the tables of mortality.

Such tables, in respect to particular cases, can give only approximations; and the doctrine of probabilities shows here also that the results deduced from them, and the results observed, agree always the better the greater the number of the individuals to whom they refer. Thus, although the tables of mortality teach us no direct application to an individual, yet they offer very certain results when applied to a great number of persons; and upon these general results, assurance societies calculate their annual profits. We endeavour here to be well understood respecting the nature and value of the laws we propose inquiring into. It is the social body which forms the object of our researches, and not the peculiarities distinguishing the individuals composing it. This study interests, in an especial manner, the philosopher and the legislator: the literary man and the artist, on the contrary, will endeavour to understand, in preference, those peculiarities which we endeavour to separate from our results, and which constitute, as it were, the physiognomical and pictorial aspect of society.

Moreover, the laws which relate to the social body are not essentially invariable; they change with the nature of the causes producing them. The progress of civilisation, for example, has changed the laws respecting mortality, and must have exercised an influence over the physical and moral condition of man. Tables constructed to show the intensity of the disposition to crime at different ages, although for several years they may have offered pretty nearly the same results, may yet become gradually modified: it is to effect this modification that the friends of humanity ought to turn their attention. The study of the social body, which we have in view, has for its object to leave this important subject no longer to a kind of empiricism, but to offer the means of recognising directly the causes which influence society, and to measure even that influence itself.

These causes, once known, present no sudden changes, but are modified gradually. Future events may be foreseen by a knowledge of the past, or conjectures may even comprise a period of several years, without fear of experience producing results unconfined by the limits previously assigned them. Now, these limits are proportionally widened as our conjectures embrace a wider series of years.

Of the Causes which Influence Man.

The laws presiding over the development of man, and modifying his actions, are in general the result of his organisation, of his education or knowledge, means or wealth, institutions, local influences, and an endless variety of other causes, always very difficult to discover, and some of which may probably never be made out.

Of all these influencing causes, some are purely physical, others inherent in our nature. Man, in fact, possesses in himself a moral force securing to him the empire over all living beings on this globe; but their destination forms a mysterious problem, whose solution will probably escape us for ever. By means of these moral forces, man is distinguished from other animals. By means of them, also, he possesses the power of modifying, at least to appearance, the laws of nature affecting him, and perhaps by causing a progressive movement, tends to approach a happier physical condition.*

The forces which characterise man, are living forces in their nature; but do they act in a constant manner, and has man, at all epochs, possessed the same quantity—in a word, does there exist any thing analogous to the active or living forces in nature? What, moreover, is their destination? Can they influence the progress of the system, or compromise its existence? or, perhaps, like the internal forces of a system, may they not modify in something its progress, or the conditions of its stability? Analogy leads us to believe, that in the social state we may expect to find in general all the principles of conservation observed in the natural phenomena.

Plants and animals appear to obey, like the planets, the eternal laws of nature, and were it not for the intervention of man, these laws could be verified just as easily in the one case as in the other; but man exercises, both on himself and on all around, *a disturbing action*, the intensity of which takes a development in proportion to his intellect, and the effects of which are such, that society does not resemble itself at any two different epochs.

It would be important to determine, in all the laws affecting the human species, what belongs to nature and what belongs to the disturbing force of man; it appears at least certain, that the effects of this force are slow, and might almost be called *secular perturbations.* However this may be, if they really were

* [The supposed civilisation of Russia by Peter the Great, and of Prussia by Frederick II., form no real exceptions to the statements of M. Quetelet.]

* Buffon explains very well the power possessed by man in modifying nature's works:—"All these modern and recent examples prove, that man has but recently known the extent of his power, and that even yet he does not know it sufficiently; it depends entirely on the exercise of his intellect: thus, the more he observes, the more he will cultivate nature, and the more extensive will be his means to subject nature's works to himself. And what might he not effect upon himself—I mean on his own species—if the will were always governed by the judgment? Who could predict limits to the moral and physical perfectibility of human nature?" &c.—*Epoques de la Nature.*

developed with much rapidity, we could not, with the few elements we possess in respect to the past, draw important conclusions in regard to the future.

We must then do as astronomers have done in the theory of arbitrary constants—and as the early statisticians did in calculating the laws of human mortality—make an abstraction at first of the effects of the disturbing force, and return to it afterwards when a long series of documents permits us to do so.

Thus, to bring out my meaning, in calculating the different tables of mortality, the medium duration of human life has been shown to vary for different countries, and even for different provinces, though these may be quite contiguous. But these differences might depend as much on the nature of the climate as on man himself; and hence the necessity of determining what belonged to the one, what to the other. For this purpose, one might select an assemblage of circumstances proving that the forces of nature remain the same; and if the results obtained at different epochs were also identical, then follows the natural conclusion that the disturbing force of man amounted to nothing. Now, this attempt has been made, and at Geneva, for example, it has been found that the average duration of life, or the medium life, has successively become longer. Now, we are at least entitled to conclude from this the existence of the disturbing force of man, and to form the first idea of the energy of its effects on this point of the globe, so long as it is not proved that causes foreign to man may have altered the fertility of the soil, the state of the atmosphere, temperature, or given rise to some other alteration in the climate. But hitherto we know only the result of different forces, which it would be impossible to estimate individually, and of which we cannot even furnish a complete list. Thus we are disposed to believe that the forces which have prolonged at Geneva the duration of the average life of man, have arisen from the circumstances of his having improved his habitations, rendering them more healthy and more commodious; of his having ameliorated his pecuniary circumstances, his food, and institutions; of his having been able to withdraw himself from the influence of certain diseases, &c.; and it might even have happened that the disturbing force of man may have altered for the better the nature of the climate, by drainage, clearing the forests, or by other changes.

Of the Object of this Work.

The purpose of this work is to study in their effects the causes, whether natural or disturbing, which influence human development; to endeavour to measure the influence of these causes, and the mode according to which they mutually modify each other.

It is not at all my intention to propose a Theory of Man, but merely to ascertain by proof the facts and the phenomena which affect him, and to endeavour, by observation, to discover the laws forming the connecting links of these phenomena. The *social* man, whom I here consider, resembles the centre of gravity in bodies: he is the centre around which oscillate the social elements—in fact, so to speak, he is a fictitious being, for whom every thing proceeds conformably to the medium results obtained for society in general. It is this being whom we must consider in establishing the basis of social physics, throwing out of view peculiar or anomalous cases, and disregarding any inquiry tending to show that such or such an individual may attain a greater or less development in one of his faculties.

Let us suppose, for example, that we endeavoured to discover the disturbing influence of man in modifying his physical strength. By means of the *dynamometer* (measurer of strength), we may first estimate the strength of the hands, or of the loins, in a great number of persons of different ages, from infancy to extreme old age, and the results obtained in this way for a country will give two scales of forces deserving of our confidence in the direct proportion of the number of observations made, and in the care with which they have been made. By comparing at a later period these scales, obtained by the same means and under the same influences, but at different periods of time, we shall discover whether the disturbing action or influence of man has diminished or augmented the quantity of this strength. Now, it is this variation which the whole system undergoes, that it is important to point out in social physics. We may even in this way determine changes happening in the different classes of society, but without descending to individuals. A man, in consequence of gigantic height, or by herculean strength, may attract the attention of the naturalist or the physiologist; but in social physics his importance would disappear before that of another individual, who, after having ascertained experimentally the means of developing advantageously the height and strength, may succeed in putting them in practice, thus producing results either affecting the whole system or one of its parts. After having considered man at different epochs, and as belonging to different nations—after having successively ascertained the several elements of his physical and moral condition, and pointed out, at the same time, the variations in the quantity of materials which he produces and which he consumes, in the increase or decrease of his wealth, and the changes occurring in his position with respect to other nations—we must next determine the laws to which man has been subject in the different races, from their origin; that is to say, we must follow the progress of the centres of gravity in each part of the system, just as we determined the laws relating to man in each nation, by the entire mass of the observations made upon the individnals composing that nation. Under this point of view, nations would be, in respect to the social system, what individuals are in respect to nations; each would have their laws of increase and decrease, and have a share, more or less important, in the perturbations of the system. Now, it is only from the whole of the laws which relate to different races, that we can afterwards decide on what belongs, whether to the equilibrium or to the movement of the system; for we do not know at present which of these two states actually exists. What we see daily proves to us sufficiently the effects of internal actions and forces reacting on each other; but the centre of gravity of the system, if we may so say, and the direction of the movement, are unknown; it may even happen, that whilst the motion of all the parts of the system is progressive or retrograde, the centre may remain unvaryingly in equilibrio.

Perhaps we may be asked, how it can be possible to determine absolutely the value of the disturbing power of man—that is to say, the differences, more or less great, which the social system produces, from that state or condition in which he would be placed if left to the forces of nature alone? Such a problem, if it could be solved, would unquestionably be interesting, but scarcely useful, since such a condition does not exist in nature, seeing that man has at all times been in possession of an intellectual force, and has never been reduced to live merely as animals do. It is of more consequence, indeed, to determine if the effects of his disturbing power vary in a manner more or less advantageous.

From what we have said, the object of scientific research, then, should be to inquire—

1. What are the laws of human reproduction, growth, and physical force—growth of his intellectual powers, and of his disposition, more or less great, to good or evil; the laws regulating the development of his passions and tastes; the mode of succession of the materials he produces or consumes; the laws of human mortality, &c.

2. What influence has nature over man; what is the measure of its influence, and of its disturbing forces; what have been their effects for such and such a period; and what the social elements chiefly affected by them.

3. Finally, can human forces compromise the stability of the social system? I am not sure if these questions may ever be answered; but to me it seems that their solution would form some of the noblest and most interesting results of human research. Convinced of this truth, I have already made some efforts to reply to the first series of these questions; and still more, to make my ideas understood, and to point out the route which ought to be followed, I have endeavoured also to demonstrate how to detect the influencing causes, and to determine the degree of their respective actions. Whatever idea may be formed of these researches, I trust it will still be admitted, that in respect to the development of the human faculties, a great number of observations and results have been accumulated which science did not previously possess.

I wish it also to be understood, that I consider this work as but a sketch of a vast plan, to be completed only by infinite care and immense researches. I have room, therefore, for hope that the leading idea, as to the composition of the work, may be alone criticised; and that, in respect to the filling up of the details, necessarily very incomplete in some parts, from want of materials, a lenient criticism may also be vouchsafed. I have thought it my duty, however, in the suitable place, to point out these deficiencies.

On the Importance or Dignity of the Inquiries Relative to Man.

The nature of the researches in this work, and the view which I have taken of the social system, have in them a something positive, which at first sight may startle some minds. Some may be disposed to see in it a tendency to materialism; others, misunderstanding my ideas, may view them as an attempt to exaggerate the field of the exact sciences, and to place the geometrician upon ground which does not belong to him; they may reproach me for engaging in absurd speculations, and with inquiring into measures where things do not admit of being measured.

In respect to the charge of materialism, it has been reproduced so often and so regularly on every occasion when science attempted to make a new step, and when the spirit of philosophy, breaking through its ancient barriers, attempted a new road, that it seems almost superfluous at the present day to reply to it, the more especially that the fanatical spirit is no longer backed with chains and tortures. It can scarcely now be esteemed an insult to the Divinity, that man exercises the noblest of his faculties by directing his meditations towards the sublimest laws of the universe, by endeavouring to explain the admirable economy and the infinite wisdom which presided at its formation. Who would venture to accuse of dryness those philosophic minds, which have substituted for the narrow and paltry world, as known to the ancients, the knowledge of our magnificent solar system, and have so vastly removed the limits of our starry heaven, that genius can no longer guess its extent but with religious awe? Certainly, the knowledge of the wonderful laws which regulate the system of the world, gives us a much nobler idea of the power of the Divinity, than that of the world which sublime superstition wished to impose upon us. If the animal pride of man be lowered, on observing how small the spot is which he occupies upon the grain of dust of which he at one time made his universe, how much, on the other hand, ought his intelligence to be pleased at the extent of its power, shown in investigating so deeply the secrets of the heavens!

Having thus observed the progress made by astronomical science in regard to worlds, why should not we endeavour to follow the same course in respect to man? Would it not be an absurdity to suppose, that, whilst all is regulated by such admirable laws, man's existence alone should be capricious, and possessed of no conservative principle? We need not hesitate in asserting, that such a supposition, and not the researches we propose making, would be injustice to the Creative Power.

In respect to the second objection, I shall endeavour to answer it when estimating the moral and intellectual faculties of man.

BOOK FIRST.

DEVELOPMENT OF THE PHYSICAL QUALITIES OF MAN.

1. The Determination of the Average Man in General.

We have said that, in the course of our researches, the first step to be made would be to determine the average man, amongst different nations, both physical and moral. Perhaps the possibility of such an appreciation of physical qualities, which admit of direct measurement, will be granted us: but what is the course to be pursued in regard of the moral qualities? How can we ever maintain, without absurdity, that the conrage of one man is to that of another as five is to six, for example, almost as we should speak of their stature? Should we not laugh at the pretension of a geometrician, who seriously maintained that he had calculated that the genius of Homer is to that of Virgil as three to two? Certainly, such pretensions would be absurd and ridiculous. It is proper, then, first of all, to agree upon the meaning of words, and to examine if that which we aim at is possible, not in the actual state of science, but in such a state as science will some day arrive at. We cannot, indeed, demand from those who employ themselves with social physics, more than we should have done from those who foresaw the possibility of forming an astronomical theory, at a period when defective astronomical observations and false theories, or their total absence, with insufficient means of calculation, only existed. It was especially necessary to be certain of the means of performing such a task; it was afterwards necessary to collect precise observations with zeal and perseverance, to create and render perfect the methods for using them, and thus to prepare all the necessary elements of the edifice to be erected. Now, this is the course which I think it proper to pursue in forming a system of social physics. I hold that we should examine if it is possible to obtain the means of performing the desired task, and, firstly, if it is possible to determine the average man.

This determination will be the subject of the three first books of this work. We shall, first of all, consider man in a physical relation; then we shall consider him with respect to his moral and intellectual qualities.

2. Of the Determination of the Physical Qualities of the Average Man.

Amongst the elements pertaining to man, some are susceptible of a *direct* appreciation, and the numbers which represent them are true mathematical quantities: such are, in general, the physical qualities. Thus the weight and stature of a man may be measured directly, and we may afterwards compare them with the weight and stature of another man. In comparing the different men of a nation in this manner, we arrive at average values, which are the weight and stature proper to be assigned to the average man of this nation: as a sequel to such an inquiry, we might then say that the Englishman is of greater height and larger size than the Frenchman or Italian. This mode of proceeding is analogous to that pursued

grown man, that the average duration of life became rather shorter, since the sum of years which had been lived would be reduced by 39 years. We see already, that if the tables of mortality and the duration of average life were only calculated according to the observations of this year, they could not present the same identical results as for the first year. Average life would be shorter; but it is evident that society would have gained, since it preserved an useful man instead of an infant.

We conceive that, if instead of one such substitution, a greater number were made, average life, calculated according to the deaths of this year, would be found diminished in a very sensible manner; and nevertheless we should have cause to be glad at what at first appears a paradox. In fact, we should have preserved useful years to the state, in exchange for some years which are expensive to it.

But it may be objected that these 39 years are not lost to the sum of the years lived, and that the individual of 40, who has been replaced, will lengthen the average duration of life, when he dies, by the whole period which he has gained by the substitution; and, indeed, if the period of time according to which we calculate the average duration of life is also extended, so as to comprise the death of the individual in question, it is evident that this debt of 39 years has only been deferred, and that the sum of years lived is not found affected. Thus, the average life remains the same; but it is always correct to say, that even then society has been benefited, since, for a longer or a shorter time, useful years have been substituted for expensive ones.

If, by a concurrence of circumstances which civilisation ought to produce, such substitutions are made as those we have just been considering, not for one year only but for several, and if this state of things should continue increasing, we conceive that it would become impossible, still preserving the same proportional numbers of births and deaths, to preserve the same average life: it must begin to diminish. However, how is it that such extraordinary results are not met with? It is, I think, because the substitutes are never sufficiently numerous, nor their duration long enough, to leave sensible traces amidst the other influencing elements.

However, this teaches us how necessary it is to guard against the inductions which we might draw from the average duration of life, calculated from few years of observation, and among a people in progress or decay. By extending the preceding reasoning, we readily arrive at the following conclusions:—

1. A people may annually have figures of exactly the same value, as proportional numbers of births and deaths, without the average life continuing the same.

2. When, all things being equal, the mortality spares the perfect men and takes off the children, the duration of the average life diminishes, and *vice versa*: it being understood that we calculate the average life from the number of deaths.

3. The number of births, deaths, and of the average life, may preserve the same value, whilst, indeed, the population experiences great losses, or receives great benefits, which remain unobserved.

4. To estimate suitably what a population gains or loses, it is necessary, when making the division of years, to establish the average life, to take into account the *quality* of these years, and to examine whether they are *productive* or not.

When, for example, it is intended to estimate the forces which a state can command, in considering the problem in a purely physical point of view, as has been done, it appears to me that the most certain way would be, to compare the number of useful men with those who are not so. The elements of comparison, in this case, would require to be extracted from the tables of mortality, or rather from accurately constructed tables of population; and it would be necessary to inquire how many children there are, not in a condition to be useful, in a given number of individuals, and how many of the old men contribute to the benefit of society: we might divide a population into two parts, the one being less, and the other more than 15 years of age. I allow that I here suppose that a man cannot render himself more useful at 30 or 40 than at 16 or 80; but this is an inconvenience which we also find in other methods of valuation, and which, moreover, we might cause to disappear, by attributing more importance to certain years of life than to others, if extreme accuracy did not become illusory in such a case. To give us a somewhat accurate idea at first, of the manner in which the population is composed, I have here collected the most accurate data from some of the principal countries previously considered. We shall find the numbers classed separately belonging to the two categories which I have established between productive individuals and those whose maintenance may be considered as a charge to society.

Ages.	Great Britain: 1821. Marshall.	Ireland: 1821. Marshall.	England: 1821. Marshall.	England and part of Wales: 1813 to 1830. Rickman.	France: before 1789. Annuaire.	Belginm: 1829. Annuaire.	Sweden: 1820. Marshall.	United States: 1830. Marshall.
Below 5 years,	1647	1535	1472	1487	1201	1297	1307	1800
5 to 10 ··	1385	1355	1300	1307	981	1089	1010	1465
10 to 15 ··	1209	1218	1119	1114	939	946	894	1243
15 to 20 ··	1046	1219	1000	992	897	883	899	1112
20 to 30 ··	1558	1760	1583	1574	1638	1630	1711	1781
30 to 40 ··	1180	1150	1176	1181	1404	1341	1362	1091
40 to 50 ··	878	771	931	934	1161	1017	1087	688
50 to 60 ··	545	600	663	659	892	793	855	430
60 to 70 ··	348	273	460	456	577	604	596	253
70 to 80 ··	160	96	227	226	255	279	240	110
80 to 90 ··	40	23	62	63	50	66	41	31
90 to 100 ··	3·4	3	5·5	5	4·3	4·9	1	4
Above 100 ··	0·1	0·5	0·3	0·2	0·2	0·1	0	0·2
Below 15 years,	4241	4109	3891	3908	3121	3332	3211	4496
Above ··	5758·5	5895·5	6105·8	6092·2	6879	6668	6782	5500·2
Ratio, - -	1·36	1.43	1·57	1·56	2·20	2·00	2·11	1·22

The results of this table, although in some degree foreseen, surprised me very much. I confess I did not expect to find so great a difference between the numbers of France, Belgium, Sweden, and those of England and the United States. In the former countries, the adult population is double the other, whilst in the latter it is only one-fourth or one-third more. The United States, especially, appear to be in an extremely unfavourable condition, since they, of all countries we have been considering, present the fewest adults in the population.

The great disproportion which has been pointed out, is more especially owing to the rapid increase of population in England and the United States of late years: the greater number of the individuals proceeding from this great development of fecundity, are still little advanced in the career of life; so that there will be a greater number of persons not adults. The prodigious increase of population which has been observed in the United States, has taken place within little more than 30 years; we also see that the number of individuals under this age is comparatively superior to that of other countries. It is the same in England and Ireland in ascending from 20 to 30 years: Sweden, France, and Belgium, on the contrary, present populations which have slowly increased, and which may thus pretty well represent the usual proportion of adults in ordinary times.

I do not think that, up to the present time, sufficient attention has been paid to the great number of children which too rapid an increase of population throws into a country, and the smaller intrinsic value which this population momentarily receives from it, which must be a very powerful obstacle to ulterior development.

In France, Belgium, and Sweden, for example, of three inhabitants, two at least are in a state for reproduction, whilst in the United States only one in two, or more accurately, six out of eleven.

In conclusion, it is production which regulates the *possible limit* of the inhabitants of a country. Civilisation narrows this limit, and tends to increase the produce which belongs to each individual, so as to increase his well-being, and secure him the means of existence. As to medicine, it is limited to close certain passages to the tomb, but only by enlarging others; for it cannot increase the list of the living, except in causing the supernumeraries to live at the expense of society. "Esculapius himself could not, by his art, confer immortality on one-half of men, except by condemning them to abstain from reproduction, unless by doubling the mortality of the other half, or by pushing production to the point of supplying the new wants which would arise."* Yet it would be also misrepresenting the immense benefits which have accrued to humanity from medicine, to deny its power in lengthening the average life of man; but this grand conquest, due to the progress of knowledge, can only be maintained by the knowledge and foresight of men, who prevent, by celibacy, new births and new food for death.† When there takes place no sudden change, nature annually levies upon us the same tribute of deaths, from which each of us seeks as much as possible to withdraw: each is desirous to belong to the privileged class; but the effect of this kind of fraud is not so much to diminish the amount of tribute, as to transfer it to those of our neighbours who are less favourably placed in their social position.‡

The average duration of life, could it be ascertained exactly, would furnish us with a measure of the prudence and hygienic state of a country: the consumption of the inhabitant would give the state of civilisation and the exigencies of climate; and the proportional number of inhabitants, keeping in view this latter measure, would give that number which represents its production.*

* ["Esculape lui-même ne pourrait, par son art, donner l'immortalité à la moitié des hommes, qu'en les condamnant à ne point se reproduire, à moins de doubler la mortalité de l'autre moitié, ou de porter la production au point de fournir aux nouveaux besoins qu'il aurait fait naître."]

† By prolonging the average duration of life, the medical sciences substitute useful years for unproductive ones. The adult man has a longer career, produces more, and society has fewer infants to feed; so that, in this point of view, medical sciences really increase production and render a new service. This remark was made to me by a friend, and I mention it here because I believe it to be true.

‡ M. Villermé has observed to me, whilst this work was in the press, that he has advanced the same idea, but under another form, in his work on epidemics.

BOOK SECOND.

DEVELOPMENT OF STATURE, WEIGHT, STRENGTH, &c.

Apparently but little interest is attached to the determination of the stature and weight of man, or to his physical development at different ages; nor, until the present time, has any one particularly attended to this subject. Man has only been studied in his most conspicuous relations; the correlative study of his qualities, and the numerical determination of the modifications which are consequent upon age, have been neglected. This state of things leaves immense voids in science, and the result is that we generally want the necessary means for solving a great number of interesting questions, especially relating to the natural history of man. For example, we are almost totally ignorant of the ratios which may exist between the laws of development of his different faculties, and what are the elements which predominate at such or such an age: hence the critical periods of life can only be determined in a very indefinite manner.

The researches which have been made to measure the height and weight of man, especially relate either to the period of birth or to the period of complete development; but the intermediate ages have scarcely been attended to. Physiologists have connected the first of these determinations with a question in legal medicine; they have even anticipated the period of birth, and sought to value the size and weight of the fœtus. Natural philosophers, who studied man as a mechanical agent, have rather been occupied with the determination of his weight when he has acquired complete development. La Hire has made some very remarkable researches of this kind, which prove that the subject now occupying us has a much deeper interest than that resulting from mere curiosity.

To show how little advanced is the state of the study of the progressive development of man, let us suppose that we want to establish the age of an individual, from the aggregate of his physical qualities: we may be allowed to say, that we shall not find in science any assistance for the determination of this question—we shall be reduced to mere empirical conjecture. However, legal medicine presents numerous examples where such determinations become necessary. We may ask, no doubt, if it will ever be possible to obtain them, especially for advanced ages? This fear, well founded as it may appear, ought not, however, to lead us to reject such researches: that would not be very philosophic. If to the data furnished by the habit of observation, and the *tact* resulting therefrom, we can join physical qualities susceptible of measurement, prudence bids us not neglect them. When a physician is called to examine the body of an infant found lifeless, and when, in a legal inquiry, he, from simple inspection, establishes the presumed age of this child, it is evident that he cannot but impose his judgment on those who read the inquiry, however erroneous it may other-

* M. Chitti, who makes *social economy* consist in obtaining the greatest possible utility, with the least possible labour, has given the following measure of riches:—"The degree of the riches of a people, as well as those of an individual, is indicated by the ratio between the sum of the wants and the sum of the available funds which he possesses to satisfy them."—*Cours d'Economie Sociale au Musée de Bruxelles, 3d Lecture.*

wise be, since there are no elements existing for the verification of it. If, on the contrary, to the assistance of the estimate which has been made of the age, is joined the height and weight of the child, and some other physical qualities susceptible of computation; and if, moreover, there were exact tables which might enable one to ascertain, at different ages, the values of these physical qualities, and the limits within which they are found connected in individuals regularly formed, the judgment given of the age would be capable of verification—it would even become useless, if the elements of verification admitted of great accuracy. Such appreciations, then, ought not to be neglected by legal medicine, since they tend to substitute precise characters and exact data for conjectural estimates, which are always vague and often faulty.

Thus, apart from the interest which is presented by the determination of man at different ages, and in researches relating to the average man, it may present another important element, as we shall see more perfectly farther on, for the solution of the following problem of legal medicine: *To determine the age of an individual after death, from the aggregate of his physical qualities.* In this sense, weight would be one of the elements which it would be necessary to connect with the distinguishing of individuals; and this physical character naturally takes a place near that of the stature.

Researches on the height of man, and on his development, may have another useful end, that of enlightening governments on many points; as, for example, as regards the fixing of the age of recruits.

There is another element, the determination of which is equally important, and which, also, is but little known, namely, the strength. I do not flatter myself that I have filled up the voids which science presented on this subject, but I shall think myself happy if my researches may induce other persons to attempt it.

CHAPTER I.

OF THE DEVELOPMENT OF THE HEIGHT.

I DO not think that, before Buffon, any inquiries had been made to determine the rate of human growth successively from birth to maturity; and even this celebrated naturalist cites only a single particular example; neither has he examined the modifying influences which age exerts on height. The only researches at all precise which science possesses, refer to the length of the child before birth, and to that of the fully developed man.*

Chaussier, who invented the *mecometre*, an instrument adapted to measure the length of children, thought that we might view as regular the increase in length of the child for six months before its birth; and he estimated this increase at two inches per month. In the *Dictionnaire des Sciences Medicales*, the length of the fœtus is estimated by the following numbers:—

	Metres.
At birth,	0·487 to 0·541
One month before birth,	0·433 to 0·487
Two months	0·379 to 0·433
Three months	0·300 to 0·379
Four months	0·216 to 0·300
Five months	0·162 to 0·216 †

The medium length of the child at birth would then be 0·514 metres: this estimate differs but slightly from that obtained at the Foundling Hospital in Brussels, by means, also, of Chaussier's *mecometre*. On measuring the length of fifty male and as many female children immediately at birth, the following numbers were obtained:*—

Length.	Boys.	Girls.	Total.
From 16 to 17 inches French,	2	4	6
" 17 to 18 "	8	19	27
" 18 to 19 "	28	18	46
" 19 to 20 "	12	8	20
" 20 to 21 "	"	1	1
	50	50	100

With regard to the mediums or averages and the limits, they have given the following values for the two sexes:—

Value.	Boys.	Girls.
Minimum,	16 inches 2 lines. †	16 inches 2 lines.
Medium,	18 " 6 " nearly.	18 " 1½ " nearly.
Maximum,	19 " 8 "	20 " 6 "

From these results it follows, that, from the period of birth, the height or length of one sex is superior to the other; being, for boys, 0·4999; for girls, 0·4896; giving thus in favour of boys a trifle less than half an inch.

By uniting these numbers to those which have been obtained in the junior schools of Brussels, the Orphan Hospital, boarding-houses, and in public life, in respect to young persons of different classes, I have been able to construct the following table, comprising the rate of growth from birth to 20 years: the height of the shoe is not included:—

Table showing the rate of Growth in the two Sexes.

Ages.	Boys.	Girls.	Difference.
	metres.	metres.	metres.
Birth,	0·500	0·490	0·010
1 year,	0·698	"	"
2 years,	0·796	0·780	0·016
3 "	0·867	0·853	0·014
4 "	0·930	0·913	0·017
5 "	0·986	0·978	0·008
6 "	1·045	1·035	0·010
7 "	"	1·091	"
8 "	1·160	1·154	0·006
9 "	1·221	1·205	0·016
10 "	1·280	1·256	0·024
11 "	1·334	1·286	0·048
12 "	1·384	1·340	0·044
13 "	1·431	1·417	0·014
14 "	1·489	1·475	0·014
15 "	1·549	1·496	0·053
16 "	1·600	1·518	0·082
17 "	1·640	1·553	0·087
18 "	"	1·564	"
19 "	1·665	1·570	0·095
20 "	"	1·574	"
Growth terminated,	1·684	1·579	0·105

We observe by this table that, towards the age of 16 to 17, the growth of girls is already, *relatively*, almost as much advanced as that of boys from 18 to 19.‡ Moreover, the annual growth for boys is about 56 millimetres [somewhat more than two inches] between 5 and 15 years of age; whilst for girls it is only about 52 millimetres [or rather less than two inches.] In the *Dictionnaire des Sciences Medicales*, in the article *Giants*, M. Virey attributes the lower stature of woman to the circumstance of her arriving sooner at the age of puberty, or having reached perfection, and also to her having less vital energy. We may add, that her annual growth, up to the age of puberty, is also less rapid than that of man.

* I have been greatly aided in numerous researches into the height, weight, strength, and other physical qualities of man, by Messrs Guiette and Van Esschen, Professors in the School of Medicine at Brussels, as well as by M. Plataw. Without their assistance, it would have been impossible for me to have obtained all the measurements in the various charities, hospitals, public schools, Prison of Vilvorde, &c.

† [The French line is equal to the 12th part of an inch.]

‡ [The proposition may be easier understood by stating it in this way: A girl is relatively as tall at 16 as a boy is at 18, the sex and full growth of each being taken into account.]

* See on this latter subject an excellent memoir of M. Villermé, inserted in the first volume of the *Annales d'Hygiène*.

† [The French metre is equal to 3 feet English and ·2808 of a decimal; or 3 feet and 2·10ths.]

After having spoken of what relates to the sexes, it must be interesting to consider the influence of a town or a country residence upon human growth. Already Dr Villermé, in the second part of the *Annales d'Hygiène*, had proved, contrary to the generally received notion, that the inhabitants of towns are taller than those of the country. I have arrived at the same conclusion in respect to the inhabitants of Brabant. Extracts from the government militia registers, which I communicated at that time to Dr Villermé, were published in the fifth number of the *Annales d'Hygiène*; they gave the following numbers:—

Arrondissements.	1823.	1824.	1825.	1826.	1827.	Average.
	metres.	metres.	metres.	metres.	metres.	metres.
1. Brussels,	1·6719	1·6640	1·6631	1·6647	1·6528	1·6633
1. Rural Communes,	1·6325	1·6317	1·6343	1·6353	1·6296	1·6325
2. Louvain,	1·6424	1·6349	1·6399	1·6460	1·6335	1·6393
2. Rural Communes,	1·6296	1·6229	1·6090	1·6145	1·6127	1·6177
3. Nivelles,	1·6398	1·6446	1·6581	1·6384	1·6330	1·6428
3. Rural Communes,	1·6264	1·6260	1·6409	1·6431	1·6053	1·6323
Annual Averages. Cities,	1·6814	1·6478	1·6537	1·6497	1·6398	1·6485
Annual Averages. Rural Communes,	1·6295	1·6269	1·6280	1·6309	1·6225	1·6275
General Average,						1·6380

The averages of each year were taken from 400 individuals for Brussels, and from 150 for Louvain and Nivelles. Those of the rural parishes were deduced from 400 individuals for each district. Thus, the general average for the whole province was drawn from 3500 individuals living in towns, and from 6000 living in the country.

By these numbers, we see that the inhabitant of towns is taller than the inhabitant of the country; and in arranging the cities and rural districts according to the respective height which man attains in them *in his nineteenth year*, the order would be as follows:—Brussels, Nivelles, Louvain; and the same order for the rural districts around these towns. In spite of the differences we have thus remarked as taking place at the age of 19, it might still happen that the inhabitant of the country might attain a greater height than the inhabitant of the town previous to the completion of his full growth, in such a way that the growth of man in cities might be at first more rapid up to a certain point than in the country, and might even be nearly terminated in cities, whilst in the country the growth would be very far from having attained its complete development. And these remarks coincide pretty nearly with the deductions of Dr Villermé, in respect to the height of man in France. The doctor remarks, that "human height becomes greater, and the growth takes place more rapidly, other circumstances being equal, in proportion as the country is richer, the comfort more general, houses, clothes, and nourishment better, and labour, fatigue, and privations during infancy and youth less; or, in other words, the circumstances accompanying misery put off the period of the complete development of the body, and stint human stature."

It becomes, then, important to determine the epoch at which human growth terminates; and the government registers for Brussels, being examined with this view, gave the following results. These registers refer to a great levy made about eighteen years ago; I have divided them into three series, each comprising 300 individuals:—

19 Years.	25 Years.	30 Years.
1·6630 metre.	1·6822 metre.	1·6834 metre.
1·6695 "	1·6735 "	1·6873 "
1·6620 "	1·6692 "	1·6817 "
Medium, 1·6648 "	1·6750 "	1·6841 "

Thus we see that human growth,* as regards height, does not terminate at 19, or even invariably at 25. I have to regret exceedingly that the state of the government registers does not allow of my making similar researches in regard to the inhabitants of the country; we might then have known if the growth in towns terminates more rapidly than in the country, and also if man, when fully developed, is tallest in the country.

When we class the 900 individuals of whom I have spoken above, in the order of their height, we come to the following results:—

Heights.	Number of Individuals		
	of 19 Years.	of 25 Years.	of 30 Years.
From 15 to 16 decimetres,	32	17	15
" 16 to 17, "	173	174	163
" 17 to 18, "	92	103	109
" 18 to 19, "	3	5	12
" 19 to 20, "	"	1	1
	300	300	300 *

Thus, at 19, 3 individuals only were more than 18 decimetres [above 5 feet 10 inches] high; at the age of 25, there were 6; and at the age of 30 there were 13.† It seems to me that we are entitled to conclude, from the whole of these results, that human growth, in respect to height, does not terminate in Brussels even at the age of 25, which is very much opposed to the generally received opinion.

According to M. Hargenvilliers,‡ the average height of conscripts of 20 years, taken for all France, is 1·615

* [The translator had observed some years ago, that the male human height had evidently not attained its maximum previous to at least 30 years of age, and probably not even then. This he was led to remark by observing large numbers of students, who, leaving college at the age of 20, 21, or 22, have returned seven or eight years afterwards. Examination proved that these persons had grown very considerably, not only in breadth but also in height.]

* [The value of the decimetre in English measures is 3 inches and ·937 decimal parts, or nearly 4 English inches.]

† In the preceding numbers were comprised the men who were rejected, or had leave to withdraw from the corps, as of under size.

‡ *Inquiries and Considerations on the Formation and Recruitment of the French Army*: 1817. M. Villermé, in his Memoir on the Height of Man in France, quotes the opinion of Tenon and also some facts, which show that, during the time of the Empire, continual wars had lowered the human stature.

[A question naturally arises here, whether the stature was actually lowered, or the young conscripts merely called on before their time of full development; but the remark of Dr Villermé suggests other considerations, well worthy the attention of statisticians—such, for example, as the effects produced in Prussia, by the maintaining of a standing army of somewhat more than 200,000 men in time of peace, it being admitted that these are the finest and best proportioned men in the kingdom. For we have first the withdrawal of the very choicest of the male population from the exercise of the arts and the cultivation of science, at precisely that period of life when they are best fitted for such pursuits; and, secondly, the effects upon the population in respect to the restraints upon marriage, and the preference given by the soldier to a debauched and irregular life. The same remarks, modified, apply to all other European nations, none of them being without standing armies of greater or less magnitude.]

metre [4 feet 10 inches nearly]; and of 100,000 there were as follows:—

Under 1·570 metre,	20,620
1·570 to 1·598 ..	11,580
1·598 to 1·624 ..	13,990
1·624 to 1·651 ..	14,410
1·651 to 1·678 ..	11,410
1·678 to 1·705 ..	9,780
1·705 to 1·732 ..	5,530
1·732 to 1·759 ..	3,190
Above 1·759 ..	2,490
	100,000

We might consider the inhabitants of the ancient department of Bouches-de-la-Meuse, which was partly formed of Holland, and of which the Hague was the chief place, as affording the limits of the statures observed in France from the time of the Empire. The average height of conscripts for the years 1808, 1809, and 1810, raised before the age of 20, was 1·677 metre.* On the other hand, in the ancient department of the Apennines, of which Chiavari was the chief place, the country mountainous, without industrious occupations, extremely poor, and where the men toil from a very early age and are ill fed, the average stature of the conscripts for the same three years, was 1·560 metre. "The difference of these results," says M. Villermé, "is striking. In the former place, where the stature is highest, there were but few excused or rejected even for diseases; on the contrary, in the latter place, where the stature is very low, there are many excused even for this latter cause; so that all the advantages are in favour of men of high stature."†

It is remarkable that the inequality of statures is not merely observed between the inhabitants of town and country, but is also felt in the interior of towns between individuals of different professions, and having different degrees of affluence, as M. Villermé has shown for the different arrondissements of Paris, where the stature of men seems to be, all other things being equal, in proportion to the good fortune, or at least in inverse proportion to the difficulties, toils, and privations experienced in infancy and youth.‡ Of 41 young persons between 17 and 20 years of age, measured at the Athenæum of Brussels, 13 were found between 16 and 17 decimetres, 26 between 17 and 18 decimetres, and 2 between 18 and 19 decimetres; so that the young persons between 17 and 18 were double the number of those between 16 and 17 decimetres; whilst, in the interior of the town, the number of the former is not equal to the latter, even at the age of 30 years.

The young girls measured in the Female Orphan Hospital of Brussels, and who, during their infancy, have been brought up in the country, are generally smaller than girls of the same age, in easy circumstances, who have been measured in town.

In the Prison (*Maison de Détention*) of Vilvorde, by forming three groups, each of 23 individuals for each sex, the average results have been—

	For men.	For Women.
	1·657 met.	1·572 met.
	1·664 ..	1·581 ..
	1·670 ..	1·585 ..
General average,	1·664 ..	1·579 ..

* Sur la Taille, &c.

† [The translator is firmly persuaded that Dr Villermé and M. Quetelet, have failed to detect the real cause of difference of stature in those two departments: it is a question purely of *race*, and not of feeding or locality. The taller conscripts were Saxons, drawn from the departments of Holland and the Mouths of the Meuse; the shorter conscripts, found in the Apennines and around Chiavari, were the descendants of the ancient Celtic population of that country. The difference in stature, then, depends, in this instance, in a great measure on the difference in blood, or on the race of men: it has existed for thousands of years, and will continue so, altogether independent of locality, feeding, or government.]

‡ Annales d'Hygiène, No. 2, p. 370.

Classing them according to size, we find—

Sizes.	Men.	Women.
From 14 to 15 decimetres,	1	3
.. 15 to 16 ..	6	36
.. 16 to 17 ..	42	27
.. 17 to 18 ..	19	3
.. 18 to 19 ..	1	..
	69	69

These results show that the prisoners were generally shorter than fully developed individuals measured in Brussels; their average stature being nearly equal to that of young persons of 19 years of age, and it may correspond with the average stature of the inhabitants of the province.

With the view of appreciating the modifications which painful toil in manufactories may produce on the development of children, Mr J. W. Cowell has made different observations at Manchester and Stockport; he has inserted the details in the first volume of *Factory Reports*, and has kindly assisted me in obtaining the results, which I have reduced to the métrical measure. The girls and boys have been measured with their shoes on; no deduction has been made for this circumstance: but, as the observations were made on the Sunday, the thickness of the soles for boys would probably be from one-half to one-third of an inch (English), and for girls from one-eighth to one-sixth of an inch. This being laid down, the following are the values obtained:*—

Average Stature of Children of the Lower Orders, at Manchester and Stockport.†

Ages.	Boys		Girls	
	Working in Factories.	not Working in Factories.	Working in Factories.	not Working in Factories.
	metres.	metres.	metres.	metres.
9 years,	1·222	1·233	1·218	1·230
10 ..	1·270	1·266	1·260	1·254
11 ..	1·302	1·296	1·299	1·323
12 ..	1·355	1·345	1·364	1·363
13 ..	1·383	1·396	1·413	1·399
14 ..	1·437	1·440	1·467	1·479
15 ..	1·515	1·474	1·486	1·502
16 ..	1·565	1·605	1·521	1·475
17 ..	1·592	1·627	1·535	1·542
18 ..	1·608	1·775	1·593	1·645

It appears, from these numbers, that the statures of male and female children do not differ much in Belgium and England: we also see that, until the age of puberty, there is no great difference in size of the children of the lower orders, whether they work in factories or not. But for the latter years of the table, there is a very sensible difference. Will it be found that the growth in factories, after puberty, is diminished, or only retarded? or, which seems more probable, does not the amelioration remarked for the lower ages proceed from the useful changes which have already been made, from the apprehension of parliamentary inquiries?‡

When, in England, we chose the terms of comparison from rather higher classes of society, we find the stature of men higher than in France or the Low

* [It has been suggested to the translator, by a gentleman well acquainted with the manufacturing districts of Yorkshire and Lancashire, that wooden clogs, and not shoes, seemed almost universally worn by the manufacturing population of these counties, more especially of Lancashire. Now, the soles and heels of these clogs are of great thickness: a question then arises with respect to Mr Cowell's measurements. If this class of the population wear clogs on Sundays, this circumstance may partially affect the value of Mr Cowell's statements.]

† The number of children measured was—factory boys, 410; others, 227: female factory children, 652; others, 201. Very few non-factory children, of the ages of 16, 17, and 18, have been measured.

‡ It has been found, by this inquiry, that in some districts the children were forced to work standing upright, with the legs fastened in tin pipes.

Countries, at least for young persons between 18 and 23 years of age. The following are the results of 80 measurements made on students of the University of Cambridge, in groups of 10 each:*—

Ten individuals,	58 feet 3¼ inches.
..	58 .. 6½ ..
..	58 .. 9 ..
..	57 .. 7¼ ..
..	56 .. 9½ ..
..	57 .. 9¼ ..
..	58 .. 3 ..
..	58 .. .. ..
Average,	58
Height of one person,	5 feet 9 3-5th inches.

I have enumerated different causes which influence the growth of man in town, but their number increases when the researches embrace a large extent of territory; thus, the complete development of stature stops more suddenly in very hot or very cold countries than in those of a moderate temperature; more suddenly in low plains than on mountainous heights, where the climate is severe. The kind of food and drink farther influence growth; and individuals have been known to grow considerably by changing their mode of life, and making use of moist food calculated to distend and increase their organisation. Some diseases, and particularly fevers, may also excite rapid and extraordinary growth. The case of a young girl is related, who, becoming unwell (*pendant ses menstrues*) by an attack of fever which she had, acquired a gigantic stature.† Lastly, it has also been remarked that lying in bed is favourable to growth, and that a man in the morning is somewhat taller than in the evening; during the day, he undergoes a degree of depression.‡

I shall now pass to a more particular examination of the law of growth of man, from birth to complete development. The numbers on which my results are based, have been collected at Brussels, and as much as possible from individuals of different classes: by the side of the observed values, I have written down the calculated ones, according to an empirical formula, which I shall explain subsequently.

* It is a custom at Cambridge to measure and weigh the young persons coming to the university, with great accuracy, at a merchant's warehouse, where a book is kept for the purpose of entering the data. It is from this book that, through the kindness of Mr Whewell, the accompanying numbers have been taken.

† See *Dictionnaire de Medicine*, article *Geant*, by Virey.

‡ [M. Quetelet has unaccountably omitted, in the above paragraph, the great cause productive of differences in stature of men and animals—to wit, difference in race or blood. The diminutive Bosjeman of Southern Africa, the athletic Caffre, reaching the full European stature, and the gigantic Boor, the descendant of the Saxon race, are as nearly alike in respect to food and climate as may be; the extraordinary differences, therefore, which these men present, are ascribable to one cause alone—a difference of blood or origin; and the historic evidence derived from ancient Rome, and from the equally authentic figures depicted in the tombs of Egyptian Thebes, prove that these differences caused by blood or race are now neither greater nor less than they were at least 4000 years ago, thus, as it were, setting at defiance all minor causes, such as food, climate, localities, &c. Whether the Hun resides in the fertile plains of Hungary, the shores of the Caspian, or the frozen regions of Scandinavia or of Lapland, the general stature of the race remains perfectly unaltered.

In respect to what M. Quetelet observes regarding the influence of rest and horizontal position on the stature, it is a fact well established that, by such a position, in bed for example, the elastic fibro-cartilages connecting the spinal bones together, seem to recover their full depth, and the stature may gain an inch or more thereby. Recruits for the army and deserters avail themselves of a knowledge of this fact, and occasionally succeed in making their identity difficult to be established.]

Table of the Growth of Man.

Ages.	Stature Observed.	Stature from Calculation.	Difference.
	metres.	metres.	metres.
Birth,	0·500	0·500	0·000
1 year,	0·698	0·698	0·000
2 ..	0·796	0·791	+ 0·005
3 ..	0·867	0·864	+ 0·003
4 ..	0·930	0·928	+ 0·002
5 ..	0·986	0·988	— 0·002
6 ..	1·045	1·047	— 0·002
7 ..	..	1·105	..
8 ..	1·160	1·162	— 0·002
9 ..	1·221	1·219	+ 0·002
10 ..	1·269	1·275	+ 0·005
11 ..	1·334	1·330	+ 0·004
12 ..	1·304	1·385	— 0·001
13 ..	1·431	1·439	— 0·008
14 ..	1·489	1·493	— 0·004
15 ..	1·549	1·546	+ 0·003
16 ..	1·600	1·594	+ 0·006
17 ..	1·640	1·634	+ 0·006
18 ..	..	1·658	..
19 ..	1·665	1·669	— 0·004
25 ..	1·675	1·680	— 0·005
30 ..	1·684	1·684	0·000

I have endeavoured to render the preceding results *sensible* by the construction of a line, which indicates the growth at different ages, but in one-tenth of the real proportions.

Thus, supposing that the new-born infant sets out from the point *o*, and proceeds along the axis *o*A, reaching in succession the points I., II., III., IV., &c., at the age of 1, 2, 3, 4, &c., years, his head will always be at the height of the curve *o*B, at the different points 1, 2, 3, 4, &c. We see that—

1. The most rapid growth takes place immediately after birth: the child in the course of one year grows 2 decimetres [7 8-10th inches] nearly.

2. The growth of a child diminishes as its age increases, until towards the age of four or five years, the period at which it reaches the maximum of probable life. Thus, during the second year after birth, the growth is only one-half of what it was during the first; and during the third year, only about one-third.

3. Proceeding from the fourth or fifth year, the increase of stature becomes almost exactly regular until about the sixteenth year, that is to say, until the age of puberty, and the annual increase is 56 millimetres [2 2-10th inches] nearly.

4. After the age of puberty, the stature still continues to increase, but only inconsiderably: from the sixteenth to the seventeenth year, it increases 4 centimetres [1 5-10th inches]; in the two succeeding years, it only increases 2½ centimetres [or a little less than 1 inch; in exact numbers, 0·984].

5. The full growth of man does not appear to be attained at his twenty-fifth year.

In what has just been said, I have only spoken of absolute growth: if we compare the annual growth with the stature already acquired, we shall find that the child increases in size two-fifths from birth to the end of the first year; during the second year, one-seventh; during the third year, one-eleventh; during the fourth year, one-fourteenth; during the fifth year, one-fifteenth; during the sixth year, one-eighteenth, &c.; so that the relative growth is continually decreasing from the time of birth.

The curve representing the growth of females, would be a little under that of males, and would be nearly equidistant from it, until the age of eleven or twelve years, when it tends more rapidly to become parallel to the axis *o*A.

It remains for me to speak of the formula by which I have calculated the numbers shown in the table given above. Letting the co-ordinates y and z represent the stature and the age corresponding to it, we have the following equation:—

$$y + \frac{y}{1000\,(T - y)} = ax + \frac{t + x}{1 + \frac{6}{5}x};$$

t and T are two constants which indicate the stature of the child at birth, and that of the fully developed individual: their values for Brussels are 0·500 and 1·684 metre. The coefficient a of the first term in the second number, will be calculated according to the different localities, from the regular growth which annually takes place between the fourth and fifth, to the fifteenth or sixteenth year: for Brussels, its value has been made equal to 0·0545 metre. I think that, in giving these three constants, we may use this formula with considerable advantage for other localities.

If we make $t = 0{\cdot}49$ metre, $T = 1{\cdot}579$ metre, $a = 0{\cdot}052$ metre, agreeably to the observations above quoted for calculating the law of the growth of women for Brussels, we shall have—

$$y + \frac{y}{1000\,(1{\cdot}579 - y)} = 0{\cdot}0521\,x + \frac{0{\cdot}49 + x}{1 + \frac{x}{3}}.$$

By using this formula, I have calculated the numbers which appear in the third column of the following table:—

Law of the Growth of Woman.

Ages.	Stature Observed.	Stature Calculated.	Difference.
	metres.	metres.	metres.
Birth,	0·490	0·490	0·000
1 year,	..	0·690	..
2 ..	0·780	0·781	— 0·001
3 ..	0·853	0·852	+ 0·001
4 ..	0·913	0·915	— 0·002
5 ..	0·978	0·974	+ 0·004
6 ..	1·035	1·031	+ 0·004
7 ..	1·091	1·086	+ 0·005
8 ..	1·154	1·141	+ 0·013
9 ..	1·205	1·195	+ 0·010
10 ..	1·256	1·248	+ 0·008
11 ..	1·286	1·299	— 0·013
12 ..	1·340	1·353	— 0·013
13 ..	1·417	1·403	+ 0·014
14 ..	1·475	1·453	+ 0·022
15 ..	1·496	1·499	— 0·003
16 ..	1·518	1·535	— 0·017
17 ..	1·553	1·555	— 0·002
18 ..	1·564	1·564	0·000
19 ..	1·570	1·569	+ 0·001
20 ..	1·574	1·572	+ 0·002
Growth terminated,	1·579	1·579	0·000

The differences between the observed numbers and the calculated ones, are greater than in the table (already given) of the growth of man. It may be owing to the circumstance, that the observations have been less numerous, and made on fewer of the different classes of society, for the one sex than for the other. What appears to give additional support to my conjecture is, the manner in which the positive and negative signs succeed each other in the differences of the observed and calculated numbers. Moreover, it is remarkable that the formula may be entirely determined, when we have been enabled to give the statures of an individual corresponding to three different ages, sufficiently distant from each other.

Although the equation of which I have availed myself in the calculations, is of the third order, it resolves itself, like those of the second, into an unknown one, when we give the successive values of the other. Considered as belonging to a curve, it points out to us that there still exists another branch than the one we are occupied with; for to each value of the abscissa x, there are two values of y.

The curve of growths oB has an asymptote parallel to the axes of the abscissæ, situate at a distance from this axis equal to T, which is the height of man fully developed; moreover, this curve, proceeding from the point o, which corresponds to birth, towards the thirteenth or fourteenth years, is sensibly confounded with an hyperbola; for in these limits, the second term of the first order is so small as to be considered nothing, so that we shall have—

$$y = ax + \frac{t + x}{1 + \frac{x}{3}}.$$

The curve oB does not merely indicate the growth of man from birth to complete maturity, but also those of the other side of the axis Oo; that is to say, for the months which precede birth, the results which it presents are conformable to those observed with regard to the fœtus. This concordance is not always manifested until towards the fifth or sixth month before birth, which is the age at which the embryo becomes a fœtus. It is, moreover, true, that before this period the child is in a state which hardly yet appears to belong to human nature. The curve singularly represents this state, if we give any significance to it; for between five and six months before birth, it suddenly passes under the axis oA, and the values of statures, positive as they were, become negative: the curve in the negative region is lost in infinity, approaching an asymptote which corresponds to a value of $x = -\frac{3}{4}$; or, in other words, at nine months before birth, the period of conception. Without occupying ourselves with the stature of the infant while it is still an embryo, or altogether unformed, if we confine our calculations to the growth of the fœtus about five months before birth, we shall find the following results, by the side of which are written the results of measurements given in the *Dictionnaire des Sciences Medicales*:—

Age of the Infant.	Stature Calculated.	Stature Observed.
	metres.	metres.
Birth,	0·500	From 0·487 to 0·541
1 month before birth,	0·464	.. 0·433 to 0·487
2	0·419	.. 0·379 to 0·433
3	0·361	.. 0·300 to 0·379
4	0·281	.. 0·216 to 0·300
5	0·165	.. 0·162 to 0·216

The calculated values fall, for each month, between the limits of the results of the observations. Moreover, it is well to observe that these results do not carry the same degree of exactness as those obtained after birth, because of the uncertainty of the period of conception, as well as the varying duration of pregnancy. What is most important for us to observe here, in my opinion, is the law of continuity which exists for the growth of the child immediately before and after birth. Admitting the approximative calculations of M. Chaussier, it will be found that *the fœtus increases almost as much in length in one month, as a child between six and sixteen years does in one year.*

In what has preceded, I have endeavoured to point out how the development of the stature of man and woman takes place: it now remains for me to say some words on the diminution which this element undergoes by age. From a great number of observations, of which we shall make greater use when speaking of the corresponding diminution of weight, it appears that it is chiefly towards the fiftieth year that the decrease becomes most apparent, and towards the end of life it amounts to about 6 or 7 centimetres [2 3-10th inches, or 2 6-10th inches]. From the number of individuals who have been measured, those have been carefully excluded who were much round-shouldered, or who could not make themselves straight during the observation.

Ages.	Stature of Men.	Stature of Women.
40 years,	1·684 metre.	1·579 metre.
50 ..	1·674 ..	1·536 ..
60 ..	1·639 ..	1·516 ..
70 ..	1·623 ..	1·514 ..
80 ..	1·613 ..	1·506 ..
90 ..	1·613 ..	1·505 ..

It may be asked if the diminution of stature towards the end of life is not rather apparent than real, and if it be not owing to the circumstance that longevity is generally shorter for individuals of great stature. At least, it would be interesting to examine if the size of man has any influence on the duration of his life.

I shall endeavour, in a few words, to present such of the results of my researches as appear to me most interesting: it is almost unnecessary to observe that these results only apply to Brussels and the province of Brabant.

1. The limits of growth in the two sexes are unequal: first, because woman is born smaller than man; second, because she sooner finishes her complete development; third, because the annual increase which she receives is smaller than that of man.

2. The stature of the inhabitant of towns, at the age of 19, is greater than that of the country person by 2 to 3 centimetres [7-10ths to 1 inch nearly].

3. It does not appear that the growth of man is entirely completed at 25 years of age.

4. Individuals who live in affluence generally exceed the average height: misery and hard labour, on the contrary, appear to be obstacles to growth.

5. The growth of the child, even from several months before birth until complete development, follows such a law of continuity, that the increase diminishes successively with age.

6. Between the 5th and 16th years nearly, the annual growth is pretty regular, and it is one-twelfth of the growth of the fœtus during the months before birth.

7. Subsequently to the 50th year, man and woman undergo a diminution of stature which becomes more and more marked, and may amount to from 6 to 7 centimetres [2 3-10ths or 2 0-10th inches] nearly, about the age of 80 years.

CHAPTER II.

OF THE DEVELOPMENT OF THE WEIGHT, AND OF ITS RELATIONS TO THE DEVELOPMENT OF THE HEIGHT OF THE BODY.

1. Weight and Height at Different Ages.

Researches on the height and weight of new-born infants have been made at the Foundling Hospital of Brussels. To ascertain the weight, the ordinary balance has been used; but in the different observations, the weight of the swaddling clothes has been taken. The average values obtained for 63 male and 56 female children, are as follows:—

	Weight.	Height.
Male children,	3·20 kilogrammes.	0·496 metre.*
Female children,	2·91 ..	0·483 ..†

Thus, *from the time of birth, there is an inequality in the weight and height of children of the two sexes, and this inequality is in favour of males.* The height corresponds nearly with what I have found from other observations.

By classing the infants who furnished the preceding average values according to their total weight, we find—

Infants Weighing	Boys.	Girls.	Total.
From 1·0 to 1·5 kilog.	..	1	1
.. 1·5 to 2·0 ..	..	1	1
.. 2·0 to 2·5 ..	3	7	10
.. 2·5 to 3·0 ..	13	14	27
.. 3·0 to 3·5 ..	29	23	51
.. 3·5 to 4·0 ..	14	7	21
.. 4·0 to 4·5 ..	5	3	8
	63	56	119

* Here those children only have been measured whose weight had been ascertained. The number of observations is greater than I could avail myself of in my former researches.

† [The kilogramme is, as nearly as possible, 2 1-5th lbs. English.]

The extremes were as follows:—

	Boys.	Girls.
Minimum,	2·34 kilog.	1·12 kilog.
Maximum,	4·50 ..	4·25 ..

Professor Richter has made researches similar to the preceding at the Foundling Hospital of Moscow;* and, according to his observations, of 44 new-born children, the sexes of whom are not stated, the average value was 9 1-15th pounds in weight, and 18½ inches (Paris) in length. I regret that I do not know the value of the weight which he employed. The height, which is 0·501 metres, new measure, is almost precisely the same as we have found for boys. The extremes obtained by M. Richter were as follows:—

	Weight.	Height.
Minimum,	5 pounds.	15 inches.
Maximum,	11 ..	21 ..

Thus, the weight of boys varies as 1 to 2, as I have found at Brussels. The extremes of length do not differ so much, and present values which differ very little from those which we have obtained.

Moreover, the extremes, at least of weight, may differ as much as the averages. We read in the *Dictionnaire des Sciences Medicales*, article *Fœtus*—"The researches made at the Foundling Hospital, on more than 20,000 infants, prove that one infant, born at the full period and well-formed, generally weighs 6½ pounds. Only a very small number of infants have been seen at this hospital weighing 10½ pounds, or others weighing only 3 pounds, or 2 pounds and some ounces." This value of 6½ pounds, or 3·059 kilogrammes, obtained from so great a number of observations, agrees very nearly with the value—3·055 kilogrammes—obtained for Brussels, leaving out of consideration the distinction of the sexes: the extreme values likewise present very little difference.

It is remarkable that learned men who have made observations on the weight and height of new-born infants, should have attended so little to the distinction of the sexes. Although our results are not deduced from so large a number of observations as could be desired, yet we think we may conclude, with sufficient probability, that the average values of the weight and height of children of the two sexes present a very sensible difference.

From all the researches which have been made on the relations existing between the weight and the age of the fœtus, it appears that the ratios present so much uncertainty, that we can scarcely make any use of them.

It is M. Chaussier, if I am not mistaken, who has made the remark, that an infant diminishes a little in weight immediately after birth. This curious remark deserves to be carefully verified: unfortunately, I have only been able to procure seven series of observations, which do not extend beyond the seventh day after birth. The average calculations for each day present the following values:—

	Weight of the Infant.
After birth,	3·126 kilog.
On the 2d day,	3·057 ..
.. 3d ..	3·017 ..
.. 4th ..	3·035 ..
.. 5th ..	3·039 ..
.. 6th ..	3·035 ..
.. 7th ..	3·060 ..

It really appears, then, from these numbers, that *the weight of the child diminishes a little immediately after birth*, and that it does not begin to increase in a sensible manner until after the first week.

* Synops, Praxis Medico-Obstetriciæ: 1810.

Thus we see that, from birth, there is an inequality in the weight of children of the two sexes: however, we shall examine if this inequality is produced again at different ages, and examine the modifications which it undergoes. I have already stated the analogous results for height; nevertheless, I thought it would be useful to state again the new numbers which have been obtained from the individuals of both sexes, on whom observations were made to determine the weight. It was interesting to place these two elements, during their progressive development in the same individual, opposite each other.

In estimating the weight, I have generally used the balance of Sanctorius. Since this balance is not so sensible when slightly charged, and also since great care is required in placing the bodies to be weighed by it, children of tender age have been almost constantly weighed in the arms of persons whose weight had previously been taken.

The observations on children from 4 to 12 years of age, have for the most part been made in the schools of Brussels and at the Orphan Hospital. The weights of young persons have been taken more especially in the colleges and at the Medical School of Brussels. For more advanced ages, individuals of different classes have been taken, though those of the lower orders have been least numerous.

For old men, the weights have chiefly been taken in the large and magnificent hospital recently erected at Brussels. The two following tables point out the results, such as they are, for men and women.

The first column gives the ages; the second and third point out the average values of the height and weight which correspond to these different ages. The values of the height are almost the same as those previously given, except for individuals who are more than 16 or 17 years of age; which no doubt arises from individuals of the lower class having been less numerous in these than in the former observations. Indeed, I have already shown that young persons who apply themselves to study, and persons in the affluent classes generally, are taller than others. In the third column, the ratios of weight and size for different ages are calculated, their values being considered as abstract numbers. These ratios are not deduced immediately from the numbers contained in the two preceding columns, but are the average of the ratios calculated for each individual. In the last place, the four last columns point out the maximum and minimum of height and weight at each age, for individuals who are well-formed.

Table of the Size and Weight of Man at Different Ages.

Ages.	Size.	Weight.	Ratio of Weight to Size.	Size Observed.		Weight Observed.	
				Max.	Min.	Max.	Min.
	met.	kilog.		met.	met.	kilog.	kilog.
Birth,	0·496	3·20	6·19	0·532	0·433	4·50	2·34
1 year,	0·696	10·00	14·20	0·750	0·682	11·00	9·00
2 ..	0·797	12·00	15·00	0·824	0·730	13·50	10·50
3 ..	0·866	13·21	15·36	0·875	0·840	13·60	12·10
4 ..	0·932	15·07	16·32	0·965	0·910	18·20	12·50
5 ..	0·990	16·70	16·98	1·080	0·915	18·50	14·00
6 ..	1·046	18·04	17·44	1·115	0·960	20·40	15·80
7 ..	1·112	20·16	18·31	1.162	1·109	24·50	17·20
8 ..	1·170	22·26	18·92	1·260	1·120	28·50	19·00
9 ..	1·227	24·09	19·68	1·325	1·150	29·00	22·20
10 ..	1·282	26·12	20·37	1·325*	1·163	32·00	22·70
11 ..	1·327	27·85	21·58	1·405	1·215	33·80	25·00
12 ..	1·359	31·00	22·80	1·450	1·270	36·30	25·00
13 ..	1·403	35·32	25·30	1·490	1·300	39·50	34·60
14 ..	1·467	40·50	27·49	1·630	1·330	45·00	37·00
15 ..	1·559	46·41	29·88	1·658	1·380	61·50	37·00
16 ..	1·610	53·39	33·00	1·730	1·430	61·50	40·00
17 ..	1·670	57·40	34·25	1·790	1·467	65·50	45·00
18 ..	1·700	61·26	35·67	1·790	..	67·00	45·00
19 ..	1·706	63·32	37·00	1·800	..	70·00	48·20
20 ..	1·711	65·00	37·99	1·838	..	72·70	..
25 ..	1·722	68·29	39·66	1·890	..	98·50	..
30 ..	1·722	68·90	40·02	..	..	..	..
40 ..	1·713	68·91	40·03	..	..	..	..
50 ..	1·674	67·45	40·14	..	..	..	..
60 ..	1·639	65·50	40·01	..	..	..	..
70 ..	1·623	63·03	38·83	..	..	..	49·1
80 ..	1·613	61·22	37·96	1·620	1·467	83·00	49·7

Table of the Size and Weight of Woman at Different Ages.

Ages.	Size.	Weight.	Ratio of Weight to Size.	Size Observed.		Weight Observed.	
				Max.	Min.	Max.	Min.
	met.	kilog.		met.	met.	kilog.	kilog.
Birth,	0·483	2·91	6·15	0·555	0·438	4·25	1·12
1 year,	0·690	9·30	13·50	0·704	0·660	10·5	8·3
2 ..	0·780	11·40	14·50	0·798	0·720	12·0	8·3
3 ..	0·850	12·45	14·70	0·895	0·795	15·8	10·5
4 ..	0·910	14·18	15·10	0·950	0·810	15·6	11·5
5 ..	0·974	15·50	15·70	1·085	0·876	17·5	13·3
6 ..	1·032	16·74	16·24	1·085	0·956	20·3	13·3
7 ..	1·096	18·45	16·85	1·177	1·050	23·4	16·0
8 ..	1·139	19·82	17·45	1·380	1·050	23·4	16·0
9 ..	1·200	22·44	18·65	1·380	1·110	25·7	18·3
10 ..	1·248	24·24	19·45	1·380	1·160	28·3	20·3
11 ..	1·275	26·25	20·60	1·395	1·160	39·8	21·6
12 ..	1·327	30·54	23·00	1·476	1·160	42·8	21·6
13 ..	1·386	34·65	24·50	1·580	1·160	42·8	21·6
14 ..	1·447	38·10	25·35	1·580	1·160	51·0	32·0
15 ..	1·475	41·30	28·10	1·630	1·160	55·2	32·0
16 ..	1·500	44·44	29·62	1·630	1·160	57·6	32·0
17 ..	1·544	48·06	31·75	1·688	1·204	61·6	..
18 ..	1·562	53·10	34·05	1·740	..	79·9	..
20 ..	1·570	54·46	34·70	..	..	..	..
25 ..	1·577	55·08	35·26	..	..	..	..
30 ..	1·579	55·14	35·90	..	..	..	..
40 ..	1·555	56·65	36·50	..	..	..	..
50 ..	1·536	58·45	38·15	..	1·444	90·5	39·8
60 ..	1·516	56·73	37·28	..	1·436	..	..
70 ..	1·514	53·72	35·49	..	1·431	93·8	..
80 ..	1·506	51·52	34·21	1·701	1·408	72·5	38·0

The numbers in the preceding tables are such as have been obtained from direct observation; but they must be subjected to two corrections—in the first place, because the persons have always been weighed in their dresses; and, secondly, because observations have not been made on all classes of society.

The first cause of error which has been pointed out, may be removed, or at least diminished to some extent. The average weight of the clothes at different ages may be determined very precisely, and then it is only necessary to subtract its value from each of the corresponding numbers of the table of weights. From different experiments, I think we may admit, as near the truth, that the average weight of the clothes at different ages is one-eighteenth of the total weight of the male body, and a twenty-fourth part of the total weight of the female. With this value, I have corrected the numbers of the preceding table, except for new-born infants, because the numbers had already undergone this correction, from direct experiment, immediately after weighing them [the infants].

The second cause of error may also be removed: indeed, we shall soon see, that of individuals of the same age, the weight may be considered as having a pretty constant relation to the size of the body. It will be sufficient, then, to know the ratios inserted in the fourth column of the preceding tables, and to have a good general table of the growths, to deduce the corresponding table of the weight. It is in making use of the *table of growths* given above, and constructed with elements collected from all classes of society, that I have calculated the following table, in which I have also made the necessary correction for clothing:—.

* When a number is repeated, it is because the maximum of this year was less than that of the preceding. The inverse takes place in the column of the minima.

Table of the Development of the Height and Weight.

Ages.	Men.		Women.	
	Height.	Weight.	Height.	Weight.
	metres.	kilog.	metres.	kilog.
Birth,	0·500	3·20	0·490	2·91
1 year,	0·698	9·45	0·690	8·79
2 ..	0·791	11·34	0·781	10·67
3 ..	0·864	12·47	0·852	11·79
4 ..	0·928	14·23	0·915	13·00
5 ..	0·988	15·77	0·974	14·36
6 ..	1·047	17·24	1·031	16·00
7 ..	1·105	19·10	1·086	17·54
8 ..	1·162	20·76	1·141	19·08
9 ..	1·219	22·65	1·195	21·36
10 ..	1·275	24·52	1·248	23·52
11 ..	1·330	27·10	1·299	25·65
12 ..	1·385	29·82	1·353	29·82
13 ..	1·439	34·38	1·403	32·94
14 ..	1·493	38·76	1·453	36·70
15 ..	1·546	43·62	1·499	40·37
16 ..	1·594	49·67	1·535	43·57
17 ..	1·634	52·85	1·555	47·31
18 ..	1·658	57·65	1·564	51·03
20 ..	1·674	60·06	1·572	52·28
25 ..	1·690	62·93	1·577	53·28
30 ..	1·684	63·65	1·579	54·33
40 ..	1·684	63·67	1·579	55·23
50 ..	1·674	63·46	1·536	56·16
60 ..	1·639	61·94	1·516	54·30
70 ..	1·623	59·52	1·514	51·51
80 ..	1·613	57·03	1·506	49·37
90 ..	1·613	57·03	1·505	49·34

To render the preceding results more apparent, I have constructed two lines, which represent the increase of weight which men and women undergo at different ages: these lines have, for abscissæ, the ages, and for ordinates, the corresponding weights. We perceive, at the first glance, that, *at equal ages, man is generally heavier than woman; about the age of twelve years only are individuals of both sexes nearly of the same weight.* This circumstance is owing to the development of the weight being inconsiderable in both sexes, until the time of puberty, when, on the contrary, it becomes very apparent. Now, since puberty takes place sooner in woman, this acceleration causes a temporary disappearance of the inequality of weight which existed between children of both sexes, and which is, for children between one and eleven years of age, from one kilogramme to one and a half. The difference of weight of the sexes is more considerable in adult persons; it is about five kilogrammes between the sixteenth and twentieth years, and more than seven after this period.

Man reaches his maximum of weight about the age of 40, *and he begins to waste in a sensible manner about the age of* 60: *at the age of* 80 *he has lost about six kilogrammes* [16 lbs. troy]. *His height has also diminished, and this diminution is about seven centimetres* [2 7-10ths inches].

The same observation applies to women: in old age, they generally lose from six to seven kilogrammes in weight, and seven centimetres in stature. I have taken care not to include ricketty individuals in these valuations, or badly formed persons, or even those who were round-shouldered, and unable to stand upright for many minutes.

Woman attains her maximum of weight later than man; she weighs the most about the age of 50 *years:* setting out from about the age of 19, the development of her weight is nearly stationary, until the period of procreation is passed.

The extreme limits of the weight of well-formed individuals have been 49·1 and 98·5 kilogrammes for men; and for women 39·8 and 93·8 kilogrammes.

The limits of height have been 1·467 and 1·890 metres for men; and 1·444 and 1·740 metres for women.

The average weight at 19 years, is nearly that of old persons of the two sexes.

When man and woman have attained their complete development, they weigh nearly exactly twenty times as much as at birth; whilst the height is only about three and one-fourth times what it was at the same period.

One year after birth, children of both sexes have tripled their weight; boys weigh 9·45 kilogrammes, and girls 8·79 kilogrammes. At 6 years, they have doubled this latter weight, and at 13, they have quadrupled it.

Immediately before puberty, man and woman have one-half the weight which they have after their complete development.

I am indebted to the kindness of M. Villermé for the communication of the unpublished researches of Tenon on the weight of man, which appear to have been made in 1783. They were made in a village in the environs of Paris—the village of Massy—where Tenon had his country house. These researches, which comprise observations on 60 men between 25 and 40 years of age, and as many women of the same ages, give the following results:—

	Maximum.	Minimum.	Average.
	kilog.	kilog.	kilog.
Weight of man,	83·307	51·398	62·071
.. woman,	74·038	36·805	54·916

In all these observations, the weight of the clothes has been subtracted, and care has been taken not to include any female who was pregnant.

If we now compare these numbers with those I obtained at Cambridge, made on men from 18 to 23 years of age, weighed with clothes, we shall find, dividing into series of tens the 80 individuals whose weights were obtained—

	Stones.	Pounds.
1st series,	108	9
2d ..	111	9$\frac{3}{4}$
3d ..	114	6$\frac{1}{4}$
4th ..	101	0$\frac{1}{4}$
5th ..	102	5
6th ..	107	12$\frac{1}{2}$
7th ..	103	6$\frac{1}{4}$
8th ..	112	2$\frac{1}{4}$
Average,	107	10$\frac{27}{32}$

Which gives, for the weight of one individual, about 151 pounds, or 68·465 kilogrammes, which is nearly the weight of a man of 30 in Brabant, when weighed with his clothes on.

If, on the other hand, we compare the weight of children of the lower classes in England, we shall find the following results, which have been communicated to me by Mr J. W. Cowell, taken on 420 boys working in the factories, and 223 not working in factories; and 651 girls working in factories, and 201 not working in those places.

Average Weight of Children of the Lower Orders.

Ages.	Boys		Girls	
	Working in Factories.	not Working in Factories.	Working in Factories.	not Working in Factories.
	kilog.	kilog.	kilog.	kilog.
9 years,	23·47	24·15	23·18	22·87
10 ..	25·84	27·33	24·85	24·68
11 ..	28·04	26·46	27·06	27·72
12 ..	29·91	30·49	29·96	29·96
13 ..	32·69	34·17	33·21	32·97
14 ..	34·95	35·67	37·82	37·03
15 ..	40·06	39·37	39·84	42·44
16 ..	44·43	50·01	43·62	41·33
17 ..	47·36	53·41	45·44	46·45
18 ..	48·12	57·27	46·22	55·32

These numbers were collected at Manchester and Stockport; the children were weighed in summer, and consequently were lightly clothed, and they had nothing in their pockets. We see here again, as in

the height, that it is only after puberty that, at equal ages, we observe a difference in weight. The comparison of weights seems to be rather in favour of Belgic children; it is true that those of England were taken from the lower orders.

2. Relations between the Weight and Height.

If man increased equally in all his dimensions, his weight at different ages would be as the cube of his height. Now, this is not what we really observe. The increase of weight is slower, except during the first year after birth; then the proportion which we have just pointed out is pretty regularly observed. But after this period, and until near the age of puberty, the weight increases nearly as the square of the height. The development of the weight again becomes very rapid at the time of puberty, and almost stops at the twenty-fifth year. In general, we do not err much when we assume that, *during development, the squares of the weight at different ages are as the fifth powers of the height;* which naturally leads to this conclusion, in supposing the specific gravity constant, that the transverse growth of man is less than the vertical.

However, if we compare two individuals who are fully developed and well-formed with each other, to ascertain the relations existing between the weight and stature, we shall find that *the weight of developed persons, of different heights, is nearly as the square of the stature.* Whence it naturally follows, that a *transverse section, giving both the breadth and thickness, is just proportioned to the height of the individual.* We furthermore conclude that, proportion still being attended to width predominates in individuals of small stature.

Taking twelve of the smallest individuals of both sexes, and twelve of the largest, of those who have been submitted to our observations, we have obtained the following values as the average of stature, and the ratio of weight to the stature:—

Men.	Stature.	Ratio of Weight to Stature.
The smallest,	1.511 metre.	36·7 kilog.
The largest,	1·822 ..	41·4 ..
Women.		
The smallest,	1·456 ..	35·6 ..
The largest,	1·672 ..	38·0 ..

Thus, the stature of men and women, fully developed and well-formed, varied in the proportion of five to six nearly: it is almost the same with the ratios of the weight to the stature of the two sexes; whence it naturally follows, as we have already said above, that the weight is in proportion to the square of the stature.*

Now, let us suppose that we have the individuals grouped, not according to age, but to stature, and that we have taken the average of the weight of each group, for example, and that we proceed by ten centimetres at a time: we shall have groups of children at first, then groups of children with whom some adult persons are classed, which will be the case with men commencing at 1·47 metres nearly, and women at 1·41 metres. If we afterwards reduce these numbers to a tabular form, we shall arrive at the following results, the weight of the clothes having been subtracted:—

* Calling t and T the statures, and p and P the corresponding weights of the smallest and the largest individuals, we have, in fact, almost exactly, $t : T :: 5 : 6$, by the numbers of the first column, belonging to men, and $\frac{p}{t} : \frac{P}{T} :: 5 : 6$ for those of the second; from which we find that $t : T :: \frac{p}{t} : \frac{P}{T}$, or, in other words, $t^2 : T^2 :: p : P$. It is the same with the numbers belonging to females.

Relation of Stature to Weight.

Stature.	Men. Weight.	Men. Ratio.	Women. Weight.	Women. Ratio.
At Birth,	3·20	6·19	2·91	6·03
0·60 metre,	6·20	10·33	..	..
0·70 ..	9·30	13·27	9·06	12·94
0·80 ..	11·36	14·20	11·21	14·01
0·90 ..	13·50	15·00	13·42	14·91
1·00 ..	15·90	15·90	15·82	15·82
1·10 ..	18·50	16·82	18·30	16·64
1·20 ..	21·72	18·10	21·51	17·82
1·30 ..	26·63	20·04	26·83	20·64
1·40 ..	34·48	24·63	37·28	26·63
1·50 ..	46·29	30·86	49·00	32·00
1·60 ..	57·15	35·72	56·73	35·45
1·70 ..	63·28	37·22	65·20	38·35
1·80 ..	70·61	39·23	..	..
1·90 ..	75·56	39·77	..	..

We see that, statures being equal, woman weighs a little less than man until she attains the height of 1 metre 3 decimetres, which nearly corresponds to the period of puberty, and that she weighs a little more for higher statures. This difference, for the most part, proceeds from aged females being mingled with groups of a moderate stature sooner than males are; and, at equal statures, as we have already stated, aged persons weigh more than young ones.

To apply the preceding to determine the age of a *non-adult* person, from a knowledge of the weight and stature only, let us suppose the height of the person to be 1·23 metre, and the weight 24 kilogrammes, he being, moreover, of the male sex. We shall immediately see, from the preceding table, that he is heavy in proportion to his stature; the table before informs us that, by taking the height alone, he ought to be a little more than nine years of age, and considering the weight alone, he should be under ten; so that we may pronounce, with great probability of truth, that the individual in question must be between nine and ten.

3. Weight of a Population.—Weight of the Human Skeleton.

The following table may serve to determine the weight of a population composed of men, women, and children, or of a population composed of individuals of certain limited ages: it has been formed by taking the numbers belonging to each age from a population table, and multiplying them by the weight of individuals of this age.*

Table of the Weight of a Population of 10,000 Souls.

Ages.	Men.	Women.	Total.
	kilog.	kilog.	kilog.
0 to 1 year,	0·894	0·803	1·697
1 to 2 ..	1·462	1·324	2·786
2 to 3 ..	1·504	1·372	2·876
3 to 4 ..	1·676	1·485	3·161
4 to 5 ..	1·864	1·658	3·522
5 to 6 ..	2·017	1·765	3·782
6 to 8 ..	4.251	3·786	8·037
8 to 10 ..	4·768	4·318	9·086
10 to 12 ..	5·263	4·827	10·090
12 to 14 ..	6·332	5·977	12·309
14 to 16 ..	8·805	7·801	16·606
16 to 20 ..	18·902	17·700	36·602
20 to 25 ..	25·292	23·308	48·600
25 to 30 ..	25·603	22·770	48·373
30 to 40 ..	39·396	39·548	78·944
40 to 50 ..	28·720	31·470	60·190
50 to 60 ..	24·122	24·634	48·756
60 to 70 ..	23·620	16·458	40·118
70 to 80 ..	9·620	7·808	17·428
80 and upwards,	2·320	1·998	4·318
Total,	236·471	220·810	457·281

* The population table made use of in these calculations is one which will be found above, taken from the *Recherches sur la Mortalité et la Reproduction. Bruxelles:* 1832.

Thus, taking at once a population of 10,000 souls, without distinction of age or sex, the weight will be 457,000 kilogrammes nearly, 236,000 being that of the male portion. Thus we see that *the average weight of an individual, without reference to age or sex, is* 45·7 *kilogrammes nearly; and, considering the sexes,* 47 *kilogrammes for a man* [125 9-10ths lbs. troy], *and* 42½ *kilogrammes for a woman* [74 lbs. troy]. The whole population of Brussels, which amounts to 100,000, would weigh 4,572,810 kilogrammes; or nearly four and a half times as much as a cube of water 10 metres square: and the whole human race, computed at 737,000,000, would not weigh as much as 33 cubes of water 100 metres square: a value which at first sight appears small, since such a volume of water might be contained in a basin having a surface of less than one-third of an acre [*hectare*], and a depth of 100 metres.

To the preceding data, I shall add some measurements of the human skeleton, which have been communicated to me by MM. Van Esschen and Guiette. They will throw additional light on our present subject.

Dimensions.	Number of Skeletons. No. 1.*	No. 2.†	No. 3.‡	No. 4.§	No. 5.‖
	kilog.	kilog.	kilog.	kilog.	kilog.
Weights,	4·2	4·4	5·7	5·2	3·0
	met.	met.	met.	met.	met.
Statures,	1·685	1·640	1·667	1·755	1·500
Height of head,	0·138	0·134	0·136	0·135	0·135
.. of spinal column,	0·590	0·560	0·563	0·550	0·470
.. of pelvis,	0·210	0·186	0·182	0·225	0·152
Length of the upper extremities,	0·779	0·735	0·754	0·790	0·662
Length of the lower extremities,	0·917	0·870	0·885	0·970	0·800

The two last skeletons, belonging to females, did not present any essential difference from the three first, which were males.

We see, from the preceding table, that the weight of a skeleton prepared some years, scarcely exceeds the weight of a child at birth.

From the foregoing, we deduce the following conclusions:—

1. From birth there is an inequality, both in weight and stature, between children of the two sexes; the average weight of a boy being 3·20 kilogrammes [8 5-10ths lbs. troy], that of a girl 2·91 kilogrammes [7 7-10ths lbs. troy]; the stature of a boy is 0·496 metres, and that of a girl 0·483 metres.

2. The weight of a child diminishes a little towards the third day after birth, and does not begin to increase sensibly until after the first week.

3. At equal ages, man is generally heavier than woman: about the age of 12 years only are the individuals of both sexes of about the same weight. Between 1 and 11 years, the difference in weight is from one kilogramme to one and a half; between 16 and 20, it is six kilogrammes nearly; and after this period eight to nine kilogrammes.

4. When man and woman have attained their full development, they weigh almost exactly twenty times as much as at birth; and their stature is about three and one-fourth times greater than it was at the same period.

* No. 1. Natural skeleton of a man of about thirty-five years of age, prepared seven years.

† No. 2. Skeleton of a man about twenty-five years of age, prepared six years.

‡ No. 3. Skeleton of a man. Age and date of the preparation unknown.

§ No. 4. Skeleton of a woman. Age and date of the preparation unknown.

‖ No. 5. Skeleton of a woman aged fifteen years, prepared one year.

5. In old age, man and woman lose about six or seven kilogrammes in weight, and seven centimetres in stature.

6. During the development of individuals of both sexes, we may consider the square of the weight, at different ages, as proportioned to the fifth power of their stature.

7. After the full development of individuals of both sexes, the weight is almost as the square of the stature.

From the two preceding relations, we infer, that increase in height is greater than the transverse increase, including breadth and thickness.

8. Man attains the maximum of his weight at about 40, and begins to waste in a sensible degree about the 60th year.

9. Woman attains the maximum of her weight about the age of 50. During the period of reproduction, namely, from the 18th to the 40th year, her weight scarcely increases in a perceptible degree.

10. The weight of individuals who have been measured, and who were fully developed and well-formed, varies within extremes which are nearly as 1 to 2; whilst the stature only varies within limits which, at the most, are as 1 to 1⅓. This is inferred from the following values, furnished by observation:—

	Maximum.	Minimum.	Average.
Weight of man,	98·5 kilog.	49·1 kilog.	63·7 kilog.
.. woman,	93·6 ..	39·6 ..	55·2 ..
Stature of man,	1·690 met.	1·467 met.	1·684 met.
.. woman,	1·740 ..	1·408 ..	1·579 ..

11. At equal statures, woman weighs a little less than man before reaching the height of 1·3 metres, which almost corresponds to the period of puberty; and she weighs a little more for higher statures.

12. The average weight of an individual, without reference to age or sex, is 45·7 kilogrammes; and, taking sex into account, 47 kilogrammes for man, and 42·5 kilogrammes for woman.

CHAPTER III.

OF THE DEVELOPMENT OF STRENGTH OR POWER.

THE measure of strength is one of the elements which we are most anxious to ascertain with some degree of precision; not merely because this subject of investigation has occupied the attention of many observers; but since their principal object was to ascertain the useful effect of power, what they have done has a characteristic nature, which distinguishes their results from those which I propose to determine with a scientific purpose. Thus, Désaguiliers, De la Hire, Guenyveau, Coulomb, Schulze, &c., have chiefly investigated the relations which exist between the speed and the burden carried, in respect to a man employed either in carrying burdens or drawing them. I shall not enter into the details of the results which they have obtained, since they can be found in the principal treatises on practical mechanics. What is of most importance for us to know here is, I think, what relation the intensity of power which man can display (either with his hands or loins, without subjecting him to a day's labour), bears, in its development, to the age of the person: this latter question is composed of more complex elements.

To determine the different degrees of our physical power, different instruments have been proposed, the least imperfect of which is undoubtedly the dynamometer of Régnier.* However, this instrument still

* [The dynamometer cannot well be described in mere words. All that can be said of it is, that it is an instrument so contrived as to exhibit, on a dial-plate, the measure of strength resident in the arms and loins of the parties subjected to trial. M. Quetelet's observations may make this point more clear.]

leaves much to be desired; and, fully perceiving its defects when I commenced the experiments which I am now about to state, I was far from supposing they were so great as they really are. The most considerable results from its form; indeed, the dynamometer is managed with varying degrees of facility, and estimates of power, varying in accuracy, are given, according to the size of the hand and length of the fingers. This defect is especially apparent with children: it is almost necessary to employ different instruments for different ages. These inconveniences led me to think of a dynamometer, in which the two steel plates to be brought into apposition should, with a maximum of power, assume that position in the hand which was most favourable to its development: unfortunately, other labours have prevented me from prosecuting these attempts, and undertaking a new series of observations. Therefore, I must confine myself to giving the results obtained with the dynamometer of Régnier, premising that they do not present that degree of accuracy which I was anxious to give them.

I think we may even already suspect the imperfection of the dynamometer, from the discordant results obtained by different experimenters who have used it.

According to Régnier, a man from 25 to 30, is in possession of his greatest strength, and by pressing strongly with both hands, makes an effort equal to 50 kilogrammes [134 lbs. troy], and raises a weight of 13 myriagrammes [260 lbs. troy, nearly]. He retains this power until nearly 50, when it begins to decrease.* The strength of woman has been considered as equal to that of a man of 15 or 16, or to two-thirds of the power of an ordinary man.

Régnier has also found that, by trying first one hand and then the other, that the right hand is generally stronger than the left; and the sum of these is commonly equal to the power of both hands acting together.

Other experiments have since been made by Peron, who has stated the results in the account of his voyage to Australasia. Ransonnet has also made dynamometric experiments in the roadstead of Havre, on 345 individuals belonging to the companies of two frigates and a brig which he commanded. Collecting the values obtained by these different observers, we have the following table:—

Persons experimented on.	Observers.	Strength.	
		Manual.	Lumbar.
		kilog.	Average.
French, from 25 to 30 years,	Régnier,	50·0	13·0
.. .. 25 to 45 ..	Ransonnet,	46·3	14·2
.. ..	Péron,	69·2	22·1
Natives of New Holland,	..	51·8	14·8
Malays of the Island of Timor,	..	59·7	16·2

The degrees of strength of the French, according to these observations, we see differ very much: the results of Péron differing especially from those of Ransonnet and Régnier.† It would appear that Péron has made a mistake in reading the degrees of the dynamometer; at least this seems to be the case, from the correction which has subsequently been made by Freycinet and Bailly, who were of the number of persons experimented on by Péron, and who are found to have a lumbar power sensibly smaller than that placed opposite their names in the table. According to M. Freycinet, instead of the lumbar powers stated by Péron, we must read as follows:—

15·2 myriagr. instead of 22·1, for the French.
10·1 .. .. 14·8, .. New Hollanders.
11·3 .. .. 16·2, .. Malays of Timor.

However the case may be, by considering the values of Péron as relative, it would appear that the strength of the French sailors was greater than that of savages; and this result agrees with the accounts of many voyagers.

Dynamometric experiments require the greatest precaution. I have seen the same persons obtain exceedingly different results from successive efforts. A cause of frequent error, when sufficient precaution is not taken in using the instrument of Régnier to measure the lumbar power, is, that the needle is made to move as much by pressing the instrument between the knees, as by pulling. Indeed, it is difficult to pull without bringing the knees towards each other, and thus pressing the elliptic spring in the direction of its small axis, where it yields most readily: the position in which we are placed to pull, and the height of the stature, have likewise some influence. It is also necessary to keep trying the accuracy of the instrument, especially towards the bottom of the scale, because it is generally not so sensible for small weights.

I regret that I could not increase my observations to the extent I desired; and I bring forward my results with diffidence. The number of individuals of each age experimented upon was at least 10: these persons generally belonged to the better class; and those below 25, of the young men, were generally taken in the colleges, and at the Medical School of Brussels: the young women, also, were taken from the schools and the Orphan Hospital.

It is well, in measuring the power of a person, to take the average of several successive observations, because we find the results vary slightly; and generally the first effort is more powerful than the second, the second than the third, and so on, until we arrive at a certain limit; but the difference is not very great after the first few trials.* We may find a difference of one or two degrees, or more, between the first effort and the extreme; consequently, these observations admit of great chance of error.

Observations on the Lumbar Power, estimated by means of the Dynamometer.

Ages.	Lumbar Power.		Ratio of the Strength of Men and Women.
	Men.	Women.	
	myriag.	myriag.	
6 years,	2·0	..	..
7 ..	2·7	..	..
8 ..	..	2·4	..
9 ..	4·0	3·0	1·33
10 ..	4·6	3·1	1·48
11 ..	4·8	3·7	1·30
12 ..	5·1	4·0	1·28
13 ..	6·9	4·4	1·57
14 ..	8·1	5·0	1·62
15 ..	8·8	5·3	1·66
16 ..	10·2	5·9	1·72
17 ..	12·6	6·4	1·97
18 ..	13·0	6·7	1·94
19 ..	13·2	6·4	2·06
20 ..	13·8	6·8	2·03
21 ..	14·6	7·2	2·05
25 ..	15·5	7·7	2·01
30 ..	15·4	..	..
40 ..	12·2	..	..
50 ..	10·1	5·9	1·71
60 ..	9·3	..	..

In this table, I have not included boys under six, and girls under eight years of age, because of the difficulty of teaching them how to handle the dyna-

* *Dictionnaire des Sciences Medicales*, article *Dynamometre, et Description et Usage du Dynamometre.* (*Journal de l'Ecole Polytechnique*, Prairial, an 6.)

† M. Ransonnet has kindly favoured me with some accounts of the observations which were required of him, and made with an instrument the accuracy of which he cannot warrant, not having had an opportunity of testing it himself.

* M. Edwards has told me, that after dinner he has generally observed the contrary with strong persons, the first effort being somewhat less intense than the succeeding ones.

mometer, and the errors which would have resulted therefrom. It is necessary to all the preceding values, to add the weight of the dynamometer, which is certainly a part of the resistance to overcome: this amounts to one kilogramme.

If we had extremely sensible and suitable instruments for measuring the lumbar power of children, it is evident that we could not begin to make use of them before the age of two years, since before this period the child cannot stand upright alone, nor carry an additional weight. It is to be observed that, of all the individuals figured in the table, the lumbar power is sufficient to raise a load or overcome an obstacle exceeding the weight of the individual. The load a man can carry relatively to his weight, increases with his growth until maturity, and the perfect man can raise more than double his own weight.

The lumbar power of females differs less from that of males during childhood than after complete development. During childhood, the lumbar strength of boys is about one-third more than that of girls; towards the age of puberty, one-half; and the strength of a developed man is double that of a woman.

Professions produce a very sensible difference. I have seen labouring masons and carpenters move the dynamometer 20 degrees or more. The average of several servants, between 20 and 40 years of age, has given me a value of 10 or 11 degrees.

To measure the power of the hands presents the greatest obstacles. It seems to me that it is almost impossible to rely on the accuracy of the results, unless the observations have been made with the greatest care, and by one and the same person. The first and greatest obstacle proceeds from the unequal size of the hands, and the difficulty of grasping the instrument. From all the corrections which I have made, I think I may rely on the accuracy of my own results; and, nevertheless, they differ so much from those obtained by the observers quoted, that I deliberated some time in using them, the more so since they are, like all the measures taken with Régnier's dynamometer, subject to undergo a previous correction, owing to the unequal size of the hands. To show how important this correction is, I made different trials with the dynamometers, placing my hands in different positions, and I have obtained extremely dissimilar values. We may judge better from the following:—

The dynamometer I have used is made, like all others, of a spring almost of an elliptic form: the lengths of the greater and lesser axis are 30 and 5·5 centimetres respectively; the dial and the index are so placed that the hands, when most approximated, are still 2·5 centimetres distant from each other; and pressure is made at a certain distance from the small axis, where the maximum of effect is produced. We obtain, therefore, only a part of the action which might be produced by pressing both extremities of the small axis. Moreover, it appears that the dynamometer I have used has been graduated, taking this distance into account. I was then desirous to know what would be the effect produced by increasing the distance between the hands, and I have obtained these values:—

Distance of the Hands.	Degrees of the Dynamometer.
25 mill.	80·5
35 ..	64·0
45 ..	54·5
55 ..	49·5
65 ..	44·0
75 ..	38·0
85 ..	34·6

Thus, by placing the hands so that they were each, when least distant, one centimetre from the dial, and consequently 45 millimetres from each other, I only produced an effort of 54·5 instead of 80·5—a difference of 26 degrees. Now, many persons, trying their manual strength by the dynamometer, generally place their hands in the manner I have stated; they must then give very erroneous results. Women and children, especially, have another disadvantage in using the dynamometer, for the opening which they are obliged to allow their hands does not permit them to press with the power they are capable of. Also, I think the values I have obtained for them are generally too low.

Observations on the Power of the Hands, from Experiments with the Dynamometer.

Ages.	Power of Men			Power of Women		
	with both Hands.	with the Right Hand.	with the Left Hand.	with both Hands.	with the Right Hand.	with the Left Hand.
	kilog.	kilog.	kilog.	kilog.	kilog.	kilog.
6 years,	10·3	4·0	2·0	..	..	..
7 ..	14·0	7·0	4·0	..	..	..
8 ..	..	..	..	11·8	3·6	2·8
9 ..	20·0	8·5	5·0	15·5	4·7	4·0
10 ..	26·0	9·8	8·4	16·2	5·6	4·8
11 ..	29·2	10·7	9·2	19·5	8·2	6·7
12 ..	33·6	13·9	11·7	23·0	10·1	7·0
13 ..	30·8	16·6	15·0	26·7	11·0	8·1
14 ..	47·9	21·4	18·8	33·4	13·6	11·3
15 ..	57·1	27·8	22·6	35·6	15·0	14·1
16 ..	63·9	32·3	26·8	37·7	17·3	16·6
17 ..	71·0	36·2	31·9	40·9	20·7	18·2
18 ..	79·2	38·6	35·0	43·6	20·7	19·0
19 ..	79·4	35·4	35·0	44·9	21·6	19·7
20 ..	84·3	39·3	37·2	45·2	22·0	19·4
21 ..	86·4	43·0	38·0	47·0	23·5	20·5
25 ..	88·7	44·1	40·0	50·0	24·5	21·6
30 ..	89·0	44·7	41·3	..	..	..
40 ..	87·0	41·2	38·3	..	..	..
50 ..	74·0	36·4	33·0	47·0	23·2	20·0
60 ..	56·0	30·5	26·0	..	..	..

From this table we may infer, that the manual power of men, at different ages, is greater than that of women. The difference is generally smaller at early periods than afterwards: thus, before puberty, the ratio is 3 to 2, and it afterwards becomes 9 to 5. We also see that the hands, acting together, produce a greater effect than the sum of the effects they produce acting separately; this appears to be partly owing to the weight of the instrument, which is carried twice, and in an inconvenient manner, when the hands are used in succession. Lastly, the strongest hand is that one we use habitually, at least considering masses of people. The right hand is about one-sixth stronger than the left.

Now, if we compare the power of pressing, which I have observed, with that of MM. Régnier, Ransonnet, and Péron, we shall find the greatest differences, and which I can only attribute to the manner in which the hands were placed on the instrument, and the consequent space betwixt them. I have tried the instrument in different ways, and I think I may be certain that the indications are accurate, especially those for the average power of man. Those values which I ought to mistrust are those obtained for women and children; they appear to me to be less than they ought to be, for the reasons above stated.

According to the researches of MM. Réguler and Ransonnet, the average strength of man is not more than 46·3 or 50 kilogrammes [184 lbs. troy]; that is to say, that it does not come up to his weight; whence it follows, that a man could not lift himself by the pressure he can exercise with his hands. Now, experience evidently disproves such a result. Among the sailors experimented upon, there was probably not one who could not hold himself suspended, for some minutes at least, at the end of a cord firmly fixed at the other end. According to Péron, the manual force would be 69·2 kilogrammes: this value approaches nearer the truth. What I have found for a developed man is 89 kilogrammes [298 lbs. troy], nearly 19 kilogrammes more than the weight of a man

in his dress; so that a man may hold at the end of a cord, and bear at the same time a weight as heavy; moreover, the thickness of the cord, or the form of the object which he holds, will necessarily influence the result of the experiment.*

We also see, from the values which I have obtained, that it is about the age of 9 or 10 years that a man begins to acquire sufficient power in his hands to hold himself suspended for a time. Woman, at any age, does not appear capable of exercising a power equivalent to her weight; yet many women, from exercise and habits of labour, at length exceed this limit. Thus we see young girls, by practising gymnastic exercises, acquire the power of raising themselves by means of cords to different heights. It would appear, then, although my values are very superior to those of the observers quoted, that they are rather below than above the truth, at least for children and women.

When the power of the hands is tried several times in succession, it happens, just as with the lumbar strength, that, all things being equal, the subsequent efforts are never so energetic as the first ones. Thus the degrees of power diminish successively, and tend to a limit. The second effort is generally weaker by 4 or 5 degrees than the first; the difference is not so great afterwards.

Trying my strength at different periods of the day, I have not observed any very great differences. The greatest effect I have been able to produce was observed on coming from a public lecture, at a time when I was slightly indisposed by an accession of fever. I was able to bring the needle of the dynamometer nearly 10 degrees beyond the point it habitually reached. In general, the strength was greater after dinner than before; it appears to vary with different times of the day, and especially with the hours of refreshment. My experiments are not so numerous as to enable me here to bring forward numerical results of sufficient accuracy; and, for the same reason, I have been obliged to defer establishing the ratios between the stature, weight, and strength of men at different ages. But it appears to me that affluence, abundance of food, and moderate exercise, favourably assist the development of the physical powers; whilst misery, want, and excess of labour, produce the contrary effect. Therefore, the man who finds himself in affluent circumstances, not merely possesses the advantages of fortune, as well as longer life and less liability to disease; he has also better opportunities for the proper development of his physical qualities.

CHAPTER IV.

INSPIRATION, PULSATION, SWIFTNESS, &c.

1. Inspiration and Pulsation.

In individuals who are well-formed and enjoying good health, the number of inspirations and beats of the heart are generally confined within certain limits, which it may be interesting to know, as well as the average value which they have at different ages. The authors who have written on this subject generally give results which are very discordant, for early ages especially. Kepler appears to have been the first who thought of determining the number of pulsations in a given time; and we may be astonished that, in our own time, we have not more accurate results than those found in the most eminent physiological works.

The following are the numbers which different authors have given for the beats of the heart in one minute:—

Ages.	Number of Beats of the Heart, according to			
	Magendie.*	Rochoux.†	Adelon.‡	Dict. de Méd. vol. 21.
Birth,	130 to 140	140	130 to 140	140
1 year,	120 to 130	..	120	..
2 ,,	100 to 110	100	110	100
3 ,,	90 to 100	..	90	..
Puberty,	..	..	80	80 to 90
Manhood,	..	..	70	..
Old age,	..	..	60	..

"The number of pulsations of the fœtal heart, in a given time," says M. Paul Dubois,§ "cannot always be easily determined; but when it can, as is usually the case, we find the number from 140 to 150 a-minute, and very frequently 144; it is very natural to think that the number of pulsations should be quick, inversely as the age of the fœtus, and yet our researches do not confirm such an opinion. Indeed, we may affirm, that, from the end of the fifth month, at which period the pulsations of the heart may be readily counted, until the end of gestation, the rhythm [measure] of the double beats has appeared exactly the same to us."

M. Billard has given results which generally do not much agree with those which have been quoted. According to this observer, of 41 children, between 1 and 10 days old, and apparently enjoying good health, he has found—

18	having	fewer	than	80	pulsations per minute.
2	,,	,,	80	,,	,,
1	,,	,,	89	,,	,,
4	,,	,,	100	,,	,,
10	,,	,,	110 to 129	,,	,,
1	,,	,,	130	,,	,,
2	,,	,,	145	,,	,,
2	,,	,,	150	,,	,,
1	,,	,,	160	,,	,,

Thus, in one-half of the infants, the pulse was almost the same number as of adults; and there were others, the beats of whose heart exceeded in number those of individuals of a more advanced age. These children presented no appearance of disease.

Of 36 children from 1 to 2 months old—

14	presented	80 to 85	pulsations.	
1	,,	60 to 62	,,	
2	,,	90	,,	
2	,,	94 to 95	,,	
5	,,	110 to 112	,,	
2	,,	114	,,	
7	,,	125 to 130	,,	
3	,,	140-147 to 150	,,	

Of 20 children from 2 to 3 months old—

14	presented	more than	90	pulsations.
2	,,	,,	100	,,
2	,,	,,	70	,,
2	,,	,,	70 to 80	,,

It would be wrong to affirm that children uniformly present a more frequent pulse than adults.‖

It does not appear that the number of inspirations per minute has been examined with as much care as the pulsations. Authors, in general, have not and cannot agree on this point. Haller said he made 20 inspirations per minute; Menzies says 14; Davy observed on himself 26; Thomson, also on himself, 19; Magendie, 15. But we generally say that there are 20, and that every fifth inspiration is deeper than the others.¶

* It would be curious to examine how long an individual could continue suspended by the pressure of his hands only.

* Physiologie. Ed. 1825.

† Dict. de Médicine, 1827.

‡ Physiologie, vol. iii. p. 417.

§ Rapport sur l'Application de l'Auscultation à la Grossesse.

‖ [Notwithstanding these observations, there can be no doubt whatever that the pulsations of the heart, counted at the wrist, are uniformly much more numerous in children under six years of age than in adults.]

¶ Dictionnaire des Sciences Médicales, Art. Respiration.

I shall now present the results of experiments made at Brussels, both on inspirations and the beating of the heart simultaneously.

And first, according to the observations made on 18 male and as many female children, immediately after birth, the following results were obtained:—

	Pulsations.			Inspirations.		
	Aver.	Max.	Min.	Aver.	Max.	Min.
Boys,	136	165	104	44	70	23
Girls,	135	165	108	44	68	27

Therefore, it appears that difference of sex does not influence these phenomena, at any rate at birth.

The following is a classification of the preceding numbers:—

Inspirations.	Boys.	Girls.
25 to 30,	3	1
30 to 40,	3	5
40 to 50,	5	8
50 to 60,	5	3
60 to 70,	2	1
Pulsations.		
104 to 115,	2	1
116 to 125,	0	0
126 to 135,	6	7
136 to 145,	5	5
145 to 155,	0	1
155 to 165,	2	1

I think these results susceptible of greater accuracy. Considering the number of inspirations and pulsations in men, at different ages, I have found, per minute, for the average and extreme values, in nearly 300 individuals, as follows:—

Ages.	Pulsations.			Inspirations.		
	Aver.	Max.	Min.	Aver.	Max.	Min.
Birth,	136	165	104	44	70	23
5 years,	88	100	73	26	32	..
10 to 15,	78	98	60	..	..	..
15 to 20,	69·5	90	57	20	24	16
20 to 25,	69·7	93	61	18·7	24	14
25 to 30,	71·0	90	59	16·0	21	15
30 to 50,	70·0	112	56	18·1	23	11

It does not appear that there is a determinate ratio between the pulsations and inspirations; however, in many individuals, and I am of the number, it is as 4 to 1.

The observations made on women have been less numerous than those made on men. Moreover, it does not appear that the difference of sexes is at any period more marked than about the time of birth; perhaps there is a slight acceleration in females, at least this appears from the following numbers:—

Ages.	Pulsations.	Inspirations.
Birth,	135	44
15 to 20 years,	78	19
20 to 25 ,,	77	17
25 to 30 ,,	72	,,
30 to 50 ,,	74·5	19

The temperament, the state of the health, and a crowd of other circumstances, must cause the number of inspirations and pulsations to vary considerably in different individuals. Wakefulness and sleep have also great influence.* From a considerable number of observations made carefully on a male child between 4 and 5 years of age, I have found that, when awake, the number of pulsations was 93·4, and the number of inspirations 29·3; whilst for the same child, during sleep, I counted 77·3 pulsations, and 21·5 inspirations, on an average.* The ratio of these numbers is 1 to 1·21 for the pulsations, and 1 to 1·36 for the inspirations. Similar observations have been made on a young girl between 3 and 4 years old, and on a woman of 26 years. All these observations have presented the following average values:—

Ages.	Pulsations.			Inspirations.		
	Awake.	Asleep.	Ratio.	Awake.	Asleep.	Ratio.
Girl, 3 to 4 years,	102.3	92·0	1·11	30·2	24·8	1·22
Boy, 4 to 5 ,,	93·4	77·3	1·21	29·3	21·5	1·36
Woman, 26 to 27,	77·5	67·0	1·16	27·0	20·8	1·30

It results from these observations, that sleep causes a more sensible modification of the number of inspirations than of the beats of the heart. In general, it diminishes both numbers, the first in a ratio which may be considered as 7 to 6, and the second in the ratio of 4 to 3 nearly. It is very important to consider the state of the individual in these researches, and not to make the observations when the person is excited by walking quickly, or by passions and emotions of the mind, and still more if the person is not well in health. To observe accurately the number of inspirations is very difficult, and particularly if the individual knows that he is the object of observation. I have seen many persons unable to make such observations on themselves. We must also consider the time of the day: for instance, in the evening we are generally more excited than in the morning, and the beats of the heart, as well as the inspirations, are more rapid.† Neither is it indifferent whether we observe the person before or after a meal. Observing myself at quiet moments, but at different times of the day, I have found the average number of the beats of the heart to be 66·2, and the average number of inspirations 15·8. The first number has varied between the extremes of 74 and 56: this latter value has been observed immediately before dinner, and the former after a public lecture, about one hour after reaching home. The number of inspirations has varied between 17 and 14·5.

MM. Leuret and Mitivié, who have recently published an interesting work on the *frequency of the pulse in the insane*,‡ have sought to determine the influence of temperature and changes of the moon on this frequency; but their observations were not sufficiently numerous to deduce a numerical appreciation of so feeble an element. On the other hand, comparing young people and old persons, they have found that, contrary to the generally received opinion, the pulse of the first is slower than the second: thus they have counted in one minute,

In young persons,			65 pulsations.
,, old persons,			74 ,,
,, insane women,			77 ,,

The observations were made in the morning, whilst the persons were still in bed, and the pulse consequently beating slower than during the day. MM. Leuret and Mitivié have also thought that the average number of pulsations was fewer in winter than in

* [It is sufficiently singular that the chief cause modifying the number of pulsations of the heart, during the twenty-four hours, escaped the notice of M. Quetelet. He takes no account of the singular influence exercised in accelerating the pulsations by the slightest muscular exertion. The condition of sleeping or waking, to which he ascribes considerable effect, has little influence on the pulse, further than as regards a quiescent or non-quiescent state of the body. He seems also inclined to ascribe to sleep those effects which have long ago been proved to be solely attributable to another cause, viz., a diurnal revolution in the number of pulsations of the human heart.—See *Edinburgh Medical and Surgical Journal* for 1813.]

* [These observations of M. Quetelet are of little comparative value, from his having neglected to state the *position* of the child during the waking state, and the time of day or night.]

† [The reader is requested to suspend his judgment in respect to these observations until he has perused the documents in the appendix. Certain important elements in these observations have, as we have already said, been overlooked by M. Quetelet.]

‡ Paris, Crochard: 1832. 8vo.

summer, and that the variations do not correspond to changes of temperature.*

2. On Swiftness, and the Activity of some other Physical Qualities of Man.

There are several other physical qualities of man besides those I have just considered, which are likewise susceptible of measurement, and which have been little attended to hitherto. What is generally the best known is the swiftness and the length of the stride of man; but at present, the data for different ages are wanting, and especially when consideration is had to the weight and size of individuals.

A foot traveller can pass over six kilometres [7158 yards] an hour, and continue a long distance, which is at the rate of 100 metres [119 yards] a-minute. We calculate the length of the step at eight decimetres [31·496 inches]: thus the traveller makes 125 steps per minute, and 7500 steps in an hour. He can walk at this rate 8½ hours a-day, and continue as long as he likes, without injuring his health or strength. Then, as a fact, we suppose 51 kilometres [55,743 yards] the average distance which a traveller can walk each day, without overstretching his powers. The average weight of a man in his ordinary clothes is 70 kilogrammes [187 lbs. troy]. Thus, the pedestrian carries each day 70 kilogrammes a distance of 51 kilometres; or, which amounts to the same thing, 3570 kilogrammes the distance of one kilometre.

According to M. Ch. Dupin, from whom I borrow the preceding details,† the military step is computed to be as follows:—

	Length.	The Soldier makes per minute—
Common step,	65 cent.‡	76
Quick march,	65 ,,	100
Charging,		125

I regret that my own observations do not allow me to treat this subject at present in more detail, or to present a summary of the results obtained by observers who have endeavoured to ascertain the practical effect of speed combined with strength. We find, in general, that wherever the energy of man can be excited, employed as a machine, the physical qualities he can put in force have been measured with more precision. His other qualities have been less studied: thus, we know little of the average speed of man in running; we also know very little of the height and length of his leap, with the exception of the cases of those men who possessed those qualities in an extraordinary degree.

I have been endeavouring to sum up what relates to the height and extent of the leap, in some results which it may be useful to know. However, I ought to premise, that since these results for young ages have been obtained from individuals, several of whom were studying gymnastic exercises, the values may be greater than they otherwise would be. The leaps were made without taking a run, and on a plane and horizontal surface. The length was estimated by measuring the distance from the toes.

Ages.	Length of the Leap. metres.	Height of the Leap. metres.
11 years,	1·52	,,
12 ,,	1·60	,,
13 ,,	1·66	0·64
14 ,,	1·77	0·70
15 ,,	1·97	0·80
16 ,,	2·06	0·83
17 ,,	2·04	0·81
18 ,,	2·14	1·00
19 to 30,	2·18	0·93
30 to 40,	1·78	0·88

* [The observations of MM. Leuret and Mitivié have been refuted in this country—first by Dr Knox, in 1814, and afterwards by Dr Guy, in 1836.—See *Anatomical and Physiological Memoirs and Medical Gazette*, likewise *Guy's Hospital Reports*.]

† Géométrie et Méchanique des Arts et Métiers, tome iii. p. 75: 1826.

‡ [25 5-10ths inches.]

The height of the leap was estimated by the height of an obstacle over which the person could leap, with his feet close together, and without taking any run.

Estimating the length of the leap at two metres, [6 5-10ths feet] we see that it is about triple that of the ordinary or quick step of soldiers.

I ought, according to the plan I have laid down, to present a great number of other data here, which are capable of being measured, and which vary according to the ages of the persons. I ought, in some manner, to meet those views relative to man which have been put forth by Mr Babbage, with whom I have frequently had the honour to meet during my experiments. Mr Babbage, in wishing for a table of *constants*, had in view a measurement of every thing in the different kingdoms of nature which is capable of measurement. This gigantic plan has not deterred his countrymen, who are not accustomed to shrink from difficulties, when, by surmounting them, they can enrich science: thus, the British Association, at the meeting which took place in Cambridge in 1833, set aside a certain sum to encourage the efforts of those who seek to realise, in some measure, the ideas of Mr Babbage. I have not laboured on so grand a scale as my erudite friend; I have only been considering man: but in another view I have rendered the problem more comprehensive, by seeking to determine the modifications which age induces on physical qualities, which cannot be considered as constant until man is fully developed, and when he has not approached the period of decay.

I recollect that Mr Babbage, in a conversation which we had together on the subject of his constants, told me that he had been investigating how many times a man could do certain things in one minute of time: for example, how many steps he could make, how many strokes of the oar the rower makes, how many blows the smith gives with his hammer, how many stitches the tailor makes, &c.; and that he had observed that these numbers do not vary much in the different countries which he had visited. These constants partly depend on our organisation, and more especially on some of the faculties, as inspirations, pulsations, stature, &c. It would be interesting to determine the ratios which exist between the different constants, and see if they obey simple laws.

Grétry remarks somewhere in his memoirs, that the step of man is easily regulated by an air he sings, the measure being quicker or slower. Pythagoras long ago perceived a certain harmony in the number of blows struck by the forger; this harmony was undoubtedly purely numerical, like that which he guessed at concerning the motions of worlds, and which, indeed, has been acknowledged by Kepler, who was impressed with the same ideas of harmony as the founder of the Italian school. I again repeat, that to judge of the mutual dependencies of each of our faculties, and to determine to what extent they are influenced by each other, it is necessary to have studied them successively with care, before establishing relations which require subsequent impartiality and discernment. Not until then shall we be able to know man, and the effects of all the causes by which he is influenced, whether these causes be extrinsic to him, or whether they depend merely upon his will and his organisation.

BOOK THIRD.

DEVELOPMENT OF THE MORAL AND INTELLECTUAL QUALITIES OF MAN.

1. Of the Determination of the Average Man with Regard to Moral and Intellectual Qualities.

We have been enabled to perceive, in the two preceding books, that an appreciation of the physical qualities of the average man does not present any real difficulty, whether we can measure them directly, or whether they only become appreciable by their effects. It is not so with the moral and intellectual qualities. Indeed, I do not know that any person had thought of measuring them, before the essay I wrote on the development of the inclination to crime at different ages. At the same time, I endeavoured to mark out the course which it is proper to follow in such researches, and the real difficulties which present themselves, when we attempt to arrive at each particular result. Perhaps it will be useful to give a summary recapitulation of my ideas on the subject, before passing to the application of them.

Certain moral qualities are very analogous to physical ones; and we may value them, by admitting that they are proportioned to the effects which they produce. Thus, we cannot hesitate to say that one operative has twice or thrice the activity of another, if, all things being equal, he performs double or triple the amount of labour which the other one does. Here the effects are purely physical, and like the compression of the spring in the estimation of mechanical forces: we have only to admit the hypothesis that causes are proportioned to the effects produced by them. But in a great number of cases, this appreciation becomes impracticable. When the activity of man is exerted on immaterial labours, for example, what standard can we adopt, except the works, such as books, statues, or paintings, produced? for how can we obtain the value of the researches and thought which these works have required? The number of the works can alone give an idea of the productive power of the author, as the number of children brought into the world gives us the fecundity of a female, without taking into account the value of the work produced.

If, like the fecundity of females, the different qualities of men were manifested by deeds to which we could assign a value, we conceive that these qualities might be appreciated and compared with each other. Thus, we should not be astounded at hearing, that one man has twice the courage of another, but only one-third the genius; but, since such an appreciation has nothing definite and exact, we confine ourselves to saying that a certain individual has courage, or has not courage, or is even a coward; which in mathematical language would be expressed by saying, that his courage is *positive*, *zero*, or *negative*. We say that one man has more courage than another. This opinion is formed, when, after having seen both the individuals in question in action, we think one inferior to the other, without being able to form an exact estimate of their degree of courage. Here we see how arbitrary this is, and how much such estimates are matters of debate. It might also be considered absurd in any one to attempt to express by numbers the relative courage, genius, prudence, or evil propensities of two individuals. Yet, let us examine such an impression more narrowly; let us try to find out why it is absurd; and see if the ratio for which we contend may not be laid down in some cases.

Let us suppose that two individuals are every day placed in circumstances inciting to acts of bravery, and that each one has the same readiness to seize them: moreover, let us suppose that each year we enumerate, pretty constantly, 500 acts of the one, and 300 of the other: moreover, these acts, though more or less remarkable, may be considered collectively, as having each the same value, because they are generally produced under similar circumstances. This being admitted, and considering causes as proportioned to their effects, we should have no difficulty in saying that the bravery of these two individuals is as 500 to 300, or 5 to 3. Such an appreciation would have more truth, according as the observations on which it was founded extended over a greater number of years, and varied little from one other. Here, then, the absurdity only proceeds from the *impossibility*, in the first place, of placing two men in equally favourable circumstances to display their bravery and courage; in the second place, of enumerating each of these acts; and, lastly, of collecting a sufficient number of them, in order that the conclusion we form may be as little removed from truth as possible. Consequently, the ratio is only considered as being absurd, from the supposed *impossibility* of determining it. However, let us suppose the two individuals just spoken of are Frenchmen, and that one of them represents the generality of men between 21 and 25 years of age, and the other the generality between 35 and 40: moreover, instead of courageous acts, let us substitute thefts, of such a nature as come under the power of the criminal tribunals, and all the rest will be realised, in such a manner that we may consider it as very probable that in France the inclination to theft is almost as five to three, in men between 21 and 25, and 35 and 40. Indeed, we may admit that men between 21 and 25, who, according to the French tables of population, are as numerous as those between 35 and 40, have the same facility to commit theft as the latter; and, moreover, that the thefts coming under the judgment of the criminal tribunals, have circumstances of equal aggravation in each. If it be objected, that we can, in this consideration, only take in the thefts which come before the tribunals, I shall say that, when we calculate the mortality or fecundity of a nation, we are only acquainted with the births and deaths noted in the civil records, and that a great number may be omitted. Moreover, the probability of omissions is as great for individuals between 21 and 25, as for those between 35 and 40 years of age.

Thus we may say, first, that the individuals we compare are almost exactly in the same circumstances; second, that if we do not know the absolute number of thefts which they have committed, at least we know the probable ratio; third, that this ratio must be entitled to more confidence, since it is founded on the observations of several years, and varies within narrow limits merely. Indeed, the ratio of 5 to 3 has been calculated from the results of four years: for two years, it was exactly as 5 to 3; one time rather more, the other rather less. These differences are such, that if we measure for four days in succession, the ratio of the power of two individuals by Régnier's dynamometer, the differences between these four ratios and the general average will undoubtedly be greater than those which we have observed. Thus we may consider it as very probable, that the degrees of inclination to theft, for France in her present state, are such as we have established.

Now, let us suppose that society, in a more perfect state than its present and real one, takes the opportunity some day to register and appreciate courageous and virtuous actions, as crimes are now done, will there not be some means of measuring the relative degrees of courage or virtue at different ages? Therefore the absurdity which is now attached to an endeavour to appreciate this ratio for the average man, is more apparent than real, and is owing to the impossibility which still exists, in the actual state of society, of procuring the necessary elements of the calculation.

It appears to me that it will always be impossible to estimate the absolute degree of courage, &c., of any one particular individual: for what must be adopted as unity?—shall we be able to observe this individual long enough, and with sufficient closeness, to have a record of all his actions, whereby to estimate the value of the courageous ones; and will these actions be numerous enough to deduce any satisfactory conclusion from them? Who will guarantee that the dispositions of this individual may not be altered during the course of the observations? When we operate on a great number of individuals, these difficulties almost entirely disappear, especially if we only want to determine the ratios, and not the absolute values.

Thus we might estimate the tendency to certain vices or virtues, either for men at different ages or for both sexes, when we are only taking one nation into consideration: but the difficulties increase when we compare different nations, because many circumstances which in the two former cases were the same, become very dissimilar in the latter.

To make a summary of what has been said on the possibility of measuring qualities of men which are only appreciable by their effects, I think we may employ numbers in the following cases, without any imputation of absurdity:—

1. When the effects may be estimated by means of a direct measure, which gives their degree of energy, such as those produced by strength, speed, and activity, applied to material works of the same nature.*

2. When the qualities are such that the effects are almost the same, and in a ratio with the frequency of these effects, such as the fecundity of females, drunkenness, &c. If two men, placed in similar circumstances, became intoxicated regularly, the one every week, and the other twice a-week, we should say that their propensity to intoxication was as 1 to 2.

3. Lastly, we may also employ numbers, when the causes are such that it is necessary to pay as much attention to the frequency of the effects as to their energy, although the difficulties then become very great, and indeed sometimes insoluble, owing to the few data at present possessed by us. This is what we observe especially in regard to the moral and intellectual qualities, such as courage, prudence, imagination, &c. The question generally becomes simplified, when the effects really vary in energy; but these, nevertheless, under their different modifications, are in almost similar proportions. We may, then, leave energy out of the calculation, and only attend to frequency. Thus, comparing the state of man at 25 and at 45 years of age, in his tendency to commit theft, we may, without erring greatly, attend only to the frequency of the thefts at these different ages, because the different degrees of aggravation of these offences may be supposed the same in both cases. In such appreciations as these, the values we obtain have the greater likelihood of approaching the true values which are wanting, according as, all things being equal, they are more numerous—just as when we put two individuals to the proof, to form an idea of their knowledge, veracity, memory, &c., we mark the number of mistakes they make. Moreover, as I have already remarked, these modes of appreciation are almost impracticable, when two individuals are concerned, because the facts are not sufficiently numerous to draw any satisfactory conclusion from them; and, moreover, the individuals may alter during the course of the observations. It is not so with the average man: indeed, we can obtain a great number of observations in a short time. It would be impossible, when comparing two men, the one between 21 and 25, and the other between 35 and 40, to determine, all things being equal, their degree of proneness to theft, or any other crime, for this proneness may not have been disclosed, even in one single action, in the course of the observations; which is no longer the case when we take all men, collectively, of the same age: the number of acts or effects is then great enough to allow us, without any serious error, to neglect the different degrees of energy of these acts. Again, if we find that the number of crimes remains nearly exactly the same, from year to year, it is very probable that the result obtained will not be far from the truth.

I think all the qualities of man which are only appreciable by their effects, may be referred to the three heads I have laid down above: I also think it will be perceived that the impossibility of employing numbers at present, in such appreciations, is rather owing to the insufficiency of the data than to the inaccuracy of the methods.

If the law established for the average man is liable to some exceptions, as all the laws of nature are, yet this will be what expresses most nearly what the state of society has been; and nothing can be more important. At birth, man is possessed of the germs of all the qualities which are developed successively and in different degrees; prudence predominates in one, avarice in another, imagination in a third: we also find some tall in proportion to their age, others having a precocious imagination, and possessed of activity and vigour in old age. The single fact that we remark the existence of these differences, proves that we have some notion of a general law of development, and reason accordingly. Therefore, I am not aiming at something unheard of, but only to give more precision to these commonly vague appreciations, because they rest on incomplete or defective observations, and are almost always few in number.

After all which has been said, I think it not only not absurd, but even *possible*, to determine the average man of a nation, or of the human race; the apparent absurdity of such a research only proceeds from the want of a sufficient number of accurate observations, so that the conclusions may present the greatest possible probability of truth. In the preceding book, I have already attempted to determine the laws of the development of the physical powers of the average man: I am now going to continue my researches, and extend them to the moral and intellectual qualities.

* Perhaps we might reduce to the same class the effects of memory, whether considered in its readiness to apprehend or its power of retention. For example, two persons, the mind of each being equally calm, and constituted alike favourably for the experiment, will commit some pages of a book to memory, the one in two hours, the other in four hours: but the first person, after a month, will not be able to repeat the passage in question without stopping, whilst the second finds no defect of his memory until two months have elapsed. After such an experiment, the facility to apprehend (in the two individuals) is as 1 to 2, and the facility to retain in the inverse ratio: the time here serves as a measure. We should say, undoubtedly, that it is impossible to note the precise moment when we have committed the passage entirely to memory, as well as when the memory begins to be defective. But here we may act as is done in physical phenomena, which present the same inconvenience, when calculating the duration of the sensation of sight or hearing, or the loss of electricity by a moist medium, or the cooling of bodies. Memory seizes and loses in a gradual manner, and according to a certain law; but there is a ratio between the facility of seizing and retaining in different persons, independently of this law. This ratio must vary very much according to the age of persons. I think these variations may be ascertained by increasing the number of experiments, to correct what may have been defective in other observations. I do not think that the changes which age produces on sensations of sight and hearing have yet been studied: I do not speak of the other senses, the mode of operation of which is but little understood.

CHAPTER I.

DEVELOPMENT OF THE INTELLECTUAL FACULTIES.

1. Development of the Intellect.

THE field we are going to traverse is immense; in the actual state of science, we must confine ourselves to simple indications, which will serve as posts to denote the first attempts made with a design of taking in and observing the whole field. It will first be necessary to determine the period at which memory, imagination, and judgment, commence, and the stages through which they successively pass in their progress to maturity; then, having established the maximum point, we may extend our inquiries to the law of their decline. I have already stated the mode in which memory is to be estimated, and I shall here endeavour to show how we ought to proceed with reason and imagination.

We can only appreciate faculties by their effects; in other words, by the actions or works which they produce. Now, in attributing to a nation, as we should to an individual, all the works which it has produced, we may form an opinion both of the fecundity and the power of intellect of that nation, compared with others, making allowance for the influence of causes impeding their production. Afterwards, by bearing in mind the ages at which the authors have produced their works, we possess the necessary elements to follow the development of the mind, or its productive power. In such an examination, it will be necessary to separate the different kinds of works; placing together works of art or design, music, mathematics, literature, philosophy, &c., so as to perceive immediately the different shades of development of the different faculties.

This research should be repeated in passing from one nation to another, to see if the laws of development vary by locality more than by the nature of the works. It will also be necessary that these examinations be most accurate and impartial; we should not select, but take the works promiscuously, without classing them. This might be tedious and irksome; but would present curious and very unexpected results.

I shall now give an example of such an analysis of dramatic works only, and I shall take France and England as the subject of observation. To exclude all idea of system, I shall only consider those works truly deserving of mention which are given in the Repertory of Picard for France, and the British Theatre for England. I know that, in attributing as much merit to the Misanthrope as to the Sicilian, and as much to Don Sancho of Arragon as to Cinna, there can be no similarity; but here, as well as in the researches into crime, it happens that the greater number of the obstacles disappear, and the ratio of works of the first order to those of the second may be considered as being essentially the same, in the groups we have formed. Besides, when examining the degrees of merit of the different works in detail, we may still in some measure meet and parry this inconvenience and difficulty. We may still deceive ourselves in such an estimate, but generally the probability of error will be lessened as the observations are more numerous. We have, moreover, the valuable advantage of being able to prove the law of development, by passing from one nation to another, and seeing how the maximum is influenced by locality.

In the review I have made of dramatic works, I have thought proper to take, not the period at which the works were written, which is generally impossible, but the time when they were represented, which, on an average, will generally be two or three years later.

Ages.	French Theatre.			English Theatre.		
	Principal Works.	Authors who have produced them.	Works which might have been produced.	Principal Works.	Authors who have produced them.	Works which might have been produced.
20 & under,	0	47	0	1	24	1
20 to 25, -	5	47	5	6	24	6
25 to 30, - -	15	47	15	8	24	8
30 to 35, -	26	47	26	9	23	9
35 to 40, - -	26	46	27	7	22	8
40 to 45, -	25	45	26	7	22	8
45 to 50, - -	28	43	30	6	19	8
50 to 55, -	23	41	26	0	15	0
55 to 60, - -	5	33	7	1	12	2
60 to 65, -	6	26	10	1	11	2
65 to 70, - -	4	23	8	0	7	0
70 & upwards,	2	16	5	1	7	3

The first column for each country indicates the number of principal dramatic works; the second the number of authors who composed them, and who survived to the ages pointed out; and the third column informs us how many works might have been produced, all things being equal, if the number of authors had not been reduced by death. Thus, between their 65th and 70th years, 23 authors have produced four works; and I have supposed that if the 24 others had continued to live, they would have been able to produce other four, which would give a total of 8 dramatic works. Admitting, then, that each had the same opportunity to produce, at a given age, I have multiplied each number of the first column, which gives the principal dramatic works, by the ratio $\frac{47}{a}$, in which a stands for the number of surviving authors.

Now, if we proceed to examine the results which the table presents, we shall perceive that, both in England and France, dramatic talent scarcely begins to be developed before the 21st year; between 25 and 30, it manifests itself very decidedly; it continues to increase, and continues vigorous, until towards the 50th or 55th year; then it gradually declines, especially if we consider the value of the works produced.

Moreover, it would appear that authors were rather more precocious in England than in France: this may be owing to the manner in which the numbers have been collected, and to the difficulty which French authors experience before they procure the representation of their pieces.

It would be interesting to compare these results with those which have been obtained by considering the number and relative merit of the different works. This I have endeavoured to do in the following table, which I only bring forward as an essay, not pretending that the classification of French works is according to their real merit. I have thought proper only to make three degrees of comparison of the works given by Picard as forming the French stage; and I have quoted a small number of those which I conceive to belong to the first rank:—

Ages.	Order of the Works.			Relative Aggregate.	Name of the Works of the First Order.
	1st.	2d.	3d.		
20 and under,	0	0	0	0	
20 to 25, -	1	0	4	7	Œdipe.
25 to 30, - -	3	3	9	24	Le Cid, Andromaque, Britannicus.
30 to 35, -	4	8	14	42	Les Horaces, Cinna, Polyeucte, Iphigénie.
35 to 40, - -	4	8	14	42	Phèdre, Le Joueur, Zaïre, Le Méchant.
40 to 45, -	2	9	14	38	Le Distrait, Alzire.
45 to 50, - -	6	10	12	50	Le Misanthrope, Le Tartuffe, L'Avare, Mahomet, Mérope, La Métromanie.
50 to 55, -	3	8	12	37	Les Femmes Savantes, Athalie, Le Glorieux.
55 to 60, - -	0	3	2	8	
60 to 65, -	0	2	4	8	
65 to 70, - -	0	1	3	5	
70 & upwards,	0	1	1	3	

In the approximative estimate I have made of the relative degrees of merit of works of the first, second, and third orders, I have taken the numbers 3, 2, and 1; and from them I have deduced the values of the last column, which entirely confirm those given by the former table. It is also easy to see, whatever numbers we may employ to express the relative degrees of merit of works, that the general results still remain the same.

Another very curious result which the tables I have formed show, although the details are here suppressed, is, that tragic talent is developed more rapidly than comic. The *chefs-d'œuvre* which enrich French comedy,

were not begun until the 38th or 40th year; and we scarcely find any works belonging to elevated comedy before the 30th year; though I am only speaking of the French authors included in the Repertory of Picard. But I leave this discussion to more competent judges; here I confine myself to just pointing out the plan to be adopted. Others are more able to ascertain if the talent of the tragic author really arrives at maturity earlier than the comic author; and if this maximum is more precocious because it is naturally connected with the time of life when the passions are in the highest state of exaltation. The best mode of analysing this question will be, to ascertain the law of development of musical talent and the art of design, and things generally which excite the passions; and, on the other hand, to study our faculties, the development of which does not so much require the conjunction of the passions and an exalted imagination, as observation and reflection. I shall soon present a remarkable example of analysis of the development of the passions, which tends to show that their maximum of energy takes place about the 25th year; so that, if an art existed, the exercise of which would follow a ratio proportional to the development of the passions, and where previous studies were dispensed with, its maximum of development would also take place about the 25th year: this maximum will afterwards draw near to that which reason attains, according as the intervention of this faculty becomes more necessary. It will also be necessary to take into account the time required for the studies which are indispensable in the production of works.

Our intellectual faculties arise, increase, and decay: each one attains its energy towards a certain period of life. It would be of the highest interest to ascertain those which occupy the two extreme limits of the human scale; that is to say, those which are the first and those which are the last in arriving at maturity; because they have the property of being simple, and not resulting from combination: thus, for example, dramatic talent is a combination of several other faculties, such as imagination, reason, &c.; but, I again repeat, such an analysis requires infinite care, numerous researches, and great shrewdness of observation.

After having rapidly sketched the course to be pursued in studying the development of the intellectual faculties, I think it will be proper to speak of their diseases, which are dreadful affections, the intensity and number of which seem to keep pace with the development of the mind.

2. Of Mental Alienation.

"Sloth and misconduct give birth to poverty; immorality and intemperate passions lead to crime; insanity may attack the most honourable, and does not always spare the wisest men."* This opinion, put forth by a man whose name has great weight in science, will be sufficient to convey an idea of the importance I attach to any thing bearing on the statistics of the deranged. If it be true that diseases of the mind increase in proportion to the development of this faculty, we shall have a new measure or standard, which may regulate what I have previously attempted to establish. However, it is well to be aware that, by taking all insane persons indiscriminately, we may be led to very inaccurate results. Moreover, it is right to distinguish the two classes of insane persons carefully: for, according to M. Esquirol, it is insanity, properly so called, with which idiocy has been confounded, that is in a direct ratio with civilisation. Idiocy is a state depending on soil and material influences, whilst insanity is the product of society and of moral and intellectual influences. In idiocy, these causes have prevented the development of the organ, and, consequently, the manifestation of intelligence. In the production of insanity, the brain is over-excited, and goes beyond its physiological power.*

To form an idea of the influence of this fatal malady, we shall commence by a glance at some of the principal countries where its influence has been most decided.

Countries.	Population.	Deranged Persons.	Population to one Deranged Person.
Norway, - -	1,051,318	1,900	551
England, - -	12,700,000	16,222	783
Wales, - - -	617,148	696	911
Scotland, 1825, -	2,093,454	3,652	573
New York, 1821,	1,616,458	2,240	721
France,† - -	30,000,000	30,000	1000

In Norway, idiots form one-third of the total number of deranged persons, and one-half in Scotland and Wales: it is the great number of idiots which makes the proportion of deranged persons in Scotland so much greater than it is in England. In general, we observe that in mountainous countries there are many more idiots than in level ones; and in plains where agriculture is solely pursued, we find more idiots than in towns. In France and New York, the number of idiots is very small.

From numerous researches into the ratio in which the sexes are affected, collected from several countries, having great differences in temperature, customs, and laws, M. Esquirol has enumerated 37,825 males to 38,701 females; from which it appears that difference of sex has not much influence on mental derangement. But this is not the case with the seasons; their influence is very marked; at least we may infer this from the following returns of insane persons admitted at Charenton:—

Months.	Admissions: 1828-1829.		Admissions before 1829.	Cures.	Deaths.
	Men.	Women.			
January, -	42	21	37	11	21
February,	40	33	49	10	24
March, -	49	25	53	10	16
April, - -	50	38	58	16	22
May, - -	58	36	44	15	18
June, - -	55	34	70	19	18
July, - -	52	36	61	23	18
August, -	45	24	64	22	13
September,	48	26	47	22	11
October, -	44	47	49	24	30
November,	47	22	35	22	22
December,	35	28	52	15	8
Total,‡ -	565	370	619	209	221

Thus, the summer months have produced the greatest number of cases: the cures have also been most numerous in summer and autumn. We may conceive that, from cases of acute insanity breaking out during the hot season, and being more readily cured, also, than chronic ones, the three months of autumn ought to furnish the greatest number of cures.

If we examine what influence age has on the development of mental alienation, we shall again find very curious results. It would appear that mental alienation may be divided, according to ages, into imbecility in infancy, mania in youth, melancholy in mature age, and madness in advauced age.§

The following table will show us the degree of frequency of this disease at different ages. It is constructed from the data given by M. Esquirol in the

* *Remarques sur la Statistique des Alienés*, &c., par M. Esquirol (*Annales d'Hygiène*, Décembre 1830).

* M. Esquirol. The data of this chapter are extracted principally from articles inserted by this philosopher in the *Annales d'Hygiène*.

† These numbers relating to France are from casual not statistical observation. See also the *Memorial Encyclopedique*, May 1833.

‡ The numbers for the five years from 1829 to 1833, given in this and the following table, have been kindly furnished me by M. Esquirol, from an unpublished work.

§ See the article *Folie* of the Dict. des Sciences Médicales.

Annales d'Hygiène for April 1829. To estimate the degree of frequency of mental alienation, I have thought it necessary to count the number of individuals between 15 and 20, 20 and 25, &c., years of age. In this table I have also included the number of cures, and their ratio to the number of patients.* Lastly, the numbers of both the last columns are those which M. Esquirol has kindly permitted me to take from his work about to be published.

Ages.	At Charenton before 1829.		Ratio.	Lunatics to the Population.	At Charenton: 1829 to 1833.	
	Admissions.	Cures.			Men.	Women.
15 to 20 years,	22	11	2·0	24	24	11
20 to 25 ,,	67	30	2·2	79	65	23
25 to 30 ,,	86	40	2·2	109	78	31
30 to 35 ,, -	98	36	2·7	134	79	47
35 to 40 ,,	81	25	3·3	125	65	64
40 to 45 ,, -	79	21	3·8	129	64	59
45 to 50 ,,	72	14	5·1	131	52	44
50 to 55 ,, -	52	12	4·3	108	54	37
55 to 60 ,,	21	6	3·5	51	32	20
60 to 65 ,, -	21	9	2·3	63	33	18
65 to 70 ,,	6	1	6·0	24	14	9
70 & upwards,	14	4	3·5	45	6	7

We have already seen that, all things being equal, it is between the 30th and 50th years that the greatest number of standard dramatic works have been produced in France—that is, the period when imagination and reason are most productive; and, by a singular contrast, it is also about the same age that mental alienation is most frequent, and the cure of it most difficult. The intellectual life of man, and the diseases of his mind, especially develop themselves about the age of 25 years, when physical development has almost ceased: man, indeed, at this age, is almost entirely developed in stature, weight, and strength; and it is at this time that the greatest tendency to crime is manifested. Again, it is remarkable from another comparison, namely, that the period of reproduction falls between the 25th and 30th years. Thus, the average man, between 25 and 30 years of age, has completed his physical development, and this is also about the period when his intellectual life is most vigorous.†

M. Esquirol, in a work published in 1830, in the *Annales d'Hygiène*, has given the following numbers, which establish a difference between sexes and ages:—

Ages.	Paris.			Norway.		
	Men.	Women.	Total.	Men.	Women.	Total.
Before 20 years,	436	348	784	188	141	329
From 20 to 25,	624	563	1,187	101	83	184
,, 25 to 30,	635	727	1,362	97	88	185
,, 30 to 40,	1441	1607	3,048	214	173	387
,, 40 to 50,	1298	1479	2,777	150	155	305
,, 50 to 60,	847	954	1,801	128	115	243
,, 60 and upwards, -	875	1035	1,910	117	140	257
Total, - -	6156	6713	12,869	995	895	1890

* According to a work by M. Klotz, *De Vesaniæ Prognosi*, the annual ratio of admissions to dismissions in the principal lunatic hospitals of Europe, would fall within the limits 0·330 and 0·590. In the generality of the establishments in Belgium, the entries are to the exits as 390 to 1000.—*Traite sur l'Alienation Mentale*, &c., *par J. Guislain*, 2 vols. 8vo. 1826.

† M. Pierquin, in his *Arithmetique Politique de la Folie*, finds, as the principal conclusion of his researches, that "crimes are always, from being proportionate to the population, also in a relative proportion to the degree of insanity," and seeks to refute the assertion of M. Esquirol, that insanity is a disease of civilisation. I certainly think, with him, that in general, the causes which tend to produce alienation, also influence the number of crimes, and especially crimes against persons, but without there being a direct and necessary ratio between the number of insane and that of criminals, because all crimes have not their source necessarily in mental alienation.

We may first observe, that at Paris insane men, up to the age of 25 years, are rather more numerous than women; after this age, the contrary takes place. In Norway, the number of insane women only exceeds that of men towards the end of life. In the latter country, the number of insane under 20 years is 329, which is one-sixth of the total number existing in the kingdom; whilst at Paris, the number of insane under 20 years of age, is only 784, or one-fourteenth. This difference arises, no doubt, from the great number of idiots entered in the returns of Norwegian statistics. If in Norway there are more imbecile persons from the time of infancy or early youth, the contrary takes place for the periods beyond 60 years of age. In Norway, scarcely one-eighth of the insane are more than 60 years old; whilst in Paris one-sixth exceed that age.

To form a better opinion of the influence of age, I have reduced the preceding numbers to 1000, and I have compared them with the corresponding numbers of the same ages, given in the tables of population in the *Annuaire du Bureau des Longitudes* of France, and those of Sweden for 1820:—

Ages.	Paris.			Norway.		
	Population.	Insane.	Ratio.	Population.	Insane.	Ratio.
Before 20 years,	0·402	0·061	0·15	0·411	0·174	0·42
20 to 25 ,,	0·084	0·092	1·09	0·087	0·097	1·11
25 to 30 ,,	0·080	0·106	1·32	0·084	0·098	1·17
30 to 40 ,,	0·140	0·237	1·69	0·136	0·205	1·51
40 to 50 ,,	0·114	0·216	1·90	0·109	0·161	1·48
50 to 60 ,,	0·091	0·140	1·54	0·086	0·129	1·50
60 & upwards,	0·089	0·148	1·66	0·087	0·136	1·56
Total, -	1·000	1·000	1·00	1·000	1·000	1·00

The numbers for France also concur to show that mental alienation is most frequent between the 40th and 50th years. In Norway, its frequency becomes great between the 30th and 40th years, and preserves the same value almost to the end of life.

These results agree well with the observation of M. Esquirol, that insanity is a disease which attends and increases with civilisation. The fortress of the understanding is attacked, either by too much mental labour, or by passions and disappointments which are too acutely felt.

We cannot collect too many documents to verify, with still greater accuracy, the results of the tables which I have just given. It is with this object that I now bring forward some new documents taken from a *Rapport Statistique sur la Maison d'Aliénés de Bon-Sauveur à Caen*, during the years 1829 and 1830, by M. Vastel.* The author classes the insane in the following manner, according to age. In the last column, the total numbers are reduced to 100:—

Ages.	Insane.	Men.	Women.	Insane.
From 15 to 20 years, -	10	7	3	0·03
,, 20 to 30 ,, -	54	38	16	0·17
,, 30 to 40 ,, - -	94	44	50	0·29
,, 40 to 50 ,, -	82	32	50	0·25
,, 50 to 60 ,, " "	57	18	39	0·17
,, 60 to 70 ,, -	25	6	19	0·08
,, 70 to 80 ,, - -	3	1	2	0·01
Total, - -	325	146	179	1·00

Here, again, we find the same analogies, the same laws of development, proceeding, as it were, in a parallel manner.

M. Falret has written a work on insanity, suicide, and sudden death, of which at present we only know the general contents, from a report made by M. Serres to the Institute.† The principal conclusions of this

* Annales d'Hygiène, Oct. 1832.

† The work of M. Falret has gained the prize for Statistics, founded by M. de Monthyon.

work, on the influence of season, sex, and age, are the following:—"Of the total number of the insane, women form one-third more than men. 'Women are most subject to the attack of insanity in July; but for men this month is in the third rank; with a reference to civil statistics, we find that more than one-fourth of the men are bachelors: as to age, we find mental diseases develop themselves in men between the 30th and 39th years, and in women between the 40th and 49th years; as to the nature of the affections, melancholy predominates in women, and the tendency to homicide in men. The same contrast is found in the cures, deaths, and relapses."

CHAPTER II.

DEVELOPMENT OF MORAL QUALITIES.

1. Of Foresight, Temperance, Activity, &c.

I HAVE already observed, that it is not so much a method which we want, when endeavouring to appreciate the development of moral qualities, as sufficient and trustworthy data. For example, if we are considering the virtues most essential to the social state, we have scarcely any data, and those which exist, having been collected with intentions very different from our own, are either unfit for purposes of comparison, or utterly incomplete. For example, let us suppose that we want to ascertain the degree of foresight at different periods of life, as well as the modifications of this virtue by the differences of sex, locality, profession, &c. We are obliged to recur to actions by which this foresight has been manifested; and if we cannot collect them all, it is at least necessary to unite as great a number as possible, and to take care that the classes of individuals who are the subject of comparison are in the same circumstances. It is in choosing, classing, and reflecting upon the materials, that discernment and unprejudiced reasoning are so essentially necessary, since the examples to be followed have not yet been laid down. Those who first enter upon this field of research, will no doubt often go astray; but their efforts will be valuable and useful, if they are conducted with candour and impartiality. Nothing is more injurious to the interests of science, than to undertake such researches with notions previously formed.

If we had authentic documents respecting savings' banks, assurance societies, and the different institutions which encourage foresight—if these documents gave the age, sex, profession, and every other requisite information concerning the individuals who take part in the operations of these establishments—it is evident that we should already have very satisfactory elements to enable us to obtain an approximation to the values we are seeking. We may conceive, moreover, how much discernment is necessary, in placing the individuals concerned in similar circumstances, and distinguishing those among whom it is impossible to establish any comparison; not to mention other data necessary to enable us, from the time at which they were taken, to render all chances equal on both sides. We should be able, with due precautions, to make other documents, furnished by establishments of another nature, available for the same purpose, and which would serve in this manner to verify the former conclusions. Thus, the number and value of the objects placed in pawnbrokers' hands, will better exemplify the want of foresight of a community than any misery in its condition. For, if it be true that accidents and reverses of fortune sometimes compel men, even the most prudent, to have recourse to such establishments, it much more frequently happens that the deposits are placed there from want of due care and economy. The passion for gambling, the number of failures, the frequenting of coffee-houses and low haunts, drunkenness, and many other circumstances, would furnish useful elements for our purpose in appreciating the want of order and foresight. On most of the subjects of inquiry which I have just mentioned, there exist evidences which are more or less complete, but which are little understood in general, as I have already observed.

Drunkenness is a vice of which we ought to have exact records in countries where the police are active; yet it is to be regretted that they are altogether unknown to those who have the greatest interest in making use of them. As drunkenness is a common source of many other vices, and also of crimes—tending to demoralise and to deteriorate the species—governments ought to favour the researches of learned men, who seek to ascertain the condition of the people, and who try to improve them. Drunkenness is influenced by a great number of causes which are easily estimated, because the necessary data require less investigation than those relating to other analogous estimates. I am persuaded that a work, well written, which would endeavour to make known the injuries this pestilence inflicts on society, would be of the greatest utility, and would furnish an explanation of a great number of isolated facts which depend upon it, and which we are in the habit of considering as purely accidental.

In England, about half a century ago, strong drinks and liquors were used in excess; and authors were not long in finding out to what extent this vice led to thoughtlessness and injury in the nation, how much the health of man suffered, and how much the mortality increased with the demoralisation of the people. Their observations have not been lost; and a progressive reformation took place, commencing with the better classes. This defect, formerly so common, and of which they were almost proud, is not to be seen now, except in the lower orders, from among whom it will gradually disappear, as much as the nature of a moist climate will allow, where cordials, taken moderately, are calculated to produce a useful effect. When climate creates a necessity, it is very difficult to prevent the public from abusing it. I am obliged to Mr Babbage for the communication of some curious documents, containing a list of all the drunken persons who have been arrested by the London police in the year 1832, and who were immediately released, because no charge was brought against them. Although the results of one year cannot be very useful, I have thought proper not to omit them. If we possessed an extensive series of similar documents, we should find in them the most precious memorials of the manners of the English people, and, in particular, all which relates to changes in the condition of the population.

Number of Drunken Persons taken up by the London Police in 1832.

Months.	Men.	Women.	Ratio.
January,	1,190	825	1·44
February,	1,175	740	1·59
March,	1,190	710	1·67
April,	1,150	690	1·67
May,	1,200	730	1·64
June,	1,225	780	1·57
July,	1,355	990	1·37
August,	1,305	935	1·39
September,	1,196	975	1·23
October,	1,560	1,100	1·42
November,	1,360	880	1·55
December,	1,425	935	1·52
Total,	15,333	10,290	1·49

The number of drunken people taken up by the police was then 25,623; to which we ought to add 3505 individuals brought before the magistrates, and compelled to pay a fine, as well as 3429 others, who have likewise been conducted before the magistrates, but without undergoing condemnation; so that the total amounts to 32,557. We must remark, that we only know those cases of drunkenness which were so great as to disturb the public tranquillity. Also, in comparisons which we should like to establish between other towns, it would be necessary to be extremely circumspect, and consider the degree to which its suppression was carried; or, rather, in comparing one town with itself at different times, it would be necessary to take into account the effect of the police, and the changes they may have produced.

One would require to have long inhabited London, and to know perfectly the peculiarities which it presented in 1832, to draw all the conclusions inferable from the preceding numbers; still there are some results which it may be very interesting to point out. And, firstly, we have to notice the great number of women, compared with the number of men, which is at least as 2 to 3. This disproportion is great, and must make us think unfavourably of the moral restraint of women in the lower class, especially in a country where the sex is so well conducted in the ranks of society a little higher. This ratio varies according to the different months, and in a manner which would make us think that the variation is not purely accidental. Towards the end of winter, and at the commencement of spring, the men are comparatively the most numerous: the contrary takes place in summer.

If we take the numbers in their absolute value, we find, for men, that they sensibly increase from the commencement to the end of the year; for women, the smallest number is in spring, and the largest in summer and the commencement of autumn. Classing them according to the seasons, we find—

	Men.	Women.
For January, February, and March,	3555	2275
" April, May, and June,	3575	2200
" July, August, and September,	3858	2900
" October, November, and December,	4345	2915

It must be remarked, that this is during the latter months of the year, when the feasts of Christmas and St Andrew take place, which are not always celebrated by the people with the greatest degree of temperance.

If we seek to form an idea of the activity of a people, of the state of its industry, and of its productive faculties, in the absence of direct data, we have, for the means of appreciating its revenue, the value of that which it is able to pay to government, the nature of its contribution, the quantity of imports or exports, the price of ground, of hand work, &c., but particularly the state of the population, because, as we have been able to see, the population is regulated by the number of things produced. I shall present an example of such a valuation, a very poor one, no doubt, but one which will explain my idea:*—

Countries.	Quantity of Pasturage.	One Horse to	One head of Cattle to	Number of Sheep.
British Isles,	¼ of territory.	12 inhab.	2 inhab.	2 to 1 inhab.
France,	½ "	19 "	5 "	1 to 1 "
Low Countries,	¼ "	13 "	3 "	1 to 3 "
Prussian monarchy,	½ "	10 "	3 "	1 to 6 "
Austrian empire,	½ "	27 "	8 "	1 to 3 "
Spain,	1-65 "	75 "	11 "	1 to 1 "

Countries.	Population.	Inhabitants to one square mile.	Ratio of the Army to the Population.
British Isles,	23,400,000	257	229
France,	32,000,000	200	138
Low Countries,	6,118,000	339	142
Prussian monarchy,	12,464,000	155	80
Austrian empire,	32,000,000	165	118
Russian empire,	56,500,000	37	57
United States,	11,800,000	7·5	1977

* The first table is taken from the *Revue de Paris* of M. Moreau de Jonnes; the numbers of the second and third tables are from the works of M. Balbi—*La Monarchie Française Comparée aux Principaux Etats*, and *L'Abrégé de Geographie*.

Countries.	Inhabitants living in Town.	Part of the Population employed in Manufactures.	Part of the Population employed in Agriculture.	Revenue to each Inhabitant.	Debt to each Inhabitant.
				francs.	francs.
British Isles,	0·50	0·45	0·34	65·2	869
France,	0·33	0·36	0·44	30·9	145
Low Countries,	0·29	?	?	26·3	635
Prussian monarchy,	0·27	0·18	0·66	17·2	29·3
Austrian empire,	0·23	0·09	0·69	10·9	45·6
Russian empire,	0·12	0·06	0·79	6·6	21·4
United States,	?	?	?	12·1	34·8

If, in the beginning, we compare France to England, we shall find the first kingdom proportionally less peopled than the latter: there are fewer inhabitants in town, and also fewer employed in manufactures: the Englishman pays into the treasury twice as much as the Frenchman, and his exports are much more considerable: the proportion, as regards the two countries, according to M. Ad. Balbi, is nearly as 3 to 1.

The Prussian monarchy bears almost the same proportion to France which France does to England. It is remarkable, according to our table, that the countries which have the largest population, are generally those which have the most town inhabitants, the greatest number of hands employed in manufacture, and proportionally the fewest in agriculture; they have fewer men in the army, pay most taxes to the state, and have the largest debt.* Land armies appear to be numerically in inverse ratio to maritime ones: the latter require fewer men, but more expense.

In Europe, with the exception of Russia, nearly the same number of hands are employed in agriculture, and the surplus population turn to manufactures (*industrie*). It then becomes necessary to change the nature of the products by exportation; and the country which has the most manufactures is generally that which has the most exports. Manufactures are always and every where of more importance than agriculture, and those who pursue them possess the greatest riches and pay the most to the state; but since the revenues from manufactures are more uncertain, their wealth is less secure: we also see that the public debt rises immensely in value, and every thing which tends to confine the scope of trade, and to diminish the exchange of produce, will cause a considerable mortality.

It is to be regretted that, at the present time, we do not possess, for different countries, exact accounts of the prices of manual labour, of ground, of lodgings, of the food necessary to the life of an individual, of the carriage of letters, and the means of communication for travellers and merchandise; these accounts would give data for comparing the activity of the inhabitants and the price of time—valuable elements, but of which some people do not yet appear to understand the importance.

I had proposed, at this place, to compare the donations made for the use of the poor, of hospitals, and benevolent institutions in general; but I must omit this investigation, from want of exact documents: I particularly regret that M. Guerry, when considering this subject in France, has only given ratios, and no absolute numbers, nor any of the sources whence he has extracted them.

It appears to be still more difficult to speak on the influence of religious ideas, and the condition of people in this respect.

A very useful addition to moral statistics, would be to point out the dates at which certain practices and customs existed, and also the time when they commenced, and when they ceased. For example, at what period prosecutions for witchcraft were most

* According to M. le Baron de Morogues, states in which the people are most given to agriculture, are those which are the least loaded with pauperism.—*Recherche des Causes de la Richesse et de la Misère des Peuples Civilisés*, p. 385.

numerous, when they began to take place, and when they were discontinued; in what countries men were tortured and put to death for religious opinions, without having disturbed the public peace, at the same time what were the extreme limits of the period, and the epochs of greatest severity; what kind of fanaticism, either political, religious, or otherwise, has prevailed at any period, in any country; what gave rise to it, and what caused its decline; what was its nature, intensity, and results, &c. I shall not stay longer to make such enumerations; these are researches which henceforth must necessarily be considered as pertaining to the history of nations, and will assist us in determining their laws of development. However, I do not think we ought to abandon this subject without giving an example of a particular kind of mania or fanaticism, so to term it, which appears to be making sensible advances every day.

2. Of Suicides and Duels.

The destruction of man by his own hands, although generally repugnant to the notions of modern society, has nevertheless found panegyrists, and those who have proclaimed its advantages. Suicide, among some nations, continues to be branded with infamy by the public. The ancients were not entirely of this opinion: it was often practised by the most illustrious men, and has been mentioned with admiration by their gravest historians. We are naturally excited by the death of Cato, who wished not to survive the liberty of his country; by the death of Lucretia, who wished not to survive her dishonour; or even by the death of the criminal, who seeks to spare his family the shame of seeing his head fall on the scaffold.

The destruction of one man by another, excites horror; yet this dreadful crime may also, in our manners and modern institutions, present the appearance of a virtue under certain circumstances. We can only comprehend these apparent contradictions, by admitting that the crime consists, not in the action, but in the intention of him who commits it; so that, if the intention was noble or generous, the action may also be considered of the same character. This is the only manner in which we can explain the diversity of opinions on duelling especially, which was unknown to the ancients, and which had its rise in the middle ages.

We possess few data on the number of suicides; and what information we have on the number of duels, is so incomplete or inaccurate, that we cannot make use of it. From the table of M. Balbi, entitled *La Monarchie Française Comparée aux Principaux Etats du Globe*, suicides appear to take place in the following proportions:—

France (1827),	1 suicide to 20,740	inhabitants.
Prussian monarchy,	" 14,404	"
Austrian empire,	" 20,900	"
Russian empire,	" 49,182	"
United States—New York,	" 7,797	"
" Boston,	" 12,500	"
" Baltimore,	" 13,656	"
" Philadelphia,	" 15,875	"

According to Casper, who has paid much attention to this subject,* the number of suicides is particularly great in towns; indeed, we annually enumerate as follows:—

	To 100,000 Inhabitants	1 Suicide to
At Copenhagen,	100 suicides	1000 inhabitants.
" Paris,	49 "	2040 "
" Hamburg,	45 "	2222 "
" Berlin,	34 "	2941 "
" London,	20 "	5000 "
" Elberfeld,	20 "	5000 "

The General Records of the criminal courts of France, present, from 1827, annual accounts, not only of suicides but also of accidental deaths and duels which have come to the knowledge of the public magistrate. According to these accounts, we find—

Years.	Accidental Deaths.	Suicides.	Duels.	
			followed by Death.	not followed by Death.
1827,	4,744	1542	19	51
1828,	4,855	1754	29	57
1829,	5,048	1904	13	40
1830,	4,478	1756	20	21
1831,	5,045	2084	25	36
Total,	24,170	9040	106	205

This table gives 4834 accidental deaths, and 1808 suicides, as the annual average; which, to a population of 32,000,000 souls, gives one accidental death to 7000, and 1 suicide to 18,000 inhabitants; as to the number of duels, it may be supposed that the values in the table are too low.

A very great number of suicides takes place in the department of the Seine. They have been committed in the following manner, during the years from 1817 to 1825 inclusive:—

Years.	Total.	Submersion.	Fire-arms.	Asphyxia.	Voluntary Falls.	Strangulation.	Cutting Instruments.	Poisoning.
1817,	352	160	46	35	39	36	23	13
1818,	330	131	48	35	40	27	28	21
1819,	376	148	59	46	39	44	20	20
1820,	325	129	46	39	37	32	28	14
1821,	348	127	60	42	33	38	25	23
1822,	317	120	48	49	33	21	31	15
1823,	390	114	56	61	43	48	47	21
1824,	371	115	42	61	47	38	40	28
1825,	396	134	56	59	49	40	38	20
Total,	3205	1178	461	427	360	324	280	175

The average number of suicides, therefore, in the department of the Seine, annually reaches 356; which, for a population of 860,000 souls, gives 1 suicide to 2400 inhabitants; Geneva gives the ratio of 1 to 3900, for the years between 1820 and 1826 inclusive.* The following are the modes of destruction, according to 95 observations:—36 individuals perished in water; 34 blew out their brains; 6 hanged themselves; 5 were poisoned; 2 died from wounds; 2 cast themselves from an eminence. Thus, with regard to the preference shown for particular modes, these numbers are almost the same as at Paris.

The means of destruction are not every where the same: thus, at Berlin, according to Casper, 535 suicides have taken place in the following mauner:—234 by strangulation, 163 by fire-arms, 60 by submersion, 27 by cutting the throat, 20 by cutting instruments, &c., 19 by voluntary falls, 10 by poisoning, and 2 by opening veins.†

In all the preceding numbers, one may perceive an alarming concordance between the results of the different years, as they succeed each other. This regularity, in an act which appears so intimately connected with volition, will soon appear before us again in a striking manner, as connected with crime. However, society in a country may undergo modifications, and

* Hertha, August 1828; and Bulletin de M. de Férussac, May 1829.

† Studying the circumstances connected with suicides, duels, and certain kinds of crimes, we may be disposed to think that man is frequently actuated by a propensity to imitation. M. Chevreul, in a letter addressed to M. Ampère (*Sur une Classe Particulière de Mouvemens Musculaires*), has brought forward some philosophical considerations of great interest, and which show how much human nature deserves to be studied more deeply, in some relations which have been perhaps too much neglected.

* Beitrage, &c., 1 vol. 12mo. Berlin: 1825.

thus produce an alteration in what at first presented a remarkable constancy for a short time. According to Casper,* at Berlin, between 1788 and 1797, only 62 suicides took place; and 128 between 1797 and 1808, and 546 between 1813 and 1822. It has been remarked, that suicides have become more numerous; this conjecture would be very probable, if it be true that they are a result of civilisation, and if we consider that legislation endeavours to repress them in some countries. It is to be doubted, however, whether there are not some errors in the numbers, depending on the circumstance that statistical researches were made with much less care formerly than at present.

M. Casper, in his researches on the subject, has attentively discussed the influence of states of the atmosphere on suicide, and also the influence of seasons, which, despite the few observations we possess, is manifested in a remarkable manner, as may be seen in the following table, where the suicides occurring during each season are noted:—

Months.	Berlin: 1812-1822.	Hamburg: † 1816-1822.	Westminster: ‡ 1812-1821.	Paris: § Six Years.
Jan., Feb., & March,	109	39	67	42
April, May, & June,	155	31	55	58
July, Aug., & Sept.,	173	41	60	61
Oct., Nov., & Dec.,	145	38	46	31

Here, again, summer appears to exercise a greater influence on the number of suicides than the other seasons, as well as on the number of those affected with insanity, and, as we shall soon perceive, also on the number of crimes against person.

M. Casper also finds that, all things being equal, suicides in town and country have been numerically as 14 to 4. With respect to difference of sex, he has observed, for Berlin, that, of 727 suicides, 606 were committed by men, and 121 by women, which gives a ratio of 5 to 1. According to the *Recherches Statistiques sur Paris*, the ratio for this city would be 2 to 1 nearly. At Geneva, the ratio has been 4 to 1 for the seven years from 1820 to 1826.

We scarcely possess any researches on the ages at which suicide takes place. I only know of those published by Casper for Berlin,‖ and those published for Geneva.¶ M. Guerry has given the number of suicides for Paris;** but only those of men, and which have taken place by suspension or fire-arms. The following table presents a summary of the documents for Berlin and Geneva:—

Ages.	Berlin: 1818-1824.	Geneva: 1820-1826.
Below 10 years,	1	
From 10 to 15 years,	17	5
" 15 to 20 "	32	
" 20 to 25 "	30	
" 25 to 30 "	25	
" 30 to 35 "	12	24
" 35 to 40 "	9	
" 40 to 50 "	34	
" 50 to 60 "	32	45
" 60 to 70 "	17	
" 70 to 80 "	9	21
" 80 and upwards,	2	
Total,	220	95

To have a better idea of these numbers, it will be preferable to class them in periods, each of 10 years' duration, and to reduce the number to 1000. At the same time, we may compare them with those of Paris, and with a population of 1000 individuals arranged according to their respective ages.

Ages.	Suicides at Berlin.	Suicides at Paris		Suicides at Geneva.	Population Divided according to Age.
		by Shooting.	by Suspension.		
10 to 20 years,	224	61	68	53	312
20 to 30 "	251	283	51	252	183
30 to 40 "	96	182	94		160
40 to 50 "	156	150	188	474	136
50 to 60 "	146	161	256		100
60 to 70 "	77	126	235	221	68
70 to 80 "	41	35	108		30
80 and upwards,	9	2	0		6
Total,	1000	1000	1000	1000	1000

The number of suicides between 10 and 30 years of age, is extremely high at Berlin; it would further appear, that between 30 and 40 years of age, the minimum number occurs, or at least that the number of suicides, which was very great between the 10th and 30th years, then diminishes, to regain fresh intensity towards the end of life. Will not the circumstance have some influence, that a father separates himself from his family with more difficulty when his children are young than when they can already provide for their own necessities? It would be very interesting to have more documents on the motives which lead to the commission of suicide.

It is sufficiently evident, that some particular cause exists at Berlin, which induces such a great number of young persons between 16 and 20 to destroy themselves. Removing the effects of this agency, the results agree sufficiently with those of Paris and Geneva, and tend to show that the number of suicides increases with age, though we must take care to bear in mind the number of individuals of each age who are found in a population.* This tendency, in its first development, almost progresses in the same ratio as the development of intelligence and mental alienation.

It would also appear that the bours of the day have some influence on suicide by suspension. M. Guerry has given the following numbers in the *Annales d'Hygiène* for January 1831:—

	Suicides.
From midnight to 2 in the morning,	77
" 2 to 4 o'clock,	45
" 4 to 6 "	58
" 6 to 8 "	135
" 8 to 10 "	110
" 10 to 12 "	123
" 12 to 2 "	32
" 2 to 4 "	84
" 4 to 6 "	104
" 6 to 8 "	77
" 8 to 10 "	84
" 10 to 12 "	71
	1000

MM. Benzenberg and Casper have compared the number of suicides with the number of homicides and mortal blows, to infer thence the probability that an individual found dead has perished by one or the other.† The towns of Prussia give the following numbers:—

	Suicides.	Homicides.
1818,	339	27
1819,	452	24
1820,	475	40
1821,	456	40
1822,	442	45
	2164	176

* Beitrage zur Medicinischen Statistik, &c. 8vo. Berlin: 1825. See also the researches of Dr Heyfelder, entitled Der Selbsmord, &c. 8vo. Berlin: 1828.

† Grohmann in Hufel, Journal, 1 c. ‡ Falret, 1 c.

§ Esquirol, 1 c. ‖ Beitrage, p. 53.

¶ Beitrage, and Bulletin de M. de Férussac, Mai 1829.

** Annales d'Hygiène, Janvier 1831.

* In the *An. d'Hygiène*, Oct. 1829, there are two very remarkable Memoirs by M. Devergie, one on the mode of ascertaining how long a person has been drowned, the other containing some researches on those who have been hanged.

† Beitrage, &c., p. 94.

This ratio is about 1 homicide to 12 suicides. M. Hermann has found that, in Russia, the number of suicides is almost equal to that of homicides, and that this ratio does not vary much in the different parts of the empire, although the number of suicides and homicides are far from preserving the same comparative value to the population.* In France, the suicides are to the population as 1 to 20,000 nearly, and the homicides as 1 to 48,000: this ratio of suicides to homicides is therefore nearly as 5 to 3.

In concluding this chapter, I shall lay before the reader the principal conclusions contained in the work of M. Falret on suicides, from the report of M. Serres to the Institute of France, which gives the only results hitherto published. "Suicides present, in both sexes, a very remarkable contrariety, according to the results furnished by tables. Thus, the month of April, attended with the greatest number of suicides among men, is only so in the fifth degree among women; with the latter, the month of August occupies the same rank as April does for men.

The social position of the parties presents a no less remarkable contrast. Of the men, it is bachelors who form the largest number; and of the women, we find the greatest number among those engaged in the bonds of matrimony. We cannot omit to observe here the difference between women and men, as respects the influence of concubinage on the production of voluntary death: this influence, for women, is almost treble.

We observe still more striking differences, if such can be, between the two sexes, as respects the influence of age. In men, it is from 35 to 45 that the greatest number of suicides take place; in women it is from 25 to 35. The next period for men is 45 to 55; whilst in women this only holds the fifth rank: but, by a singular compensation, we observe twice as many suicides among young girls as among boys who have not reached their fifteenth year.

If we inquire into the mode of self-destruction which is practised, we shall see that men give a decided preference to cutting instruments and fire-arms, while women destroy themselves by poison, falls from a great height, or asphyxiate themselves by means of burning charcoal."

CHAPTER III.

OF THE DEVELOPMENT OF THE PROPENSITY TO CRIME.

1. Of Crimes in General, and of the Repression of them.

Supposing men to be placed in similar circumstances, I call the greater or less probability of committing crime, the *propensity to crime*. My object is more especially to investigate the influence of season, climate, sex, and age, on this propensity.

I have said that the circumstances in which men are placed ought to be similar, that is to say, equally favourable, both in the existence of objects likely to excite the propensity and in the facility of committing the crime. It is not enough that a man may merely have the intention to do evil, he must also have the opportunity and the means. Thus the propensity to crime may be the same in France as in England, without, on that account, the *morality* of the nations being the same. I think this distinction of importance.†

* Mémoires de l'Académie de Pétersbourg, 1830; and Bulletin de M. de Férussac, Nov. 1831.

† This has been very clearly established by M. Alphonse de Candolle, in an article entitled *Considerations sur la Statistique des Delits*, inserted in the *Bibliothèque Universelle de Genève*, Feb. 1830. The author regards the propensity of individuals to crime as depending on their morality, the temptation to which they are exposed, and the greater or less facility they may find to commit offences. Of these three causes, the first belongs more especially to the man; the other two are, properly speaking, external to him. As it is with man that I am occupied, I have endeavoured, in the course of my researches, that the causes external to him might be constantly nearly equal, so that they might be left out

There is still another important distinction to be made; namely, that two individuals may have the same propensity to crime, without being equally *criminal*, if one, for example, were inclined to theft, and the other to assassination.*

Lastly, this is also the place to examine a difficulty which has not escaped M. Alphonse de Candolle in the work above mentioned: it is this, that our observations can only refer to *a certain number of known and tried offences, out of the unknown sum total of crimes committed.* Since this sum total of crimes committed will probably ever continue unknown, all the reasoning of which it is the basis will be more or less defective. I do not hesitate to say, that all the knowledge which we possess on the statistics of crimes and offences will be of no utility whatever, unless we admit without question that *there is a ratio, nearly invariably the same, between known and tried offences and the unknown sum total of crimes committed.* This ratio is necessary, and if it did not really exist, every thing which, until the present time, has been said on the statistical documents of crime, would be false and absurd. We are aware, then, how important it is to legitimate such a ratio, and we may be astonished that this has not been done before now. The ratio of which we speak necessarily varies according to the nature and seriousness of the crimes: in a well-organised society, where the police is active and justice is rightly administered, this ratio, for murders and assassinations, will be nearly equal to unity; that is to say, no individual will disappear from the society by murder or assassination, without its being known: this will not be precisely the case with poisonings. When we look to thefts and offences of smaller importance, the ratio will become very small, and a great number of offences will remain unknown, either because those against whom they are committed do not perceive them, or do not wish to prosecute the perpetrators, or because justice itself has not sufficient evidence to act upon. Thus, the greatness of this ratio, which will generally be different for different crimes and offences, will chiefly depend on the activity of justice in reaching the guilty, on the care with which the latter conceal themselves, on the repugnance which the individuals injured may have to complain, or perhaps on their not knowing that any injury has been committed against them. Now, if all the causes which influence the magnitude of the ratio remain the same, we may also assert that the effects will remain invariable. This result is confirmed in a curious manner by induction, and observing the surprising constancy with which the numbers of the statistics of crime are reproduced annually—a constancy which, no doubt, will be also reproduced in the numbers at which we cannot arrive: thus, although we do not know the criminals who escape justice, we very well know that every year between 7000 and 7300 persons are brought before the criminal courts, and that 61 are regularly condemned out of every 100; that 170,000 nearly are brought before courts of correction, and that 85 out of 100 are condemned; and that, if we pass to details, we find a no less alarming regularity; thus we find that between 100 and 150 individuals are annually

of the computation. I have necessarily been obliged to take into account natural influencing causes, such as climate, seasons, sex, and age.

* In an article on *Hygiène Morale*, M. Villermé has fully shown how fatal the *regime* of prisons may become to the unfortunate person who is often confined for slight offences, and cast into the midst of a collection of wicked wretches, who corrupt him. "I have been told," says he, "by a person who accompanied Napoleon to the Isle of Elba, that, in the particular and at that time philosophical conversations of the ex-emperor, he has several times been heard to say, that under whatever relation we may view man, *he is as much the result of his physical and moral atmosphere as of his own organisation.* And the idea, now advanced by many others, which is contained in this phrase, is the most general as well as the most just that can be formed on the subject before us.—*Annales d'Hygiène Publique*, Oct. 1830.

condemned to death,* 280 condemned to perpetual hard labour, 1050 to hard labour for a time, 1220 to solitary confinement (*à la réclusion*), &c.; so that this budget of the scaffold and the prisons is discharged by the French nation, with much greater regularity, no doubt, than the financial budget; and we might say, that what annually escapes the minister of justice is a more regular sum than the deficiency of revenue to the treasury.

I shall commence by considering, in a general manner, the propensity to crime in France, availing myself of the excellent documents contained in the *Comptes Généraux de l'Administration de la Justice* of this country; I shall afterwards endeavour to establish some comparisons with other countries, but with all the care and reserve which such comparisons require.

During the four years preceding 1830, 28,686 accused persons were set down as appearing before the courts of assize, that is to say, 7171 individuals annually nearly; which gives 1 accused person to 4463 inhabitants, taking the population at 32,000,000 souls. Moreover, of 100 accused, 61 persons have been condemned to punishments of greater or less severity. From the remarks made above with respect to the crimes which remain unknown or unpunished, and from mistakes which justice may make, we conceive that these numbers, although they furnish us with curious data for the past, do not give us any thing exact on the propensity to crime. However, if we consider that the two ratios which we have calculated have not sensibly varied from year to year, we shall be led to believe that they will not vary in a sensible manner for the succeeding years; and the probability that this variation will not take place is so much the greater, according as, all things being equal, the mean results of each year do not differ much from the general average, and these results have been taken from a great number of years. After these remarks, it becomes very probable that, for a Frenchman, there is 1 against 4462 chances that he will be an accused person during the course of the year; moreover, there are 61 to 39 chances, very nearly, that he will be condemned at the time that he is accused. These results are justified by the numbers of the following table:—

Years.	Accused Persons present.†	Condemned Persons.	Inhabitants to one accused Person.	Condemned in 100 accused Persons.	Accused of Crimes against		Ratio between the Numbers of the two kinds of Crime.
					Persons.	Property.	
1826,	6,988	4,348	4,557	62	1,907	5,081	2·7
1827,	6,929	4,236	4,593	61	1,911	5,018	2·6
1828,	7,396	4,551	4,307	61	1,844	5,552	3·0
1829,	7,373	4,475	4,321	61	1,791	5,592	3·1
Total,	28,686	17,610	4,463	61	7,453	21,233	2·8

Thus, although we do not yet know the statistical documents for 1830, it is very probable that we shall again have 1 accused person in 4463 very nearly, and 61 condemned in 100 accused persons; this probability is somewhat diminished for the year 1831, and still more for the succeeding years. We may, therefore, by the results of the past, estimate what will be realised in the future. This possibility of assigning beforehand the number of accused and condemned

* The number of persons condemned to death has, however, diminished from year to year; is this owing to the increasing repugnance which tribunals feel to apply this punishment, for the abolition of which we have so many petitioners at the present day?

† The number of accused persons absent was—

In 1826,	1827,	1828,	1829,
603	845	776	746

I have taken the documents of 1826, 27, 28, and 29 only, because the volume for 1825 did not contain the distinction of age or sex, of which I make use further on. Moreover, in 1825 the number of accused was 1 to 4211 inhabitants, and 61 in 100 were condemned.

persons which any country will present, must give rise to serious reflections, since it concerns the fate of several thousand men, who are driven, as it were, in an irresistible manner, towards the tribunals, and the condemnations which await them.

These conclusions are deduced from the principle, already called in so frequently in this work, that effects are proportionate to their causes, and that the effects remain the same, if the causes which have produced them do not vary. If France, then, in the year 1830, had not undergone any apparent change, and if, contrary to my expectation, I found a sensible difference between the two ratios calculated beforehand for this year and the real ratios observed, I should conclude that some alteration had taken place in the causes, which had escaped my attention. On the other hand, if the state of France has changed, and if, consequently, the causes which influence the propensity to crime have also undergone some change, I ought to expect to find an alteration in the two ratios which until that time remained nearly the same.*

It is proper to observe, that the preceding numbers only show, strictly speaking, the probability of being accused and afterwards condemned, without rendering us able to determine any thing very precise on the degree of the propensity to crime; at least unless we admit, what is very likely, that justice preserves the same activity, and the number of guilty persons who escape it preserves the same proportion from year to year.†

In the latter columns of the preceding table, is first made the distinction between crimes against persons

* After the preceding paragraphs were written, two new volumes of the *Comptes Rendus* have appeared. As the results which they contain show how far my anticipations were just, I thought it unnecessary to change the text, and shall merely give in a note the numbers corresponding to those I availed myself of before.

Years.	Accused Persons present.	Condemned Persons.	Inhabitants to one accused Person.	Condemned in 100 accused Persons.	Accused of Crimes against		Ratio between the Numbers of the two Classes of Criminals.
					Persons.	Property.	
1830,	6,962	4,130	4,576	59	1,666	5,296	3·2
1831,	7,607	4,098	4,281	54	2,046	5,560	2·7
Aver.	7,284	4,114	4,392	56	1,856	5,428	2·9

Thus, notwithstanding the changes of government, and the alterations in consequence of it, the number of accused persons has not sensibly varied: "the slight increase observed in 1831, may principally be attributed to the circumstance, that in consequence of renovations in the criminal court arrangements, the operation of the judiciary police was necessarily abated in the latter months of 1830; so that many cases belonging to this period were not tried until 1831, which has increased the figure for this year."—*Report to the king.* The number of acquittals is rather greater than in the preceding years; and the same remark will be made further on in the case of Belgium, the government of which country was also changed.

The number of accused persons absent in 1830 was 767, and in 1831, 672; thus, the results of this year again agree with those of the preceding years.

† If the letters A, A^1, A^2, &c., represent the numbers of individuals annually committed for crimes, and a, a^1, a^2, &c., the corresponding numbers of individuals annually condemned; if we suppose, also, that the ratios $\frac{A}{a}, \frac{A^1}{a^1}, \frac{A^2}{a^2}$, &c., are sensibly equal to each other, that is to say, if $\frac{A}{a} = \frac{A^1}{a^1}$, we shall also have $\frac{A}{A^1} = \frac{a}{a^1}$. So that, if the number of the condemned A and A^1 is annually nearly the same, it will be the same with the number of those who are guilty; that is to say, the propensity to crime will preserve the same value. It is thus that the almost unchangeableness of the annual ratio of the accused to the condemned, allows us to substitute for the ratio of the condemned of any two years the ratio of the accused for the same two years.

and crimes against property: it will be remarked, no doubt, that the number of the former has diminished, whilst the latter has increased; however, these variations are so small, that they do not sensibly affect the annual ratio; and we see that we ought to reckon that three persons are accused of crimes against property to one for crimes against person.

Beside the preceding numbers I shall place those which correspond to them in the Low Countries, whilst the French code was still in force.

Years.	Accused Persons present.	Condemned Persons.	Inhabitants to one accused Person.	Condemned in 100 accused Persons.	Accused of Crimes against		Ratio.
					Persons.	Property.	
1826,	1309	1166	4392	84	304	1005	3·5
1827,	1408	1264	4100	85	314	1174	3·7

Thus, the probability of being before a court of justice was almost the same for France and for the inhabitants of the Low Countries; at the same time the number of crimes against persons was fewer among the latter, but the repression of them was also greater, since 85 individuals were condemned out of 100 accused, which may be owing to the absence of a jury, their duties being fulfilled by the judges. This modification made in the French code should be taken into consideration. Indeed, it causes a very notable difference in the degree of repression; for when once accused, the Belgian had only 16 chances against 84, or 1 to 5, of being acquitted; whilst the Frenchman, in the same circumstances, had 39 chances to 61, or nearly 3 to 5, that is to say, thrice as many. This unfavourable position in which the accused person was placed with us, might be owing to the circumstance, that the judges before whom he appeared were indeed more severe than a jury, or perhaps that they were more circumspect in acquitting a person in the Low Countries. I shall not determine which of these was the case, but simply observe, that in courts of correction the French judges are even more severe than ours, and the same is the case in courts of police.

Thus, during the four years before 1830, in France, the reports gave 679,413 arraigned persons, or 1 to 188 inhabitants. Moreover, of this number, 103,032 individuals only were acquitted, or 15 in the 100 of those arraigned. There was then 1 chance against 187 that the Frenchman would be brought before a court of correction in the course of one year, and 85 chances to 15 that when there he would be condemned.

During the years 1826 and 1827, there were 61,670 persons arraigned, in the Low Countries, before courts of correction, of whom 13,499 were acquitted; and there was one arraigned person to 198 inhabitants. Therefore, the probability of a Frenchman being before a court is rather greater than for an inhabitant of the Low Countries, as also is the probability of his being subsequently condemned.

Setting aside the northern provinces of the ancient kingdom of the Low Countries from those which at the present time form the kingdom of Belgium, and which are more intimately connected with France, we find, for the latter provinces, during the years previous to 1831:—

Years.	Accused Persons present.	Condemned Persons.	Inhabitants to one accused Person.	Condemned in 100 accused Persons.	Accused of Crimes against		Ratio.
					Persons.	Property.	
1826,	725	611	5211	84	199	536	2·8
1827,	900	682	4776	85	220	580	2·6
1828,	814	677	4741	83	230	584	2·5
1829,	753	612	5187	81	203	550	2·7
1830,	741	541	5274	73	160	501	3·0
Aver.,	767	625	5031	82	200	566	2·8

Each year, then, in Belgium, we have had, as an average, 1 person accused to 5031 inhabitants; and in France, 1 to 4400 inhabitants nearly. It is remarkable, that although these numbers do not differ much, yet the particular values for each year have not once given as great a number of accused persons for Belgium as for France.

We may observe, that in Belgium, as in France, there was a slight diminution in the number of accused persons in 1830, which originated in the same cause, namely, the closing of the tribunals for a certain period, in consequence of the revolution.

We see also that the repression of crime has sensibly diminished. This, no doubt, is thus accounted for: after revolutions men are more circumspect in their condemnations, since they are not always screened from personal danger, even in the judgments which they pronounce.

The jury has been established in Belgium since 1831; we shall soon be enabled to judge what influence this has had on the repression of crime, and what are its most remarkable consequences.

2. Of the Influence of Knowledge, of Professions, and of Climate, on the Propensity to Crime.

It may be interesting to examine the influence of the intellectual state of the accused on the nature of crimes: the French documents on this subject are such, that I am enabled to form the following table for the years 1828 and 1829;* to this table I have annexed the results of the years 1830 and 1831, which were not known when the reflections which succeed were written down.

Intellectual state of the Persons Accused.	1828-1829: Accused of Crimes against		Ratio of Crimes against Property to Crimes against Persons.	1830-1831: Accused of Crimes against		Ratio of Crimes against Property to Crimes against Persons.
	Persons.	Property.		Persons.	Property.	
Could not read or write, -	2072	6,617	3·2	2134	6,795	3·1
Could read and write but imperfectly, -	1001	2,804	2·8	1033	2,840	2·8
Could read and write well,	400	1,109	2·8	408	1,047	2·6
Had received a superior education to this 1st degree,	80	206	2·6	135†	184	1·4
	3553	10,736	3·0 aver.	3710	10,856	2·9 aver.

Thus, all things being equal, the number of crimes against persons, *compared with the number of crimes against property*, during the years 1828 and 1829, was greater according as the intellectual state of the accused was more highly developed; and this difference bore especially on murders, rapes, assassinations, blows, wounds, and other severe crimes. Must we thence conclude that knowledge is injurious to society? I am far from thinking so. To establish such an assertion, it would be necessary to commence by ascertaining how many individuals of the French nation belong to each of the four divisions which we have made above,‡ and to find out if, proportion being considered, the individuals of that one of the divisions commit as many crimes as those of the others. If this were really the case, I should not hesitate to say

* The intellectual state of 474 accused persons for the year 1828 has not been noted, as also 4 for the year 1829, and 2 for 1831.

† The number of the accused of this class is increased in consequence of political events, and crimes against the safety of the state.

‡ See the *Tableaux Sommaires faisant connaître l'Etat et les Besoins de l'Instruction Primaire dans le Département de la Seine.* Paris: L. Colas; a pamphlet in 8vo, 1828, anonymous, but probably by M. Jomard. See also the *Rapport General sur la Situation et les Progres de l'Enseignement Primaire en France et à l'Etranger*, by the same person. 8vo. Paris: L. Colas. 1832.

that, since the most enlightened individuals commit as many crimes as those who have had less education, and since their crimes are more serious, they are necessarily more criminal; but from the little we know of the diffusion of knowledge in France, we cannot state any thing decisively on this point. Indeed, it may so happen, that individuals of the enlightened part of society, while committing fewer murders, assassinations, and other severe crimes, than individuals who have received no education, also commit much fewer crimes against property, and this would explain what we have remarked in the preceding numbers. This conjecture even becomes probable, when we consider that the enlightened classes are presupposed to possess more affluence, and consequently are less frequently under the necessity of having recourse to the different modes of theft, of which crimes against property almost entirely consist; whilst affluence and knowledge have not an equal power in subduing the fire of the passions and sentiments of hatred and vengeance. It must be remarked, on the other hand, that the results contained in the preceding table only belong to two years, and consequently present a smaller probability of expressing what really is the case, especially those results connected with the most enlightened class, and which are based on very small numbers. It seems to me, then, that at the most we can only say that the ratio of the number of crimes against persons to the number of crimes against property varies with the degree of knowledge; and generally, for 100 crimes against persons, we may reckon fewer crimes against property, according as the individuals belong to a class of greater or less enlightenment. In seeking the relative annual proportion, we find the following numbers for France, to which I annex those furnished by the prisons in Belgium in 1833, according to the report of the inspector-general of prisons:—

Intellectual state of the Accused.	Absolute Number.			Relative Number.		
	Accused in France:		Condemned in Belgium: 1833.	Accused in France:		Condemned in Belgium: 1833.
	1828-29.	1830-31.		1828-29.	1830-31.	
Could not read or write, -	3,689	3,919	1972	61	61	19
Could read and write imperfectly, -	3,805	3,873	472	27	27	15
Could read and write well,	1,509	1,455	776	10	10	24
Had received a superior education to the 1st degree,	286	319		2	2	
Total, -	14,289	14,566	3220	100	100	100

Thus, the results of the years 1828 and 1829 are again reproduced identically in 1830 and 1831, in France. Sixty-one out of one hundred persons accused could neither read nor write, which is exactly the same ratio as the Belgic prisons presented. The other numbers would also be probably the same, if the second class in Belgium took in, with the individuals *able to read only*, those who could write imperfectly.

The following details, which I extract from the *Rapport au Roi* for the year 1829, will serve to illustrate what I advance:—

"The new table, which points out the professions of the accused, divides them into nine principal classes, comprising,

The *first*, individuals who work on the land, in vineyards, forests, mines, &c., 2453.

The *second*, workmen engaged with wood, leather, iron, cotton, &c., 1932.

The *third*, bakers, butchers, brewers, millers, &c., 253.

The *fourth*, hatters, hairdressers, tailors, upholsterers, &c., 327.

The *fifth*, bankers, agents, wholesale and retail merchants, hawkers, &c., 467.

The *sixth*, contractors, porters, seamen, waggoners, &c., 289.

The *seventh*, innkeepers, lemonade-sellers, servants, &c., 830.

The *eighth*, artists, students, clerks, bailiffs, notaries, advocates, priests, physicians, soldiers, annuitants, &c., 449.

The *ninth*, beggars, smugglers, strumpets, &c., 373.

Women who had no profession have been classed in those which their husbands pursued.

Comparing those who are included in each class with the total number of the accused, we see that the first furnishes 33 out of 100; the second, 26; the third, 4; the fourth, 5; the fifth, 6; the sixth, 4; the seventh, 11; the eighth, 6; the ninth, 5.

If, after that, we point out the accused in each class, according to the nature of their imputed crimes, and compare them with each other, we find the following proportions:—

In the first class, 32 of the 100 accused were tried for crimes against persons, and 68 for crimes against property. These numbers are 21 and 79 for the second class; 22 and 78 for the third; 15 and 85 for the fourth and fifth; 26 and 74 for the sixth; 16 and 84 for the seventh; 37 and 63 for the eighth; 13 and 87 for the ninth.

Thus, the accused of the eighth class, who all exercised liberal professions, or enjoyed a fortune which presupposes some education, are those who, relatively, have committed the greatest number of crimes against persons; whilst 87-hundredths of the accused of the ninth class, composed of people without character, have scarcely attacked any thing but property." *

These results, which confirm the remark made before, deserve to be taken into consideration. I shall observe that, when we divide individuals into two classes, the one of liberal professions, and the other composed of journeymen, workmen, and servants, the difference is rendered still more conspicuous.

The following table will assist us in arriving at the *influence of climate* on the propensity to crime;† it is

* See the *Comptes Generaux*, p. 9, 1830. The *Comptes Generaux* for 1830 and 1831 present the following results for each of the classes given in the text; here again we find the same constancy of numbers:—

	For 1829.	For 1830.	For 1831.
1st, - - -	2453	2240	2517
2d, - - -	1932	1813	1985
3d, - - -	253	225	272
4th, - -	327	309	300
5th, - - -	467	455	425
6th, - -	289	310	327
7th, - - -	830	848	320
8th, - -	447	374	391
9th, - - -	373	388	469
Total, - -	7373	6962	7006

† It has seemed to me that these numbers might give us a satisfactory idea of the state of knowledge in each department, especially of the lower classes, among whom the greatest number of crimes take place. This method, by which we take for each department some hundred individuals whose intellectual state we can determine, appears to me to be more certain than that of M. Dupin, which is, to judge of the education of the province by the number of children sent to school. It may be that there is generally very little knowledge in those places where schools have been but recently established, and have not as yet been able to produce any appreciable effects. In order to render the results obtained by this method more comprehensible, I have constructed a small map of France (*Plate 5*), which, by the varying depths of shade, points out the intellectual state of the different parts of this kingdom. Allowing that this map differs a little from that which M. Dupin has given, we shall, however, easily see from both maps, that Northern France, especially near Belgium and the Rhine, is the most enlightened, whilst we find the greatest darkness along a line which traverses France diagonally from Cape Finisterre to the department of the Var. With this dark line is connected a second one, which leaves the centre of France, passing to the base of the Pyrenees. Thus, the results, obtained

formed from the documents of the *Comptes Généraux de l'Administration de la Justice* in France, for the five years previous to 1830. The second and the third columns give the numbers of those condemned for crimes against persons and property; the two following columns show the ratio of these numbers to the respective population of each department in 1827; a sixth column gives the ratio of crimes against property to crimes against persons; and the last column shows how many in 100 accused were unable to read or write; the numbers which are given there only relate to the years 1828 and 1829.

Departments.	Condemned for Crimes against		Inhabitants to one Person Condemned for Crime against		Crimes against Property to one Crime against Persons.	Accused Persons in the 100 who could neither Read nor Write.
	Persons.	Property.	Persons.	Property.		
Corse,	287	107	3224	8649	0·36	50
Haut-Rhin,	144	295	14,192	6928	2·05	33
Lot,	98	110	14,312	12,751	1·12	80
Ariége,	82	78	15,118	15,893	0·95	83
Ardèche,	108	99	15,205	16,587	0·92	67
Aveyron,	99	160	17,677	10,938	1·62	69
Pyrenees-Orient,	41	55	18,460	13,761	1·34	76
Seine-et-Oise,	112	377	20,034	5953	3·36	53
Vaucluse,	58	118	20,090	9875	2·03	65
Moselle,	95	274	21,534	7466	2·88	49
Lozère,	31	53	22,304	13,092	1·71	47
Var,	67	117	23,216	13,295	1·75	71
Bas-Rhin,	111	341	24,120	7851	3·07	31
Seine,	197	2496	25,720	2030	12·67	34
Bouches-du-Rhin,	63	206	25,897	7044	3·25	56
Eure,	80	296	26,354	7123	3·70	63
Doubs,	48	146	26,491	8909	3·04	35
Marne,	61	244	26,643	6661	4·00	54
Tarne,	59	169	27,767	9694	2·86	75
Seine-Inférieure,	123	850	27,980	4049	6·91	59
Drôme,	49	133	29,163	10,744	2·71	71
Calvados,	84	394	29,819	6357	4·69	52
Hautes-Alpes,	21	47	29,840	13,333	2·24	42
Landes,	44	153	30,149	8690	3·48	86
Basses-Alpes,	25	62	30,613	12,344	2·48	66
Vosges,	62	132	30,632	14,388	2·13	45
Gard,	53	129	32,788	13,471	2·43	67
Loiret,	46	215	33,068	7075	4·67	70
Vienne,	40	170	33,459	7873	4·25	81
Ille-et-Vilaine,	82	318	33,747	8702	3·88	66
Hérault,	50	92	33,956	18,454	1·84	62
Aude,	39	75	34,102	17,733	2·42	72
Rhone,	61	302	34,146	6895	4·95	51
France,	4662	17,543	34,168	9080	3·76	60
Puy-de-Dome,	82	157	34,547	18,044	1·91	75
Loire-Inférieure,	66	160	34,628	14,284	2·42	76
Aube,	34	206	35,553	5868	6·06	54
Isère,	73	220	36,026	11,958	3·01	62
Dordogne,	64	149	36,256	15,573	2·33	76
Jura,	33	123	37,344	12,613	2·96	50
Haute-Marne,	32	94	38,254	13,023	2·93	46
Indre-et-Loire,	37	131	39,211	11,075	3·54	79
Charente,	45	92	39,295	19,220	2·05	60
Haute-Loire,	36	35	39,677	40,810	0·97	75
Allier,	35	124	40,757	11,504	3·54	91
Pas-de-Calais,	76	568	41,751	5660	7·38	65
Basses-Pyrenees,	47	142	43,880	14,524	3·02	73
Gers,	35	91	43,943	16,901	2·60	70
Corrèze,	32	56	44,513	25,430	1·75	77
Orne,	48	183	45,248	11,868	3·81	66
Seine-et-Marne,	35	167	45,459	9527	4·77	58
Maine-et-Loire,	50	197	45,967	11,641	3·94	81
Haute-Vienne,	30	120	46,058	11,515	4·00	79
Hautes-Pyrenees,	24	64	46,263	17,349	2·67	71
Eure-et-Loire,	30	231	46,592	6013	7·70	63
Ain,	36	84	47,448	20,335	2·33	60
Deux-Sèvres,	30	124	48,043	11,623	4·13	61

by two different modes, nevertheless agree with each other in a very satisfactory manner. We may say that we find the greatest enlightenment where there is the greatest freedom of communication, and in the course of large rivers, such as the Rhine, the Seine, the Meuse, &c. In Southern France, the trading seacoasts, and the banks of the Rhone, are also less obscure, whilst the absence of enlightenment is perceived chiefly in those parts of France which are not traversed by great commercial roads. We naturally look for instruction in those places where the need of it is greatest.

(Table continued.)

Departments.	Condemned for Crimes against		Inhabitants to one Person Condemned for Crime against		Crimes against Property to one Crime against Persons.	Accused Persons in the 100 who could neither Read nor Write.
	Persons.	Property.	Persons.	Property.		
Charente-Inférieure,	44	257	46,199	8252	5·84	66
Meurthe,	52	249	48,788	10,189	4·79	42
Sarthe,	45	177	49,613	12,614	3·93	87
Haute-Garonne,	41	190	49,636	10,711	4·63	71
Haute-Saône,	33	134	49,643	12,225	4·06	43
Mayenne,	35	146	50,591	12,128	4·17	82
Morbihan,	41	183	52,129	11,679	4·46	78
Cantal,	25	75	52,403	17,468	3·00	61
Loir-et-Cher,	22	142	52,424	8122	6·45	68
Nord,	91	548	52,893	6783	6·02	71
Loire,	34	104	55,252	18,063	3·06	54
Côte-d'Or,	35	160	55,992	11,692	4·57	48
Nièvre,	24	109	56,620	12,467	4·54	65
Saone-et-Loire,	45	168	57,308	15,350	3·73	74
Vendée,	28	106	57,648	15,228	3·62	77
Lot-et-Garonne,	29	111	58,084	15,181	3·83	68
Meuse,	26	105	58,911	14,588	4·04	39
Yonne,	20	140	58,986	12,219	4·83	45
Cher,	21	98	59,188	12,683	4·67	86
Finistère,	42	252	59,863	9977	6·00	79
Manche,	51	247	59,922	12,373	4·84	62
Tarn-et-Garonne,	20	89	60,397	13,572	4·45	88
Côtes-du-Nord,	47	292	61,881	9960	6·21	90
Gironde,	41	207	65,628	12,999	5·05	67
Aisne,	36	259	67,995	9451	7·20	62
Oise,	23	163	83,723	11,814	7·09	52
Somme,	31	257	84,864	10,230	8·29	64
Ardennes,	15	92	93,875	15,306	6·13	37
Indre,	12	96	99,012	12,377	8·00	77
Creuse,	6	40	210,777	31,617	6·67	80

To the preceding documents I shall join those concerning the ancient kingdom of the Low Countries* and the dutchy of the Lower Rhine, where the French code is still in force, and allows comparisons to be still established:—

Provinces.	Condemned for Crimes against		Inhabitants to one Person Condemned for Crimes against		Crimes against Property to one Crime against Persons.	Inhabitants to one Pupil at School.
	Persons.	Property.	Persons.	Property.		
Brabant, Southern,	61	168	16,336	5932	2·75	13
Flanders, Eastern,	82	154	17,100	9104	1·88	14
Limbourg,	32	120	20,384	5436	3·75	15
Overyssel,	16	42	20,385	7766	2·62	7
Brabant, Northern,	30	66	22,031	10,014	2·20	9
Anvers,	29	113	22,562	5800	3·90	12
Groningen and Drenthe,	18	98	23,611	4296	5·44	7
Liege,	26	82	25,107	7961	3·15	15
Flanders, Western,	46	142	25,222	8171	3·09	15
Namur,	14	66	27,433	5819	4·71	9
Gueldres,	21	114	27,633	5090	2·20	9
Holland, Southern,	28	216	32,000	4148	7·71	11
Holland, Northern, and Utrecht,	26	263	37,560	4000	9·42	10
Luxembourg,	14	47	42,208	12,572	3·34	8
Hainault,	21	76	52,712	14,565	3·62	10
Zealand,	5	86	53,450	3108	17·20	10
Friesland,	3	103	132,240	3852	34·33	8
Low Countries,	474	1956	25,747	6239	4·13	10
Low Countries (crimes),	424	1691	28,783	7217	4·00	10
Dutchy of the Lower Rhine,	296	994	33,784	10,060	3·36	13
France,	7160	20,308	21,648	7632	2·84	27

* The numbers for the Low Countries embrace the years 1826–27, and for the dutchy of the Lower Rhine the years from 1822 to 1826, according to the *Revue Encyclopedique* for the month of August 1830. Since this summary gives us the number of crimes and not of the condemned, I have thought proper to give the number of crimes for France and the Low Countries, in order to render the results comparable.

As it would be very difficult to form an idea of the whole of the results contained in the preceding tables, and as at the same time it would be impossible to embrace the whole at one glance, I have endeavoured to render them perceptible by shades of greater or less depth, placed on a map of France and the Low Countries, according to the greater or less number of crimes against persons or property, in proportion to the population (*See plate* 6). The first figurative map belongs to crimes against persons; it shows us at first, by the darkness of the shades, that the greatest number of crimes are committed in Corsica, in the South of France, and particularly in Languedoc and Provence, as well as Alsace and the Valley of the Seine. The southern part of the Low Countries, with the exception of Hainault and Luxembourg, present also rather deep tints. However, it is proper to observe, that the shades are perhaps more obscure than they ought to be, if we consider that they represent the number of condemned people, and that in general, in the Low Countries, the repression has been much stronger than in France, since in the latter country only 61 individuals are condemned in every 100 accused, whilst in the Low Countries, 85 is the proportion. On the contrary, Central France, Brittany, Maine, Picardy, as well as Zealand and Friesland, present much more satisfactory shades. If we compare this map with that which indicates the state of instruction, we shall be disposed to believe, at first, that crimes are in a measure in inverse ratio to the degree of knowledge. The figurative map of crimes against persons and those of crimes against property presents more analogy. In like manner, the departments which show themselves advantageously or disadvantageously on either side, may be arranged in the following manner, making three principal classes:—

First Class.—*Departments where the number of those condemned for crimes against persons and property exceeds the average of France.*

Corse, Landes, Rhône, Bouches-du-Rhône, Doubs, Haut-Rhin, Bas-Rhin, Moselle, Seine-Inférieure, Calvados, Eure, Seine-et-Oise, Seine, Marne, Loiret, Vienne, Ille-et-Vilaine—17 departments.

Second Class.—*Departments where the number of those condemned for crimes against property and persons has been less than the average of France.*

Creuse, Indre, Cher, Nièvre, Saône-et-Loire, Jura, Ain, Isère, Loire, Haut-Loire, Cantal, Puy-de-Dôme, Allier, Corrèze, Haut-Vienne, Basses-Pyrénées, Hautes-Pyrénées, Haute-Garonne, Gers, Tarn-et-Garonne, Lot-et-Garonne, Gironde, Dordogne, Charente, Deux-Sèvres, Vendée, Loire-Inférieure, Maine-et-Loire, Sarthe, Orne, Mayenne, Manche, Finistère, Morbihan, Côtes-du-Nord, Somme, Oise, Aisne, Ardennes, Meuse, Meurthe, Haute-Saône, Haute-Marne, Côte-d'Or, Yonne, Seine-et-Marne—47 departments.

Third Class.—*Departments where the number of those condemned for crimes against persons only, or against property only, has been less than the average of France.*

Var, Hautes-Alpes, Basses-Alpes, Drôme, Vaucluse, Gard, Ardèche, Lozère, Aveyron, Lot, Tarn, Hérault, Aude, Pyrénées-Orientales, Ariége, Charente-Inférieure, Loir-et-Cher, Eure-et-Loire, Nord, Pas-de-Calais, Aube, Vosges—22 departments.

In making the same distinction with regard to the provinces of the Low Countries,* we find—

First Class—Southern Brabant, Anvers, Limbourg, Groningen, and Drenthe—5 provinces.

Second Class—Hainault, Luxembourg—2 provinces.

* See, for the most ample accounts, *La Statistique des Tribunaux de la Belgique, pendant les Années* 1826, 1827, 1828, 1829, and 1830, published by MM. Quetelet and Smits. 4to. Brussels: 1832.

Third Class—Namur, Liege, Western Flanders, Eastern Flanders, Zealand, Northern Brabant, Southern Holland, Northern Holland, Utrecht, Guelderland, Overyssel, Friesland—12 provinces.

Before endeavouring to deduce conclusions from the preceding calculations, I shall remark that certain ratios cannot be rigorously compared, on account of the defective valuation (or census) of the population, or from an unequal degree of repression in the different courts of justice. It will be difficult enough to find out the errors arising from the first cause, as we have only, for the elements of verification, the relative numbers of births and deaths; as to the unequal degree of repression, such is not exactly the case, for, besides that we are led to believe that the activity of justice in finding out the authors of crimes is not every where the same, we see that acquittals are not always in the same ratio. Thus, according to the documents from 1825 to 1829, 61 individuals out of every 100 accused have been condemned in France, yet the degree of repression has generally been stronger in the northern than in the southern part of the country. The Court of Justice of Rouen has condemned the greatest number, and it has condemned 71 individuals out of 100 accused at the least; the courts of Dijon, Anjou, Douai, Nanci, Orleans, Caen, Paris, Rennes, have also exceeded the average; the courts of Metz, Colmar, Amiens, Bordeaux, Bourges, Besançon, Grenoble, Lyons, and La Corse, have presented nearly the same average as France; whilst the acquittals have been more numerous in the southern courts, such as Toulouse, Poitiers, Nismes, Aix, Riom, Pau, Argen, Limoges, and Montpellier—the two last courts having condemned, at an average, only 52 individuals of 100 accused. It yet remains for examination, whether these decisive inequalities in the number of acquittals in the north and south of France are owing to a greater facility in bringing forward accusations, or to indulgence to the accused. It appears to me probable, that it may be in part owing to crimes against persons being more common, all things being equal, in the south, and crimes against property in the north; we know, also, that more acquittals take place in the first class of crimes than in the second. However the case may be, I think it will be proper not to lose sight of this double cause of error which I have just pointed out.

If we now cast our eyes over the departments of France which have exceeded the average of crimes against persons as well as of crimes against property, we shall first find Corsica and Landes to be, from their manners and customs, in peculiar circumstances, and which will scarcely permit of their being compared with the rest of France.

The Corsicans, indeed, impelled by cruel prejudices, and warmly embracing feelings of revenge, which are frequently transmitted from generation to generation, almost make a virtue of homicide, and commit the crime to excess. Offences against property are not frequent, and yet their number exceeds the average of France. We cannot attribute this state of things to want of instruction, since the number of accused who could neither read nor write was comparatively less than in France. This is not the case in Landes, where almost nine-tenths of the accused were in a state of complete ignorance. This department, where a poor and weak population live dispersed, as it were, in the midst of fogs, is one where civilisation has made the least progress. Although Landes is found in the most unfavourable class as regards crimes, it is nevertheless proper to say that it does not differ much from the average of France: we may make the same observations on the departments of Vienne and Ille-et-Vilaine. As to the other departments, we may observe that they are generally the most populous in France, in which we find four of the most important cities, Paris, Lyons, Marseilles, and Rouen; and that they also are the most industrious—those which present the great-

est changes and intercourse with strangers. We may be surprised not to find with them the departments of the Gironde and Loire-Inferieure, which seem to be almost in the same circumstances as the departments of Bouches-du-Rhône and Seine-Inférieure, especially if we consider that, with respect to knowledge, they seem less favoured than these last, and the repression of crime also has generally been effective. This remark is particularly applicable to the department of the Gironde, for the Loire-Inférieure does not differ so much from the average of France. I shall not hesitate to attribute these differences to a greater morality in one part than the other. And this conjecture becomes more probable, if we observe that the whole of the departments of the south of France, which are on the shores of the sea from the Basses-Pyrénées to La Manche, except Landes and Ille-et-Vilaine which have already been mentioned, fall below the average of France for crimes against persons; and that, on the contrary, all the departments, without exception, which are on the shores of the Mediterranean, as well as the ones adjacent to them, exceed this average. We may also remark, that the shores of the Atlantic, from Basses-Pyrénées to La Manche, generally fall below the average for crime against property.

The third class presents us with fifteen departments, on the border of the Mediterranean, and which all exceed the average of France in crimes against persons and are below the average in crimes against property. The districts on the Mediterranean appear, then, to have a very strong propensity to the first kind of crimes. Of seven other departments of the same class, one only exceeds the average for crimes against person, and that is Vosges in Alsace; the others exceed the average of crimes against property.

The departments of the second class, where the fewest condemnations for crimes against persons and property take place, are generally situated in the centre of France, on the shores of the Atlantic, from the Basses-Pyrénées to La Manche, and in the valleys watered by the Somme, the Oise, and the Meuse.

The following is a summary of what has been said:—

1. The greatest number of crimes against persons and property take place in the departments which are crossed by or near to the Rhone, the Rhine, and the Seine, at least in their navigable portions.

2. The fewest crimes against persons and property are committed in the departments in the centre of France, in those which are situated in the west towards the Atlantic, from the Basses-Pyrénées to La Manche, and in those towards the north, which are traversed by the Somme, the Oise, and the Meuse.

3. The shores of the Mediterranean and the adjacent departments show, all things being equal, a stronger propensity to crimes against persons, and the northern parts of France to crimes against property.

After having established these facts, if we seek to go back to the causes which produce them, we are immediately stopped by numerous obstacles. And, indeed, the causes influencing crimes are so numerous and different, that it becomes almost impossible to assign to each its degree of importance. It also frequently happens, that causes which appear very influential, disappear before others of which we had scarcely thought at first, and this is what I have especially found in actual researches: and I confess that I have been probably too much occupied with the influence which we assign to education in abating the propensity to crime; it seems to me that this common error especially proceeds from our expecting to find fewer crimes in a country, because we find more children in it who attend school, and because there is in general a greater number of persons able to read and write. We ought rather to take notice of the degree of moral instruction; for very often the education received at school only facilitates the commission of crime.* We also consider poverty as generally conducing to crime; yet the department of Creuse, one of the poorest in France, is that which in every respect presents the greatest morality. Likewise, in the Low Countries, the most moral province is Luxembourg, where there is the greatest degree of poverty. It is proper, however, that we come to a right understanding of the meaning of the word poverty, which is here employed in an acceptation which may be considered improper. A province, indeed, is not poor because it possesses fewer riches than another, if its inhabitants, as in Luxembourg, are sober and active; if, by their labour, they can certainly obtain the means of relieving their wants, and gratifying tastes which are proportionally moderate; according as the inequality of fortune is less felt, and does not so much excite temptation: we should say, with more reason, that this province enjoys a moderate affluence. Poverty is felt the most in provinces where great riches have been amassed, as in Flanders, Holland, the department of the Seine, &c., and above all, in the manufacturing countries, where, by the least political commotion, by the least obstruction to the outlets of merchandise, thousands of individuals pass suddenly from a state of comfort to one of misery. These rapid changes from one state to another give rise to crime, particularly if those who suffer are surrounded by materials of temptation, and are irritated by the continual aspect of luxury and of the inequality of fortune, which renders them desperate.

It seems to me that one of the first distinctions to be made in our present inquiry, regards the different races of mankind who inhabit the countries which we are considering; as we shall shortly see, this point is of the greatest importance, although not the first which presents itself to the mind. "The population of France belongs to three different races—the *Celtic race*, which forms nearly three-fifths of its inhabitants; the *German race*, which comprehends those of the late provinces of Flanders, Alsace, and part of Lorraine; and the *Pelasgian race*, scattered along the shores of the Mediterranean and in Corsica. The changes of manners," adds Malte-Brun, "to which this division is exposed, may alter the character of a people, but cannot change it entirely." † If we cast our eyes over the figurative map of crimes against persons, this distinction of people is perceived in a remarkable manner. We shall see that the Pelasgian race, *scattered over the shores of the Mediterranean and in Corsica*, is particularly addicted to crimes against persons; among the Germanic race, which extends over Alsace, the dutchy of the Lower Rhine, a part of Lorraine, and the Low Countries, where the greater proportion of persons and of property gives rise to more occasions of committing crime, and where the frequent use of strong drinks leads more often to excesses, we have generally a great many crimes against property and persons. The Batavians and Frieslanders, who also belong to the Germanic race, are more especially prone to crimes against property. Lastly, the Celtic race appears the most moral of the three which we have considered, especially as regards crimes against persons; they occupy the greatest part of France and the Wallone of Belgium (*et la partie Wallone de la Belgique*). It would appear, moreover, that frontier countries, where the races are most crossed with each other, and where there is generally the most disturbance, and where the customhouses are established, are the most exposed to demoralisation.

After having admitted this distinction, based upon

* M. Guerry has arrived at conclusions similar to mine, and almost at the same time, in his *Essai sur la Statistique Morale de la France*, p. 51, and has expressed them almost in the same terms; the same results have also been obtained in England, Germany, and the United States.

† Précis de la Géographie Universelle, livre 159.

the differences of races, it remains to be examined what are the local anomalies which influence the morality of the people and modify their character.

The most remarkable anomaly which the Celtic race seems to present, is observed in the department of the valley of the Seine, especially below Paris; many causes contribute to this. We first observe that these departments, from their extent, contain the greatest proportion of persons and property, and consequently present more occasions for committing crimes; it is there that there are the greatest changes in the people, and the greatest influx of people from all countries without character, in a manner which must even have altered the primitive race more than any where else; lastly, it is there also where the greatest number of industrial establishments are found; and, as we have already had occasion to observe, these establishments maintain a dense population, whose means of subsistence are more precarious than in any other profession. The same remark is applicable to the valley of the Rhone, and with the more reason, as the Pelagian race has been able, in ascending this river, to penetrate farther into the interior of the country than any where else.

The commercial and industrions provinces of the Low Countries are likewise those in which the greatest number of crimes are committed.

As to the greater number of crimes against property to be observed as we advance towards the north, I think we may attribute it, in a great measure, to the inequality between riches and wants. The great cities, and the capitals especially, present an unfavourable subject, because they possess more allurements to passions of every kind, and because they attract people of bad character, who hope to mingle with impunity in the crowd.

It is remarkable that several of the poorest departments of France, and at the same time the least educated, such as Creuse, Indre, Cher, Haute-Vienne, Allier, &c., are at the same time the most moral, whilst the contrary is the case in most of the departments which have the greatest wealth and instruction. These apparent singularities are, I think, explained by the observations which have been made above. Morality increases with the degree of education in the late kingdom of the Low Countries, which would lead us to believe that the course of education was better.

The influence of climate is not very sensible here, as we may see by comparing Guienne and Gascoigne with Provence and Languedoc, and the inhabitants of the Hautes and Basses Pyrénées to the inhabitants of the Hautes and Basses Alpes, which, notwithstanding, are under the same latitudes. We may also say that the influence of knowledge and of climate partly disappears before more energetic influences; and that they are moreover far from effacing the moral character of the three races of men who inhabit the country which we are considering. Nevertheless, we cannot but allow, when bringing the ratios of the sixth column of our table together, that the number of crimes against property, in proportion to the number of crimes against persons, is increased considerably in advancing towards the north.

It is to be regretted that the documents of the courts of justice of other countries cannot be compared with those of France and the Low Countries. The difference in laws and the classifications of crime render direct comparisons impossible. Yet the countries of some extent, and which give the distinction of crimes against persons and crimes against property, allow at least of our drawing a comparison between their different provinces under this head. It perhaps will not be without some interest to our inquiry to compare the different parts of Prussia and Austria with one another. The data of criminal justice in Austria are extracted from the *Bulletin des Sciences* of M. de Férussac, for November 1829, and relate to the five years from 1819 to 1823; those of Prussia are extracted from the *Revue Encyclopédique* for August 1830, and relate to the three years from 1824 to 1826 inclusive. I have followed the same form of table as the above: nevertheless, I regret that I could not give the number of children in the schools of the different parts of Austria. For Prussia, I have taken the number of children in 1000 of those who attend the schools, according to the statement of the *Revue Encyclopédique*.

Arrondissements.	Crimes against		Inhabitants to one Crime against		Crimes against Property to one Crime against Persons.	Inhabitants to one Scholar.
	Persons.	Property.	Persons.	Property.		
AUSTRIA.						
Dalmatia, -	2986	2,540	535	625	0·85	?
Gallicia & Bukovina, -	5234	14,105	3,955	1470	2·70	?
Tyrol, - -	658	2,516	5,707	1492	3·82	?
Moravia & Silesia,	753	3,545	12,662	2689	4·71	13
Gratz-Leibach & Trietz, or Internal Austria,	599	*2,479	13,311	3188	4·21	10
Lower Austria (or, Cotes de l'Ens),	573	7,099	17,130	1382	12·37	10
Bohemia, -	737	*7,221	18,437	1881	9·80	9
						Scholars in 1000 Children.
PRUSSIA.						
Prussia, - - -	249	6,875	22,741	639	35·65	451
Saxony, " -	147	5,815	27,588	697	39·56	491
Posen, - - -	97	3,481	31,440	875	35·68	490
Silesia, - -	226	7,077	33,714	1066	31·04	504
Westphalia, -	92	3,363	38,436	1045	36·77	525
Brandenburg, -	112	5,431	39,486	688	57·42	468
Pomerania, -	27	1,622	92,131	1533	60·11	940

It would be very difficult to point out the various races of men who have peopled the countries mentioned in the preceding table, because they are so much mixed in certain parts, that their primitive character is almost lost. The German race predominates in the Prussian states, and is mixed with the northern Sclavonians, particularly along the shores of the Baltic and ancient Prussia, and with the western Sclavonians in the Grand-Dutchy of Posen and Silesia. In the Austrian states, and especially in the northern and eastern parts, the Sclavonian race is again mixed with the German; Malte-Brun even thinks that in Moravia the Sclavonians are three times as numerous as the Germans:† they are divided into several tribes, of which the most remarkable is the Wallachians; "they are brave in war, tolerant in religion, and scrupulously honest in their habits." The Tyrolese, formed of the ancient Rhœti, would be, according to Pliny (book iii. chap. 19), originally from Etruria; the Dalmatians, of Sclavonic origin, are also mingled with Italians.

It will appear, then, also, from the table which has just been given, that crimes are more numerous in Dalmatia, where the blood of the south is mixed with the blood of the people of the north. Among the Tyrolese, we find also the traces of more energetic passions than among the other people under the Austrian dominion, excepting, however, the inhabitants of Gallicia, descendants of the Rosniacks, who proceeded, together with the Croatians and Dalmatians, from the Eastern Sclavonians.‡ Classing the people according to the degree of crime, it would appear that they are in the following order:—Etruscans or Italians, Sclavonians, and Germans.§ It would also appear

* The numbers for Bohemia and Internal Austria only relate to the four years 1819, 1820, 1822, and 1823.

† Précis de Géographie Universelle, livre 145. ‡ Ibid. l. 116.

§ The western Sclavonians are composed, according to Malte-Brun, of Poles, Bohemians or *Tcheches*, of the *Slovaques* of Hungary, the Serbes in Lusatia.—*Livre* 116. " The distinctions

that the eastern Sclavonians have a greater propensity to crime than the northern and western ones, who are more mixed with the Germans, and are in a more advanced state of civilisation. We see from the preceding table, that the state of instruction in Prussia is in a direct ratio to the number of crimes; it appears to be nearly the same in the countries under the Austrian dominion.

3. On the Influence of Seasons on the Propensity to Crime.

The seasons have a well-marked influence in augmenting and diminishing the number of crimes. We may form some idea from the following table, which contains the number of crimes committed in France against persons and property, during each month, for three years, as well as the ratio of these numbers. We can also compare the numbers of this table with those which I have given to show the influence of seasons on the development of mental alienation, and we shall find the most remarkable coincidences, especially for crimes against persons, which would appear to be most usually dependent on failures of the reasoning powers:*—

Months.	Crimes against		Ratio: 1827-28.	Crimes against		Ratio: 1830-31.
	Persons.	Property.		Persons.	Property.	
January,	282	1,095	3·89	189	666	3·52
February,	272	910	3·35	194	563	2·90
March,	335	968	2·89	205	602	2·94
April,	314	841	2·68	197	548	2·78
May,	381	844	2·22	213	569	2·67
June,	414	850	2·05	208	602	2·90
July,	379	828	2·18	188	501	2·66
August,	382	934	2·44	247	596	2·41
September,	355	896	2·52	176	584	3·32
October,	285	926	3·25	207	586	2·83
November,	301	961	3·20	223	651	2·95
December,	347	1,152	3·33	181	691	3·82
Total,	3847	11,205	2·77	2426	7159	2·94

First, the epoch of maximum (June) in respect to the number of crimes against persons, coincides pretty nearly with the epoch of minimum in respect to crimes against property, and this takes place in summer; whilst, on the contrary, the minimum of the number of crimes against persons, and the maximum of the number of crimes against property, takes place in winter. Comparing these two kinds of crimes, we find that in the month of January nearly four crimes take place against property to one against persons, and in the month of June only two to three. These differences are readily explained by considering that during winter misery and want are more especially felt, and cause an increase of the number of crimes against property, whilst the violence of the passions predominating in summer, excites to more frequent personal collisions.

The periods of maxima and minima also coincide with those of the maxima and minima of births and deaths, as we have already shown.

The *Comptes Généraux* of France also contain data on the hours at which crimes have been committed, but only for thefts in Paris and the neighbourhood. These data are hitherto too few to draw any satisfactory conclusions from them.

4. On the Influence of Sex on the Propensity to Crime.

We have already been considering the influence which climate, the degree of education, differences of the human race, seasons, &c., have on the propensity to crime; we shall now investigate the influence of sex.

At the commencement, we may observe that, out of 28,686 accused, who have appeared before the courts in France, during the four years before 1830, there were found 5416 women, and 23,270 men, that is to say, 23 women to 100 men. Thus, the propensity to crime in general gives the ratio of 23 to 100 for the sexes. This estimate supposes that justice exercises its duties as actively with regard to women as to men; and this is rendered probable by the fact, that the severity of repression is nearly the same in the case of both sexes; in other words, that women are treated with much the same severity as men.

We have just seen that, in general, the propensity to crime in men is about four times as great as in women, in France; but it will be important to examine further, if men are four times as criminal, which will be supposing that the crimes committed by the sexes are equally serious. We shall commence by making a distinction between crimes against property and crimes against persons. At the same time, we shall take the numbers obtained for each year, that we may see the limits in which they are comprised:—

Years.	Crimes against Persons.			Crimes against Property.		
	Men.	Women.	Ratio.	Men.	Women.	Ratio.
1826,	1639	268	0·16	4073	1008	0·25
1827,	1637	274	0·17	4020	998	0·25
1828,	1576	270	0·17	4396	1156	0·26
1829,	1552	239	0·15	4379	1203	0·27
Averages,	1601	263	0·16	4217	1091	0·26
1830,	1412	254	0·18	4196	1100	0·26
1831,	1813	233	0·13	4567	993	0·22
Averages,	1612	243	0·15	4381	1046	0·24

Although the number of crimes against persons may have diminished slightly, whilst crimes against property have become rather more numerous, yet we see that the variations are not very great; they have but little modified the ratios between the numbers of the accused of the two sexes. We have 26 women to 100 men in the accusations for crimes against property, and for crimes against persons the ratio has been only 16 to 100.* In general, crimes against persons are of a more serious nature than those against property, so that our distinction is favourable to the women, and we may affirm that men, in France, are four times as criminal as women. It must be observed, that the ratio 16 to 26 is nearly the same as that of the strength of the two sexes. However, it is proper to examine things more narrowly, and especially to take notice of individual crimes, at least of those which are committed in so great a number, that the inferences drawn from them may possess some degree of probability. For this purpose, in the following table I have collected the numbers relating to the four years before 1830, and calculated the different ratios; the crimes are classed according to the degree of magnitude of this ratio. I have also grouped crimes nearly of the same nature together, such as issuing false money, counterfeits, falsehoods in statements or in commercial transactions, &c.

Nature of Crimes.	Men.	Women.	Women to 100 Men.
Infanticide,	30	426	1320
Miscarriage,	15	39	260
Poisoning,	77	73	91
House robbery (*vol domestique*),	2648	1602	60
Parricide,	44	22	50
Incendiarism of buildings and other things,	279	94	34
Robbery of churches,	176	47	27
Wounding of parents (*blessures envers ascendans*),	292	63	22
Theft,	10,677	2249	21
False evidence and suborning,	307	51	17
Fraudulent bankruptcy,	353	57	16
Assassination,	947	111	12
False coining (*fausse monnaie*), counterfeit making, false affirmations in deeds, &c.	1669	177	11
Rebellion,	612	60	10
Highway robbery,	648	54	8
Wounds and blows,	1447	78	5
Murder,	1112	44	4
Violation and seduction,	695	7	1
Violation on persons under 15 years of age,	585	5	1

As we have already observed, to the commission of crime the three following conditions are essential—the will, which depends on the person's morality, the opportunity, and the facility of effecting it. Now, the reason why females have less propensity to crime than males, is accounted for by their being more under the influence of sentiments of shame and modesty, as far as morals are concerned; their dependent state, and retired habits, as far as occasion or opportunity is concerned; and their physical weakness, so far as the facility of acting is concerned. I think we may attribute the differences observed in the degree of criminality to these three principal causes. Sometimes the whole three concur at the same time: we ought, on such occasions, to expect to find their influence very marked, as in rapes and seductions; thus, we have only 1 woman to 100 men in crimes of this nature. In poisoning, on the contrary, the number of accusations for either sex is nearly equal. When force becomes necessary for the destruction of a person, the number of women who are accused becomes much fewer; and their numbers diminish in proportion, according to the necessity of the greater publicity before the crime can be perpetrated: the following crimes also take place in the order in which they are stated—infanticide, miscarriage, parricide, wounding of parents, assassinations, wounds and blows, murder.

With respect to infanticide, woman has not only many more opportunities of committing it than man, but she is in some measure impelled to it, frequently by misery, and almost always from the desire of concealing a fault, and avoiding the shame or scorn of society, which, in such cases, thinks less unfavourably of man. Such is not the case with other crimes involving the destruction of an individual: it is not the degree of the crime which keeps a woman back, since, in the series which we have given, parricides and wounding of parents are more numerous than assassinations, which again are more frequent than murder, and wounds and blows generally; it is not simply weakness, for then the ratio for parricide and wounding of parents should be the same as for murder and wounding of strangers. These differences are more especially owing to the habits and sedentary life of females; they can only conceive and execute guilty projects on individuals with whom they are in the greatest intimacy: thus, compared with man, her assassinations are more often in her family than out of it; and in society she commits assassination rather than murder, which often takes place after excess of drink, and the quarrels to which women are less exposed.

If we now consider the different kinds of theft, we shall find that the ratios of the propensity to crime are arranged in a similar series: thus, we have successively house robbery, robbery in churches, robberies in general, and, lastly, highway robbery, for which strength and audacity are necessary. The less conspicuous propensity to cheating in general, and to fraudulent bankruptcy, again depend on the more secluded life of females, their separation from trade, and that, in some cases, they are less capable than men—for example, in coining false money and issuing counterfeits.

If we attempt to analyse facts, it seems to me that the difference of morality in man and woman is not so great as is generally supposed, excepting only as regards modesty; I do not speak of the timidity arising from this last sentiment, in like manner as it does from the physical weakness and seclusion of females. As to these habits themselves, I think we may form a tolerable estimate of their influence by the ratios which exist between the sexes in crimes of different kinds, where neither strength has to be taken into consideration, nor modesty—as in theft, false witnessing, fraudulent bankruptcy, &c.; these ratios are about 100 to 21 or 17, that is to say, about 5 or 6 to 1. As to other modes of cheating, the difference is a little greater, from the reasons already stated. If we try to give a numerical expression of the intensity of the causes by which women are influenced, as, for example, the influence of strength, we may estimate it as being in proportion to the degree of strength itself, or as 1 to 2 nearly; and this is the ratio of the number of parricides for each sex. For crimes where both physical weakness and the retired life of females must be taken into account, as in assassinations and highway robberies, following the same plan in our calculations, it will be necessary to multiply the ratio of power or strength $\frac{1}{2}$ by the degree of dependence 1-5, which gives 1-10, a quantity which really falls between the values 12-100 and 8-100, the ratios given in the table. With respect to murder, and blows and wounds, these crimes depend not merely on strength and a more or less sedentary life, but still more on being in the habit of using strong drinks and quarrelling. The influence of this latter cause might almost be considered as 1 to 3 for the sexes. It may be thought that the estimates which I have here pointed out, cannot be of an exact nature, from the impossibility of assigning the share of influence which the greater modesty of woman, her physical weakness, her dependence, or rather her more retired life, and her feebler passions, which are also less frequently excited by liquors, may have respectively on any crime in particular. Yet, if such were the characters in which the sexes more particularly differ from each other, we might, by analyses like those now given, assign their respective influence with some probability of truth, especially if the observations were very numerous. I do not speak of modes of justice, of legislation in general, of the state of knowledge, of means of providing for physical wants, &c., which may powerfully contribute to increase or diminish the number of crimes, but whose influence is generally not very evident as regards the ratio of the accused of each sex.

Perhaps it may be said, that if it be true that the morality of woman is not greater than that of man, house robbery should be as frequent for the one as for the other. This observation would be just, if it were proved that the class of individuals by whom house robberies are committed, were equally composed of men and women; but there are no data on this subject. All that can be laid down is, that men and

between the Sclave (Sclavonian) and the German are, the care which the former takes of his property, and his constant desire to acquire more; he is not so industrious, not so capable of attachment and fidelity in his affections, and more disposed to seek for society and dissipation. He prides himself on greater prudence, and is generally distrustful, especially in his dealings with Germans, whom he always regards as a kind of enemy."—*Livre* 114. Malte-Brun also makes a distinction of Germans of the north and Germans of the south. "The Thuringerwald divides Germany into two regions—the north and the south. The German of the north, living on potatoes, butter, and cheese, deprived of beer and spirits, is the most robust, frugal, and intelligent: it is also with him that Protestantism has the most proselytes. Delicate in his mode of life, accustomed to wine, sometimes even given to drunkenness, the German of the south is more sprightly but also more superstitious."—*Livre* 140.

* The observations which we possess are neither so numerous nor so carefully compiled as to enable us to affirm that any direct ratio exists between the propensity to crimes against persons and the tendency to mental alienation; yet the existence of this ratio becomes more probable if we consider that we find again the same coincidence regarding the influence of age.

* These conclusions only refer to the results of the four years before 1830. The numbers of the following years, which have been since added to the table, give almost the same ratios.

women who live in a domestic state, rather commit crimes against property than against persons, which very materially confirms the observations made above, on the influence of retired life and sedentary habits. The *Compte Général de l'Administration de la Justice in* 1829, for the first time, gives the professions of the accused; and in the article *Domestiques*, we find 318 men and 147 women employed as farm-servants; and 149 men and 175 women as personal domestics: the total number of men is greater than that of women. Now, of these numbers, there were 99 accused of crimes against persons, and 590 of crimes against property: the ratio of these numbers is 1 to 6 nearly, and it has preserved exactly the same value in the years 1830 and 1831. But we have had occasion to see that this ratio for the mass of society is 1 to 3, when particular circumstances are not taken into consideration; and it would be only as 263 to 1091, or 1 to 4 nearly, if society were composed of women alone: thus, in all the cases, I think it has been sufficiently shown that men and women, when in the state of servants, commit crimes against property in preference to others.

As to capital crimes, we may arrange them in the following manner :—

Apparent Motives: 1826-1829 inclusive.	Accused for				Total.
	Poisoning.	Murder.	Assassination.	Incendiarism.	
Cupidity, theft,	20	39	237	66	362
Adultery, -	46	9	76	..	133
Domestic dissensions, -	48	120	131	34	333
Debauchery, jealousy, - -	10	58	115	37	220
Hatred, revenge, & divers motives,	23	903	460	229	1615
Total, - -	149	1129	1019	366	2663

Adultery, domestic quarrels, and jealousy, cause almost an equal number of poisonings in both sexes; but the number of assassinations, and especially of murders, of women by their husbands, is greater than that of husbands by their wives. The circumstances bearing on this subject have been stated already.

Of 903 murders which have taken place from hatred, revenge, and other motives, 446 have been committed in consequence of quarrels and contentions at taverns; thus, more than one-third of the total number of murders have taken place under circumstances in which women are not usually involved.

The four last volumes of the *Comptes Généraux*, contain some interesting details on the intellectual state of the accused of both sexes: they may be stated as follows :—

Intellectual State.	Men.	Women.	Ratio: 1828-30.	Men.	Women.	Ratio: 1830-31.
Unable to read or write, - -	6,537	2152	3·0	6,877	2042	3·3
Able to read and write imperfectly, - -	3,308	497	6·6	3,422	451	7·6
Could read and write well, -	1,399	110	12·7	1,373	82	16·7
Had received an excellent education to the 1st degree, - -	283	5	56·6	314	5	62·8
Intellectual state not mentioned,	374	104	3·6	2	..	..
	11,901	2069	4·2	11,993	2580	4·6

These numbers give us no information on the population, since we do not know what is the degree of knowledge diffused in France; but we see, at least, that there is a great difference in the sexes. I think we might explain these results by saying, that in the lower orders, where there is scarcely any education, the habits of the women approach those of the men; and the more we ascend in the classes of society, and consequently in the degrees of education, the life of woman becomes more and more private, and she has less opportunity of committing crime, all other things being equal. These ratios differ so much from each other, that we cannot but feel how much influence our habits and social position have on crime.

It is to be regretted that the documents of justice for the Low Countries do not contain any thing on the distinction of the sexes; we only see (according to the returns of the prisons and the houses of correction and detention, in the *Recueil Official*), that on the 1st of January 1827, the number of men was 5162, that of women 1193, which gives 100 women to 433 men. Making use of the documents which have been disclosed to me by M. le Baron de Keverberg, I found that in 1825 this ratio was 100 to 314.

According to the report of M. Ducpétiaux, on the state of prisons in Belgium, we enumerated 2231 men and 550 women, as prisoners on the 1st of January 1833, which gives a ratio of 405 to 100: among these prisoners were found 1364 men and 326 women who could not read or write; so that the intellectual state of the prisoners of both sexes was nearly the same; the ratio of the whole population to those who could neither read nor write, was as 100 to 61 among the men, and 100 to 60 among the women. To the number of prisoners just mentioned, may be added 419 individuals confined in the central military prison, of whom 282 could neither read nor write; this gives a ratio of 67 in 100.*

If we examine the accounts of the correctional (or minor) tribunals of France, we find the ratio between the accused of both sexes to be 529,848 to 149,565, or 28 females to 100 males. Thus, with respect to less serious offences, which are judged by the correctional tribunals, the women have there been rather more numerous compared with the men than in the case of weightier crimes.

5. Of the Influence of Age on the Propensity to Crime.

Of all the causes which influence the development of the propensity to crime, or which diminish that propensity, age is unquestionably the most energetic. Indeed, it is through age that the physical powers and passions of man are developed, and their energy afterwards decreases with age. Reason is developed with age, and continues to acquire power even when strength and passion have passed their greatest vigour. Considering only these three elements, strength, passion, and judgment† (or reason), we may almost say, *à priori*, what will be the degree of the propensity to crime at different ages. Indeed, the propensity must be almost nothing at the two extremes of life; since, on the one hand, strength and passion, two powerful instruments of crime, have scarcely begun to exist, and, on the other hand, their energy, nearly extinguished, is still further deadened by the influence of reason. On the contrary, the propensity to crime should be at its maximum at the age when strength and passion have attained their maximum, and when reason has not acquired sufficient power to govern their combined influence. Therefore, considering only physical causes, the propensity to crime at different ages will be a property and sequence of the three

* According to the statistical tables of France, of young persons inscribed for military service in 1827, we enumerate (Bulletin de M. Férussac, Nov. 1829, p. 271)—

	Absolute No.	Relative No.
Young persons able to read, - -	13,794	5
.. .. read and write,	100,707	37
.. not able to read or write,	157,510	59
	272,091	100

This ratio of 59 in 100 is a little less unfavourable than that of prisons, which is 60 in 100.

† I am not speaking of the intellectual state, of religious sentiments, of fear, shame, punishment, &c., because these qualities depend more or less directly on reason.

quantities we have just named, and might be determined by them, if they were sufficiently known.* But since these elements are not yet determined, we must confine ourselves to seeking for the degrees of the propensity to crime in an experimental manner; we shall find the means of so doing in the *Comptes Généraux de la Justice*. The following table will show the number of crimes against persons and against property, which have been committed in France by each sex during the years 1826, 27, 28, and 29, as well as the ratio of these numbers; the fourth column points out how a population of 10,000 souls is divided in France, according to age; and the last column gives the ratio of the total number of crimes to the corresponding number of the preceding column; thus there is no longer an inequality of number of the individuals of different ages.

Individuals' Age.	Crimes against		Crimes against Property in 100.	Population according to Age.	Degrees of the Propensity to Crime.
	Persons.	Property.			
Less than 16 years,	80	440	85	3304	161
16 to 21 years, -	904	3723	80	887	5217
21 to 25 .. - - -	1278	3329	72	673	6846
25 to 30 .. - - -	1575	3702	70	791	6671
30 to 35 .. - - -	1153	2883	71	732	5514
35 to 40 .. - - -	650	2076	76	672	4057
40 to 45 .. - - -	575	1724	75	612	3757
45 to 50 .. - - -	445	1275	74	549	3133
50 to 55 .. - - -	288	811	74	482	2280
55 to 60 .. - - -	168	500	75	410	1629
60 to 65 .. - - -	157	385	71	330	1642
65 to 70 .. - - -	91	184	70	247	1113
70 to 80 .. - - -	64	137	68	255	788
80 and upwards, -	5	14	74	65	345

This table gives us results conformable to those which I have given in my *Recherches Statistique* for the years 1826 and 1827. Since the value obtained for 80 years of age and npwards is based on very small numbers, it is not entitled to much confidence. Moreover, we see that man begins to exercise his propensity to crimes against property at a period antecedent to his pursuit of other crimes. Between his 25th and 30th year, when his powers are developed, he inclines more to crimes against persons. It is near the age of 25 years that the propensity to crime reaches its maximum; but before passing to other considerations, let us examine what difference there is between the sexes. The latter columns of the following table show the degrees of propensity to crime,† reference being had to population, and the greatest number of each column being taken as unity :—

* Here we are more especially considering crimes against persons; for crimes against property, it will be necessary to take notice of the wants and privations of man.

† To give a new proof of the almost identity of results of each year, I have thought proper to present here the numbers collected between 1830 and 1831; we may compare them with those of the preceding tables, which are nearly exactly double, because they refer to four years :—

Individuals' Age.	Crimes against		Crimes against Property in 100 Crimes.	Accused.		Women to 100 Men.
	Persons.	Property.		Men.	Women.	
Under 16 years,	27	214	88	211	30	14
16 to 21 .. -	394	1,988	83	1,911	371	19
21 to 25 .. -	643	1,706	72	1,913	438	23
25 to 30 .. -	758	1,872	70	2,185	445	20
30 to 35 .. -	662	1,741	72	2,004	309	20
35 to 40 .. -	376	1,088	74	1,167	297	26
40 to 45 .. -	279	725	72	800	204	25
45 to 50 .. -	200	643	76	692	151	21
50 to 55 .. -	161	426	73	487	100	21
55 to 60 .. -	91	245	73	270	66	24
60 to 65 .. -	55	147	73	162	40	25
65 to 70 .. -	31	100	77	113	18	16
70 to 80 .. -	29	58	66	67	20	30
80 and upwards,	6	1	14	6	1	16
All ages, - - -	3712	10,856	74	11,993	2580	22

Individuals' Age.	Accused.		Women to 1000 Men.	Degrees of the Propensity to Crime.		
	Men.	Women.		In General.	Men.	Women.	Calculated.
Under 16 years,	438	82	187	0·02	0·02	0·02	0·02
16 to 21 ..	3,901	726	186	0·76	0·79	0·64	0·66
21 to 25 ..	3,762	845	225	1·00	1·00	0·98	1·00
25 to 30 ..	4,260	1017	239	0·97	0·96	1·00	0·92
30 to 35 ..	3,254	782	240	0·81	0·80	0·83	0·81
35 to 40 ..	2,105	621	295	0·59	0·56	0·75	0·71
40 to 45 ..	1,631	468	256	0·55	0·54	0·60	0·60
45 to 50 ..	1,357	363	267	0·46	0·44	0·51	0·51
50 to 55 ..	896	203	227	0·33	0·33	0·33	0·42
55 to 60 ..	555	113	204	0·24	0·24	0·22	0·31
60 to 65 ..	445	97	218	0·24	0·24	0·23	0·27
65 to 70 ..	230	45	196	0·16	0·17	0·14	0·21
70 to 80 ..	163	38	233	0·12	0·12	0·12	0·12
80 & upwards,	18	1	56	0·05	0·06	0·01	0·04
All ages, -	23,270	5416	233	0·41	..	..	..

Women, compared to men, are rather later in entering on the career of crime, and also sooner come to the close of it. The maximum for men takes place about the 25th year, and about the 30th for women; the numbers on which our conclusions are founded are still very few; yet we see that the two lines which represent the relative value for each sex are almost parallel. The latter column contains results calculated by the following very simple formula :—

$$y = (1 - \text{sin. } x)\,\frac{1}{1+m}, \text{ supposing } m = \frac{1}{2x - 1^g}.$$

In this manner the degree of the propensity to crime is expressed according to age (*en fonction de l'âge*) x. We must take, as we see, for the axis of the abscissæ, one-fourth of the corrected circumference (*circonférence rectifiée*), and divided into decimal parts. The results of this formula generally agree better with the results obtained for women. I have endeavoured to render them sensible by the construction of a curve, the greater or less divergences of which from the axis AB (see *plate* 4) indicates the degree of the propensity to crime. The equation becomes a sinusoide—

$$y = 1 - \text{sin. } x,$$

for ages above 30 years, because m evidently is equal to unity. It is not to be expected that we should find mathematical precision, for several reasons, of which the principal are—

1. The numbers obtained for four years are not so great that we may adopt their results with perfect confidence.

2. To calculate the propensity to crime, we must combine these numbers with those which the tables of population have furnished; and it is pretty generally agreed that the table of the *Annuaire* does not give the state of the population of France with sufficient accuracy.

3. The propensity to crime can only be calculated from the whole of the individuals who compose the population; and as those who occupy the prisons are generally persons of more than 25 years of age, and who, from their state of captivity, cannot enter into the ratio for persons above 25 years of age, there must necessarily be a void (*lacune*). If, instead of taking crimes collectively, we examine each in particular in proportion to age, we shall have a new proof that the maximum of crimes of different kinds takes place between the 20th and 30th years, and that it is really about that period that the most vicious disposition is manifested. Only the period of maximum will be hastened or retarded some years for some crimes, according to the quicker or slower development of certain qualities of man which are proportioned to those crimes. These results are too curious to be omitted here; I have presented them in the following table, according to the documents of France, from 1826 to 1829 inclusively, classing them according

to the periods of maxima, and taking into account the population of different ages. I have omitted the crimes which are committed in smallest number, because the results from that alone would have been very doubtful.

Nature of the Crimes.	Under 16 Years.	16 to 21.	21 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	50 to 55.	55 to 60.	60 to 65.	65 to 70.	70 to 80.	80 and upwards.
Violations on children under 15 years,	4	120	71	96	73	39	34	45	22	18	26	17	21	2
House robbery,	54	965	815	766	520	351	249	207	112	56	61	34	14	〃
Other thefts,	332	2479	2050	2292	1716	1249	1016	707	433	263	190	98	65	10
Violation and seduction,	9	155	156	149	99	38	40	27	9	5	3	1	2	〃
Parricide,	6	13	12	13	6	3	2	1	4	2	〃	〃	〃	〃
Wounds and blows,	6	180	300	359	219	129	101	95	55	35	23	10	7	1
Murder,	15	139	108	275	172	103	84	49	48	30	25	17	9	〃
Infanticide,	1	40	99	134	76	44	30	8	7	1	8	4	2	〃
Rebellion,	5	67	129	156	115	51	51	35	29	16	16	5	5	〃
Highway robbery,	21	80	111	149	107	60	62	46	22	21	8	6	4	〃
Assassination,	10	90	144	203	183	100	104	89	53	32	24	13	15	1
Wounding parents,	2	47	64	73	72	40	30	16	8	2	1	〃	〃	〃
Poisoning,	5	6	17	30	27	15	20	12	6	2	5	4	1	〃
False witnessing and suborning,	2	23	46	48	44	42	42	35	23	15	15	11	7	〃
Various misdemeanours,	8	86	202	276	312	244	207	185	129	78	75	28	20	2

Thus the propensity to theft, one of the first to show itself, prevails in some measure throughout our whole existence; we might be led to believe it to be inherent to the weakness of man, who falls into it as if by instinct. It is first exercised by the indulgence of confidence which exists in the interior of families, then it manifests itself out of them, and finally on the public highway, where it terminates by having recourse to violence, when the man has then made the sad essay of the fullness of his strength by committing all the different kinds of homicide. This fatal propensity, however, is not so precocious as that which, near adolescence, arises with the fire of the passions and the disorders which accompany it, and which drives man to violation and seduction, seeking its first victims among beings whose weakness opposes the least resistance. To these first excesses of the passions, of cupidity, and of strength, is soon joined reflection; plotting crime; and man, become more self-possessed and hardened, chooses to destroy his victim by assassination or poisoning. Finally, his last stages in the career of crime are marked by address in deception, which in some measure supplies the place of strength. It is in his decline that the vicious man presents the most hideous spectacle; his cupidity, which nothing can extinguish, is rekindled with fresh ardour, and assumes the mask of swindling; if he still uses the little strength which nature has left to him, it is rather to strike his enemy in the shade; finally, if his depraved passions have not been deadened by age, he prefers to gratify them on feeble children. Thus, his first and his last stages in the career of crime have the same character in this last respect: but what a difference! That which was somewhat excusable in the young man, because of his inexperience, of the violence of his passions, and the similarity of ages, in the old man is the result of the deepest immorality and the most accumulated load of depravity.

From the data of the preceding tables, it is scarcely possible not to perceive the great influence which age exercises over the propensity to crime, since each of the individual results tend to prove it. I shall not hesitate to consider the scale of the different degrees of the propensity to crime, at different ages, deserving of as much confidence as those which I have given for the stature, weight, and strength of man, or, finally, those for mortality.

Account has also been taken of the ages of accused persons, who have appeared before the minor or correctional courts of France, but only preserving the three following heads, which refer but to the four years preceding 1830:—

Ages.	Criminal Courts.		Correctional Courts.	
	Men.	Women.	Men.	Women.
Under 16 years,	2	2	5	6
From 16 to 21,	17	13	14	16
More than 21,	81	85	81	78
	100	100	100	100

Thus, the correctional cases are, in early age, all things being equal, more frequent than criminal cases; they are the first steps of crime, and consequently those most easily ascended. In Belgium, only four heads of ages have been made, and the results of correctional and criminal courts have been united, which renders our comparisons more difficult, since, as we have just seen, the numbers in each are not the same; it is also to be regretted that care has not been taken to distinguish the sexes. Be this as it may, by taking the total number of the accused and suspected (*prévenus*) as unity, we obtain the following results:—

Ages.	Suspected (or Committed) and Accused.				
	1826.	1827.	1828.	1829.	Average Number.
Under 16 years,	4	5	5	5	5
From 16 to 21,	13	11	12	11	12
〃 21 to 70,	81	82	81	82	81
Above 70 years,	2	2	2	2	2
	100	100	100	100	100

These results are very similar to those of the correctional courts of France, and the latter elements ought certainly to predominate, when we make no distinction between the accused and those merely committed, since the latter are always more numerous than the accused. Yet it would seem that with us there are fewer offences between the ages of 16 and 21 than in France.

We do not find that the number of children brought annually before the courts of Belgium has diminished, either in an absolute sense, or compared with the numbers of other accused and committed persons. The same is nearly the case with France, as we see by the following table, in which I have preferred giving the absolute numbers:—

Years.	Under 16 Years.	16 to 21.	More than 21.	Total.
Accused.				
1826,	124	1,101	5,763	6,988
1827,	136	1,022	5,771	6,939
1828,	143	1,278	5,975	7,396
1829,	117	1,226	6,030	7,373
1830,	114	1,161	5,687	6,962
1831,	127	1,121	6,358	7,606
Committed.				
1826,	5,042	12,799	86,196	104,037
1827,	5,233	13,291	73,588	92,112
1828,	5,228	14,902	71,622	91,752
1829,	5,306	14,431	79,438	99,175
1830,*	2,852	6,452	47,812	57,116
1831,	5,651	17,659	84,433	107,743

We must not, however, conclude from these results that education, which for some time has been diffused

* Those committed for different kinds of offences are not included in these numbers.

with such activity, has been of no effect in diminishing the number of crimes committed by young persons; several years more are necessary before its influence can become apparent, and before it can carry its effects into the bosom of families.

It is a matter of regret, that as yet we possess so few accounts of the ages of criminals, calculated to render appreciable the influence of places and the customs of different nations. In general, we remark, that the number of children in prisons in England is much greater than with us; this would appear to be owing, especially in the metropolis, to children being trained in a manner to theft, while the really guilty act through their intermediation. In the penitentiary of Millbank, in the year 1827, 1250 individuals were registered as under 21 years of age out of a total number of 3020, which gives a ratio of 41 to 100, being more than double that of France and the Low Countries.*

The condemned persons in the jail of Philadelphia in 1822, 1823, and 1824, were proportioned as follows:†—

Ages.	1822.	1823.	1824.	Totals.
Under 21 years,	52	72	58	182
From 21 to 30 years,	151	143	122	416
〃 30 to 40 〃	72	67	79	218
Above 40 years,	55	49	28	132

The total for the three years was 948. Taking the ratio of this sum to 1000, we find the following values, opposite to which I have placed those of France:—

	Philadelphia.	France.
Under 21 years,	19	19
From 21 to 30,	44	35
〃 30 to 40,	23	23
Above 40 years,	14	23
	100	100

Thus the prisons of Philadelphia present exactly the same number of criminals as those of France for individuals under 19 and for those between 30 and 40 years of age; they have fewer old men, but more men between 21 and 30, which may be owing to the nature of the population of the two countries.

France, Belgium, and Philadelphia, agree then pretty nearly as to the number of criminals in proportion to the ages; but England differs very sensibly from the average values presented by these countries, and that is owing, no doubt, as I observed before, not so much to the character of the English people as to the modes of eluding the rigour of the laws which the malefactors make use of, acting through the intermedium of children whom they have trained up as instruments of crime.

Conclusions.

In making a summary of the principal observations contained in this chapter, we are led to the following conclusions:—

1st, Age (or the term of life) is undoubtedly the cause which operates with most energy in developing or subduing the propensity to crime.

2d, This fatal propensity appears to be developed in proportion to the intensity of the physical power and passions of man: it attains its maximum about the age of 25 years, the period at which the physical development has almost ceased. The intellectual and moral development, which operates more slowly, subsequently weakens the propensity to crime, which, still later, diminishes from the feeble state of the physical powers and passions.

3d, Although it is near the age of 25 that the maximum in number of crimes of different kinds takes place, yet this maximum advances or recedes some years for certain crimes, according to the quicker or slower development of certain qualities which have a bearing on those crimes. Thus, man, driven by the violence of his passions, at first commits violation and seduction; almost at the same time he enters on the career of theft, which he seems to follow as if by instinct till the end of life; the development of his strength subsequently leads him to commit every act of violence—homicide, rebellion, highway robbery still later, reflection converts murder into assassination and poisoning. Lastly, man, advancing in the career of crime, substitutes a greater degree of cunning for violence, and becomes more of a forger than at any other period of life.

4th, The *difference of sexes* has also a great influence on the propensity to crime: in general, there is only 1 woman before the courts to 4 men.

5th, The propensity to crime increases and decreases nearly in the same degrees in each sex; yet the period of maximum takes place rather later in women, and is near the 30th year.

6th, Woman, undoubtedly from her feeling of weakness, rather commits crimes against property than persons; and when she seeks to destroy her kind, she prefers poison. Moreover, when she commits homicide, she does not appear to be proportionally arrested by the enormity of crimes which, in point of frequency, take place in the following order:—infanticide, miscarriage, parricide, wounding of parents, assassination, wounds and blows, murder: so that we may affirm that the number of the guilty diminishes in proportion as they have to seek their victim more openly. These differences are no doubt owing to the habits and sedentary life of woman; she can only conceive and execute guilty projects on individuals with whom she is in constant relation.

7th, The *seasons*, in their course, exercise a very marked influence on crime: thus, during summer, the greatest number of crimes against persons are committed, and the fewest against property; the contrary takes place during winter.

8th, It must be observed that age and the seasons have almost the same influence in increasing or diminishing the number of mental disorders and crimes against persons.

9th, *Climate* appears to have some influence, especially on the propensity to crimes against persons: this observation is confirmed at least among the races of southern climates, such as the Pelasgian race, scattered over the shores of the Mediterraneau and Corsica, on the one hand; and the Italians, mixed with Dalmatians and Tyrolese, on the other. We observe, also, that severe climates, which give rise to the greatest number of wants, also give rise to the greatest number of crimes against property.

10th, The countries where frequent mixture of the people takes place; those in which industry and trade collect many persons and things together, and possess the greatest activity; finally, those where the inequality of fortune is most felt, all things being equal, are those which give rise to the greatest number of crimes.

11th, Professions have great influence on the nature of crimes. Individuals of more independent professions are rather given to crimes against persons; and the labouring and domestic classes to crimes against property. Habits of dependence, sedentary life, and also physical weakness in women, produce the same results.

12th, *Education* is far from having so much influence on the propensity to crime as is generally supposed. Moreover, moral instruction is very often confounded with instruction in reading and writing alone, and which is most frequently an accessory instrument to crime.

13th, It is the same with *poverty*; several of the departments of France, considered to be the poorest, are at the same time the most moral. Man is not driven to crime because he is poor, but more generally

* Bulletin de M. de Férussac, Mai 1828.

† American Review, 1827, No. 12.

because he passes rapidly from a state of comfort to one of misery, and an inadequacy to supply the artificial wants which he has created.

14th, The higher we go in the ranks of society, and consequently in the degrees of education, we find a smaller and smaller proportion of guilty women to men; descending to the lowest orders, the habits of both sexes resemble each other more and more.

15th, Of 1129 murders committed in France, during the space of four years, 446 have been in consequence of quarrels and contentions in taverns; which would tend to show the fatal influence of the use of *strong drinks*.

16th, In France, as in the Low Countries, we enumerate annually 1 accused person to 4300 inhabitants nearly; but in the former country, 39 in 100 are acquitted, and in the second only 15; yet the same code was used in both countries, but in the Low Countries the judges performed the duty of the jury. Before correctional courts and simple police courts, where the committed were tried by judges only, the results were nearly the same for both countries.

17th, In France, crimes against persons were about one-third of the number of crimes against property, but in the Low Countries they were about one-fourth only. It must be remarked, that the first kind of crimes lead to fewer condemnations than the second, perhaps because there is a greater repugnance to apply punishment as the punishment increases in severity.

I cannot conclude this chapter without again expressing my astonishment at the constancy observed in the results which the documents connected with the administration of justice present each year.

"Thus, as I have already had occasion to repeat several times, we pass from one year to another, with the sad perspective of seeing the same crimes reproduced in the same order, and bringing with them the same punishments in the same proportions." All observations tend likewise to confirm the truth of this proposition, which I long ago announced, that *every thing which pertains to the human species considered as a whole, belongs to the order of physical facts*: the greater the number of individuals, the more does the influence of individual will disappear, leaving predominance to a series of general facts, dependent on causes by which society exists and is preserved. These causes we now want to ascertain, and as soon as we are acquainted with them, we shall determine their influence on society, just in the same way as we determine effects by their causes in physical sciences.* It must be confessed, that, distressing as the truth at first appears, if we submit to a well followed out series of observations the physical world and the social system, it would be difficult to decide in respect to which of the two the acting causes produce their effects with most regularity. I am, however, far from concluding that man can do nothing for man's amelioration. I think, as I said at the commencement of this work, that he possesses a moral power capable of modifying the laws which affect him; but this power only acts in the slowest manner, so that the causes influencing the social system cannot undergo any sudden alteration; as they have acted for a series of years, so will they continue to act in time to come, until they can be modified. Also, I cannot repeat too often, to all men who sincerely desire the well-being and honour of their kind, and who would blush to consider a few francs more or less paid to the treasury as equivalent to a few heads more or less submitted to the axe of the executioner, that there is a budget which we pay with a frightful regularity —it is that of prisons, chains, and the scaffold: it is that which, above all, we ought to endeavour to abate.

* M. Guerry comes to the same conclusions from his researches on crimes, *Essai sur la Statistique Morale*, p. 69:—"One of the most general conclusions we can make is, that they all concur to prove that the greater number of facts of a moral nature, considered in the mass, and not individually, are determined by regular causes, the variations of which take place within narrow limits, and which may be submitted, like those of a material nature, to direct and numerical observation." As this idea has continually presented itself to me in all my researches on man, and as I have exactly expressed it in the same terms as those of the text, in my conclusions on the *Recherches sur le Penchant au Crime*, a work which appeared a year before that of M. Guerry, I have thought it necessary to mention the point here, to prevent misunderstanding.

BOOK FOURTH.

OF THE PROPERTIES OF THE AVERAGE MAN, OF THE SOCIAL SYSTEM, AND OF THE FINAL ADVANCEMENT OF THIS STUDY.

CHAPTER I.

PROPERTIES OF THE AVERAGE MAN.

In the three preceding books I have presented the results of my inquiries on the development of the physical and moral system of the average man, and on the modifications which he undergoes from different influences. These results can only be considered as the first essay towards an immense work, which, to be completed, would require long and painful researches, and which would only be really useful by being extremely exact.

This determination of the average man is not merely a matter of speculative curiosity; it may be of the most important service to the science of man and the social system. It ought necessarily to precede every other inquiry into social physics, since it is, as it were, the basis. The average man, indeed, is in a nation what the centre of gravity is in a body; it is by having that central point in view that we arrive at the apprehension of all the phenomena of equilibrium and motion; moreover, when considered abstractly, it presents some remarkable properties, which I am now going to state succinctly.

1. Of the Average Man considered with reference to Literature and the Fine Arts.

The necessity of veracity in faithfully representing the physiognomy, the habits, and the manners of people at different epochs, has at all times led artists and literary men to seize, among the individuals whom they observed, the characteristic traits of the period in which they lived; or, in other words, to come as near the average as possible. I do not wish to be understood as implying that it is necessary to give the same traits, the same tastes, and the same passions, to every individual, whatever may be his age, rank, country, or the period at which he lives; but that the most characteristic marks must be studied, still keeping in view these differences. Thus we should investigate what are the predominating elements in any people or in any age; for example, whether fanaticism, piety, or irreligion—a spirit of servility, independence, or anarchy. No one will hesitate to allow to me that man is more courageous at 20 than at 60, and more prudent at 60 than at 20; or that persons of the south have more liveliness of thought and feature than the inhabitants of the north: these are common observations, which every one admits, and which we should be shocked to find unattended to in works of imagination. But can it be thought wrong to give more precision to these vague ideas?—is it altogether conformable to the actual state of our knowledge, to receive relations which have only been slightly observed, when they may be determined with certain precision? If it had been demanded some years ago at what age a man has the greatest propensity to crime, we should no doubt have been much embarrassed to find the true answer; and perhaps the most erroneous opinions would have been put forth, especially on the influence

of sexes and the intellectual state. Yet who would assert that these researches are useless to philosophers and men of letters, or even to the artist, who only truly deserves this name according as he has studied the human heart deeply? The time is passing away when men were contented with indistinct ideas, and relations determined at a glance; when numerical determinations become applicable, they are especially consulted by the observer and lover of truth.

I am far from pretending, however, that even a profound knowledge of the different faculties of man will be sufficient to obtain success in the fine arts and literature; but I think that, to produce a work truly capable of moving and agitating the passions, we must be acquainted with man, and especially man as it is desired to represent him. Thus, to take but one example, the artist who has only studied the type of the Grecian physiognomies, however admirable this type may appear to us, if he reproduces it in modern subjects, will produce but a chilling effect on the spectator, who, though he admires the art and composition, will never be deeply excited. Grecian figures, however varied they may be according to age, passion, and sex, have notwithstanding a general likeness, which carries us, in spite of ourselves, back to antiquity, and distracts our attention from the subject sought to be represented before us. If such figures are represented in action, the anachronism only becomes more sensible. Artists, at the revival of the fine arts, fully comprehended the necessity of painting what they had before their eyes, and on that account they produced such astonishing effects. The noble and severe figure of Christ has nothing in common with those of the Apollo or the Jupiter of ancient mythology; a Madonna of Raphael has an enchanting grace, which is not surpassed by the finest forms of the antique; and these beauties have a greater influence on the imagination, because they are more similar to the natures around us, and act more directly upon us. Even we ourselves, in more remote situations and circumstances, feel the necessity, when retracing our national facts, of not bringing forward Grecian or Italian figures: in the midst of a battle, where men are found, all nearly of the same age, and all alike dressed in the same kind of armour, our eye seeks to recognise, by the physiognomic traits and expressions, the Frenchman or the Englishman, the German or the Russian. In the French army itself, the soldier of the old guard had an expression which has become classical, and is identified in some measure with the remembrances of the empire.

If the arts have already admitted such imperceptible shades, and have the power of awakening the remembrance of an era by recalling the physiognomic traits which seem to belong to it, what value ought we not to affix to an accurate determination of these traits, if they are capable of being appreciated? Some men of genius have penetrated very far in these researches, and their ideas, which at first were rejected, have since been more favourably judged of, when experience came to their support. Lavater has not hesitated to analyse the human passions by the inspection of the features, and Gall has endeavoured to prove that we may arrive at similar results by inspecting the cranial protuberances. There is an intimate relation between the physical and the moral of man, and the passions leave sensible traces on the instruments they put in continual action; but what are these traces? It is agreed that they do exist; the artist studies and seeks to seize them; yet, by a singular prepossession, we reject the possibility of this being determined with any degree of accuracy, or the utility of the determination. But how comes it that such artist or such poet labours to no purpose, and presents constantly to us the Greek or Italian type, according as he had more especially studied the antique or the Italian school?—how is it that Rubens, despite his genius, when painting the divinities of ancient mythology, gives forms which antiquity would have disavowed? It is because Rubens had also a type, and this type had been chosen from among the moderns.

It is undoubtedly owing to the want of care taken in studying the shades of the moral and physical qualities of man among different people and in different ages, that the greater number of works of imagination have been so monotonous and lifeless. The necessity of studying nature and truth has indeed been felt; but the fact has not been sufficiently attended to, I think, that nature is not invariable. The ancients have represented the physical and moral man with infinite art, such as he then was; and the greater number of the moderns, struck with the perfection of their works, have thought they had nothing to do but servilely to imitate them; they have not understood that the type has been changed; and that, when imitating them for the perfection of art, they had another nature to study. Hence the universal cry, "Who shall deliver us from the Greeks and Romans?" Hence the violent dispute between the classics and romanticists; hence, lastly, the necessity of having a literature which was truly the *expression of society*. This great revolution was accomplished, and furnishes the most irrefragable proof of the variability of the human type, or of the average man, in different men and in different ages.

As for ancient subjects, the artist or the poet who wished to reproduce them might constrain us to admire his art; but we should always feel that he placed a nature before our eyes, which, so to speak, was dead —a type which is extinct. We must undoubtedly make concessions to the fine arts, and give ourselves to their illusions; but we must not let the sacrifices demanded exceed certain limits. We cannot, for a moment, go back several centuries, forget our religion, social institutions, and habits, and feel sympathy for men not having our tastes, manners, or the same traits which we are accustomed to see around us. The ancients themselves never required such sacrifices on the part of the public; and such men as Euripides and Sophocles took good care not to introduce on the stage an Osiris, and the mysterious feasts of the Egyptians, who, nevertheless, had been their patterns.

A few ages are of little moment in the annals of the human race; and we cannot assure ourselves that man will not undergo any modifications—in form, for example—and that a type which once existed may not be completely lost some day. This supposition may appear extraordinary; yet we see that all the elements relating generally to man undergo changes; who, therefore, can assure himself that the type of the Grecian figure shall not be lost, either in the flight of time, or in some great catastrophe involving the destruction of the Caucasian race? Such overthrows are in the nature of possible things. The consequences of such an event might be, that another race—the Mongolian, for instance—which, after much difficulty, might people the earth, and find the remains of the fine arts, would only see in all these fine Grecian figures, which we are accustomed to admire, things entirely artificial and conventional, such as the Egyptian forms appear at present to us. They might admire these antiques as specimens of art; but I doubt if they would prefer the ancient form to their own, if they had to represent their divinity in a human shape. What has just been said, will no doubt be rejected by those who have pre-established ideas regarding a fixed standard of beauty. I shall not discuss that question here; I only publish my views with diffidence, not seeking to impose them on any one.

I think I have sufficiently shown, in what has preceded, that the determination of the average man is not useless, even to the fine arts and literature; and that he who shall arrive at this determination, will have no difficulty in obtaining the attention of artists and men of literature. It would inform them more precisely of things which they now know but vaguely;

it would discover others to them of which they are ignorant, or at least clear their minds of a mass of prejudices. They would receive these notions as a painter learns perspective, which, in geometrical outline, is not very *pittoresque* either. Moreover, artists have received the researches of Gall and Lavater probably with greater eagerness than savants: indeed, it is to their care that painters are indebted in a great measure for the knowledge of the proportions of different parts of the human body, in each sex, at different ages. This knowledge was so important to them, that it was an object of study of the greatest painters at the revival of the arts: we may see, especially, what care the celebrated Albert Durer took in regard to it in his works.

At the same time, I admit that the artist and the literary man can, and even ought, to search out the prominent traits, exaggerate rather than diminish them, and contrast the most different physiognomies and characters; but the truth must always lie between the extremes which they present to our view, and these extremes themselves lie within *limits* defined by nature. Going beyond, we only create fantastic beings and monstrosities; these reveries of a disordered imagination may astonish, and even amuse, but they can never produce those deep sensations and lively emotions which we only feel for beings of our own caste.

To conclude the exposition of my views of the average man, I remark, that it will first be necessary to study, in the most complete manner, the development of his different faculties, and every thing which may influence their development, every other consideration being laid aside. The artist, the man of literature, and the savant, will afterwards choose from among these materials those which are best suited to the subject of their studies, as the painter borrows from optics the few principles bearing on his art.

2. Of the Average Man considered in reference to the Natural and Medical Sciences.

It will not be necessary to insist forcibly, to natural philosophers, on the importance of the investigation of the different laws of the development of man; indeed, without the knowledge of these laws, the science of man cannot be complete or philosophic. I think the utility of the methods of determining them, which I propose, needs not to be explained to them again; several of these have been familiar to them for a long time, and others form a part of their usual modes of proceeding in fathoming the secrets of nature.

In the eyes of the naturalist, the average man is only the type of a people; numerous observations have shown that this type is not unique, and consequently that there are different races of men. But the characters on which these distinctions are established have not been sufficiently defined; indeed, how can we study the modifications which the elements relative to man, as well as their laws of development, undergo in the different races, when we have not settled the point of commencement?

Hence, also, proceeds the difficulty of surmounting the greater number of the most interesting and philosophical questions of natural history. It is frequently asked if the human species has deteriorated, or if it is capable of deteriorating at any time; but this problem, for want of the elements for its solution, remains without a satisfactory answer.

It is also asked if there is a type or standard of the beautiful for the human species, which is proportionate to the development of intelligence. Comparative anatomy has been thought to find an affirmative solution of this question, in the magnitude of the brain and the size of the facial angle, which, according to the delicate researches which have been made, diminishes in proportion to the lowering of intelligence in men and animals; and it has been inferred from this, that the maximum of intelligence will be found in the species which have the facial angle most nearly approaching to a right angle; which would give the pre-eminence to the Caucasian. I do not know if any observations have been made on a somewhat larger scale, having in view the measurement of the degrees of size of the facial angle at different ages, in order to determine if these are at all proportionate to the degrees of the development of intelligence.

Naturalists are also occupied in determining carefully what are the *limits* of the extent of the different elements belonging to man; these *limit values* have always been objects of attention, and ought to be carefully registered in the natural history of man, so that we might know, not only what is, but also what is possible.

The anatomical researches of Gall on the brain tend to show that the development of its different parts is proportionate to the development of certain corresponding faculties, which appear to have their seat there. Without entering into an examination of the doctrine of this learned physiologist, one must regret that his principles have not yet been submitted to more direct observations, and that it has not been examined whether the law of development of our faculties at different ages corresponds to the law of development of the presumed corresponding parts of the brain;* indeed, so far from knowing the relative proportions on these different points, it appears that, up to the present time, we have but very few data on the law of development of the brain itself, or upon its size and weight at different ages, either as regards average value or extreme limits.†

* Since the above was written, M. Broussais, to whom science is indebted for so many useful works, has read a memoir to the Academy of Moral and Political Sciences, on the influence of the physical on the moral, and, in particular, on the actual state of our knowledge on phrenology. M. Edwards has presented some considerations in support of this work, agreeing with it, also, in requiring scientific experiments on this new science. The principal conclusions of this learned physiologist are contained in the following note, for which I am indebted to his friendship:—

"The proofs on which we found our convictions are referred to two principal classes; the first includes proofs which may be called *individual*, and the second those which we shall call *scientific*.

In the first case, we cannot be convinced of the truth of certain relations without verifying them ourselves. Thus it is necessary that every individual who wants to form an opinion, must himself make the proof which others have done. In the second case, on the contrary, when we are considering a *scientific* proof, if it has been properly obtained, it is enough to receive the knowledge to be convinced of the truth. Thus we dispense with the necessity of personally making the proof again.

In general, the kind of proofs on which phrenology rests belong to the first class, or those here called *individual*; because it is always necessary that each *individual* who wishes to know what to maintain should repeat the proof.

This is the condition in which phrenology stands. It is evident that, if the relations pointed out are generally true, any one who has sufficient knowledge may convince himself by a sufficient number of observations; but he could not transmit to another his conviction, unless one could know the extent and measure of his experience.

Now, if that could be expressed in a determinate manner, the proof would be no longer individual but scientific; and not only he who had acquired could communicate his conviction, but the latter would also be able to impress it on others; for it is the peculiarity of scientific proof that it forces general conviction on those who can understand it. Other persons are obliged to admit on hearsay, that is, on the authority of the first class. Now, phrenology, if true, is really capable of scientific proof.

It is by forming a sort of statistics, the plan of which might be readily designed, that the scientific proof of this doctrine is practicable. It is greatly to be desired that phrenologists would do this."

† M. Guerry wrote to me in 1831—"I am now occupied, along with M. le Docteur Esquirol and M. le Docteur Leuret, with the statistics of insanity. We measure the head, in every direction, of every person at Charenton, the Bicêtre, and the Salpêtrière. We also measure the cerebrum and cerebellum of those who die. I have thus been led to undertake the *Histoire du Developpement de la Tete Humaine Moyenne.* I have been led to it entirely from having read your excellent Memoir on the Stature of Man. Fifteen days ago, we noted the state of the pulse of ninety maniacal persons, between five and seven o'clock in the morning, and whilst they were at breakfast. We already have found certain periodic returns in the number of the pulsations; these observations will be continued to the end of the month.

I hope to be able to measure the angles of the head very exactly, so as to obtain the proportions and form of an average maniacal head, of one hallucinated, of an idiotic, imbecile, and epileptic one, &c."—(Notes on my *Recherches sur le Penchant*, &c.) It is to be regretted that this announced work has not yet appeared.

At the end, however, of the work, *De la Frequence du Pouls chez les Alienés*, MM. Leuret and Mitivié give the result of their researches on the specific weight of the brain of the insane, which prove that there is no marked difference in this respect between insane and healthy persons. The specific weight has an average value, represented by 1·031, water at 15° of temperature being considered as unity.

We ought also to state with more care than has yet been done, the capacity of our organs, and the limits they can attain.

If the average man were completely determined, we might, as I have already observed, consider him as the type of perfection; and every thing differing from his proportions or condition, would constitute deformity and disease; every thing found dissimilar, not only as regarded proportion and form, but as exceeding the observed limits, would constitute a monstrosity.

The consideration of the average man is so important in medical science, that it is almost impossible to judge of the state of an individual without comparing it to that of another imagined person, regarded as being in a normal condition, and who is intrinsically no other than the individual we are considering. A physician is called to a sick person, and, having examined him, finds his pulse too quick, and his respiration immoderately frequent, &c. It is very evident, that to form such a decision, we must be aware that the characters observed not only differ from those of an average man, or one in a normal state, but that they even exceed the limits of safety. Every physician, in forming such calculations, refers to the existing documents on the science, or to his own experience; which is only a similar estimate to that which we wish to make on a greater scale and with more accuracy.

Moreover, the data which the average man presents, can themselves only serve to furnish others more important, and which relate to the individual observed. To explain my idea, I shall suppose that every man has the knowledge and prudence necessary to examine himself carefully, and to determine all the elements which compose him, and the limits within which they may vary, in a state of health: he will form a table differing more or less from that of the average man, and which will assist him in recognising whatever is more or less anomalous in his own case, and whatever imperiously demands attention. It would be this table which the physician should consult in the case of illness, in order to estimate the extent of the divergences from the normal state, and what are the organs more especially affected. But as, in the greater number of cases, the sick person can make no satisfactory observations on his own person, nor any elements which are peculiar to him, the physician is obliged to have recourse to the common standard, and compare his patient with the average man; a course which, in fact, seems to present less difficulty and inconvenience, but may also cause serious mistakes in some circumstances. For here, again, we must observe that general laws referring to masses are essentially imperfect when applied to individuals; but we do not mean to say that they can never be consulted with advantage, or that the divergences are always considerable.

A prudent man, who studies and observes his constitution, may prevent many diseases, and scarcely needs to have recourse to professional men, except in severe and extraordinary cases. His habit of observing himself, and the knowledge which he has thus obtained, form, in some measure, a kind of table giving him the elements of his constitution. In general, we only call in the physician when indisposed: I think it would be useful were he also to see us when in a state of health, so that he might obtain a better knowledge of our normal state, and procure elements of comparison necessary for cases of anomaly and indisposition. It is very evident that a physician, called to a patient whom he sees for the first time, and of whose constitution he is absolutely ignorant, will, in certain circumstances, commit errors by submitting him to the common rule.

I shall not pursue these remarks, the truth of which, I venture to think, will be appreciated. The constitution of the average man serves as a type to our kind. Every race has its peculiar constitution, which differs from this more or less, and which is determined by the influence of climate, and the habits which characterise the average man of that peculiar country. Every individual, again, has his particular constitution, which depends also on his organisation and his mode of existence. It is consequently interesting to know each of the elements which concern us individually, and we have a general interest in knowing each of the elements which bear on the average man, who is the type to which we should incessantly have recourse.

3. Of the Average Man considered with respect to Philosophy and Morals (*la Morale*).

Human nature (*humanité*) is modified by necessities of time and place. The development of the different faculties of the average man ought to be closely proportionate to these necessities: this is a condition essential to his existence and continuance. If the average man, at different epochs, had been determined carefully, we might at this day perceive what laws of development have undergone the greatest change: we should possess the most valuable means of analysis; and we should also learn what have been the qualities which have successively predominated and exercised the greatest influence on our social system.

The laws of development of the average man, at such or such a period, must not be confounded with the laws of the development of human nature* (*humanité*). There is but little general conformity betwixt them: thus, I should be much disposed to believe that the laws of development of the average man continue almost the same through successive centuries, and that they only vary in the magnitude of maxima. Now, it is really these maxima, relating to the developed man, which give the measure of the development of human nature in each century. We do not possess any exact documents to guide us in such a research, but it would appear that, physically considered, collective man is scarcely progressing; yet it has been observed that a civilised man is generally stronger than a savage. As to intelligence, his progress cannot be questioned, and his existing state of develop-

* To render my idea sensible by a figure (see *plate* 4), I suppose that we construct the line indicating the development of the strength of man at any given period; and that on the same axis of the abscissæ we also construct the corresponding similar lines for other periods, so that these lines succeed each other at the distance of a century, for example, proceeding from points whose distance from each other increase as the time; it will happen that the maxima of the ordinates will not correspond to the same ages or have the same magnitude. Now, connecting all the points of maxima by a line, which will evidently be the container (*l'enveloppe*) of all the curves representing the law of individual development in all the modifications which it has undergone in the course of time, we shall have the curve which represents the general law of the development of human nature (*humanité*). By similar processes, we may render equally apparent all the laws of development of the different faculties of the human species.

ment undoubtedly exceeds what it has been at any other time. Also following, with history in our hands, the average type of human nature through different centuries, we see man, at first, in possession of all his strength, blindly taking advantage of it, and attaching to the world of matter a power and a range altogether limitless: the king of nature, he has plants, animals, and even the stars, as tributaries. But, as his reason becomes developed, a new world is unrolled before his eyes, contracting the limits of the former one; the intellectual man gradually supplants the physical one; and it is this continually increasing triumph of the intellectual man, which the history of the arts and sciences presents to us at every page.

I have said that, although the laws of the development of human nature were not generally the same as those of the average man of any one period, yet these laws might, in certain circumstances, be identically the same; and that human nature, under certain relations, might be developed in a manner similar to a single individual. I should be much disposed to believe that this is the case with the collective human mind; indeed, following it in its uncertain and irregular course, we see it endeavour to strengthen itself from the very beginning, reach in due time the highest conceptions, and present almost the same phases as the intellect of the individual man from infancy to maturity. The human mind is at first astonished at the sight of any thing beyond the ordinary course of things, and attributes the most simple occurrences to the caprice of supernatural beings, instead of deducing them from immutable laws, which are alone worthy of a divine intervention. We see it afterwards pursuing a course which is more certain and conformable to reason, observing facts, isolated at first, then classing them, and inferring the consequences. Still later, the mind learns to interrogate nature by experiment, and to reproduce transitory phenomena at will, under the most favourable circumstances for observing them. And when its reasoning powers have reached full maturity, then it studies the nature of causes, seeks to value their reciprocal intensities, and thus raise itself to a knowledge of the attendant phenomena which they must produce. Such is the development which we see the human mind undergoing when we study its progress in the history of the sciences; such, also, is the course which the intellect of man pursues from infancy to maturity.

I have said before, that the average man of any one period represents the type of development of human nature for that period; I have also said that the average man was always such as was conformable to and necessitated by time and place; that his qualities were developed in due proportion, in perfect harmony, alike removed from excess or defect of every kind, so that, in the circumstances in which he is found, he should be considered as the type of all which is beautiful—of all which is good.

If human nature were stationary and not susceptible of amelioration, it is evident that the average man would also continue invariable; and his different qualities, instead of presenting the type of the beautiful and excellent of the period at which he lives, would present the type of the absolutely beautiful and excellent in the most general sense. Thus, when we say that the type of the beautiful, as to the form of man, is absolute, we mean that the average man ought not to differ from this proportion, and that human nature cannot advance further. It is not so with reason: the vast conquests of science, by giving more accurate notions of an infinite multitude of things, and by destroying errors and prejudices, have necessarily furnished our reason with the means of rising to a still greater height, and arriving at a relative degree of perfection, the idea of which could not so much as be conceived some ages ago.

Such should also be our criterion as to morals. Human qualities become virtues, when they are equally removed from all the excesses into which they may be disposed to fall, and confined within due limits, beyond which every thing is vice.* If these limits do not vary in the course of time and among different people, we have strong probabilities for believing that this virtue has an absolute value. Now, this is what we remark generally concerning most moral qualities: they admit a type which we may with great probability consider as absolute, so that human nature, considered in reference to these qualities, will not be progressive. Yet there are qualities the importance of which has varied in the course of time, and which has increased or diminished with the development of reason, on which they depend, at the same time that the physical has yielded preponderance to the intellectual man. Thus courage, which, in the earliest ages, raised a man to the first rank, and, in some manner, assigned to him a place near to divinity, has diminished in importance beside other qualities more in harmony with our manners and present actual necessities. The qualities of a contingent value, if I may so express myself, are in a measure subordinate to the law of development of human nature, and to the different principles of conservation; they generally produce more renown than the others, because men have a more direct influence in encouraging them.

The natural consequence of the ideas which I have just stated, is, that an individual who should comprise in himself (in his own person), at a given period, all the qualities of the average man, would at the same time represent all which is grand, beautiful, and excellent. But such an identity can scarcely be realised, and it is rarely granted to individual men to resemble this type of perfection, except in a greater or less number of points. M. Cousin, setting out from very different considerations to those which are the object of this work, has nevertheless been in some measure led to conclusions similar to those I have just deduced from the theory of the average man. Speaking of the character peculiar to great men, he finds that this character consists in comprising people, periods, all human nature, nature, and universal order.† "Thus," says this learned academician, "all the individuals of which a people is composed, represent the whole mind of this people. But how do they represent it? One people is one in mind; but this is a multitude in its external composition, that is to say, a great multiplicity. Now, what is the law of all multiplicity? It is, to have differences (*d'être diverse*), and, consequently, to be capable of more and less. Apart from absolute unity, every thing comes within the sphere of difference (and has degrees) of greater and of lesser. It is impossible but that, in a given multitude, such as a people, which, as has been shown, has a common type, there should be individuals who represent this type more or less. As there are those who represent it less clearly, more confusedly and imperfectly, so there are also those who represent it more clearly and perfectly, and less confusedly. Hence a line of demarcation between all the individuals of one and the same people. But those who are on the first plane, and represent the entire mind of their people more completely, are nevertheless a multitude, a great number, and are still subject to shades of difference: whence, again, a new selection of individuals who eminently represent the mind of their people. It is impossible for the case to be otherwise. From this we infer two things: first, the necessity of great men; second, their peculiar character (*caractère propre*). The great man is not an arbitrary creature, who may be or may not be. He is not simply one individual, but he has reference to a general idea, which communicates a superior power to him, at the same time that it gives him the determinate and real form of individuality. Too much and too little individuality equally destroy the great

* This is what the ancients thought generally, and in particular, Aristotle—Eth. ad Nic 2, ch. 2.

† Cours de Philosophie, leçon 10.

man. In the one case, the individuality in itself is an element of misery and littleness; for the particularity, the contingent, the finite, incessantly tend to division, to dissolution, to nothingness. On the other hand, every generality being connected to universality and to infinity, tends to unity, and absolute unity: it possesses greatness, but runs a chance of losing itself in chimerical abstraction. The great man is the harmonious union of particularity and generality: it is the possession of this character alone which makes him great—this added representation of the general mind of his people; and it is his relation to this generality which makes him great; and, at the same time, to represent this generality which confers his greatness on him, in person and in a real form, that is to say, in a finite, positive, visible, and determinate form; so that the generality does not encumber the particularity, and the particularity does not destroy generality; so that particularity and generality, infinite and finite, are united in this measure or standard, which is true human greatness.

This measure, which constitutes true greatness, also constitutes true beauty," &c.

The passage which has just been quoted, expresses my ideas better than I could have succeeded in doing myself. A man can have no real influence on masses—he cannot comprehend them and put them in action—except in proportion as he is infused with the spirit which animates them, and shares their passions, sentiments, and necessities, and finally sympathises completely with them. It is in this manner that he is a great man, a great poet, a great artist. It is because he is the best representative of his age, that he is proclaimed to be the greatest genius.

It is never sufficient for a man merely to resemble the average man in many things as much as possible, to enable him to produce great things himself; it is moreover necessary that he has occasion and possibilities for action. Newton, for example, deprived of all the resources of science, would always have had the same strength of intellect; he would always have been a type of several eminent qualities, and, in particular, of correctness of judgment and imagination; but if only a greater or smaller amount of science had been laid within his reach, he would have been Pythagoras, Archimedes, or Kepler; with all the resources which his period possessed, he has, and must have been a Newton. This appears to me incontestible: in the favourable position in which he found himself, it was a matter of necessity for him to put his eminent faculties in action, and to advance as far as circumstances permitted him. Now, the sciences had arrived at such a point, as to render it necessary that the theory of the motion of the celestial bodies should be reduced to correct principles; and Newton was then the only man who combined the necessary conditions to accomplish this work.

It appears to me that science only is truly progressive, and I use this word in its widest sense. All the faculties of man which are not based on science are essentially stationary, and their laws of development are constant. As to the other faculties, their laws of development, as has already been observed, probably remain the same also, or at least each only undergoes changes in the degree of its maximum, which depend on the development which science has attained. The development of science would therefore give the measure of the development of human nature.

Consequently, I participate in the following opinion of M. Cousin, that "entire history, not that of one people or one epoch only, but that of all epochs and all human nature, is represented by the great men. Thus, give me the series of all the known great men, and I will give you the known history of the human race."*

And, indeed, from what we have seen, the great man, in his individuality, is the best representative of the degree of development to which human nature has attained in his times, and his works show the extent in which he himself has aided that development.

We are more convinced of the necessity of great men, and the error we commit in supposing that they spring up accidentally, when we consider the immense time required for a great truth, after it has been shadowed forth, to diffuse itself, and descend to the mass of people, and produce its effects; in general, it is not until centuries after, that we see the man come forward who developes or personifies it and secures its triumph. Thus, the germ of the great revolution, which has marked the close of the last century, was brought forward long ago, and was slowly developed, descending from high intellects to the lower ranks of society; but its course had not escaped the sagacious observer. Great events are, like great men, necessitated; and how can we be surprised at this, when we have seen that even the actions of ordinary individuals are necessitated, and when we have seen that a given social organisation induces a certain number of virtues and crimes as a necessary consequence, and that these crimes are of such or such a kind, and are performed by such and such means? This necessity is found both in good and evil—in the production of good things as well as of evil—in the production of *chefs-d'œuvre* and noble actions which are an honour to a country, as well as in the appearances of scourges which desolate it.

* *Cours de Philosophie*—Introduction à l'Histoire de la Philosophie, leçon 10.

4. Of the Average Man considered with reference to Politics.

Whatever may be the difference of opinion observed in the same people, there must exist, even in the most opposite minds, some common ideas, which in moments of excitement of the passions are unobserved, but which would soon show themselves spontaneously if any one attempted to do violence to them. There are also common necessities; and even between opinions which seem utterly opposed to each other, we sometimes find more relations than at first sight we should suppose.

It is evident that, of all the political systems which any people would incline to adopt, there must be one which would suit best with the ideas and ordinary requirements, and which would most advantageously reconcile the interests of different parties; it is also evident that such a system could not be established by unanimous consent, since, even supposing that it is meditated upon most rationally and calmly, it must necessarily jar against certain passions, and meet opinions which are unfavourable to it. This system must not be confounded with that which would consist in taking a sort of average between two dominant ideas, and which must always be essentially defective in principle, since it is always impossible to conciliate minds, by placing between their opposed opinions another opinion which they equally repel. On the contrary, that which we have in view is based on elements common to all, and on ideas, which, though differed from by some, are still those of the majority.

It will perhaps be objected that, if the generality of men desired unjust or absurd things, it would be unreasonable to apply a political system to them equally unjust or absurd. I begin by declaring, that I do not think such a desire can exist in the generality of men; and, that, in the second place, if this wish could exist, it would even be necessary to gratify it, from the fear of being compelled to do so by some violent crisis.* This naturally leads me to considerations more or less connected with my subject, and which appertain to my mode of viewing the social system.

* See, on the same subject, the work of Sir T. C. Morgan, *Sketches of the Philosophy of Morals*, p. 244. 1 vol. 8vo. London: 1812. We find some very judicious observations in it, and which are deserving of more attention.

Revolutions, even those which have the most happy effects on the future, are never accomplished without certain actual sacrifices; as sudden changes, in a corporeal system, never take place without a certain loss of vital power. Independently of the real losses which bring no advantage to any body, changes of fortune, more or less manifest, take place; and it is in this case almost the same as in gaming, where the moral chances are not the same, that is to say, what is lost on the one side is not compensated by what is gained on the other. The great art of those who conduct revolutions should especially consist in making the transition with the least possible degree of violent change; and in this respect governments themselves are in the position best calculated to effect reforms. As for myself, I think that *the measure of the state of civilisation at which a nation has arrived is found in the mode in which its revolutions are effected.* This principle presupposes another, which is always true where states of equilibrium and motion are possible, in physical phenomena as well as in political facts; it is this—*the action is equal to the reaction.*

This wants some explanation: it will perhaps be asked, how I understand the application of this principle to morals and politics. An example taken from the material world will render this more manifest. When a force acts against a flexible body which yields and bends, each particle of this body successively leaves its primitive position and takes a new one; with respect to the compressing force, it is extinguished by successive and partial reactions, so that the action may be very energetic, without producing any apparent reaction; the only effect produced is a change in the flexible body, which is more or less sensible. If, on the contrary, the power acts against an elastic body, each particle of this body momentarily leaves its primitive state, but with a tendency to return to it immediately; the reaction is then general and instantaneous, it is also very evidently equal to the action. These examples are applicable to a social body. If each one is fully imbued with a knowledge of his rights and duties—if he invariably desires to do that which is just—if he energetically strives to re-enter the course he has traced out as soon as any one attempts to make him swerve from it—and if the reaction be allowed to manifest itself immediately after the action, both will be very *evidently* equal. But this state of irritability, so to say, presents itself with very different degrees of energy in different people, and we may say that the reaction, in its visible results, is generally less than the action.*

Revolutions are only *reactions* exercised by the people, or a part of the people, to correct abuses, real or supposed. They cannot be of a serious character if the apparent provocation has not been so also. Now, among an enlightened people, where the government is necessarily supposed to be wise and far-sighted, abuses cannot accumulate to such a degree as to take an alarming aspect; the more they are seen to increase, the more would the government be accused of want of foresight or evil, and the people who tolerate them of baseness and apathy; possessed of a feeling of their own dignity, they would have reacted against each of the abuses in proportion as they were manifested. When the degree of irritability is less, they yield to abuses, or only react when the number of them has become too great to be endured any longer. The explosion is then the more terrible, because the power has been accumulating. Now, it is this extent or degree of accumulation which gives us, as I said previously, the measure of the state of civilisation of a people.

Frequently the reaction is manifested with symptoms apparently more serious than the action; but this is owing to the real reaction being conjoined with irrelevant causes. Thus in revolutions, amongst those who react under the influence of real abuses which are deeply felt, we almost always find turbulent men mixed with them, who delight themselves with the disorder, or are actuated by interested views. Such a state of things renders the position of a government very critical, and requires so much the more circumspection, in proportion as there is less good faith in the parties who oppose it. Enlightened and conscientious men, who have thoroughly acquainted themselves with causes—and their number is always very small—will certainly support the government by their authority; but, in the midst of a general conflict, such auxiliaries are in general of little use, because they rarely act in person, and only on very serious occasions; they confine themselves to the development of the moral causes, which have always a very remote bearing on action, so that the effects which they produce do not manifest themselves until towards the end of revolutions, and only lead to an ultimate appreciation of morality, and to an insensible return to a state of equilibrium. This was manifested in the first French revolution, when abuses of every kind had accumulated to a deplorable extent, and the reaction was perhaps still more deplorable. The succeeding revolutions have been less serious, because more enlightened and provident governments took greater pains to prevent the causes of reaction, and make them disappear as soon as they assumed an alarming character. In this respect, England is placed in a very happy position; her reforms are accomplished successively and without sudden changes, and yet we cannot look without fear on reactions which may arise in consequence of the inequality of fortunes, and the state of the finances of this kingdom.

Despotism requires to be very powerful, and very able to depend upon its resources, to maintain itself where the people are irritable and prompt to react; it cannot long endure, whatever may be its power, in countries such as ours, where action, when at all serious, is spread with the greatest rapidity. In this respect, the liberty of the press has been of essential service—a service which perhaps has not been duly appreciated—namely, in having singularly contributed to facilitate reaction, and consequently to render great revolutions almost impossible; it possesses this immense advantage, that it does not allow force to accumulate to an alarming degree, causing reaction to manifest itself almost immediately after action, and sometimes even before action has had time to propagate itself. This has been observed during the late revolution in France, which was purely local, and the effects of which were confined within the walls of Paris. Among a people easily acted upon, and where action is readily transmitted, the greatest revolutions take place in parts, and reaction is extinguished by successive efforts, or at least overturns the cause which gave rise to it, without a violent shock.

Governments, like things, have also their states of equilibrium; and this equilibrium may be stable or unstable. This is an important distinction, and one easily understood. The stable equilibrium exists, when, in consequence of action and reaction of every kind, a government constantly regains its normal state; if, on the contrary, under the action of slight causes, a government tends to diverge more and more from its normal state, and if, each year, it change its form and institutions without adequate motives, its downfall is at hand, and it will infallibly sink, unless

* It is remarkable that the principle of the equality of action and reaction is also applicable to morals. Without being entirely destitute of sentiment, we cannot, in fact, withdraw ourselves from the consequences of this principle. The calmest and most moderate man, having made the firmest resolution not to depart from his habitual condition, will forget all his intentions on beholding a feeble person unjustly and brutally oppressed by a stronger one. In proportion to his degree of sensibility, so will he react with greater or less energy according as the offending person commits excesses. However, in similar circumstances he would have protected the aggressing party against the oppressed, if both had changed their relative positions.

it finds assistance in the adjacent governments; but even then its fall cannot be long retarded. Examples are not wanting to support the distinction I have just made.

I have said above that civilisation tends to render the shocks which political revolutions cause in the social system both less violent and less frequent; I ought to add, that it also tends to make wars between nations less frequent. We no longer have the idea that these scourges are necessary things, from which we can never extricate ourselves, but regard them as an evil inevitable, in the absence of those laws which ought to regulate the rights of nations, and of sufficient power to secure the execution of them. In the beginning of communities, the strongest threw himself on the weakest, to wrest from him privileges and wreak vengeance; we find them renewing incessantly the most unjust and bloody contentions, until the time when equitable laws finally regulated the rights of every one, and put a period to such violences. Alas! this deplorable state of early times is still our own, if we look to nations instead of individuals. Indeed, without going far back, have we not seen nations cast themselves on nations, and tear each other for the most frivolous reasons?—the feeble or the least active fell in these cruel struggles, and the injury is still so recent, that we are yet scarcely aware of the extent of it. Far am I from wishing to cast odium on the warrior who exposes himself in defence of his country. His noble zeal deserves all our admiration, and has supplied the place of those protecting laws which ought to have defended him and his. But whilst groaning under a necessary evil, human nature should show the path of justice, in which it ought henceforth to go. Let us allow the same rights to nations which we grant to individuals—let there be laws for one as for the other—and let there be some power great enough and sufficiently enlightened to execute them. We have lately seen a judgment given by neutral nations in the case of a recent difference between two others which had arms in their hands. This judgment has been carried into execution; notification, citation, bodily restraint, none of the ordinary forms of justice, have been neglected. This event, which has not been sufficiently observed, and which has probably saved Europe from another struggle, indeed presents itself under appearances which are not very poetic to our imaginations, still warmed by the recitation of great deeds of arms, but it is not the less a real progress in the career of civilisation.

CHAPTER II.

ON THE ULTIMATE PROGRESS OF OUR KNOWLEDGE OF THE LAWS OF HUMAN DEVELOPMENT.

In this work I have only been able to present an incomplete sketch of the vast labour which still remains to be done; but the difficulties were too numerous, and the materials which I had to work up too defective, for me to venture any farther into a territory almost entirely new. This study, however, has too many attractions—it is connected on too many sides with every branch of science, and all the most interesting questions in philosophy—to be long without zealous observers, who will endeavour to carry it farther and farther, and bring it more and more to the appearance of a science. At the same time, it will be very difficult to proceed on a safe course, before more information and more exact observations than we now possess, have been collected. The solidity of the edifice must depend on the soundness of the material.

In researches of this nature, it will be necessary always to produce original documents with caution, point out their sources, and give all the data which may lead us to appreciate their value. These documents ought to be of such a nature, that we can rigorously deduce the averages and limits between which the particular values lie. I have myself been more than once obliged to deviate from the course which I wish to see pursued by others, because, in order to render my ideas plain, I have been obliged to take the assistance of examples.

It will be equally desirable, whenever numbers are used, and results deduced from them, that we calculate the probable degree of error carefully. It is not enough to possess materials; it is also necessary to know the full value of them. One of the greatest defects of actual statistics is, that in the same line they present all the numbers indistinctly which can be collected, and make them concur to one result, without taking their importance or probable value into account. This confusion must necessarily produce great obstacles to the progress of science, and cause dangerous errors to prevail for a long time.

There is another research which deserves no less attention. It is not sufficient to perceive that an effect depends on several causes; it is extremely important that we be able to assign the proper degree of influence of each of these causes: in bringing this work to a conclusion, I shall now employ myself in demonstrating the possibility of finding a suitable measure for such an appreciation.

In the first place, it is necessary to admit, as a principle, that where variable causes do not exist, the effects produced will constantly be the same; and that the more variable the causes are, the effects will also generally vary within wide limits. Thus, supposing that human volition acts independently of all fixed laws, and in the most varied and irregular manner, we must necessarily find the effects produced presenting the greatest anomalies also, and differences varying within the widest limits. Now, it is these differences which it is desirable to examine and *measure.*

To define our ideas, let it be supposed that we want to examine if any general causes exist which modify the repression of crime; in other words, which modify the severity with which the guilty are punished. We must necessarily have recourse to observations which have been very carefully collected; and, if the annual results are not constantly the same, we shall be obliged to admit that the variations proceed either from errors of observation, from the influence of local causes, or from the influence of moral causes inherent in man. Going deeply into these researches, we really find that these elements vary according to time and place. Now, since the number of probable influential causes may be extremely great, it is proper to investigate them individually: it is in this manner that we are (at) first enabled to separate from our results the influential causes depending on locality, all our observations being taken in the same country; and that we may also eliminate the influential causes depending on periodicity of season, by carrying our researches over the whole year, wheuce we return to the appreciation of all the influential causes, taken separately.

Uniting the statistical documents of the courts of assize in France for the six years before 1831, we find:—

Years.	Accused.	Condemned.	Repression.
1825, - - -	7,234	4594	0·635
1826, - - - -	6,988	4318	0·622
1827, - - -	6,929	4236	0·610
1828, - - - -	7,396	4551	0·615
1829, - - -	7,373	4475	0·607
1830, - - - -	6,962	4130	0·593
Average, -	7,147	4389	0·6137

This table shows us that the repression of crimes

in general, has been annually decreasing, certainly not very much, but yet manifestly. Now, of the causes influencing repression, some act in a constant and others in a variable manner. By virtue of the former, the number 0·6137, which expresses the repression of crimes in general, should have a constant value from one year to another; by virtue of the action of the variable causes, the same number would undergo greater or less modifications. I shall first be occupied with the measurement of the influence of the constant causes.

To give a better conception of my idea, I suppose an individual labouring under an accusation; as we have just seen, the chance of being condemned will be as 614 to 1000; this probability should be understood in the most general sense, admitting that as yet we know nothing of the nature of the crime, the age, or the sex, of the accused, or of the state of education, or any of the constant causes modifying the repression of crime. But if we learn the fact, that the accusation is for a crime against persons, the probability of being condemned is altered; indeed, experience proves that the repression of crimes against persons is less than that of crimes against property. In France, the average values have been from 0·477 to 0·665, for the six years previous to 1831. Thus the chances are only 477 in 1000 that the individual will be condemned when accused of crime against persons; 655, when the crime is one against property. The principal cause of this inequality appears to be, as has been frequently remarked, that we are averse to apply punishment when it has a certain degree of severity, or appears severe in proportion to the crime; this is especially the case with crimes against persons.*

The sex of the accused has, moreover, a marked influence over the repression of crime: the severity is not so great towards females. All these shades will be more evident on inspecting the following table, which points out the different degrees of probability which exist of an accused person being condemned, according as the causes are favourable or the contrary:—

State of the Accused Person.	Probability of being Condemned.
Possessing a superior education,	0·400
Condemned who has pleaded guilty,	0·476
Accused of crime against person,	0·477
Being able to read and write well,	0·513
Being a female,	0·576
Being more than 30 years old,	0·586
Being able to read and write imperfectly,	0·600
Without any designation,	0·614
Being a male,	0·622
Not being able to read or write,	0·627
Being under 30 years of age,	0·630
Accused of crime against property,	0·655
Condemned in absence, or for non-appearance (*contumax*),	0·960

Experience, therefore, proves that the most influential cause diminishing the repression of crime consists in the appearance of the criminal before the judge with the advantage of a superior education, which supposes a certain degree of affluence, and the ready means of making a defence. The most advantageous position an accused person can possibly be in, is to be more than 30 years of age, a female, to have received a superior education, to appear under an accusation of a crime against person, and to come when cited, previously to being taken into custody; on the contrary, the most disadvantageous state is to be under 30 years of age, unable to read or write, to be a man, and accused of crime against property, and not to be able, as refusing to appear when cited, to produce the means of defence.

The causes which modify the probability of being condemned, according to the state of the accused person, appear to me so evident, as to render it superfluous to insist on them. Such is not the case with the degree of influence of these causes; this estimation is attended with difficulties. Reflecting upon it, it has appeared to me that, of all the numerical elements subject to variation, we might very easily *estimate the importance of the deviations from the average, or the importance of the causes which produce them, by comparing these deviations with the magnitude of the average.* It is almost in this manner that the first geometricians who studied the theory of probabilities as applied to facts bearing upon man (and Buffon, in particular), have estimated the importance of a whole, for one individual, by comparing it with what this individual possessed.

According to this estimation, it will be necessary to take the deviations from each of the ratios calculated above, and compare these with the number 0·614, the measure of the repression in France, when we do not pay attention to any modifying cause; the respective magnitude of the deviations will give this measure of their importance, and consequently that of the causes which produce them, effects being considered as proportional to their causes. Let us suppose, for example, that we seek to ascertain the value of the respective influences which are exercised on the repression of crime in France, by possessing the advantage of a superior education, and being a female; we find the values of the repression are 0·400 and 0·576, and the differences between these numbers and the general average, 0·614, are 0·214 and 0·038. From what has been said, the importance of these differences, or of the causes which produce them, will be $\frac{214}{614}$ and $\frac{38}{614}$, or otherwise, 0·348 and 0·062. From this we perceive that a superior education has five times the influence which being a woman has, in diminishing the repression of crime before the tribunals. The following table presents the degrees of influence of the different causes modifying the repression of crime, and has been calculated upon the same bases:—

State of the Accused.	Relative degree of the influence of the state of the Accused on the Repression of Crime.
Possessing a superior education,	0·348
Appeared to plead after having been declared absent or contumacious,	0·224
Accused of crime against persons,	0·223
Being able to read and write well,	0·115
Being a female,	0·062
Being more than 30 years of age,	0·045
Being able to read and write imperfectly,	0·023
Without any designation,	0·000
Being a man,	0·013
Being unable to read or write,	0·022
Being under 30 years of age,	0·026
Accused of crime against property,	0·067
Having withdrawn from justice, or for non-appearance when cited (*contumax*),	0·563

Thus, as I have already observed, there is not any cause which has more influence in varying the repression of crime, than the reluctance or non-appearance of the accused to answer charges. The preceding table does not merely possess the advantage of showing this clearly, but also shows the degree of influence of the cause producing it.

And here there is a question of another kind, viz., how far those causes may be regarded as constant which have now been pointed out. For, before one can say that they are absolutely constant, it must be shown that the results which they produce continue the same from year to year. Now, this is what does

* [Here, as in other places, M. Quetelet gives his important sanction to the principle upon which the amenders of the criminal laws of England chiefly found their arguments for reform. The severity of the punishment leads to the escape of the criminal.]

not take place: the deviations from the average, which we have taken as constant quantities, annually undergo slight modifications, which we have attributed to *variable* causes: these modifications are in general very small, when we only take a small number of years into account; but still it is necessary to notice them. The repression of crime in general, for example, has not been constantly of the value 0·614 during the six years which have furnished the elements of our calculations; small annual differences have been observed, and the repression, in its greatest deviations from the average, more and less, has been 0·635 and 0·593; the deviations are consequently 0·021 and 0·021; and consequently their ordinary value is $\frac{21}{64}$, or 0·034. Thus the variable causes which have produced alterations of the degree of repression, have had, in their maximum and minimum of energy, influences which have equalled or even surpassed the influences of some causes which we have been considering as constant. To have a juster idea of the variable causes, it will be proper to examine the effects which they have annually produced on each of the elements considered above. The following tables will supply us with data on this subject:—

Years.	Repression of Crimes		Repression.	
	against Persons.	against Property.	Men.	Women.
1825,	0·46	0·66	..	..
1826,	0·51	0·67	0·63	0·60
1827,	0·50	0·65	0·62	0·60
1828,	0·47	0·66	0·63	0·57
1829,	0·46	0·65	0·62	0·57
1830,	0·46	0·64	0·61	0·54
Average,	0·477	0·655	0·722	0·576

Years.	Repression in Individuals		Repression.	
	under 30 Years.	above 30 Years.	Not Appearing.	Appeared to stand Trial.
1826,	0·64	0·60	0·93	0·49
1827,	0·64	0·58	0·97	0·45
1828,	0·64	0·58	0·97	0·46
1829,	0·62	0·59	0·97	0·50
1830,	0·61	0·58	0·96	0·48
Average,	0·63	0·586	0·96	0·479

Years.	Repression in Individuals			
	unable to Read or Write.	able to Read and Write imperfectly.	able to Read and Write well.	who had a Superior Education.
1828,	0·63	0·62	0·56	0·35
1829,	0·63	0·60	0.55	0·48
1830,	0·62	0·58	0·52	0·37
Average,	0·627	0·60	0·543	0·40

These different tables teach us that the greatest variations which any of the constant causes modifying the repression of crime have undergone, have scarcely exceeded the value of the intensity even of these causes: or, in other terms, that in the very circumstances most unfavourable to observation, the effects of constant causes have been but little effaced by the effects of variable and accidental causes. We shall be enabled to judge better on this point by the following table, which discriminates for us the importance of the greatest deviations which the causes modifying repression have presented in each of the cases above enumerated:—

Causes which Modify Repression.	Difference from the Average.	
	Less.	Greater.
The accused has a superior education,	0·200	0·125
.. .. appears to answer charge,	0·050	0·056
.. .. is prosecuted for crime against person,	0·069	0·035
.. .. is able to read and write well,	0·031	0·042
.. .. is a female,	0·042	0·062
.. .. is upwards of 30 years of age,	0·024	0·027
.. .. is able to read and write imperfectly,	0·033	0·033
.. .. *is without any designation*,	0·034	0·034
.. .. is a male,	0·013	0·019
.. .. is unable to read or write,	0·005	0·011
.. .. is under 30 years of age,	0·016	0·032
.. .. is prosecuted for crime against property,	0·039	0·018
.. .. does not appear when cited,	0·010	0·031

I have always reasoned on the hypothesis that our results were founded on so great a number of observations, that nothing fortuitous could affect the value of the averages: but this is not the case here. Some results are deduced from observations which are yet small in number, and we know that, all things being equal, *the precision of results increases as the square root of the number of observations.* This is especially applicable to any thing concerning the repression (punishment) of the accused persons who have received a superior education. The values obtained are deduced from a small number of observations, and the deviations from the average of them have consequently been greater: now, by employing the method of the smallest squares, I have found that the accuracy of the numbers 0·400 and 0·6137, previously obtained for repression in general, and for repression exercised in particular against the accused who have received a superior education, is in the ratio of 0·0870 to 0·0075, or as 11 to 1.

In separating, pursuant to the preceding observations, what is purely fortuitous in the deviations from the averages, so that we may only consider the causes which have had a greater or lesser regularity of influence on the repression of crime, I think that we may pretty nearly represent their influence by 0·034. These deviations are such that it is easy to perceive that the repression of crime has gradually diminished. Now, this progressive diminution must have its causes; and one of them, undoubtedly the most influential, is pointed out in the *Compte Général de l'Administration de la Justice Criminelle en France pendant l'Année* 1830:—"Six years have passed away since the *Comptes Généraux* of the administration of criminal justice have been published. During the former half of this period (1825, 1826, and 1827), the lists of the jury were formed according to the rules laid down in the code of criminal instruction (*instruction criminelle*); during the second half (1828, 1829, and 1830), these lists have been made according to the law of the 2d of May 1827, which has changed the basis of juries, and called a greater number of citizens to fulfil its duties. By taking the totality of the results of the accusations during the entire period of six years, as well as during each part of it, and by comparing these different results, we find that the only difference betwixt juries formed according to the code of criminal advice, and those which the legislature has subsequently made, is this, that the latter class appear to have a slight tendency to look upon accusations less severely. The proof of this assertion is found in the following table:—

Years.	Totality of Accusations.		
	Acquitted.	Condemned to Punishments.	
		Ignominious.	Correctional.
1825, 1826, 1827, 1828, 1829, and 1830,	0·39	0·38	0·23
1825, 1826, and 1827,	0·38	0·41	0·21
1828, 1829, and 1830,	0·39	0·36	0·26

In a few years we shall be enabled to compare these conclusions with those resulting from the declarations of the present juries, whose constituent elements have been further enlarged by the reduction of the electoral franchise, and who at present only pronounce condemnation with a majority of seven voices."

Thus the preceding table shows us that not only the number of acquittals has diminished, but even the punishments awarded have been less severe: there have been fewer ignominious and more correctional ones.

This observation on the tendency to value accusations more leniently, presents itself with a still greater degree of probability when we examine the nature of the crimes in detail: it is there, especially, that we can see if they have recoiled more readily from the application of punishments, on account of their severity. We find, in effect, that condemnations to death have diminished very manifestly. The same observations recur when we make the distinction between crimes against persons and property; a proof of which, also, is found in the following table:—

Years.	Accused of Crimes against Persons.			Accused of Crimes against Property.		
	Acquitted.	Condemned to Punishment.		Acquitted.	Condemned to Punishment.	
		Ignominious.	Correctional.		Ignominious.	Correctional.
1825, 26, 27, 28, 29, 30,	0·52	0·28	0·20	0·34	0·42	0·24
1825, 26, 27, 1828, 29, 30,	0·50 0·53	0·30 0·26	0·20 0·21	0·33 0·35	0·45 0·39	0·22 0·26

On both hands we see fewer condemnations, and the condemnations are less severe.* It appears, therefore, to be probable, that some causes exist, whatever may be their nature, which have had an influence in France in slightly diminishing the repression of crime: time will show us better if we are to seek for one of the causes of this in the introduction of that law which has changed the constitution of the jury, and also if this cause is single. However the case may be, it is very evident that the causes which from year to year have modified the repression of crime in general, have had a weaker influence than the constant causes which modify it according to the nature of the crimes: for, still preserving the two established periods, we find that the first-mentioned causes have had the effect of producing, on an average, only two or three additional acquittals out of 100 accusations, taken promiscuously; while the second causes have almost invariably produced eighteen acquittals more for accusations of crimes against persons than for those against property. This indeed has been already seen, when comparing the two tables given above.

I have hinted that the change introduced in the formation of juries was perhaps not the sole cause which had modified the repression of crime: and, indeed, I think that the events of 1830 have not been without some influence on this matter. The repression, for crime in general, is at that period much less than during the other years, and this conjecture gains still more weight when we enter into the consideration of details. Thus, out of the twelve modifying causes which have been pointed out, the repression for this year has presented nine minima, and the three other values approach their minima very nearly. Indeed, it is natural to suppose, that, to those causes which might then predispose to indulgence, there would also be added apprehensions of individual safety, fears of reaction, and other causes which are developed in the heart of man in the midst of political agitation. Generally speaking, a revolution ought to produce a greater or less modification of each element of the social system, and especially in what relates to crime.

I shall here observe, that analogous effects have also been observed in Belgium, where a revolution took place at the same period. The results of the repression of crime for this country are sufficiently interesting to find a place here.

Years.	Crimes in General.		
	Accused.	Condemned.	Repression.
1826,	725	611	0·843
1827,	800	682	0·852
1828,	814	677	0·832
1829,	753	612	0·811
1830,	643	483	0·759
Average,	747	613	0·821

This table shows us that the degree of repression in 1830 was weaker than during the other years; the difference is here even more sensible, for the measure of its importance is 0·075, whilst in France it was 0·034; but our revolution was also less local than that of France, and the provisional government lasted longer.

Another observation which must strike us on examining this table is, that the repression has in general been much higher in Belgium than in France; the respective values have been on an average 0·821 and 0·614, nearly as 4 to 3. This great disproportion is owing to the circumstance, that, up to that time, the jury had not been instituted in Belgium, although the people were governed by similar criminal laws; and these numbers may, to a certain degree, give us the measure of the influence exercised on the fate of an accused person, in case of his appearing before judges or before a jury. Now that the institution of jury is established in Belgium, we shall be still better enabled to appreciate its influence, from the modifications which it may produce in the repression of crime.

I have presented the circumstances bearing on repression with some detail, that I may give a better idea of the light in which I view the possibility of measuring the influence of causes. I shall now offer the results of the calculations which I have obtained for other elements of the social system, and their approximation will lead us to very remarkable conclusions. I have been careful to point out the years in which the maxima and minima of the deviations have occurred, by the side of the degree of importance of these deviations.

Belgium.	Importance of the Difference.		Epochs.	
	More.	Less.	Of Max.	Of Min.
Stature of the Militia—Town,	0·003	0·005	1825	1827
" " " Country,	0·001	0·003	1826	1827
Repression of crime in general,	0·038	0·075	1827	1830
Condemnations in general,*	0·112	0·212	1827	1830
Births in town,	0·084	0·120	1825	1817
" in country,	0·083	0·139	1826	1817
Deaths in town,	0·158	0·047	1826	1816
" in country,	0·170	0·071	1826	1824
Marriages,†	0·135	0·212	1815	1817
Receipts of the treasury,	0·188	0·086	1826	1820
Expenditure of the treasury,	0·143	0·133	1826	1820
Price of wheat,	1·134	0·447	1816	1824
" of rye,	1·374	0·500	1816	1824

* The importance of the deviations, and especially of the maximum deviation of the lesser, is sensibly greater for Belgium than for France: this arises from the circumstance that, during the year 1830, there were much fewer condemnations than in the preceding years, the operation of the tribunals having been suspended during a longer or shorter time. This year is a complete anomaly, and perhaps ought not to have been included in our calculations, except we took the time only during which the courts were open.

† These ratios have been taken from the numbers found in the whole of the ancient kingdom of the Low Countries.

* See the *Comptes Généraux*, for the repression of each crime in particular.

(Table continued.)

France. *	Importance of the Difference.		Epochs.	
	More.	Less.	Of Max.	Of Min.
Repression of crime in general,	0·034	0·034	1825	1830
Condemnations in general,	0·047	0·057	1825	1830
Condemnations for crimes against property,	0·056	0·056	1828	1827
Condemnations for crimes against person,	0·153	0·144	1825	1830
Births,	0·021	0·054	1819	1816
Deaths,	0·071	0·049	1828	1823
Marriages,	0·117	0·125	1823	1817

The two preceding tables demonstrate clearly different facts, which I shall successively examine.

In the first place, by only regarding the facts themselves, and without having regard to the influence of causes taken individually, we see that, among the elements observed, the least variable are the stature of man and the repression of crime (or the severity which the tribunals display in punishments); we afterwards see, in the adjoining lines, the facility which man shows to commit crime, and the facility with which he reproduces his kind, or dies. Thus, whatever be the determining motives of his actions, in point of fact, they modify no more the number of deaths than the number of births, or even the number of crimes which annually scourge society.† Marriages also take place with regularity, but their number varies at the same time within wider limits than the preceding elements; the same has been the case with the receipts and expenses of the Belgic treasury; but no element has undergone greater variations than the price of rye and wheat.

In passing, we shall observe, that the prices of grain have a very close (*étroite*) relation to every thing bearing on the other elements. Thus, in the years 1816 and 1817, the prices of grain were very high, and marriages numerous; on the other hand, it was the same with births. It would appear as if the maximum of deaths should also have taken place in this year, in place of the minimum, which we observe in the towns, in 1816. Examining the numbers for 1817 attentively, we really find that they will form maxima for town and country, if we consider the increase of the population, another influential cause, which it is easy to calculate. The minimum would then be carried to 1824, which is the period when grains were at the lowest price, and which year was followed by a year of very great fruitfulness of women both in town and country.

Taking notice of the annual increase of the population, which has been considerable in Belgium, we find values which closely resemble those furnished by France; we find, moreover, that the year 1817 presents the minimum of marriages and births, both for town and country, and, at the same time, the maximum of deaths, both for town and country.

It is to be observed, that the maximum of the number of marriages has taken place in 1815, notwithstanding the increase of the population in subsequent years. This year, which brought the wars and disasters of the empire to a close, allowed a great number of young men to return home; and, being attended by peace, gave rise to many new establishments in life.

* See the *Comptes Généraux, &c.*, and the *Annuaire du Bureau des Longitudes de France*, 1832, for what relates to the movement of the population from 1817 to 1829.

† It may be objected, that the observations on crime only refer to five years, whilst those on births and deaths extend to twelve years; and that we ought, in the same manner, to expect to find smaller differences between the extreme values of the effects produced by variable causes: but I shall reply, on the other hand, that births and deaths being annually much more numerous than crimes, what is casual leaves fewer traces behind it, and must have a less sensible influence in modifying regular causes.

We may further see, from the preceding numbers, that a residence in town or country has not manifested a well-marked influence in varying the elements we have now been considering.

Until now, I have omitted the influence of season and time of the day; yet it may be interesting to know the respective influences of annual and diurnal periods, which I have eliminated to the extent of my present materials, carrying my observations to annual average results.

To ascertain the influence of an annual period, I shall compare the average results obtained for each month, and, as hitherto, I shall value the importance of the maximum deviation from the average, whether on the side of surplus or the reverse. This calculation gives the following results. Those for births and deaths relate to Belgium, the others are calculated for France:—

	Periods of		Importance of the Difference.	
	Min.	Max.	Min.	Max.
Births in town,*	July,	Feb.	0·107	0·122
" country,	"	"	0·162	0·177
Deaths in town,	"	January,	0·126	0·158
" country,	"	"	0·191	0·212
Crimes against property,	"	Dec.	0·113	0·233
" " person,	January,	June,	0·121	0·289
Mental alienation,	"	"	0·289	0·346

What must strike us at first is, that the influence of season only has more effect in causing the elements relating to man to vary (those at least which I have considered), than all the united influences of nature and of men have had in causing variations of the average annual results during the same period. These monthly variations take place, moreover, in the most regular manner, as I have elsewhere shown. To form an idea of the influence of the seasons, compared with the combined influences of all the causes operating to modify the annual results, I shall take the same elements and compare the extremes within which the greatest deviations to one side or another have been comprised, and I shall assume as unity the sum of the differences of each annual average. It will be understood that here the conclusions are deduced from the same observations, classed either according to years or months:—

	Sums of the Differences of Max. and Min.		Ratio.
	Annual.	Monthly.	
Births in town,	0·204	0·229	1·13
" country,	0·222	0·339	1·53
Deaths in town,	0·205	0·284	1·39
" country,	0·241	0·403	1·67
Crimes against property,	0·112	0·346	3·09
" " person,	0·297	0·410	1·38
Mental alienation,	?	0·634	?

Thus, the results taking place in different years have varied less than those produced by seasons, and the respective influences of the causes which give rise to them, as concerns the movement of population, are more dissimilar in the country than in town. We may remark, in general, that the country is, physically speaking, more easily acted upon than towns, and that the deviations from the average there have greater values, undoubtedly because more hold is given to modifying causes of different kinds.

The epochs at which the maxima and minima take place have also very singular relations. Thus, deaths and crimes against property are more numerous in

* M. L'Avocat Guerry has given, in the *Annales d'Hygiène* for April 1829, some drawings (*dessins*) representing the influence of the seasons on physiological phenomena: it is to be greatly regretted that these designs are not accompanied by the numbers according to which they have been made.

winter, in consequence of the rigours of the season and the privations to which man is subjected. Crimes against person are more frequent at periods when the passions are most in force, and when mental alienation manifests itself with the greatest intensity.

As to the diurnal period, it is to be regretted that calculations are still wanting to enable us to appreciate its decided influence on the human species. From the numbers which I have obtained for Brussels, births appear to be more numerous during night than in the day time. The deviation from the average both on the side of surplus and the reverse, amounts to 0·114.* M. Buek has since arrived at the same results for the city of Hamburg, and found the ratio to be 0·136. M. Villermé himself, at the Hospice de la Maternité in Paris, has obtained similar results. The deviations are more important when we compare the different hours of the day separately. M. Guerry, in the *Annales d'Hygiène* for January 1831, has presented some researches on the influence of the different parts of the day on suicide by suspension; and he has found, during a period of 14 years, that the greatest number of cases have taken place between the hours of 6 and 8 o'clock in the morning, and the fewest number between 12 at noon and 2 in the afternoon. The deviations, more and less, have been in relative importance as the numbers 0·625 and 0·614: these deviations are considerable, compared with those hitherto observed.

It is sufficiently apparent, that the smallest period, that of the day, has still greater influence than the monthly period (which depends on the succession of seasons), and consequently more influence than the totality of the causes, which produce variations betwixt the average results of one year and another—always supposing it to be understood, that these average results are not deduced from too large a number of years, during which the men observed may have completely changed, so as in a manner to present a different social condition.

If we now sum up what has been said, we may deduce the following conclusions:—

1st, The regular and *periodic* causes, which depend either on the annual or diurnal period, produce effects on society which are more sensible, and which vary within wider limits, than the combined *non-periodic* effects annually produced by the concurrence of all the other causes operating on society; in other terms, the social system, in its present state, appears to be more dissimilar to itself in the course of one year, or even in the space of one day, than during two consecutive years, if we have reference to the increase of the population.

2d, The *diurnal* period seems to exercise a somewhat stronger influence than the *annual* period, at least so far as births are concerned.

3d, The annual period produces more sensible effects in the country than in town; and this appears to be the case with those causes in general which tend to modify the facts relating to man.

4th, The price of grain has a very marked influence on the elements of the social system; and although we still want sufficient data to appreciate the comparative values of this influence, yet we may very safely range it among the causes operating most energetically.

5th, If we wished to class, according to our observations, the elements relating to man in an order which should indicate the degree of variation to which they are subject, we should find the succession as follows, commencing with the *least variable*:—The stature of man; the repression of crime, or the degree of severity with which it is punished; the births; the propensity to crime, or the facility with which it is committed; deaths; marriages; receipts and expenses of the treasury; and, finally, the prices of grain.

* See my *Recherches sur la Population, &c., dans le Royaume des Pays-Bas*, p. 21.

Thus man commits crime with at least as much regularity as is observed in births, deaths, or marriages, and with more regularity than the receipts and expenses of the treasury take place. But none of the elements which concern him, and which have been calculated in our table, vary within wider limits than the prices of grain.

From what has been said, we may draw the two following principal conclusions:—

Since the price of grain is one of the most influential causes operating on the mortality and reproduction of the human species, and since, at the present day, this price may vary within the widest limits, it is the province of the foresight of governments to diminish as much as possible all the causes which induce these great variations in prices, and consequently in the elements of the social system.

On the other hand, since the crimes which are annually committed seem to be a necessary result of our social organisation, and since the number of them cannot diminish without the causes which induce them undergoing previous modification, it is the province of legislators to ascertain these causes, and to remove them as far as possible: they have the power of determining the budget of crime, as well as the receipts and expenses of the treasury. Indeed, experience proves as clearly as possible the truth of this opinion, which at first may appear paradoxical, viz., that *society prepares crime, and the guilty are only the instruments by which it is executed.* Hence it happens that the unfortunate person who loses his head on the scaffold, or who ends his life in prison, is in some manner an expiatory victim for society. His crime is the result of the circumstances in which he is found placed: the severity of his chastisement is perhaps another result of it. However, when matters have come to this point, the punishment is no less a necessary evil, were it only as a preventive mean: it would only be desirable that the other means of prevention might afterwards become sufficiently efficacious for us not to be obliged to have recourse to the former severe means.

I shall conclude this chapter by a final observation, which is as it were a consequence of all the preceding, viz., *that one of the principal facts of civilisation is, that it more and more contracts the limits within which the different elements relating to man oscillate.* The more knowledge is diffused, so much the more do the deviations from the average disappear; and the more, consequently, do we tend to approach that which is beautiful, that which is good. The perfectibility of the human species results as a necessary consequence from all our researches. Defects and monstrosities disappear more and more from the physical world; the frequency and the severity of diseases are combated with more advantage by the progress of medical science; the moral qualities of man experience not less sensible improvements; and the farther we advance, the less are great politic overthrows and wars (the scourges of humanity) to be feared, either in their immediate effects or in their ultimate consequences.

It would seem at first sight that the fine arts and literature must suffer from this state of things. For if it be true that individual peculiarities tend to disappear more and more, and that nations assume a greater resemblance to each other, whatever is most picturesque in society and in the aspect of different parts of the globe, ought insensibly to disappear. Even during the last half century, and within the limits of Europe alone, we see how great the tendency is for people to lose their national character and be amalgamated in one common type: yet nature will always be so prodigiously varied, that the talented man will never have to fear lest the source of the picturesque be exhausted; on the contrary, he every day finds for himself new sources from which his imagination may take the noblest and most elevated inspiration, and bring out treasures unknown to his predecessors.

APPENDICES.

APPENDIX—CONTAINING THE ADDITIONS MADE BY THE AUTHOR (M. QUETELET) TO THE GERMAN TRANSLATION OF HIS WORK, PUBLISHED AT STUTTGART IN 1838, BY DR V. A. RIECKE.

No. I.

ADDITION TO THE INTRODUCTION.

Extracts from the Bulletin de l'Académie Royale des Sciences et Belles Lettres de Bruxelles: 1835. *No.* 8.

M. QUETELET communicated the other day to the academy several statistical notices published by the French government, confirming more and more the ideas expressed by him regarding the constant return of the same phenomena in every thing having a reference to the physical and moral man, provided society undergoes no violent change:—First, It may be seen from documents which refer to the recruiting of the French army, that annually nearly the same number of young men liable to serve as conscripts must be exempted on account of a deficiency in fingers and in teeth; on account of deafness, goitres, lameness, diseases of the bones, weak constitution, insufficient size of body; or on account of being the first-born, or of being orphans, or sons of widows, blind people, &c. Just as constant appear the numbers of young people who are able to read and write, and those who have received no instruction; the number of those self-mutilated in order to avoid military service, &c. From the following table, it will be more evident in what degree conditions which appear to depend on entirely accidental causes have a constant recurrence. It is an accurate extract from a Report to the King, lately published in France, regarding the recruitment of the army:*—

Number of Young Men in France who have been excused Military Service on account of Bodily Infirmities.

Causes of Unfitness.	1831.	1832.	1833.
Wanting fingers,	752	647	743
" teeth,	1,304	1,243	1,392
Deafness and dumbness,	830	736	725
Loss of other limbs or organs,	1,605	1,530	1,590
Goitres,	1,125	1,231	1,298
Lameness,	949	912	1,049
Other deformities,	8,007	7,630	8,494
Diseases of bones,	782	617	667
Short-sighted,	948	891	920
Other affections of the eyes,	1,726	1,714	1,839
Itch, (?)	11	10	10
Scald head,	749	800	794
Leprosy,	57	19	29
Other cutaneous diseases,	937	903	895
Scrofulous affections,	1,730	1,539	1,272
Affections of chest,	561	423	359
Hernia,	4,044	3,579	4,222
Epilepsy (falling sickness),	463	367	342
Different other diseases,	9,168	9,056	10,266
Weakness of constitution,	11,783	9,979	11,259
Insufficient size of body,	15,935	14,962	15,078
Amount of whole class of certain age,	295,978	277,477	285,805

M. Quetelet further mentions, that he knows, from sources to be depended on, that not only the number of letters delivered at the post-office of Paris remains nearly the same every year, but that also every year nearly the same number of letters are found, which have been forgotten to be sealed, or which could not be delivered in consequence of illegible handwriting, or insufficient addresses, &c. &c. For a long time he had endeavoured to prove, that society pays a fearful budget to crime, which perhaps shows a greater regularity than the financial budget: and in a work which he lately published—"An Attempt at the Natural Philosophy of Society"—he felt himself entitled to say, that if the statistical details published by the government were also to make mention of those crimes the perpetrators of which have remained unknown, their occurrence would not be less regular. This supposition has actually found a complete confirmation in our country, in the reports made to the minister of justice, and which will be published forthwith. There exists too strict a connexion between the phenomena presented by society, and between the causes of which they are the effects, to be neglected any longer by the philosopher and statesman; and, without doubt, the science which has this study for its object, will occupy, in course of time, a high rank in the scale of human knowledge.

* *Compte rendu au Roi*, p. 128 and 129. Similar examinations take place in the kingdom of Wirtemburg, and, as in the above case, the results form a source of valuable materials for medical statistics.

No. II.

ADDITION TO THE SECOND DIVISION OF THE FIRST BOOK.

Influence of the Seasons upon Births.

M. Ramon de la Sagra, in his History of the Island of Cuba,* has given a comparative view of the number of births of the white and coloured population in Havanna, according to the months of the year. From the ciphers we reprint here, it will be seen how much geographical latitude modifies the results which we have observed in our climates, although the place mentioned is situated in the northern hemisphere. The following ciphers include the observations of five years, from 1825 to 1829:—

Months.	Births.		
	Among the White Population.	Coloured Population.	Total.
January,	624	703	1,327
February,	573	596	1,169
March,	600	627	1,227
April,	636	638	1,274
May,	634	651	1,285
June,	659	620	1,279
July,	661	698	1,359
August,	694	741	1,435
September,	736	760	1,496
October,	772	736	1,508
November,	713	706	1,419
December,	700	774	1,474
Total,	8002	8250	16,252

* Historia Economico-Politica y Estadistica de la Isla de Cuba, p. 35. Havanna: 1831. 4to.