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PREFACE.

The following pages were originally intended as an Introduction to some views on the Principles of Medicine, considered in relation to the modified type of temperament produced by the increasing proportion of the nervous element in the organization of individuals, who are fair representatives of the high civilization of modern times; but as these introductory pages may be said to contain within themselves a subject of philosophic interest, to the Historian and Statesman, as well as to the Physician, it has been thought advisable to publish them in a separate form, with the intention, at some subsequent period, of carrying out the more medical part of the work to the extent of the original design.

Paris,
August, 1839.

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CHANGES

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CHAPTER I.

PHYSIOLOGY AND HISTORY,—NATURE AND EXTENT OF THE SUBJECT.

I. The highest physiological authorities of modern times agree in maintaining that the General Nervous System is an absolutely necessary condition for the manifestation of the many kinds of activity, animal, moral, and intellectual, which take place in the human subject; and it has been regarded with great truth as a characteristic feature of these later times, that the superior functions of this system have been universally expressed with a plenitude, extension, and energy, hitherto unrecorded in the history of man.

2. It is proposed to show in the following pages, by logical deduction from these grounds, as well

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as by historical and physical evidence, that there largely obtains a close and invariable parallelism of increase and expansion between these various activities of the human economy, and their organic physiological conditions; that in proportion as the former become enhanced, so do the latter become developed, and reciprocally; that according as one species of activity more than another predominates in the life of the human individual, so also does the corresponding organic element, subserving this, become in its turn amplified and more appreciable; that individuals, in fact, undergo modification in the constituent tissues of their bodies, according to the particular kind of activity which governs and habitually prevails.

In some it will be the animal and organic, from high proportional endowment of the muscular system, visceral organs, and ganglionic nerves; in others, it will be that of a higher kind, and more characteristically human, from the volume and quality of the great nervous centres; the former being fit types of the semi-civilization of more remote times; the latter, types of our own.

And from the superior nervous activities eminently characterising our present times, it necessarily follows, that we may expect to find, in all individuals who are fair representatives of

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the higher type, a predominance of the corresponding organic conditions, over those of lower grade, in the nervous system; that these individuals, in fact, are to be distinguished by marked and important differences, both in the quality and relative proportions of the tissues composing their organization, from those having existed in antecedent epochs of an embryotic and ruder civilization, in which the tastes and habits of society partook much more of organic and animal activity; as well as from those who, though existing in the midst of modern society, still assimilate to this ruder class, in the nature of their life, and in the quality of their bodily material. It is proposed to consider—*The progressive increase of Nervous nutrition in the human body, as a law of advancing civilization.*

A clear perception of this law in all its bearings upon the structure and physiological working of the economy, becomes essential to the physician in rightly appreciating all complicated pathological states of the body, and would prevent the many mischievous effects that are ever happening in refined society, from a gross and indiscriminating ignorance on these points, fatally misapprehending the delicate and freely re-acting sympathies of a high-wrought organization.

A practical knowledge of this law would likewise greatly assist in estimating with precision,

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the many differences in the physiological value of individuals and nations, their type of nervous system, and their degree of cerebral activity; and connected with historical and philosophical data, it would enable us, thus understanding the physical law which presides over the continuous development and improvement of the human body throughout the successive phases of civilization, to command a more complete view of the laws which govern society in its progress, and to ascertain more distinctly than heretofore, what part external circumstances and what part the innate primitive type of a race or nation has, in determining, either the extent and character of civilized advancement, or the period of decline, amongst the different communities of the world.

The epoch of this union and concordance of physiology with history and philosophy, may be said to be now fast approaching, and can scarcely be contemplated by the mind, without perceiving that, by its results, an extraordinary reaction will be produced upon the higher branches of human knowledge.

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CHAPTER II.

ITS APPLICATION TO THE PRINCIPLES OF MEDICINE.

HAVING so far taken into consideration the evidence necessary to establish the principle, that there obtains a finer and more abundant endowment of the purely nervous tissues amongst the constituent elements of the human physical constitution, in proportion as civilization advances, and having examined, besides, what specific changes take place in the body at large, during the production of this nervous type of temperament, the second part of this Essay will be occupied in making application of this truth to the practice of medicine. Indeed, when it is considered that, through the nervous system alone, all expressions of activity and suffering, whether mental or organic, can be felt and manifested by organized beings; and that this system is superimposed as a culminating point above all others in the body, it will not be saying too much to advance, that hitherto this element of all vital activity has never yet been generally estimated to the full extent it deserves, and according to the high rank which it holds, when unusually

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developed, in exalting the symptoms and phenomena of irritation, and wonderfully modifying the form and complexion of all diseases; ever different, however, with regard to the principle of treatment, according to individuality of temperament, or, in other words, according to the quality of the predominating tissue which composes the affected individual.

This division of the subject will comprehend the physical and functional characters of the nervous temperament so rapidly increasing at present among the easy and intellectual classes of society; considered both in its purity of type, as well as in combination with the other temperaments, the vascular, the fibrous and lymphatic; secondly, the balance of action arising from the related state of the circulation to the nervous system, both in health and in disease; thirdly, the operation and effect of different qualities of diet and hygienic regimen upon the nutrition and development of the chief systems of the body; and, lastly, the modified treatment of both acute and chronic affections, as a necessary consequence of recognising the existence of the predominating nervous organization of modern individuals compared with those of former times.*

* This, the medical part of the work, it is intended to publish at some future opportunity. (See Preface.)

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CHAPTER III.

ITS CONNEXION WITH THE PHILOSOPHY OF HISTORY.—HISTORY PHYSIOLOGICALLY INTERPRETED.

According to the plan just now succinctly laid down, the subject of our inquiry may at once be entered upon by turning towards the side of history. Here we find made out, that there prevails a certain principle of progressive development in humanity, in proportion as civilization advances. Of late years this question has been more largely investigated, and certainly with singular success, by several writers on the Principles of Human Nature, and the Philosophy of History,—writers of the highest capacity and compass of reflective thought—Vico,* Herder,

* The great genius, erudition, and power of philosophical analysis possessed by Vico, were very extraordinary. He was the first generally to refer the various historical actions and ideas of mankind up to their common source in the elemental principles of human nature; and he has a right also, certainly, to the original claim of having demonstrated in a satisfactory manner, the development of the first phases of human society according to clear and intelligible laws. (*La Scienza Nuova.*) If he erred in making all humanity move in an ideal circle, first ascensive, then descensive, it was

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Condorcet, Lord Kames, Fred. Schlegel, Gall and Spurzheim, Cousin, Hegel, and above all, Guizot, and Michelet, the historian; besides some others, whose minds have similarly overcome the narrow limitations affixed by the accidents of locality and time to the intellectual range of nearly all mankind.*

These authorities have satisfactorily demonstrated, from a certain connected order in the succession of historical events, and a long enchained series of data following each other from the infancy of the world to its present age, that the principle of progressive civilization is a law of our nature; and, in conjunction with this outward expression of human activity, they have further recognised and traced out, in the psychological interior of man, the first germ, gradual development, and, at last, abiding prevalence of the higher faculties and attributes, which constitute the foundation-rock and Christian basis on

rather because he lived before modern civilization had fairly transcended historic antiquity, and that so early as the 17th century there was in existence no conclusive evidence to establish the principle of progression.

* Sir William Temple, who must have been well acquainted with the profligate character of the times of our Charles II., had the singular notion that mankind were fast degenerating; a curious instance of the influence which the age in which an individual lives, has upon his mind and opinions.

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which all rational hopes must ever depend, that no fresh retrogression into barbarism will signalize the future history of mankind; as long as, indeed, safe from the disturbance of physical revolutions, the world remains existent under the form of its present creation.

Some of these writers, it is well known, as Herder and Blumenbach, have laid more stress upon the influence of accidental locality, and external circumstances on the formation of the character of society, the course of its civilization,*

* The geographical position and configuration of the countries jutting into the Mediterranean Sea, says Herder, has alone influenced the character and destiny of Europe; every civilization from the times of antiquity to the middle ages, having been disseminated through its medium. Without the Mediterranean, says he, there would have been no Phenicia, no Greece, no Etruria, no Rome, no Spain, no Carthage.

The Bridgewater Treatise of Dr. Buckland gives an interesting account, on a small scale, of the influence of accidental locality upon the habits and industries of the population throughout many parts of England; the counties being agricultural, manufacturing, or mining, &c., according to the nature of the geological formations.

On the other hand, we shall find it is only a superior and intelligent race, who are acted upon to the fullest advantage, either by geographical position or by favourable circumstances of soil. The Red Indians had lived for ages on the banks of the magnificent rivers of America, and the Turks have been for centuries at Constantinople. Have either done justice to their position?

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and its physical type of body; which others, as Vico, have attempted, on the contrary, to refer exclusively to an absolute principle residing in the interior of human nature; whilst others, as Kames, Gall, and Spurzheim, with more comprehensiveness and right, have maintained the reciprocal influence of both these elements, each acting upon and developing the Nervous system, and arriving, through its medium, at the same end—the extension of the principles of human activity; in other words, progression, civilization. The opinions of Herder and Vico are thus but different aspects of the same truth.

With the remarkable exception of Lord Kames and the physiological school, all these writers have limited the end of their endeavours to the abstract establishment of the principle of progression, according to but one species of evidence, and to but one point of view—the historical. To this one and circumscribed element of the question they completely confined their views; here they stopped short in their inquiries, separating themselves from the physical part of the investigation, and scarcely at all suspecting the extent and magnitude of corresponding changes and additions taking place contemporaneously in the interior of the nervous structures. Of all these labours, however, the consideration of the present subject has indispensable need, for, when

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physiologically interpreted, they constitute an essential feature of evidence in support of our chief argument and position; that each step of civilization is attended with corresponding changes in the Nervous system, and that these steps and these changes in regard to the species as a whole, have a continually progressive character, arrested only by the limits of human nature.

In the one case there will be inferred the highest grade of civilization; and in the other, development of the highest possible type of nervous system.

But this physiological interpretation has never yet been given so formally, and on so broad a scale, as to have become a generalised principle of science, applicable at all times for appreciating the connexion between modifications in the habits, tastes, and progress of human society, and those in the disposition, form, and quality of the general physical organization; and much less has it been given with the design of making this principle subservient to medical science.

Both these kinds of modification are mutually reflected in each other. This next step further in causation, the present advanced state of science admits of being made.

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CHAPTER IV.

CHANGES IN THE ECONOMY PRODUCED BY CIVILIZATION TRANSMITTED HEREDITARILY.

INDEED, if hitherto, merely from the sources open to the efforts of literary genius, mankind in general have been thus shown to be undergoing progressive modifications in an onward course, it may be regarded now as the peculiar office of the physiologist to demonstrate how at that very same time, throughout centuries of duration, the formative nutrition was silently at work in modifying also interiorly, according to certain organic laws, the physical man; in enlarging particularly the boundaries of the primitive nervous structures into more perfect outlines of proportion and form; in building up, as it were, *pari passu*, with every new appearance of rudimental improvement its necessary material conditions in the human economy. Without these organic modifications ensuing there would be no imaginable means of realizing the successive additions of civilized activity, and of transmitting therefrom enhancement of the natural aptitudes and capabilities to posterity. The progress gained by preceding generations would be lost.

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All would be shifting sand, and we should tread upon no substance which had a resting place upon the known laws of science.

It is these hereditary transmissions of organic growth in the nervous system, which form that law of development born with the individual, and anterior to the additional enhancement of mind subsequently effected upon him by education and external influences; these latter, however, re-acting again in their turn upon the organization, and in this way adding to the action of the innate physiological law upon the next succeeding generation. Every stage of civilization thus brings, by means of nervous nutrition, some accession of strength to the innate law of development, until by successive accumulations, during a long series of ages, these reiterated additions and changes in the organization, produce at last the highest type of nervous system which man presents in the most civilized communities.

For the physiologist, then, every species of activity must reflect itself upon some related organization. What the purely literary writers have hitherto seen and put forth, the historical actions and ideas of mankind, is to him a circumstance of effect—a classification of results only; and, indeed, things could scarcely have happened otherwise, for it absolutely requires

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the full co-operation of the more positive physical sciences to trace these results to the very focus of their causative conditions—the nervous apparatus; and thus to demonstrate the connexion, by whose means is performed that impregnable circuit of operations ever taking place between the physical and moral organization of man.

CHAPTER V.

PARALLEL OF MAN PHYSICAL, WITH MAN HISTORICAL AND INTELLECTUAL.

For when a cause comes to be drawn out into a prodigal creation of effects, it takes up at once a much more palpable shape, and presents evidence of its own self of such breadth and material extension as to be resisted with difficulty by the mind. The causative power, consummating itself in act, makes a much fuller and more impressive display of its presence; and this it is which gives such force and penetrating reality to the principles and truths obtained by the inductive process, where, by fetching a wide compass of research, effects, from being radiated on all sides over a visible extent of ground, become

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gathered together to one common centre by the converging power of generalization.

In the subject at present under our treating, from the expressions of effect having stood out more prominently to the eye, and being more diversified in feature than the unobtrusive material conditions of their existence, it has happened that the former alone, from this more sensible form of manifestation, have hitherto received universal notice and consideration. Phenomena alone have been recognised separated from their chief causative condition in the organization. History has largely recorded the character and progress of the human individual, and the actions and vicissitudes of nations—phenomena of effect, however, to which physiology is now prepared to affix concurrent relations in the living structure; so that the physical man will be found ever to be a material monument of the historical, supposing each standard taken from the same level of civilization. One should move and be reflected in the other. The former (the physical) would in this way be inferred in all his gradations of change and transformation, from a knowledge of his habits, pursuits, and actions, as portrayed in history.

Successive pictures of human society, therefore, in its broad masses of character, from the wretched existence of the stupid Orinoco savage,

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from the Troglodites of old in their holes and caves, to our own forward civilization, would, if properly interpreted, be made to disclose a corresponding extension of physiological conditions in the nervous system, and would become conclusive evidence of the progressive evolution of a higher character of organization, such as it is the object of this Essay to demonstrate.

And in like manner, the same method of inquiry might be pursued with regard to the history of human thought and ideas, from man's first limited range of perception—from his dark and mutilated intuitions of fear, to his advanced intellectual position at present; all which, if judged by a correct metaphysical analysis, might be resolved into the elemental principles of mind —these principles being referred again to their connexion with physical development in the cerebral system. It would be the method of outward experience, by induction, antithetical to the old one of individual consciousness.

Arrived at this point in our inquiry, we might observe, first appearing upon the scene of human activity, the nascent influence of the several faculties, each, as progressively developed, rising higher in the psychological scale, and contributing its part rightly to interpret external nature and the loftier moral relations of humanity. And surely it is looking from a height of

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commanding eminence to have already comprehended the laws of the sidereal universe, the geological causes of our earth's creation, and to have secured, as it were, within our own hand, the many subtle and invisible agencies which latently interpenetrate the atoms of all matter, and which fill the secrecies and inaccessible depths of nature with formative life and an intelligible order of procedure. With a knowledge of the laws and phenomena of light, heat, electricity, and gravitation, we have already repelled away to a harmless distance the many masses of cloud and darkness, which, in the infant periods of civilization, so wofully disfigured our conceptions both of the physical and moral worlds.

All this elevated species of intellectual activity must necessarily involve the development of its related conditions in the nervous system, and forms, with the historical proofs of advancement, the last addition to the great circle of evidence, which, estimated by physiological principles, can scarcely fail to convince every philosophic mind of the harmonious and combined evolution of the physical and moral organization in the human individual.

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CHAPTER VI.

THE PHYSIOLOGICAL LAW OF CIVILIZATION.

PHYSIOLOGICAL LAW OF CIVILIZATION APPLICABLE TO INDIVIDUAL RACES AND NATIONS, BUT PARTICULARLY TO MANKIND AS A WHOLE.

1. Primitive type (containing its innate law of development.)	Degrees of progressive physiological development by nervous nutrition transmitted hereditarily.			
	1 deg. (+1 T)	2 degs. (+2T)	3 degs. (+3T)	4 degs. (+4T)
x =	x =	x =	x =	&c.
2. External Influences.	1 deg. (+1C)	2 degs. (+2C)	3 degs. (+3C)	4 degs. (+4C)
	Degrees of civilized activity.			

THE object of this formula, is to show how the stages of civilization and of physiological development correspond and run parallel to each other.

A primitive type of race is here supposed, it becomes acted upon by external influences, whereby the first degree of nervous nutrition and of civilized activity takes place. This nervous nutrition being transmitted hereditarily, the type thus improved (+1 T) becomes again acted upon by external influences now conjoined with civilization in its first degree, (+1 C,) when a fresh degree of development takes place in the

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physical type (+2 T) and in its corresponding civilization, (+2 C.) This second degree of nervous nutrition, (+2 T,) in the same manner as the first, is transmitted hereditarily. The type now with these two additions goes on being acted upon by external influences, conjoined with civilization in its second degree, (+2 C.) Fresh development, consequently, in the type takes place, (+3 T,) at the same time that civilization enters its third degree of progress, (+3 C.) Hereditary transmission now again takes place, and so on continuously with increased nervous nutrition and increased civilization, until invasion from without disturbs the elements at work, and absorbs them into new combinations; or until the powers of development failing from some deficiency in the original type, a decline ensues, and the aborted civilization together with the race sooner or later disappears under the aggression of a more vigorous and conquering people. This coalescence of one civilization with another may be observed throughout all history, the more powerful always preponderating, and thus giving progressively a higher and higher character to humanity.

Thus the Roman civilization absorbed all those of Pagan antiquity, and the Roman, in its turn, has been excelled by the Christian civilization of modern European nations.

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CHAPTER VII.

ANCIENT CIVILIZATIONS DEFICIENT IN CERTAIN MENTAL ELEMENTS,—THEIR DECLINE PHYSIOLOGICALLY INTERPRETED.

The great nations of antiquity, viewed in their whole at this distance of time, and judged by the fulness of our modern standard, all present a very circumscribed and individual character of activity. When the original bias and ruling passion, under which they shaped out their career from beginning to end, came to be expended, and declined in its energy from the very accomplishment of its object; when the tension and pressure of this spring relaxed and let go its hold and force, the life and unity of their political movement became defunct also, and departed, leaving the whole fabric to fall by its own weight and internal decay.

The periods in which the empires of old sprang up, shone in the ascendent, and attained to their partial civilization, seem of short duration compared with the slow, oak-like growth of that of modern nations. They would appear like forced and imperfect creations, shooting up

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rankly and luxuriantly for a time, but prepared soon to break down and decline, from drawing their supply of nourishment out of a range of elements too restricted to afford a continuance of excitement and health. The stimulus of some species of aggression or conquest, was the very condition of their existence. The settled order of civil life seemed out of relation with the fevered and dissocial elements of their constitution.

It was a partial and unequal activity, where a few of the powers of human nature absorbed the rest, giving over-nutrition to some parts, atrophy to others. Wanting integrity and harmony of parts, they became, so to speak, aborted civilizations—as if the formative power, arrived at its crisis of maturation, was unable, from some deficiency in the constituent elements, to throw out a principle of strength and progression; and this deficiency resided in the intellectual and humanitary nature of ancient society; a deficiency perfectly conformable to corresponding wants in the Roman, Greek, Egyptian, and Hindoo types of cerebral system, namely, their inferiority to the Germanic type in the upper convolutions, and coronal region of the brain.

Hence they sunk down, under this arrest of development, into a stagnant and corrupting mass, stirred up into new and vigorous life only

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by the transfusion of the active and fermenting qualities brought at various times by the migrations of the different northern nations. Thus the soft and effeminate civilization of the Indian and the earlier Asiatic empires, receiving into its bosom the fierce irruptions of the Tartar and Caucasian races, regerminated anew, with greater vigour and expansion, and later in time, the decomposed and burnt-out spirit of the Greek character, without masculine intellect, public principle, or moral will, gave way to, and became absorbed in, the robust and energetic qualities of the rude people of Macedon—an amalgamation fatal indeed to the barbaric refinement and worthless satrapies of the Great King, but, on the other hand, highly favourable to the progress and diffusion of science and civilization amongst the nations of the then known world.

It may indeed be considered as a general law with nations as with individuals, that in proportion as the grander kinds of activity shrink up and retire within narrower and obstructed channels, so, physiologically speaking, in the same ratio does absorption and disintegration of the corresponding material structures take place; and parts of the nervous economy, which originally were highly endowed with life and power, become, in a great measure, obliterated by continued inaction in a few successive generations.

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Every additional degree of delicacy and refinement given by the arts of civilization to the physical temperament of a race, unless worked out and sustained by proportional intellectual advancement and moral energy, ends at last by emasculating its character, and then it breaks down under the pressure of the first invading force from without.* There is no principle of stability, either physical or moral, in such a people. This has hitherto been the sole history and fate of nations.

It has never been found in history, that it was difficult for the animal powers to become less

* The brave, frugal, and hardy race, which conquered the Median empire under the first Cyrus, were very different in their physical and moral nature, to their descendants, the Persians, under Xerxes and Darius; the Athenians of Marathon and Platæa, to their descendants after the time of Pericles; the Romans during the flourishing times of the Republic, to their degenerate descendants in the fall and decline of the empire. The large stature and massy frames of the earlier Normans as described by historians, and sculptured on our Cathedral tombs, no longer generally distinguish our modern nobility, and the families who can equally claim the distinction of Norman descent. Were this diminution of their physical proportions not compensated infinitely more by increased energy and development of the nervous system, (particularly of the higher related parts of the brain,) they would by this time be a far way on their decline, and would never have sustained the high social position transmitted to them by their ancestors.

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and more mitigated in their expression, (as wealth and luxury effect this,) but the difficulty has been for the higher powers to become developed equal to the sustainment of continuous civilization. It is not enough to let the former (the animal) be effaced by inaction, to die of an atrophy, but their activity must be replaced by positive development of intelligence and public spirit throughout society at large, by something pregnant with prospective advancement, and this, too, well evidenced in the character of the cerebral type.

But it is only within modern times, that these conditions may be said to have existed in all their integrity, a circumstance mainly owing to the large infusion of the Germanic element in the foremost nations of European civilization.

When a nation, having passed through its more barbarous period, has arrived at the acme of its physical refinement without possessing the higher kinds of civilized activity, without attaining a certain type of cerebral development, we may consider that its fall and decline will ensue, with the certainty of a law of nature. At such a juncture, it has, in the words of Lord Kames, neither mind nor body.

In this respect, too, as in many others, society, during its progress, may be likened to the individual. The period of the passions once gone

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by, and no appearance of superior character seen, it is hopeless ever to expect it. The season was arrived, the opportunity given, but nothing came out.

And it may be regarded as a general rule, that nations once fallen, remain in their state of decline, until acted upon by an infusion of new social elements coming from without; or the elements of the decayed civilization enter into other combinations by becoming absorbed in the career of some more powerful race. Communities once degenerated, never arise without the addition of some foreign element of admixture.

CHAPTER VIII.

THE NEW ELEMENTS OF RACE AND CHARACTER BROUGHT BY THE NORTHERN MIGRATIONS.

But the last Northern migrations, which took place in the first centuries of the Christian era, from their magnitude and duration, and the form and complexion they have impressed on our European world, demand a more marked attention, and will require a physiological interpretation of the kind of civilization and mind

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characterising the society into which they settled down. Such seems the advance and position of human affairs at present, that, perhaps, it may emphatically be said, these northern migrations are, indeed, to be the last.

It is difficult to contemplate an historical spectacle of more grandeur and importance than the movement of so many races and nations adventurously precipitating themselves upon the entire face of the old civilized world—careering to and fro all around the circuit of the Mediterranean shores, as if fetched out of unknown regions, and guided by an Almighty hand, to accomplish a salutary, settled purpose in the destinies of mankind. For upon this great event the fortunes of the human race have turned.

It was the collision and intermixture, one with the other, of the various elemental powers of human society, qualities of blood and of character, languages and institutions, which subsequently gave birth to new and more vigorous forms of social life. For this transfusion of so many native and healthful elements into the dying current of Roman civilization, cemented together by the commingling influence of the Christian principles, formed, in a great measure, the general European stock, which has divided itself into the different nations of modern times, all having, however, from the similar circumstances

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of their origin, many characteristics in common. (Charlemagne.)

It was an amalgamation of that astute, selfish, and indomitable will of the old Roman—that practised and well-balanced understanding in political matters, with the rich intellectual freshness and more generous and loftier moral energy peculiar to the Teutonic and Scandinavian races; and, in a physiological point of view, we must never forget that these distinctive classes of qualities, with many others arising from greatly different organic temperaments, were equally reflected in the tissues and structures of the physical body.

These two races, then, the Roman and Teutonic, together with the aboriginal Celtic population, may be considered to have furnished the chief formative elements, which, according as they became combined in different proportions, gave a certain direction of development, from the first, to the principal nations of European civilization; this bias of direction being the compound effect of their natural physical type, acted upon by external circumstances.

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CHAPTER IX.

MIXTURE OF RACES FAVOURABLE TO HIGH DEVELOPMENT OF CIVILIZATION AND OF PHYSICAL TYPE.

WHERE the admixture consequent upon these migrations partook more fairly of the different elements of race, the fusion has taken place more rapidly, and with more thorough effect; the fermentation and final adsettlement (so to speak) was sooner completed; the language and national character will have assumed a certain unity and breadth; all the great principles of human society will have been more or less justly represented in the national civilization, one developing and controlling the other, re-action being ensured, by this mutual antagonism, against exclusive preponderance of one element to the prejudice of the rest, as was the case peculiarly in the states of antiquity; letters and the speculative and exact sciences will have been highly cultivated, and the great industries and arts of life extensively attained; and, lastly, the political and social institutions will have been founded on a more comprehensive basis, and have become the sooner mature, vigorous, and progressive.

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All this expression of civilized activity must be inseparably allied to an active extension of nervous function and of cerebral nutrition—circumstances already abundantly evidenced in the physical type and habits of the more forward European nations. This variety, too, of elements, from admixture of the best races, so directly conformable to *physiological* conclusions, corresponds very remarkably with the number and variety of the principles characterising European civilization, as *historically* analyzed by Guizot.* The superiority of type was the chief

* Of all modern nations, the English, more perhaps than any other, have a greater and more proportionate admixture of the best races. Upon the original Celtic stock there was first engrafted the Roman civilization; after awhile, came the frequent emigrations of the Saxon tribes; and, lastly, the national character received its full accession of strength and impulse from the flower of the famous Scandinavian races in the Norman invasion and settlement. It was the union of the two great elements of modern civilization, the Roman and the Germanic; the one giving us our municipal institutions and government, the other our sense of individual liberty and independence. It is remarkable, that where these new elements did not penetrate, civilization has remained almost stationary, or at best, very backwards, as in Wales, the Highlands of Scotland, and, indeed, in many localities in England itself. In Ireland, above all, there is a striking contrast between the semi-barbarism of the countries where the old Celtic races remained uncrossed by foreign blood, and between the flourishing condition of the districts colonized by

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cause of the superior civilization—a point of view not yet sufficiently appreciated.

CHAPTER X.

ISOLATION OF RACES UNFAVOURABLE TO DEVELOPMENT.

But where the physiological and moral elements of these different races have entered into partial and unequal combinations—where the races have remained pure and in too unmixed a condition, we shall observe the resulting compounds more faulty, and of too special and narrow a kind; many of the civilizing principles of human society will be wanting. The national activity, in consequence, will have a limited and monotonous character; civilization and progression will be weakly and insufficiently elaborated,

those of Scotch and English extraction, as fully exemplified in the difference of social progress made by the Southern and Northern populations of the island. In France, also, where there took place a copious intermixture of the Frank and Germanic races with the old inhabitants, as in its northern provinces, the intelligence, the physiological value, and social condition of the population is much higher than in those parts where the Celtic races have remained pure and unmixed, as in Brittany, and many departments included between the Loire and the Rhone.

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and there will be a tendency more to individuality of action, than to that harmonious, free, and catholic development which is the distinguishing characteristic of the mixed nations of Europe.

Corresponding with this comparatively backward civilization, the unmixed Celtic and Sclavonic populations of Europe evince, in their social and intellectual habits, much less activity, and development of nervous function; and their cerebral system, in particular, is also much less powerfully expressed—a fact singularly in harmony with their subordinate political position amongst the nations of which they form a constituent part, and in the midst of which they are placed.

This isolation of race corresponds, too, with persistency of the physical characters of type as lately demonstrated by Dr. Edwards.

When pure and unmixed, a race is then more or less inclined to remain stationary.

CHAPTER XI.

WHAT DIFFERENT PHENOMENA TAKE PLACE IN THE MIXTURE OF RACES.

NATIONS being thus, for the most part, composed of a plurality of types or races, different

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phenomena will be observed to take place, when the races are brought together, according to the relative superiority which they bear to each other; this superiority being almost always founded on the possession of a more powerful nervous organization. In nearly equal races, there will be, first, a period of hostile collision, then, a period of assimilative re-action, and lastly, a period of national fusion, as has occurred, for instance, in Great Britain, since the Roman and Norman Conquests. In very unequal races, on the contrary, the re-action between the elements will be scarcely perceptible. Each race will remain separate, occupying different social positions. In such cases, consequently, there will be no national fusion, as is the fact between the Sclavonic and Germanic races (the serfs and nobles) in Russia and Poland, and between the *castes* of Hindostan. It is important to connect relative superiority of race with an equally relative superiority in the type of nervous system, this latter circumstance affording the reason why the physiological law of civilization is much more energetically expressed, from the very beginning, according to the degree of natural pre-eminence, as, for example, in the Norman race, which gave a nobility to so many countries of Europe, from the ninth to the thirteenth centuries.

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CHAPTER XII.

WHEN THE RACES COMPOSING A NATION ARE NOT TOO UNEQUAL, A LAW OF FUSION TOWARDS ONE TYPE PREVAILS.

In many of the western European nations, from the natural inequality of race not being altogether insurmountable, fusion of the different elements, more or less complete, has been ultimately effected, or is even now going on, as evidenced in the unity of language, and in the character of civilization and political system common to the whole, or nearly the whole of each several nation, as in the Anglo-Saxon, Anglo-Norman, and Franco-Celtic coalitions, with some others of the Roman, Celtic, and Germanic races. The civilized activity of the most flourishing nations of antiquity, proceeded, it will be also seen, from more than one race. A plurality of types contended. The original elements of the Roman people were derived from different races. (*Niebuhr.*) The patrician *caste*, (the *gentes*,) and the great Roman commonalty, (the *plebs*,) re-acted upon each other during the whole course of their history; the fusion of the two being completed only by

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the establishment of the Plebeian consulship, and of inter-marriage between the castes, the *connubium* of the Canulian law. Besides, early in the Roman career, came the accession to the commonwealth, one by one, whether by conquest or by treaty, of all the ancient and vigorous races of Italy, the Latins, Sabines, Etrurians, Samnites, Volscians, and Oscans, together with the Greek colonies of the south. To these were granted participation in the citizenship, (*isopolitia,*) and many of Rome's most illustrious men, were born amongst them. This constant adjunction to the state of fresh homogeneous elements, says Niebuhr, was the great secret of Rome's aggrandizement.

In Greece, the Pelasgic and Hellenic races contended; the former by degrees becoming almost entirely assimilated to the latter, as in Europe, the Celtic races have been also to a great extent, where they have come into close contact with the Roman and Germanic, as in France and England. There were afterwards the Dorian, Ionic, and Macedonian types.

The Athenians were composed of two races; the four tribes of the Eupatrides, forming the aristocracy; the 360 γενος—an element derived from the Ionian conquest and migration; and the general commonalty, (the δημος,) representing the ancient inhabitants of Attica, and the foreign

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accessions it might subsequently have received. The national fusion of the two races, re-acting a long time upon each other, took place only at the time of the institution of the ten tribes by Clisthenes, after the Persian, but before the Peloponnesian war.

The different states of the Grecian commonwealth, together with their innumerable colonies all over the antique world, must have undergone extraordinary re-action, and with it, an immense extent of nervous development, under this various and mutual antagonism of race, just as is the case at present with the multiplied elements composing the American confederation.

The great Celtic family of nations so numerous in Western Europe, after being first impressed with many parts of the Roman civilization, particularly as to language, jurisprudence, and municipal government, have been for centuries amalgamating with the progressing numbers of the Germanic races, and are still now being peaceably invaded and won over to modern civilization, even in their mountainous districts, as in Wales, Scotland, Brittany, and Ireland, wherever the surrounding populations press upon them with superior intelligence, and force of character.

The disappearance of a language may be fairly taken, conformably to this law, as evidence

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either of the fusion or the extinction of a race, and thus philological studies may become connected with the natural history of the various races of man.*

* Languages have hitherto been much too exclusively studied after their analogies and points of agreement, often, indeed, fanciful and obscure in the highest degree; whilst not sufficient attention has been given at the same time to the multitude of points, where their genius is different and original, and where closely characteristic of the races to which they belong. If the various races of men are to be considered original and distinct, so likewise must their languages. As the intellectual and physiological systems of all the varieties of man are conformable more or less to one exemplar of design, so will the different languages, which are the expressions of these different systems, be found to manifest of necessity, frequent points of resemblance and analogy, which accumulated together, and classified with vast erudition and ingenuity, have formed the great bulk of the different philological theories. This common relation of all languages to the general human intellectual, and physiological systems, will sufficiently explain their occasional affinities to each other in construction, and vocabulary, and will be sufficient to give a natural solution of many philological analogies, except, indeed, other more obvious explanations exist; as, for example, when some positive intermixture of races has been known to take place, attested either by historical or physiological evidence. Thus from the frequent relation of the sounds of words to the qualities of the things they express, it continually happens there are resemblances in the vocabulary of races between whom there has never been any communication whatever. (*Onomatopœia.*) Languages, as well as races, will probably hereafter come to be

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Thus the Celtic languages go on being spoken less and less, and will no doubt in the course of time become entirely extinct, like many others. The Welsh, the Gaelic, the Irish, and the Armorican dialect of Brittany will share the same fate as the Cornish. The legends of the Mabinogion have only just been snatched from a threatened oblivion in our own days. In Spain, the remaining Moors have become almost entirely absorbed by amalgamation with the races of Germanic and Iberian origin; the features and characters of their peculiar type, however, being easily traced by travellers throughout the populations of the southern provinces of the Peninsula.

Thus a law of fusion into one national type, may be considered to prevail where the races

considered as original. The question of the fusion and disappearance of races involves in all its latitude, that of their several languages. The latter follow the fate of the former. The more mixed a nation, the more is its language a compound of several elements, (the English ;) on the contrary, when the race is pure and unmixed, so is the language. (German, Celtic languages.)

So also superiority or peculiarity in the language, has always reference to something superior or peculiar in the race. The Greek, Latin, Arabic, and German languages are as much connected with superiority in the intellectual systems of their corresponding races, as the Hottentot, and other savage dialects are with deficiences in the same.

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composing a community are not too unequal and dissimilar. The national elements gravitate from the circumference to the centre—from diversity to one common character. And the inferior races being forced to decline and die away in the same proportion as the stronger increase and multiply in numbers, a more equal degree of intellectual energy, and a more equal physical type is thus attained in the course of time, by the nation at large. Its civilization is then completed to the full extent which the original powers of its races admitted, and its corresponding nervous system has arrived at its acme of development.

CHAPTER XIII.

THE LAW OF ASSIMILATIVE RE-ACTION.

But there exists another law of great importance, and essential to civilization, and without which its highest degrees could not be attained. It is the free and unfettered re-action of one race upon another in the same community. This law is subservient to that of national fusion, although anterior to it in its operation, inasmuch

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as re-action must necessarily precede development and amalgamation.

This re-action between the different national elements will be found to take place in proportion as the races are of a superior order, and as they pretty equally antagonize each other, as between the Saxon and Norman, during the whole course of British progress; more numerous and richer elements are brought together, and the new formations are consequently stronger and more perfect.

When these re-actions are repeated, and terminate each time in social assimilation, they elicit a general and continuous development of civilization.

Public and private freedom in every department of enterprise and political action, representative government, and a totally unchecked diffusion of all branches of human knowledge, follow as direct effects, which effects become in their turn, favouring causes of a continuation of similar results.

But the originating causes, it cannot be too forcibly insisted upon, resided in the natural type.

Whenever from limitation or exhaustion of the original powers of a race, or other circumstances, this law of re-action is no longer observed to operate, and all movement ceases,

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fusion of the national elements, as far as was possible, may be held to have taken place; civilization will now have a strong tendency to remain stationary, and, sooner or later, the commencement of a fall and decline, from suspension of re-active stimulation, and arrest of nervous nutrition, will be the consequence.

This was the case with the Roman Empire, after the Augustan age, and with Athens, after the time of Pericles. China is in the same predicament at present.

As long as we see re-action in a community of races, there is yet hope of progress to be made. The elements of race continue to re-act long after a nation has possessed but one language, and but one general government; (England, France, United States.) It is then only, indeed, that re-action becomes more truly assimilative, and that the period of hostile collision has ceased.

This law of re-action, contrary to the law of fusion mentioned above, may be said to act from the centre to the circumference. It gives greater breadth, and area of development, and opens and enlarges the basis of the national civilization. Simultaneously with this increased activity, it brings into play a higher amount of nervous energy, influencing for the better, both the growth and temperament of the cerebral organs.

The European nations are under the full

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influence of this inter-social re-action at present, partly from the admixture of different races, partly from intelligence and wealth antagonizing the influence of the ancient nobilities, and antiquated forms, usages, and opinions, and partly from the dispersion of enlightened populations into the extremes of wealth and poverty.

CHAPTER XIV.

RE-ACTION WITHOUT FUSION, BETWEEN THE CONSTITUENT ELEMENTS OF NATIONS, LEADS TO DISORGANIZATION.

THESE two series of phenomena—re-action and fusion—will be observed to follow one another at successive intervals, throughout the history of nations, and when thus continuously reiterated, and properly proportioned to each other, contribute, by their antagonism, to the healthful and harmonious development of the highest civilization.

The want of adjustment between these two laws, will be found to mark the period of decline in the progress of nations. Either without the other is destructive of society. Re-action without fusion, causes permanent unsettlement of the social elements; it is the *first* step in all

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political and social reforms. It is, on the contrary, the *only* principle of revolutions. The great end of agitation is to excite re-action. Alone, without fusion, re-action leads, through anarchy and functional disturbance of the national brain, (so to speak,) to a degeneration of race, and dissolution of the body politic. The longer legitimate re-action is provoked and prolonged by deep rooted resistance, the more do the social elements become loosened and dispersed, and at length severed. Fusion and a return to a healthful condition, is, in consequence, proportionately retarded, or even altogether prevented; and a disastrous revolution may be effected, where only a reform was needed. The English and French revolutions were such crises of excessive re-action.

Of all forms of government, democracies are most exposed to the evil of excessive re-action, particularly if the elements of race composing the people be numerous, and heterogeneous, and their social position different and unequal. Witness the democratic re-actions of Athens, and the Grecian republics; those of ancient Rome, the Italian republics of the Middle Ages, the French revolution, and those constantly taking place at present in the republics of South America.

This excessive democratic re-action is one of

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the greatest misfortunes that can happen to a state, and to civilization in general. The inferior social elements, inseparably connected with the unenlightened and ruder classes of society, are thrown upwards, and come out in too strong relief. A lower order of activity then prevails. Passion, and the more violent energies of human nature supersede order, reason, and the blessings of refined life. More or less anarchy succeeds. Civilization is stifled, or goes backwards for centuries.

This is the danger of allowing to the people at large, before they are properly prepared by a higher social standard, or by a system of national education persevered in for a few generations, a too preponderant influence in the government and fortunes of a nation. It is the great argument against an unrestricted extension of the suffrage. The nervous nutrition, produced by education and civilization in the cerebral system, requires to be thus long continued, before a safe and permanent amelioration can be effected in the mind, tastes, habits, and character of a people.

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CHAPTER XV.

RE-ACTION WITHOUT FUSION BETWEEN NATIONS THEMSELVES.

When different nations, or races, not very unequal in natural qualities, and each having its own language and social institutions, are brought, by foreign power, to work together under one particular and uncongenial political system, hostile re-action sooner or later will be produced. This, if the races be nearly balanced, will terminate in separation. Thus the Netherlands and the United Provinces succeeded in separating themselves from Spain; Belgium again, from Holland; Greece from Turkey.

If the races be, on the contrary, unequally balanced, the weaker will be broken up, and its social elements being thus dispersed, will be set at liberty to coalesce with the more powerful and dominating race.

First, hostile collision, then assimilative re-action, must precede the new national fusion.

The history of Great Britain, from the Heptarchy, through the Conquest and its social revolutions, down to the Reform of the present

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day, affords an illustration of the law. In Ireland, the old Celtic races will become much sooner assimilated to British civilization, in proportion as the same social and political systems are made to operate fairly upon both countries.

The French Canadians must go through this process of disintegration, before they can be assimilated to the British system and language. If left, as they now are, in the position of an isolated foreign body in the state, they will surely follow this law of re-action, and ever tend to separate from the power which antagonizes them. Their re-action may be expected to occur over and over again, until some measures of pacific assimilation be adopted.

The Anglo-Americans have entirely succeeded in establishing their own language and nationality in French Louisiana; it having been made imperative on the younger generations, to conform to certain enforced but judicious regulations, as the adoption of the English language, laws, &c.

It was always the policy of the Romans to make it the interest of newly conquered towns, to conform to their own language and civilization.

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CHAPTER XVI.

FUSION AND REPOSE WITHOUT RE-ACTION, LEADS TO DECLINE AND ARREST OF DEVELOPMENT.

So much for the circumstances in which re-action alone takes place. But where, on the contrary, the state of rest consequent upon fusion has continued a long time undisturbed by the wholesome re-action of one social element on another, civilization will be found to stagnate, and to become more or less stationary and monotonous.

Absolute monarchies, and governments administered in the exclusive spirit of centralization, encourage this tendency to fusion and repose, rather than that to re-action and progress. They would rather lean on the forms and political frame-works of the past; and are content to be conservative of the progress already achieved, rather than facilitate the development of its next coming steps. In this very repose, however, lie the seeds of decay.

Exclusive oligarchies too, from not being recruited with new elements from the great body of the people, die off, and by degrees wear out

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high original qualities of race; they become absorbed afterwards into new social combinations. This is the danger of all aristocratic orders. The nobilities of Spain, France, Venice, and the Italian Republics, are examples in point.

Nations almost altogether composed of one race, like families who degenerate by perpetually intermarrying, tend also to repose and inactivity, without re-action. Their only chance of progressing, lies in feeling the influence of foreign civilization reflected within their own stagnating elements. (China, and Turkey.)

CHAPTER XVII.

RE-ACTION IN NATIONS ARRESTED BY FOREIGN POWER, LEADS TO DECLINE.

This absence of re-action is likewise the case of those nations, who, although composed of more than one superior race, are successfully checked in their development by the pressure of some foreign yoke; of which Spain and Italy are striking illustrations.

The gallant adventurous spirit of the old Spanish race, conquering the Moors, and founding new realms in America, and which, up to the

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regency of Ximenes, put forth such energy, and promised so much more than other nations for the future, was fatally overwhelmed by the German power of the Emperor Charles V.; afterwards more systematically by Philip II., and the formidable Papal organization of spiritual despotism; and, lastly, by the several princes of the Bourbon dynasty.

It only proves of what superior elements of race the Spanish nation was originally composed, not to have been irrecoverably lost under such blighting and long continued influences. And in another point of view, it is curious to observe what different results have attended the national developments of England and Spain, since the sixteenth century, under their two opposite systems. Both nations were chiefly composed of Roman and Germanic elements of race and character. Freedom of re-action has carried the former (England,) to the head of civilized nations; a system of repression and coercion, on the other hand, has forced back the latter (Spain) into a state nearly bordering upon the barbarism of the middle ages.

The tardy re-actions of the last thirty years, may be considered the first emancipating steps of the remaining national spirit, from the thraldom of two centuries and a half. But populations, such as these, so long subjected to an arrest of

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nervous nutrition in the intellectual system, with a nobility almost extinct, owing to degeneracy by intermarriage, will yet have to pass through several generations of favourable circumstances, before the physiological and moral conditions of stability and order can be acquired, and before leaders can be produced out of the mass of the people, equal to those of other nations, and to the great political crises of the time itself.

The same check has been exercised over the Italian populations, by the Papal power, and the Austrian sword. Re-action will inevitably come when the foreign pressure is removed, unless in the mean time anticipated by an amalgamation between the races.

CHAPTER XVIII.

RE-ACTION, FUSION, AND REPOSE, CORRESPOND WITH EQUIVALENT PHYSIOLOGICAL PHENOMENA.

In the reciprocal balance, then, of these two laws of re-action and fusion may be said to reside the law of political gravitation, and the progressive civilization of nations. From the experience of past times, the dangers of their extremes—anarchy on the one hand, decline on

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the other—are respectively to be avoided by possession of the great conditions in which both are found represented, and in which both work and counterpoise each other,—constitutional government, and a system of national education. Progressive advancement, by this means, is made compatible with order, safety, and stability.

Re-action, Fusion, Repose, constitute the states belonging to the ever recurrent and enlarging cycles of civilized movement; any arrest in which becomes more or less fatal to the progression of society. And these states—re-action, fusion, repose—have relation to corresponding physiological phenomena taking place, in the same order of succession, within the nervous economy of nations at large—vascular excitement, increased nutrition, and accomplished development. History and physiology are thus placed in accordance within the same problem.

CHAPTER XIX.

WHAT SOCIAL PHENOMENA TAKE PLACE IN NATIONS WHERE THE RACES ARE UNEQUAL.

We have hitherto considered the phenomena which take place in nations where the races

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happen to be more or less equal. But where the natural inequality between the races composing a community is more decided, the social elements are at the same time very heterogeneous, and complete national fusion is rendered nearly impossible, or at most, is infinitely slow of effect.

The more powerful race being the last in conquest, and taking the highest rank and position, dominates over the inferior and conquered, which sinks down into the labouring population, enjoying more or less participation in social privileges and freedom in proportion as its will and capacity antagonize the intellectual superiority of the upper classes.

The Norman race had this superiority, both natural and political, in a very remarkable degree, wherever they settled; in Neustria, in England, in Sicily, in Naples, in Russia; so had the Franks over the Celtic population of ancient Gaul, although these latter were strengthened by a fair admixture of the Roman civilization; so had the Athenians of Ionic origin over the ancient population of Attica; so had the Spartans over the old inhabitants of the Peloponnesus; so had the Spaniards over the native races in the American conquests.

The condition of these inferior and conquered races in the social system becomes that of labourer, vassal, serf, *(adscriptus glebæ)* slave, or

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a caste apart, according to the country and the period of civilization. These degraded populations, numerous though they be, in the proportion of millions, to the thousands of the superior type, yet sunk down to so great a depth, and remaining in a comparatively stationary condition as to civilization, constitute little more than a vast aggregation of mere animal existence, passed over and unrecorded by history; the whole sum and extent of the national activity being measured by the few but more prominent actors of the superior race. The lives of a series of individuals thus often comprehends the history of entire kingdoms, the great mass of the people being forgotten.

Actual examination of the bodily and cerebral conformation belonging to the respective races, will be found to elicit sufficient difference of type fully to bear out the historical facts above mentioned.

This isolation of races in the social system, from insurmountable inequality, has, for its most distinguishing characteristic, absence, nearly complete, of the phenomena of assimilative reaction. Indeed the inferior races have a tendency to fall off in numbers, and gradually to become lost, when they form the minority of a nation progressively increasing, and at the same time limited in territory.

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The state of serfage prevalent in the early feudal ages, when the Germanic races first subdued the old populations of Europe, existed both in England and France, and also in some parts of the continent, even until very lately, particularly with regard to the lower classes of Celtic origin. It is now perhaps peculiar to Hungary, and above all, to the Russian empire, where the nobility are chiefly of Sarmatian, Norman, and Germanic extraction, testified both by history, and their physical type, whilst nearly all its millions of people are serfs of Sclavonic and Tartar origin. In Poland, the nobles were of Sarmatian, and the serfs of Sclavonic origin. The inequality of race has kept each distinct. Had the mass of the people been of the superior race, Russia would never have conquered them. The Circassian tribes, who have a high Caucasian type, still keep the Russian armies easily at bay. As men, they rank higher in race and personal value, than the Tartar-Sclavonic populations of the Russias. It is ridiculous to suppose that such populations, however numerous, will ever have much influence over the European nations of Germanic extraction.

The same distinctness of race and social position is preserved in Hungary, between the Sclavonic races (once the most numerous there) and the Magyar-Hungarians, who constitute

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the nobility and the dominating party. In India we have the institution of *caste*, according to gradation of race; the superior one, the Brahmin, preserving its purity by the most rigorous observances with regard to intermarriage with the others. To this may be added the political domination of a few thousand English over the many millions of its inhabitants.

Social re-action between these different elements has taken place but very slowly and very imperfectly, the races being so unequal. The same remark well applies to the Arab population of Egypt, ruled over by a comparatively small number of Turks, who keep distinct from the fellahs. In ancient Egypt there existed the same distinctness of *castes*, and social positions, as in India at present.

In the United States of America, the British races and the Negro slave exist together side by side. From their dissimilar types each preserves a widely separate position in the social system; the European blood refusing to blend generally with the African. No legislative enactment will ever dissolve the invincible barrier which nature has opposed between the two races. The inequality is too great for an assimilative re-action to take place.

This general servitude of a whole people, when inferior and conquered, prevailed very

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much in the times of antiquity. A species of Helotism (*Penestia*) existed in Thessaly, as well as under the Spartan Heraclidæ, exercised in both instances, probably, over the remains of the old Pelasgic race, which shared the same fate of subordination under the Greek colonists of Magna Grecia. (*Niebuhr.*)

CHAPTER XX.

THE EXTINCTION AND DISAPPEARANCE OF RACES.

WHERE the inferior races are unable from incapacity or some hostile and discordant qualities to blend with the elements composing the civilization of a superior people, it seems to have been hitherto their fate, that they go on continually lessening by degrees, until they become extinct. Cruelties and ill treatment of all kinds have but too often been the instruments of their extinction. A system of civilizing influences, extended throughout many generations, would, however, undoubtedly so far develope their intellectual nervous system, and soften their manners, that they might become useful, although subordinate members of the society which had thus protected them.

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But this time and this system of treatment has never yet been given them, for the imperfect attempts of the American government to civilize the Indians of Georgia cannot be thought decisive of the question.

In proportion as the superior races increase and multiply, so will their pressure be felt by the inferior, who undergo the fate of gradual dispossession from their former advantageous positions, and become deprived of their former ease and facilities for obtaining food and means of physical subsistence. The physical checks to population will then step in, and Malthus's law prevail in full force. The ratio of mortality becomes greater and greater, and at last the period of their final extinction arrives.

The gradual disappearance of the many numerous Indian tribes of North America, and of the incipient civilizations of the Mexicans, Peruvians, and the races of Guatemala, before the European colonists, affords the most authentic instances of this process of extinction. It is in active operation at present amongst the wretched Aborigines of New Holland, the South American Indians, in the islands of the Pacific, particularly the Sandwich, where the natives are rapidly diminishing before the European settlers, in the Cape of Good Hope, where the Hottentots are nearly extinct, and the Caffre tribes daily falling

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off. The primitive inhabitants of the Carribean islands, as described by Columbus, are now extinct; so are the Guanches of the Canaries, and the aborigines of Van Diemen's land.

The old Moslem Turks, the conquerors of the Greek Empire, degenerated by long physical and mental inactivity, are now giving way to those of Greek and Armenian extraction; these latter possessing a much higher character of intellectuality.

When the European races of North America shall have sufficiently increased, and extended themselves, so as to be straitened for space, and means of subsistence, the present numerous negro population will in all likelihood decline like the Indian races, and in the course of time become extinct. The Malthusian law will undoubtedly operate with greater liberty upon them when once their interest becomes separated from that of the European by emancipation. They will then be more unable to protect themselves against the competition of superior antagonists, and against the oppressions which a stronger race is but too apt to exercise upon a weaker. In Philadelphia, and New York, where the free men of colour are rather numerous, the ratio of mortality amongst them is much higher than it is amongst the whites.

Thus the stronger and more intellectual races ever bearing upon the inferior and weaker, we

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may expect in the course of time, with the certainty of a law of nature, that all belonging to this latter class, in contact with, but unsusceptible of the higher kinds of civilization, will, sooner or later, become extinct. Those which cannot assimilate, will end by disappearing.

Progressing nations in this manner may be said to be undergoing within their interior a sort of refining process, in which the degenerated, as well as those of inferior type, are continually being thrown out by the pressure and greater fecundity of the dominating and more vigorous races. This Spartan extermination of the unsound and feeble members of a community by the gradual operation of a natural law, would seem indispensable, together with the principle of assimilation and fusion, to form that equality and uniformity of type characterising the highest developments of civilization.

CHAPTER XXI.

WHAT PHENOMENA TAKE PLACE BETWEEN NATIONS THEMSELVES,—THEIR FUSION TOWARDS ONE TYPE.

In the same manner as the phenomena of national fusion take place in a community composed of races having an affinity to each

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other, so between nations themselves, belonging to the same system, there exists a like tendency to blend in the direct ratio of their civilization. This inter-national fusion is effected chiefly by the agency of language, commercial and travelling intercourse, intermarriage, political, moral, and literary influences, the common pursuits of science and art, and the imitation and adoption of manners and customs. The action of these several influences falls directly upon the national brain, exciting and modifying also the general nervous nutrition of the economy.

There being but one law of physiological development, and but one law of progression for all mankind, according to the united conclusions of philosophy and history, it will be observed, that in proportion as these laws are more or less fully comprised and evidenced in the civilization and type of the several races or nations, so will these latter be found to assimilate to each other, and to be nearer fusing into one type, and into one character. The more advanced they are in civilization, the less will individual differences amongst them be apparent, and the more will the different nations approach to a common standard, the more will the human world become connected into one vast system of mutual and friendly re-action. In this way the polished and enlightened classes of different countries approxi-

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mate to each other in mind, habits, and tastes, much more than is the case with the people at large.

The extinction, or absorption by assimilation, of the inferior races, and the greater fecundity of the superior, as discussed in the last chapter, is subservient to this law of inter-national fusion. The Greek and Roman civilizations, each in its turn, gave a remarkable homogeneousness and universality to the antique world; its various aboriginal races and its different national elements becoming assimilated when congenial, and disappearing altogether, when insurmountably unequal and inferior.

So again, the modern European nations are continually blending more and more, the distinct nationality of each exerting only re-action upon the others, wholesome, and highly conducive to farther progress. In this international fusion, the Celtic and Sclavonic races, and all heterogeneous elements, are insensibly being assimilated to the other more vigorous ones, with whom they may happen to be placed in contact.

Thus the different civilizations of the European system are fusing, as it were, towards one common standard of character, just as the different races composing it are tending likewise towards one common type. Like gravitating or magnetic bodies, they attract one another the

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more according to their individual magnitude and importance.

CHAPTER XXII.

INFLUENCE OF THE GERMANIC ELEMENT IN FORMING EUROPEAN CIVILIZATION.

It is very remarkable that the numerous races which came the last upon the theatre of the world—the Germanic—should present at the same time, in most respects, the highest and most perfect character of cerebral type, and of temperament, and should have distinguished their civilization by so marked a proportion of the moral and intellectual elements; the former of which, indeed, (the moral,) may be considered as the great characteristic want of the nations of antiquity.

No single race contains within itself the entire destinies of the world. The different elements of civilization have been contributed successively by different races; the peculiar contribution of the Germanic races consisting in so great a combination of the higher moral and intellectual elements, and in a genius for synthetical generalization. This addition of the Germanic element

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filled up the principal defect of the old civilizations, and has formed the great European system, which, taken as a whole, thus transcends all that has hitherto preceded it, and presents, besides, a concentration of all the elements entering into the nature of humanity, and necessary for its furthest possible development.

The superiority of the Germanic races has been severely tested by three great events, in which they came into collision with the others; the defeat of the Tartar races, under Attila, at the battle of Chalons; the defeat of the Arab races by the Franks, under Charles Martel, at the battle of Tours; the conquest of Grenada by the Gothic races of Spain being the last act of the historical drama; and the successive repulses of the Turks, in their repeated attempts to make incursions upon Germany. To the same cause has been owing, very probably, the great victories gained by a handful of English over numerous French armies at Cressy, Poictiers, and Agincourt; the first being of Norman and Anglo-Saxon blood, whilst the latter were only a multitude of serfs of Celtic origin.

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CHAPTER XXIII.

NO FURTHER MIGRATIONS,—WHAT COMBINATIONS OF RACE LIKELY TO PREVAIL.

We may now be quite certain that no further migrations of original races, having general importance to mankind, will ever again take place. The final admixture has been made. There is no possibility or hope for a fresh re-cast. We may consider, consequently, that all the elements of calculation lie at present before us, for ascertaining, with a fair share of success, the future civilization and rank of nations. In this respect the Anglo-Norman, Anglo-Saxon, and some other Germanic combinations, with the Roman and Celtic elements, (as in France and Italy,) seem destined to play an important part, and to take the lead.

These calculations may be said to form a legitimate subject of study with regard to the European world and its affiliated systems; and if we suffer ourselves to be guided in the inquiry by the physiological and political laws according to which human progressiveness is regulated, cannot be a very difficult problem to determine in its general bearings.

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CHAPTER XXIV.

THE FUTURE PREVALENCE OF THE BRITISH RACES.

THE British races derive their chief origin from several branches of the great Teutonic family, the Angles, Saxons, Danes, Northmen, and Normans. A spirit of migration, of enterprise, and of domination has distinguished them ever since their appearance upon the field of history. Eminently superior in their cerebral type, and their physical conformation, they join to these advantages the very best combination of temperament. The vascular and nervous systems predominate; the one presiding over nutrition and extension of development, the other, being the fountain of all vital and intellectual energy. These qualities conjoined with their extraordinary fecundity, promise very much for their future social and political ascendency in civilization. They may be said to be the only races which freely traverse, and are colonized over, the whole extent of the globe.

At the beginning of the seventeenth century, they amounted scarcely to ten millions; at present they amount to fifty in both hemispheres.

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It was only at the beginning of the seventeenth century, that the first permanent British colony was planted in America. In 1780, the British races there amounted to two millions. It has been calculated that, independently of fresh emigrations, they double themselves about every twenty years, as the following table will show :

1780	. .	2 millions.
1800	. .	4 ditto.
1820	. .	8 ditto.
1840	. .	16 ditto.

Add to these the British races in Canada and Australia, whose ratio of increase has been statistically estimated to be about the same, and there will be in different parts of the globe, 18,000,000, of people, who double themselves once in every twenty years, or in other words, who are multiplied thirty-two fold in every hundred years. According to this calculation, in the year 1940, these races will amount to 576,000,000; in the year 2040, that is, in two hundred years from the present time, independently of disturbing causes, they will amount to 18,432,000,000, and so on, probably, until arrested by the chief physical checks to population, want of food, and want of space. The chief condition required for this wonderful fecundity to continue in the same ratio, is undoubtedly the possession of fertile territory,

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commensurate with the increasing numbers, and it appears probable that this condition will not soon fail them.

To understand the question in a clear point of view, we have only to cast our eyes at the phenomena taking place at present over the surface of the globe. They have before them the continent of North America, stretching from the Atlantic to the Pacific Oceans; territory sufficient for the support of many hundred millions of people. The direction of the future migration has already shown itself. It will be southwards, through Texas and Mexico, and in the course of time, it will assuredly gain the central and maritime provinces of South America itself. From what we know of the laws which govern the collision of races, it cannot be supposed that the inferior and heterogeneous populations of Mexico and South America will be able to oppose any long and effectual resistance to the invasion.

The British races are gradually populating the islands of the Pacific; the Australian continent is already promising to become the seat of a future empire; and, sooner or later, the fertile and magnificent islands of New Zealand (the future Great Britain of the Pacific) will be colonized by those of British origin. These colonies, in the course of a century, will almost

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certainly possess a population of several millions; and being highly favoured by natural advantages, will extensively influence by their maritime power, not only the savage and half-civilized inhabitants of the Indian and Chinese Archipelagoes, but the migrating stream, ascending from the Australian colonies, will re-act upon the whole of the Eastern world, and even invade the very territory of China itself.

In South Africa, a similar increase of population, and a similar progressive advance in settling and colonizing within the interior, and along the Eastern coast, is constantly going on; and it is not probable that Aden will long continue to be the only British settlement in the neighbourhood of the Arabian coasts.

At present it is impossible to foresee fully the prodigious influence which all these colonies and settlements, belonging to the British races, and almost co-extensive with the globe itself, will mutually exert upon each other. In proportion, however, to their number, their population, their intercourse, and their prosperity, so will this mutual re-action be great, and favourable to each and all. These conditions having hitherto steadily increased, promise well and greatly for the future.

The future re-action upon the mother country of all these millions of British race in the

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Colonies and the United States, cannot fail to be very extraordinary, and to exceed, perhaps, all calculations that have hitherto been made. This re-action will fall, in the first place, upon the commerce and manufacturing industries of Great Britain; afterwards, upon its population, wealth, power, and political greatness. All these will undergo progressive development, in proportion as the British races increase, and prosper in their numerous settlements throughout the world. Liverpool and Manchester have thus, in a great measure, been creations of American commerce alone. And, although material interests constitute the firmest and most permanent bonds between one people and another, yet the wants, tastes, habits, customs, language, literature, and intellectual and moral sympathies, common to those having an affinity of race, will undoubtedly assist still further in binding to the mother country the different nations of British origin.

If we might assume the element of population alone, as the basis of calculation to ascertain the extent of the future commercial relations of the mother country, with her colonies, and the nations of British origin, it would lead us to infer that Great Britain was at present only in the infancy of her manufacturing development. If the demand upon British industry be, let us

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say, twenty millions sterling, with the eighteen millions at present in America and the colonies, what will this demand amount to, when these newly settled and agricultural populations have increased to one, two, three, four, five hundred millions, as they promise to do in the course of a century? British exports will be increased at least to twenty times their present amount, and Great Britain be converted into one vast workshop. And to what further development will this arrive in yet another century? Her wealth, population, intelligence, and political greatness will then overshadow the whole world, and her civilization and language be that of nearly all the best portion of mankind.

CHAPTER XXV.

CONCLUSIONS.

We may conclude, then, both from philosophical and physiological evidence, that since the commencement of the historical ages, the different races of mankind have been undergoing with each civilization, the operation of a law fusing them into one type; that from a diversity of types they have been, and are blending

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towards a single one; and that this principle of fusion embraces within its scope the great political phenomena of nations, and the ultimate destination of humanity; and is likewise conformable to that invariable correspondence which exists between the progressive steps of the historical and physical developments of man.

Whether this diversity of types has always existed, and is thus to be considered in the light of an ultimate fact, as some opinions strongly insist, particularly those of Lord Kames, Niebuhr, and Humboldt; or whether the diversity has proceeded from external influences, operating diversely throughout long ages upon an original single type, according to Blumenbach, Pritchard, and the prevalent opinion, this is not the place to determine. It may be here remarked, however, that with the latter opinion we must be prepared at the same time to admit, that in the times anterior to history, the natural laws operated differently to what they have done since, and do now; for if the plurality and diversity of races be descended from a single type alone, how can we reconcile our minds to the very contrary proceeding, their invariable tendency, since the historical ages, to approach from diversity towards one character and one type, and their extinction when unable to assimilate? This original diversity of type is also seen in the different species of

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animals; particularly in the monkey tribes, the parrot, the dog, the horse, &c.—facts undeniable when we come to reflect upon the intrinsic peculiarities of each variety, and the locality, and all the circumstances of its existence.

Lord Kames thus concludes: "But the argument I chiefly rely on is, that were all men of one species, there never could have existed, without a miracle, different kinds, such as exist at present. Giving allowance for every supposeable variation of climate, or of other natural causes, what can follow, but endless varieties among individuals, as among tulips in a garden, so as that no individual shall resemble another. Instead of which, we find men of different kinds, the individuals of each kind remarkably uniform, and differing not less remarkably from the individuals of every other kind. Uniformity and permanency are the offspring of design, never of chance."—(Sk. I. Book I.)

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CHAPTER XXVI.

MODERN SOCIETY PHYSIOLOGICALLY INTERPRETED.

To return to the first elements and history of modern society. From the first general establishment of the feudal system in Europe to the period of our own times, we possess an authentic record of an unbroken succession of historical phenomena and events, with their causes and dependencies—of pictures and representations of the interior working of society, throughout the different intervening ages, in its tastes, pursuits, manners, and usages.

This ample store of rich and varied materials will enable us, by observing certain prominent landmarks, to trace the progress of civilization; and how it continually acquired a higher and more extended character, gaining at the same time more and more upon the masses, until at last they arrived at their present participation of position and influence; all this wrung from the mailed hand of power, by new antagonists and comers-on-the-scene,—the general moral will and intelligence of society.

It comes thus in our power curiously to detect civilization emerging gradually from its

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first almost buried sources, then to see its course nobly swelling out from beneath the load and obstruction of sheer animal will, into its present broad and majestic stream; and, besides, it is thus in our power to appreciate the magnitude and character of effect given by the confluence of each new and successive element of human activity, as soon as it discovered itself in act, to the notice of history under an outward and distinctive form.

Our immediate object at present is to follow out, by applying known principles of science to judge this species of evidence, the history of the progressive physiological development of society, by the side and by the light of civil history; to infer, in short, that a certain physical evolution in the nervous system is produced correlatively with each successive step in civilization.

CHAPTER XXVII.

THE FEUDAL AGES.

In the first periods of pure feudalism the circle of human life and of human actions was very circumscribed. A restless instinct for aggression and war, for feats of arms, for rapine and maraud-

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ing expeditions; an attitude of defiance and hostility towards bordering nations, and a spirit of feud between the nearest territorial possessors; the pleasures of the chase, and a grossness of indulgence in the coarser appetites, comprehended pretty nearly the whole activity of society in those times; and all this was encouraged also by the peculiar tenure and working of the feudal institutions. It was their reflection in an active and practical shape; their very life, indeed.

A fierce and ruling animal Will, acting upon a deep substratum of muscular activity, stood thus out as the most prominent physiological characteristic of this age. The higher kinds of nervous function were overborne and swallowed up by the inferior. The chief organic nutrition seemed to go to the sustenance of the muscular system, that being alone the peculiar apparatus through which the coarser animal instincts find vent for their activity, and are carried out to act upon the external world.

This circumstance, considered with the preponderating functions of the visceral organs, the vascular tissues, the whole system of ganglionic nerves, and the lower grade of the cerebral formations, made up a body of animal energy which habitually predominated and bore sway over the nobler parts of the nervous economy. These latter seemed scarcely to have had a manifested

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and appreciable existence. They were not to be seen amongst the elements concerned in forming the social character and constitution of the period. They were lying in a kind of embryotic abeyance, folded up in a rudimental shape. All, therefore, was "dark" and barbarous.

Man owes his dignity and superiority to the full measure and unabated integrity of his nervous system—to the sovereignty of will and of intellect. In a mere philosophic point of view, it is therefore a matter of exceeding interest to contemplate the long and assured control, by which Mind alone coerced the world of brute force throughout this barbarous and first phase of modern society; to see how men of colossal growth, all powerful with sinew and muscular strength, clad in steel and mail, could be governed and controlled by the force of intelligence and moral volition, wielded by those stern, pale-faced churchmen of old, all chiselled out of the intellectual cast of temperament, and distinguished by their dry spare bodies, their thin compressed lips, and spacious thought-worn foreheads.

These individuals may be said to have possessed by anticipation of time, as it were, the peculiar nervous temperament of modern times, just as their feudal contemporaries may be said

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to have partaken of the same coarse organization as now characterizes our obtuse-minded and ponderous-limbed rustic population.

CHAPTER XXVIII.

THE CRUSADES.

The first amelioration of the feudal type came from the Crusades.

It is not difficult to conceive how an excitement and fermentation of the general mind, propagated for a series of times by authority and the eloquence of holy enthusiasts from one end of Europe to the other, should violently have reacted throughout the entire elements of society, calling into marked and influential existence a higher character of nervous function, and, as a necessary consequence, increased nutrition and development in its related cerebral organization. It was a new leaven cast into the heavy feudal mass—a new principle vivifying into some kind of fruition and good, that plenitude of animal energy ever prevalent in the first infancy of nations.

It is curious to remark, that the appeal made the most powerful impression on the Germanic

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races in England, France, and Germany—countries where still at this day prevail the same distinguished moral and physiological peculiarities as must have more faintly characterised the original type during the ages of the Crusades. The influence and effects of the new ideas must, indeed, have been deep and universal, penetrating to the very heart and core of the masses, to have brought forth the emphatic and famous saying of Anna Comnena—"the whole of Europe seemed precipitated upon Asia."

The Crusades may be said to have effected interiorly almost as thorough and as extensive a moral revolution in the structure of European society, as did the northern migrations several centuries back, in an outward and physical point of view. They afforded an opportune vent and drain to the growing and troublesome excess of that hot-blooded spirit of domestic aggression and violence; and by joining the crosier with the sword, brought the latter nearer to the ways of civilization.

This influx upon the feudal type of new ideas and of new hopes, together with the breadth and enterprise of thought inseparable from the aspect of new countries, from intercourse or collision with different races and new forms of society and of life, and lastly, the enthusiasm springing from the motives of action being

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of a more disinterested and higher order than had hitherto stimulated the general will, and urged on too, by all the power of church and state, made a wonderful modification, after their long season of maturation, in the mere physical activity of the preceding times.

But, as no human manifestation whatever can be allowed to take place without also its material conditions in the body, the physiologist knows well that the nervous system must have felt the influence of the general impulse and movement, to the same full and equal degree as the historical evidence extends; and that the corresponding parts of the great nervous centres, from having been directly excited by this newly-created and additional activity for many generations, must have taken up, by successive accumulations of nutrition, an amplified form and size, permanently fixed in the organization, transmissible from parent to child, and forming, in short, an important step towards an improved character of type.

The appearance of every new element of activity in the history of a race must ever be, to the physiologist, evidence of something added or modified in the nervous system. There is a rigid concatenation between the two circumstances.

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CHAPTER XXIX.

CHIVALRY.

THE next step in the enhancement of the human physical type proceeded from the institutions and practice of Chivalry.

The long discipline and subordination, the necessity of merit before attainment, the estimation of high valour before desire of life, the loyalty to beauty and unprotected virtue, the feudal deference to superiority of grade and station, the fine and polished sense of personal honour and dignity, and the love of noble and generous deeds, were all circumstances which perpetually educated the society of that period to a standard of thought and conduct, above what it had hitherto known, and which originated spontaneously within its own bosom. Men became thereby weaned and taken away from the grosser kinds of activity inherited with the comparatively lower physical organization of their ancestors. A new and more powerful moral will now controlled the naked instincts of the former periods. The great names of Bayard and the Black Prince come, indeed, within this mitigated change of type; but it must not be

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forgotten that the whole substance of human life was still spent in mere physical activity, and the sword still remained the chief characterizing symbol of the epoch. They were truly the Middle Ages, being the half-advance between the unrelieved darkness of pure feudalism and the enlightenment of modern times. No intellectual principle was yet generally at work within the organic mass. The light Provençal literature, the heroic ballad, and the poetry of the Niebelungen and the Minnesangers, indeed, alone cast a faint hue over the immoveable materiality of society, as it then existed. There was yet but little evidence of inward progress in the higher intellectual combinations, expressing itself in the form, construction, and unity of language.

We find mention in history, that a few great men* now began at distant intervals to stand up before their time, propounding truths and principles in natural and moral philosophy, beyond the comprehension of their contemporaries. They were minds belonging rather to the fulness of the future, shining for a while, as solitary lights, to sink again in the universal gloom around them. But they did not waste in vain as "ineffectual fires." There is little doubt but that these possessed all the physiological charac-

* Roger Bacon, Wickliffe, Galileo, &c.

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ters of the enhanced intellectual type of succeeding times, being thrown out by a happy concurrence of the formative conditions, as forerunners of what society in general was to be in after ages. They might be said to be not so much fellow-denizens of those living in their own times, as contemporaries in thought and opinion with those born centuries after them. They enjoyed the privilege of being upon a level with the high intelligence and civilization developed in after times, and still developing itself at present; and they must be taken, not as patterns of the qualities and wisdom of our ancestors, but rather as men having mirrored out within their luminous and prophetic minds, a reflection of modern times. They went as much beyond our ancestors, as many living individuals at present anticipate within their own selves the progressive changes to be evolved under the next steps of civilization and intellectual progress.

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CHAPTER XXX.

PRINTING AND THE NEW WORLD—EUROPEAN COLONIZATION.

In the historical picture succeeding the ages of Chivalry, the ameliorative activity of society advanced in all ways, with more breadth, rapidity, and power, and in a higher ratio than formerly. There flashed out of its dark surface a brighter display of light and phenomenal effect; the scene was more replete with life and active agency, and there were certainly disclosed to view, and thrown out, from the interior of human nature, more vigorous shoots of intellectual growth, and a much more adventurous will after truth, and the ways of knowledge, of enterprise, and of power. A new principle seemed to have worked itself out into noticeable existence, and to be cast freely upon the world to dare what it would. The scanty current of civilization which had flowed almost unseen under the darkness of the feudal ages, had now accumulated into a broad expanse of living waters, which, taken at the flood, were fearlessly navigated by the foremost pilots of humanity,

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guided by a kind of destiny, and the noble instinct of genius.

At this stage of the physiological type, the amplification of nervous development, from the steadily increasing depositions of nutrition, must have generally marked itself by a bolder configuration in the higher-related cerebral structures.

Out of this fuller maturation and advance of the general mind, proceeded the invention of Printing, and discovery of the New World; events whose re-active influence still goes on, and will continue coevally with the duration of mankind. What the one availed to the intellectual world, the other did to the political and social.

This period might be considered as a middle point in time, whence to contemplate how the small circles of preceding civilizations successively enlarged their sphere of action and geographical extent, until at last the globe itself became encompassed. This concentric enlargement of civilized activity into greater and greater circles, may be traced out, beginning from the elevated plateau of central Asia—the historical *officina gentium* of primeval times—through the first Asiatic, Græco-Macedonian, and Roman empires, down to the great Christian confederacy of nations throughout the old and new worlds; the last circle ever transcending the preceding, both

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as to extent of space, and accumulation of civilization.

About this period, too, began those maritime expeditions, and frequent emigrations of people to new countries, terminating in the vast system of European settlement and colonization, through which the commanding points of the habitable globe became affiliated to the civilization of the Christian commonwealth.

This commingling and interaction of different races and communities, one with another, whether by positive admixture of blood, or by the reflected influence of language, thought, and ideas, would appear to be the great fundamental principle and tendency of humanity, whereby the world shall become at last the one city of God, as anciently intimated, through moral analogy alone, by St. Augustin.*

The great thinkers of antiquity were comparatively locked up in a prison-house of geographical knowledge, against whose dark walls how many have broken their strength, and how many noble ambitions have fallen! It is curious to observe how their restless and inquisitive minds were filled with impatience and vain imaginings at this ignorance of the earth's problem. They seemed impressed intuitively that they had a right to know it, and that they

* De Civitate Dei.

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were being defrauded of something legitimately allowed to the apprehension of human capacity. The European mind, too, it must be fully recollected, before this period dwelt habitually within a narrow circumscription of locality. No pinion had ever yet crossed the dark horizon until Columbus sailed.

So nearly bordering upon our own times only has it happened to the species to become acquainted with that portion of the earth's surface left uncovered by the waters of the ocean—to survey, in its whole extent, the theatre of their existence, and their unconquerable activity. This circumstance may be said to mark a great epoch in the history of human progress, and affords of itself alone, in a material and emphatic shape, a most significant refutation, that society had been stationary, and was without a foresettled end in the future.

CHAPTER XXXI.

REFORMATION—INTELLECTUAL INDEPENDENCE—DEVELOPMENT OF PUBLIC OPINION.

HITHERTO had the intellect of the species served under the yoke of their more animal

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instincts, and their more personal will, passively obeying the stimulus of a lower order of tastes and desires, such as invariably characterise the earlier times of unaccomplished civilization; but it was now approaching a period of adolescence, in which it had grown stout enough to become disenthralled from its ignoble bondage, and to achieve an independent rule and criterion of its own; pursuing, in alliance with moral right, a course with truth and knowledge as the end of its activity. It lost its former subordinate position, and assumed its natural superiority over the whole province of human objects and relations. For the first time it now aspired to original principles, and powerfully stimulated the animal and moral will to have them realized and established in form and practice. From a passive state of tutelage, it began to take up and act upon the rights and prerogatives of a more responsible age. The many ties and swathings of ecclesiastical polity, in which the whole of European society had been enveloped with more than Egyptian care, and by means of which the Church had for ages coerced the nations with adamantine power, were the first, because the nearest and most galling, to feel its emancipated force, and be violently rent asunder.

Hence Luther, and the crisis of the Reformation.

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It was one mode only in which the intellectual will, newly developed, demonstrated itself in operation.

The clumsy fetters of the old feudal institutions, held together, as it were, for a while by the unity of regal despotism, came next to receive the brunt of its aggressive advancement. Hence the political revolutions and social modifications of this humanitary phase, from our own and that of the last century,* to those in accomplishment at present, and others silently preparing in the interior of the moral organization of the more civilized communities of the world.

From this period may be rightly dated back the beginning of that war of principles and enlightened opinions against the *vis inertiæ* and antagonising conservatism of every less advanced preceding civilization—a struggle ever taking place in present time between the retrospective and consummated traditions of the old Past, and the hopes and intellectual expectations of the new Future. The old civilization ever lags behind the new. And if to the historic eye there should appear at times some interval of pause in the operation of this law of humanity, it must be, that the powers of human nature in general, like those of the individual, exhausted as it

* Thirty years' war, revolt of Holland and the Netherlands, the Huguenot wars, the English and French revolutions, &c.

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were, by the process of contested development, were resting for a while to recover themselves, but only to resume their course afterwards with more collected will, and with still greater effect.

During this epoch, the whole extent of European society was violently agitated with the inward working of the new ferment, and after a transition state, troubled by frequent collisions of moral and physical force, threw out at various times, with amazing fecundity, those clustered groups of native intellectual talent—our present wonder and admiration—in philosophy, in science, in poetry, in polemical divinity, in general literature, in the fine arts, and in short, in every department of human knowledge, where activity of mind, incorporating itself with fresh and virgin materials, could give birth to new creations and new forms of being. Where the darkness of Old Night had for ever brooded, a serene firmament now stretched out. The animalism of the feudal and semi-barbarous ages rapidly withdrew, and a much nearer approach was made to the modern intellectual type.

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CHAPTER XXXII.

INDUCTIVE SCIENCES ESTABLISHED—UNIVERSAL EXTENSION OF ARTS, INDUSTRY, AND COMMERCE—ACCUMULATIVE INFLUENCE OF EDUCATION AND EARLY TRAINING UPON THE NERVOUS SYSTEM.

If it has been shown that civilization in intellectual and social advancement has hitherto taken place throughout a series of progressive stages, beginning from the first wild and untutored condition of barbarism—each stage, at the same time, rising above its predecessor with a higher character and greater extent of nervous function; in no one part of the historical picture will this ratio of progressive development appear more conspicuous than that representing the amazing stir and activity of the last half-century and of our own times.

Within this period only has the connected circle of the physical sciences been brought into a philosophic form of existence, and pursued under extensive and systematic induction, and the most momentous truths and principles of the natural world discovered thereby.

Within this recent period only has the forma-

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tion and structure of the earth been geologically investigated, and in its bosom detected the successive gradations of enhancement in the constitution of preceding creations in relation to a similarly ascending scale of animated beings.

Thus recently only have we arrived at such a knowledge of the structure and physiology of the vegetable and animal creations, that, comparatively surveyed, they have been distributed into classification according to certain natural analogies, and have been made to afford demonstrative proof of that beautiful unity of organization and general conception presiding over the ranges of all organic nature; and it is within our own times that those occult essences and active principles have been extracted, by chemical art, out of the vegetable kingdom, at present, indeed, vulgar articles of use and commerce, but which, not very remotely, were as the dreams of Rosicrucian mysticists and the despair of alchymy.

Within this period only have we discovered so largely, by analysis and experiment, the simple elemental constituents of organic and inorganic bodies, the affinities of the atomic world, the proportion and secret forms under which the ultimate molecules of all matter are variously combined, and the higher laws which govern the imponderable, resistless, and subtle agencies of the material universe.

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Never till lately has there been made so perfect and so universal an application of the physical sciences to the arts and industries of life; developing an amplification of productive power sufficient to modify the whole internal economy of nations, and annihilating, in a great measure, with regard to intercourse, the hitherto invincible obstructions of time and space.

Within this period, too, have those great discoveries been made in the physiology of the nervous system, by which its various functions have been severally assigned to their respective organic seats in the cerebro-spinal centres, by which, in short, every human manifestation is accounted to take place necessarily through the instrumentality of determinate material conditions in the body—a localization of nervous function now apprehended as a fundamental axiom of science by all philosophic physiologists.

It is now only that the highest problems in psychology and Christian philosophy that bear on divinity, and political, moral and intellectual science, are becoming ripe for clear solution, and are beginning to have their influence acknowledged in legislation and national will; and it is a new and characteristic feature of our own times only, to have the public press organized on so wonderful and gigantic a scale throughout the more civilized communities of the world, that

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the general knowledge and opinions of the species become diffused co-extensively with their production, and by far too rapidly for the powers of any single individual.

Never hitherto have international communications with all the climates of the world become so multiplied, frequent, and universal in the relations of commerce, in the interchange of intelligence, of customs and of usages; and ships are sent now to fetch the circuit of the earth with less concern and preparation than our ancestors made formerly to encounter the journey of a hundred miles.

And, lastly, within this late period only has early training and systematic intellectual culture been concentrated to act more prominently upon the development of the susceptible nervous system of the child, throughout the greater part of the general European population, and the young mind subjected to feel continually the stimulus of education and of its position working upon the higher faculties and within the whole tissue of its constitution: and so largely, of late years, has the general mind, thus enlightened, participated and lived in the restless operation of literary, social, and political influences, and society of all classes improved in the liberal-mindedness and humanized tastes given by civilization, that even the multitude are much less

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to be denominated now a "monstrosity more prodigious than hydra," or "that great enemy of reason, virtue, and religion," as in old times, than to be considered resembling "the reasonable creatures of God."*

CHAPTER XXXIII.

PROSPECTIVE DEVELOPMENT OF NERVOUS ACTIVITY AND CIVILIZATION.

All this brief survey is offered as historical evidence of the increasing activity of the higher qualities of the human mind, and of the nervous functions progressively rising to their legitimate predominance in the human body. We are all carried along with the common movement of humanity, as with that of the physical world, and it is not surprising, therefore, that hitherto so few have had the thought of marking its progress, and of measuring its velocity.

We now stop abruptly with the last footsteps of time, knowing well, there is infinitely more indeed to be discovered and to take place in the ages to come; that knowledge will give mankind

* Sir Thomas Browne.

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an ever increasing power over the physical agencies of nature; and that the truths of the higher intellectual and moral ranges will go on being progressively surmounted, and will ever re-act favourably upon the character and destination of human society.

The different departments of human knowledge hitherto investigated separately, and divided into numerous special sciences, will become connected with each other, in their higher relations, more and more, until, in the end, their union will be made to produce the great synthetical views which shall embrace the utmost extent of the powers of human nature. The strong analytic tendency of modern science, so favourable to the advancement of its several divisions, has been not a little inimical to comprehensive generalization. Sooner or later, however, a natural re-action will take place, and a spirit of synthesis succeed. By such a synthetical method, indeed, the great views and generalizations of Cuvier were obtained.

The inductive basis, first given to the physical, will also become the foundation of the moral and intellectual sciences, studied as these latter must be hereafter, in connexion with nervous organization.

Thus history, and mental and political philosophy, will be considered in close connexion

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with physiological studies, and the domain of the inductive sciences extend even into the most critical points of divinity.

The new, more correct, and more enlarged views elicited from this coalescence of the separate parts of knowledge, will imperceptibly displace the clouded perceptions, and moral idols transmitted to us from the infant ages of the world, and open out new ways and new resources for the benefit and happiness of mankind. All the activities and relations of human nature will then have been comprehended, and society have attained the highest developments of civilization, both in thought and action.

From the course of the past, and the undeveloped capabilities and tendency of the present, it requires no prophetic mind to deduce the glorious fortunes of the future.

CHAPTER XXXIV.

INFLUENCE OF CIVILIZATION ON FOOD, CLOTHING, MODE OF LIFE, HABITS, &c.—THEIR RE-ACTION AGAIN UPON CIVILIZATION.

ATTENDANT upon all these progressive stages of civilization, there took place, simultaneously,

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and in an equal ratio, great modifications in the character and mode of alimentation amongst society, and in the various hygienic relations which the human individual preserves towards the numerous physical agents which act upon his general functions, material well-being, and physiological development.

The grossness of taste, and excess of food, indulged in by all classes, during the ruder ages, presents an immediate and instructive contrast to the delicacy and refinement in diet, arrived at by modern nations. Indeed, to have had formerly but the naked necessaries of existence, and scarcely adequate protection against natural inclemencies of all kinds, ever at war with organic life, must be considered a world's remove from the comforts, conveniences, and luxuries which so abundantly minister to the personal and household relations of our present civilization, and which seem ever to extend themselves with the progress of intelligence and industry.

Such habits, and such a manner of living as just stated, prevailing throughout society in the early periods, necessarily imply the existence of an excessive proportion of animal habitude and function, characterized by the large trunk and limbs, and the relatively small head; by the hard and coarse-grained quality of the bodily material; by the sparing diffusion of nervous

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fibre in the general textures; and by a preponderance of the vascular, fibrous, and lymphatic systems.*

But in proportion as the nervous functions went on developing themselves with civilization, so did alimentation become more regulated, varied, and refined, and the nutritive processes influenced to take up corresponding modifications, both as to their seat, their character, and their activity. And it was in the nervous system at large, but particularly in the anterior lobes and upper convolutions of the brain that these modifications of nutrition took place.

For it is a physiological law that that system of the human economy which is habitually exercised, draws to itself a greater afflux from the general store of nourishment, which, by an assimilative nutrition, it converts to fresh depositions of material analogous to its own substance and nature.

Each part of the body thus tends to perpetuate its own quality of organization, the nutritive action, however, being modified for the better, or otherwise according to the nature of the influences acting upon the organic elements of the individual.

Where muscular and visceral activity is strong and prevailing, as in the ruder states of society,

* See Note III.

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and in the lower type of modern individuals, there shall we find a similar character of nutrition and habit of body; and where the general expression of activity is more in the nervous functions, as among those possessing the type of our own times, there shall we find nutrition more distributed to the nervous part of the economy.

Under the operation of this law, are alone susceptible of being effected those physiological changes produced by civilization in the human subject; and as in this process of civilization it is the office of the intellectual system to rise over the lower tastes and propensities, so in the process of bodily refinement, the nervous element of the organization should bear predominating proportion over the muscular, visceral, and lymphatic.

CHAPTER XXXV.

INTELLECTUAL PROGRESSION,—DEVELOPMENT IN THE CEREBRAL SYSTEM.

In this manner did dietetic civilization (so to speak) first of all receive its incipient impulsion from the general progression of human society,

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re-acting, however, again in its turn indirectly through the physical organization upon the latter, as we have just seen, by the operation of the laws of nutrition. It remains now only to trace civilization by the laws and procedure under which it takes place intellectually and physiologically within the interior of man, as an individual, according to the order of the psychological development of the faculties, and to connect its progressive phases therein with organic conditions in the cerebral system, as has been already done with regard to mankind in their collective capacity.

In the earliest stages of society, the human mind, like that of the infant, from many of its higher powers being shut up within a rudimental state, and from its lower volitions being in vigorous activity, necessarily possessed an incomplete and unbalanced constitution, and was consequently in itself an imperfect and inadequate instrument rightly to interpret all its own various and complicated relations with the outward world—to see them, in just proportion and shape, under the intellectual form of truth. The light became refracted too obliquely and obscurely in struggling through this turbid and discoloured medium. Accordingly in examining the products of the human mind at this early period, both as developed in ideas and in actions, we shall find

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but scanty traces of the existence and influence of the Moral Sense, or of Inductive Intellect, the two great keys to the moral and intellectual worlds. These elements lay yet quiescent, as it were, within their germ, and were not to be detected sensibly under general outward manifestation. For the development of a lower grade of powers was then legitimately taking place, and occupied the mental field, (as they should do,) anteriorly in point of time. In proportion as the intellectual edifice became progressively built up, each part in its appointed order, both of place and of priority, so was man brought ever nearer to a fuller and more synthetical comprehension of the structure and activities of his nature. All his ideas of the outward world, and of the relations of his existence, had, therefore, at this time, the restricted character of his own individuality and imperfect type; they were oblique and rudimental.

An uninformed and instinctive Mysticism acting in alliance with the lower perceptive intellect alone, interpreted in a natural, child-like manner all the phenomena of the objective world, and of the internal consciousness, and giving of necessity to outward things and agencies the stamp and image of their own peculiar colour and character of activity, saw living personalities—the age of the gods (India, Egypt, Greece, Scandinavia, &c.)

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—intervene in the wonderful, and to them certainly inexplicable movements and effects ever generated by the natural causes of the very same creation, which still lies unchanged before us now, but more revealed in beauty and in truth.

Hence divination and the sibyls amongst all the nations of antiquity, to interpret this mystic language of impersonated nature.

The higher intellect, reflective reason, (except in extraordinary minds capable of esoteric thinking,)* was then scarcely in existence. It could

* Moses, St. Paul, the Alexandrine school, Maimonides; the Egyptian system, Sanchoniathon; Pythagoras, Socrates, Plato, &c.

During the first ages of society, all were nearly upon the same level of knowledge. With the development of reason, a few then penetrated deeper into the physical and moral laws operating around them. These latter, finding their more advanced and enlightened notions misapprehended by the rest of their fellow-men, and being themselves exposed to the resentment of ignorance and intolerance, (such has ever been the conduct of human nature!) were forced, in self-defence, to a secretive retention of their true opinions and highest intellectual perceptions. As the lower order of mind may be said to view truth (and especially psychical truth,) under a form which is material, impersonated, and derived from objects of sense—a form appealing to the imagination, and intelligible to the perceptive mind only, not to our higher reason,—so the philosophical order of mind continued to adopt the language of this form conventionally, whenever they desired to understand, and be understood by, the generality. In order to enter into the vulgar mind, it

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not have been an active element, consequently, in the first crude and limited notions of human society, and is, in fact, not to be found in the different outward primeval expressions of the internal activity of the human mind—the sagas, myths, traditions, creeds, fables, &c., of infant nations.

This fractional manner of interpreting the human and the intellectual worlds, is a necessary reflected expression of the inferior order of mind, in all times and in all the family of mankind, and accords well in every respect with the elementary development of the higher related nervous structures, as seen in extreme cases amongst savage tribes; and, to a certain degree also, amongst the lower typed individuals of even civilized communities.

The higher moral and intellectual truths were not yet able to be apprehended through a

abdicated (so to speak) its own superior position. Thus the fate of Socrates must have been present in Plato's thoughts, when he said, "The eyes of the multitude were not strong enough to look at truth." Lessing very profoundly says, "There are degrees in the knowledge of truth; there are higher and lower steps; there exist amongst the component parts of human knowledge, some which are in their very nature secret, that is, which are of such a kind, that even those who have them in their possession, can never find resolution to reveal them. The publication always appears ill-timed." Hence the necessity for esoteric secrecy.

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philosophic medium, but were transfused into the rudimental mind through a graduated scale of symbolic equivalents, whereby, under the form of gross and sensible images, intellectualities were, in an imperfect manner, brought down to sense.

This impersonating tendency of the human mind, which, in the times of antiquity, was chiefly confined to the comparatively lower ranges of outward nature,* in later times naturally transferred itself, with the progress of intellect, to more elevated ranges of being—the subjective states and verities of the moral world.

But as the few great general laws which preside over the government of the human economy itself, and of its related creation, become more and more clearly apprehended by slow degrees, the symbolized structure of impersonation is necessarily superseded and left aside by the true intellectual interpretation—the *lumen siccum* of philosophy and science. *Felix qui potuit rerum cognoscere causas.*

It is then that the perceptions of our intellectual nature bestow a corroborative warrant upon the primitive intuitions of the soul. By this accession of the intellectual system, truth receives its biform and plenary representation, (psychical and intellectual,) in the human mind. It stands

* Indian, Grecian, Roman mythologies, &c.

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upon a broader and more synthetical basis. It is in harmony with all the mental elements, and (physiologically speaking,) works upon the whole brain, and not, as before, upon a part of it only.

Nature is now no longer, as it were, a sealed book, but lies more transparent, and less veiled to the eye. The moral and material universe still remains to us by no means disenchanted of its beauty and of its religion, but the mystic ground of things unknown is carried only a remove beyond its former boundary, and to a higher sphere, and a greater diameter and distance given thereby to the intellectual horizon, in whose centre stands the human subject. So that the point at which the dominion of wonder commences, becomes a sure gauge of the extent of intellectual range and capacity in the individual, as well as in the national mind.

This recedence of what is unknown—the mystic world—before intellectual progress, is ever taking place within the interior of humanity. And these successive enlargements of the circle of humanized activity bear the same relation to the inward mental world that the diffusion of social civilization over greater and greater circles of geographical extent does to the outward.

These various sagas, traditions, &c., then, of the different infant people, under the form of poetry and of art, must be regarded only as the

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outward manifestation of the first stir and movement that took place from within the internal consciousness of man—the incipient spontaneity of the transcendental faculties—the λογος—constituting the times coeval with the rudimental stage of humanity, and anterior to the first era of history; but with the progress of the internal physical and mental development, there ever succeeded, simultaneously, an improved and more accurate appreciation of nature in her laws and habitudes, constituting the long series of historical ages.

It is the coalescence of continually increasing intellect with the moral and imaginative sentiments, which constitutes the active element of progression. It is this which first elevated mankind from the stocks and stones of fetichism to the impersonated forms of paganism, and from these again to the lofty platform of Christianity—destined also, no doubt, in ages to come, as has heretofore occurred, to undergo a series of modified interpretations, and so greatly to transcend its present tone and condition—and it is the same element which has led them onwards from the instinctive and imperfect interpretations of wonder and superstition, to the final demonstrations of philosophic truth.

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CHAPTER XXXVI.

THE ELEMENTS OF THE INTELLECTUAL NERVOUS SYSTEM, AS COMPRISED IN THE DIFFERENT METHODS OF INQUIRY.

In tracing the steps of this intellectual progress through the different Methods of Inquiry, pursued by the human mind, we shall find the latter taking their character entirely from the rank of faculties developed, these again being authentically reflected in their appropriated cerebral structures.

Thus the very first method—*αὐτοψία*—consisted in the mere evidence of the senses—in the material vision of objects and phenomena, accompanied with the lowest possible provision of nervous organization—a rudimental type yet exemplified in the wretched natives of the Australian continent, and in the stupid savages of South America, as described by Humboldt.

In the next advancement, the human mind became equal to make use of, and understand, the most obvious examples and comparisons as a substitute for reasoning, (Esop,)—a method more friendly to the capacity of a weak order of intellect, and more easily apprehended by it than

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the most faultless process of ratiocination, (Menenius Agrippa.) A similar inferior cast of mental power abounds in all communities, and its corresponding physical characteristics in the cerebral system will be found conformably expressed.

Passing through the phases of mind represented by the seven sages of Greece, the method acquired in Hippocrates, and in the dialectic school of Socrates a more philosophic form, under the influence of additional intellectual powers of the higher order; and now the first approach was made to the method by induction. As the accumulation of intellectual activity by this time had generally become realized in physiological development, this was the most brilliant period of Greek philosophy. Pythagoras and Plato established the method by synthesis, and soon afterwards succeeded the syllogism of Aristotle and the soritic method of Zeno.

Similar to what took place in the earlier stages of social civilization, it cannot fail to be observed there obtained a partial and exclusive activity in all this course of intellectual effort to investigate truth; for the whole of the mental powers was by no means comprised within the constitution of any one of these several methods. Each employed those intellectual elements only which were agreeable to its own peculiar genius, to the

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exclusion of the rest; so that it will be found that no one method alone entirely absorbed the full volume and compass of the human mind. The internal progression had not yet arrived so far.

From this time, indeed, a period of two thousand years was passed in unapparent fresh development, without further improvement upon the old methods of philosophising, until the quickening period of the sixteenth and seventeenth centuries, when those* belonging to the new civilization, abandoning the cloister and the world of their own minds, looked out abroad with unfettered liberty upon the fields of nature, and receiving, fresh and direct from Without, new experience, new ideas, and new truths, turned aside from the barren "contentious subtleties" of the schoolmen, leaving them, where they still remain, on the waste of history, a hard, thorny, and impenetrable mass. It was now that Bacon, the great organ and representative of his age, laid down with deeply prophetic genius, on a broad and systematic basis, the most comprehensive method yet brought to act upon the difficulties and obstructions of human knowledge, and the most fruitful in benefits and constant progress to mankind.

With Induction in an enlarged sense, both as

* Galileo, Copernicus, Kepler, Tycho Brahe, Boyle, &c.

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to its method and its end, the mind entered into the last and fullest phase of the intellectual system. The "Novum Organon" ascends from sense, through intermediate elaborations, to the highest ranges of abstract intellectualities; it appreciates the qualities and phenomenal changes of all objective existences; it carries up their suggested and higher relations to be compared in analogy, to be sifted in discriminative analysis, and to be generalized into universal truths, by the apprehensive power of causality.

Now only for the first time may the whole Intellectual Nervous System be said to have been authentically represented in all its integrity, in a method of philosophic inquiry. Through this circumstance alone, of possessing so perfect an intellectual instrument, have modern times transcended antiquity.

CHAPTER XXXVII.

WHAT GENERAL PHYSIOLOGICAL CHANGES TAKE PLACE WITH CIVILIZATION IN INDIVIDUALS AND RISING NATIONS.

HAVING now considered the successive developments of civilized activity as they took place in society in general, and in man as an individual, and having also noticed the physiological laws

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under whose operation different qualities of nutrition become distributed more peculiarly to one system of the body than to another, according as certain habits predominate and differently characterize the many varieties of the human type in all stages of civilization; it now remains to speak of those changes and modifications produced *generally* throughout the organic constitution, by the progressive increase of nervous nutrition—an increase distinctly to be traced ascending from savage life through the various phases of man's physiological enhancement, up to the highest civilized type; after which will be the time to give a seat in the cerebral system, (as far as present knowledge extends,) to those Principles of human activity, the development of whose physical conditions there corresponds with the different steps of social and individual advancement.

In the same manner as the comparative intellectual nervous systems and physiological qualities of domestic animals (most markedly in the breed of dogs and horses,) have been raised from the savage type to their present delicacy and fineness of organization, by the sole influence and unwearied expenditure of human care and skill, in the course of innumerable generations, so also has there taken place, as the necessary reflected effect of civilization amongst all the more

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advanced nations, an analogous improvement in the proportion and quality of the constituent structures of which the human body is composed —an improvement as much enhancing the physiological value of man, as there is a difference between the coarse-limbed cart-horse and the high-mettled and finely constructed racer, or as there is between the town hybrid, and the exquisite intelligence and thorough-bred organization of the best dogs employed by the sportsman. To use a strong technical phrase, there is a quality of blood and of breeding, (physiologically speaking,) equally as much in man as in animals. And this is the result of long continued civilization as much in the one case as in the other. Many successive generations of favourable conditions must be passed through to arrive at the best quality of blood and of organization; to transform the gross succulent body of the peasant-woman to the fine-grained nervous tissue of the high-bred lady.

This difference of blood must ever make a broad physiological distinction between the different classes of society—as decided a distinction as the many social and conventional differences do.

A similar progression in bodily refinement takes place at large amongst the most rising nations.

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The chief changes effected in the course of this physiological amelioration of the human type, are the following:—those in the osseous system, where the bony structure, losing all excess of bulkiness and porosity, becomes denser, more compact, and more finely grained, gaining in strength and specific gravity what it loses in softness and clumsiness of size; in the muscular system, where the fibrous layers, losing their coarse and exaggerated development, become more delicate and subdued, and more closely knit together; in the visceral system, where the soft and spongy organs which subserve the first crude elaboration of the nutritive juices, shrinking up from repletion and corpulency, allow the abdominal cavity to retreat beneath the chest which becomes comparatively broad and projecting; in the adipose and lymphatic systems, where the loose and pulpous tissues become absorbed under the dispersive influence of increased vital activity; and, above all, in the nervous system at large, where, besides the amplified volume and enhanced temperament of the cerebral masses, (of which more hereafter,) the different structures of the body become interpenetrated with a more copious interlacement of nervous webbing, whereby all the complicated mechanism of animal and organic life is

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made to perform its various functions with more energy, more breadth, and more endurance.*

CHAPTER XXXVIII.

INFLUENCE OF THESE CHANGES UPON PRACTICAL MEDICINE.

DESCENDING more minutely into the proximate and essential character of these changes, it would seem that all this while the nutritive action considerably modified the molecular constitution and arrangement of the tissues; the interstitial spaces being generally diminished, and the vital cohesion of the component molecules increased, or in other words, the quality of

* One of the most remarkable results of modern civilization has been the extension of human life, as seen in the steadily decreasing ratio of mortality (proved by carefully compiled official statistic tables) amongst all advancing nations, and particularly our own. This extension of life has been found (as is well known) to take place (*cæteris paribus*) much more decidedly in cities and towns, where the greatest amount of nervous energy is in action; where the individual is habitually immersed in the higher kinds of vital excitement consequent upon intellectual and political pursuits, and the free and unrestrained exercise of the different national industries. It would be a matter of exceeding interest to ascertain how far this extended duration of life may be connected with a higher proportion of nervous temperament—a character of organization certainly more prevalent in rising nations and flourishing towns.

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bodily material produced, being firmer, closer, more elastic, more finely grained, and more highly vitalized.

The bulkiness and material extension of the body being thus contracted, in the bony framework, in the muscular masses of the trunk and limbs, in the viscera of the abdominal cavity, and in the general adipose system, the quantity of fluid in circulation, and the circulating power, become proportionally lowered also. This circumstance being attended simultaneously with an increased extension of the nervous system at large, and particularly in the higher related cerebral formations, alters materially the related balance of the vascular to the nervous system, in favour of the latter. The cerebral activity preponderates over the muscular and ganglionic.

Hence arises the necessity for corresponding modification in food, regimen, and medical treatment, according as the individual participates more or less in the several physiological changes produced by civilization, as above considered. This modification in medical practice, perceived at present in its full extent by a few, will no doubt, in the course of time, become generally acknowledged, and reduced to principle, in proportion as a more refined and highly-wrought character of organization—the nervous type of temperament—shall be observed to gain upon

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greater and greater masses of society. The treatment will come to be adapted full as much to the temperament and individual, as to the disease.

It follows, as a corollary, from this principle of temperament, that medical experience and observation, acquired during the earlier periods of society, when the habits and advantages of civilized life were yet unknown, cannot be applicable to individuals in later and more refined times, but with important modifications and allowances; likewise that medical practice exercised amongst those of a nervous type of temperament, predominating in the middle and higher classes, would require to be considerably different, in many respects, from that exercised amongst the general labouring population, the organization of the latter consisting, as it does, chiefly of bone and muscle, large visceral organs, and proportionate fulness and strength of the vascular system.*

* The system of Broussais, which is still committing such destruction upon the nervous and refined class of individuals, was chiefly founded upon facts and observations acquired upon the young soldiers of the French armies, during the Italian campaigns. In the *post-mortem* examinations, phenomena of inflammation were of course almost always evident in such subjects, exposed, as they must have been, to irregularity of diet, the inclemencies of the weather, and the chances of war. But conclusions derived from these sources, have been indis-

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In like manner, the great majority of medical cases hitherto recorded, being without any specification of individual temperament, and including various and most opposite characters of organization, have been notoriously found to be of very limited value, as guides in actual clinical practice. Indeed the *cæteris paribus* of temperament has never yet been sufficiently considered. Hence one source of the proverbial uncertainty of medicine.

The treatment of disease must be necessarily attended with but hazardous success, if the very same means and method of cure be pursued in all individuals, without discrimination—if the practitioner be unskilled in determining by a *coup d'œil*, whether the temperament of his patient be nervous, vascular, fibrous, lymphatic, or a compound in different proportions of all these elements. There must be a discriminative treatment employed with regard to food, hygienic regimen, and curative means, according as we find, from a physiological survey of individuals,

criminately applied to those existing under the advantages of refined life, with a different temperament, and different habits of constitution. Hence the errors and failures of the system. A peculiar disease in Broussais himself, and of which he ultimately died, accounts also still farther for his prejudice against the purgative class of medicines. So true it proves that defects in the individual are reflected in his views, and in his system of philosophy.

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certain mixtures of temperament, and above all, what related balance there happens to be between the nervous and vascular systems in each particular case.

CHAPTER XXXIX.

THESE CHANGES MOST FREQUENTLY ARE BUT PARTIALLY EFFECTED—UNEQUAL DISTRIBUTION OF TEMPERAMENT AND STRUCTURE IN THE SAME INDIVIDUAL.

In the great majority of individuals, some only of the physiological changes as mentioned above, will be found to have been accomplished. It is a rare case to see them effected in all their integrity. But wherever these several changes have not taken place, the individual in his physical organization remains fixed at a corresponding distance from that unblemished physiological standard of proportion and beauty, which it is the nature of civilization to develop. Most individuals contain within themselves some fault of formation illustrating this truth.

In the different systems enumerated above, (Chap. xxxvii.,) may be said to reside more or less perfectly the different temperaments of the human body—the fibrous or bilious, the vascular or sanguine, the lymphatic, and the nervous.

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These temperaments, more commonly than is generally supposed, as well as the different elemental tissues and systems of the body, will be found unequally distributed throughout the same individual, some parts of the body possessing the normal proportion of a particular temperament, tissue, or system, whilst the others do not. Such irregularities may almost always be traced to organic causes residing within the constitution of the immediate parents, or to peculiarities in one or other of the families from which the individual may happen to be descended.*

A numerous class having this unequal distribution, is characterized by the head being powerfully organized and richly suffused with nervous influence, performing with ease a more than ordinary extent and load of mental labour, whilst the trunk and abdominal system, voluminous beyond proportion, are remarkable for adipose depositions and lymphatic obstructions—a class containing frequently amongst its members, authors, men of science, orators, and politicians, and, generally speaking, all those individuals falling under the well-known definition, "active in mind, indolent in body."

There are individuals, too, with bulky lymphatic brains, whilst the rest of the body is firmly and delicately organized.

* See Notes I. and II.

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Another example of this inequality of structural distribution is observed where, in a fine nervous temperament, the glandular and absorbent system presents evidence in some parts of the body of a strumous diathesis; and another, where we find an active vascular organization giving habitual floridness to the complexion of the face and head, whilst the circulation in the capillary tissue of the extremities is in such poor endowment as scarcely to suffice for the adequate generation of heat.

The osseous, muscular, and other systems, have very commonly also their examples of unequal development throughout the different parts of the same individual. The facial bones may be often remarked as being large and heavy, with the hands and feet fine and small, and *vice versâ*.

CHAPTER XL.

OVER-REFINEMENT OF PHYSICAL TEMPERAMENT LEADS TO DEGENERACY OF BODY, AND ARREST OF DEVELOPMENT.

WHEREVER any of the more influential vital actions have been, for a series of generations, or even a less period, too exclusively educated to

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act, or too much refined upon, to the prejudice of the rest, by a vicious, or partial indulgence in the ways and habits of civilized life, the consequences will be apparent in the impoverished or imperfect development of some corresponding system in the economy; as, for example, the frequent occurrence, in the present day, of the large brains and highly-wrought nervous systems, accompanied with inadequate development of the assimilative, vascular, and muscular systems, in children too finely bred from excessive delicacy of organic temperament on the side of one or both parents.

In such instances, the influence of civilization upon the physical frame has been pushed too far, the balance that should exist between the constituent systems of the economy being impaired.

The greater the activity of the brain and nervous system, the more do they require support and equipoise from the other systems; particularly from the assimilative, vascular, and locomotive.

A more athletic development should be encouraged by a return to the muscular activity, and invigorating habits, pursuits, and regimen of our ancestors.

In nations, as well as in individuals, extreme refinement of physical temperament, from luxury,

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ease, and other effects of wealth and civilization, if acquired before the cerebral system has been adequately developed, must inevitably be attended with great prejudice to the future vigour of the mental powers.

The brain will scarcely ever be well thrown out afterwards; since the vascular system, in which resides the formative process, (Serres,) becomes, in consequence of such a temperament, more and more shut up and contracted in its vessels, and rendered consequently less favourable for new nervous nutrition, and new extension of substance. There is an arrest of development.

It is in this manner that over-exercise of the mental organs, even in the brains of the young, whose vascularity is remarkable, checks the developing process going on, by prematurely condensing the cerebral fibres.

It is this smallness and occlusion of the nutrient vessels, where the temperament is very refined, which gives the physiological explanation of the irrevocable downfall of luxurious and effeminate nations, and of the degeneracy of worn-out nobilities. They stand in the predicament of having lost their physical energies, without gaining proportionate compensation in the development of the intellectual and moral organs of the cerebral system. "They have neither mind nor body."

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CHAPTER XLI.

DIFFERENCE OF DEVELOPMENT IN THE CEREBRAL SYSTEM BETWEEN THE SAVAGE AND CIVILIZED TYPES.

THE changes produced by civilization in the cerebral system, are perhaps more remarkable than those produced throughout the general organization, as just considered. (Chap. xxxvii.)

Besides the evidence accumulated in comparative anatomy from a certain uniformity of physiological design, and analogy of structure pervading the lower scale of nervous system in animals, as well as from the manner in which this system becomes evolved out of its embryotic stage in fœtal life to its completed growth in adult age, on taking a most extensive survey of the development of the cerebral masses in the types of all the savage and less civilized nations of the earth, and on comparing also the volume, quality, and proportion of these masses belonging to the lower-typed individuals of even civilized communities, with those possessing the more perfect intellectual type of high civilization, it cannot fail to strike every one, (qualified for the purpose by the proper knowledge,) that there exist between these two extremes most appalling

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differences of physiological development in the cerebral masses; and to those more technically instructed, there will likewise present themselves a series of intermediate differences between these two extremes of the physiological scale.

These intermediate differences, once specified in a certain order, and detailed form, would be rendered capable of being compared, stage by stage, with the corresponding scale of civilization historically appreciated. The physiological and historical evidence of civilization would thus be placed side by side.

But since it is impossible to have before us for examination the very bodies of our ancestors, we might take as adequate and fair substitutes, first, those of the savage tribes now in existence; secondly, those of individuals in different degrees of corporeal change and refinement, belonging to nations more and more civilized. By subjecting the entire organization, both cerebral and bodily, of these different specimens to a physiological analysis, we should then see how curiously they might be made to represent the series of phases and changes traversed by the higher types before accomplishing their full development.

It has now indeed been fully established by the researches of modern physiologists, that the visceral ganglionic system, the medullary columns of the spinal chord, the annular protuberances,

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and other cerebral ganglionic expansions, together with the numerous complex formations at the base of the brain; that the cerebellum, and the middle and posterior lobes, with but a rudimental or deficient expression of the anterior ones, and of the upper convolutions of the hemispheres, are those parts of the nervous system which, subserving chiefly muscular and animal activity, predominate and characterize the lower exemplar of type. The base of brain predominates.

Such are the brains of savage tribes, and the degraded characters of even civilized populations; such also are the brains of those found in the prisons, at the gallies, and the penal colonies, &c.

Those parts, on the contrary, of the cerebral system which are deficient in the lower type, form, by their complete development, the very characteristics of the higher. These are the upper convolutions of the hemispheres and of the anterior lobes, which may be considered as the last additional extensions of the nervous system, having relation to the higher attributes of humanity.

In external form, they rise out, filling up both the coronal vault, transversely encircling the broad and elevated forehead, and the arch covering in the elliptic diameter of the head, thus affording physiognomical evidence of that

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internal amplification of development, which, together with the changes already specified (Chap. xxxvii.) in the other systems, will be found very generally to characterize nations and individuals arrived at the higher degrees of civilization and refinement; and which in still greater fulness, will be found to constitute the corporeal organization of genius, and of moral and intellectual excellence.*

* The parts of the nervous system which attain their highest development in the human species, and may, from that circumstance, be supposed to be especially connected with those mental operations in which the pre-eminence of the human species consists, are, the convolutions of the brain and cerebellum, the Corpus Callosum, Corpora Striata, Thalami, and Tuber Annulare. Those which are least developed in the human species, but are proportioned to each other in the different classes of vertebrated animals, and may therefore be presumed to be chiefly connected with sensations and voluntary motion, and to have less connexion with any strictly intellectual acts, are the Spinal Chord, Corpora Quadrigemina, (called optic lobes in many of the lower animals,) and Vermiform processes of the Cerebellum. The Fornix and Pes Hippocampi attain their highest development in some of the mammalia, but not in man.—*Outlines of Physiology, by Professor Alison, of the University of Edinburgh*, pp. 305.

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CHAPTER XLII.

WHETHER THE DEVELOPMENT OF THE CINERITIOUS SYSTEM OF THE BRAIN IS COMMENSURATE WITH THE EXTENSION OF NERVOUS ACTIVITY AND CIVILIZATION.

With regard to the changes taking place within the interior of the brain, there is yet wanting evidence to remove some doubts as to their exact nature, and the manner in which the nutritive action itself becomes modified there with the progressive developments of civilization.

There are facts and arguments, however, which are strongly in favour of the supposition, that, independently of the modifications of development as to form, size, proportion, and quality, as already mentioned, a greater extension and a greater thickness in the cineritious envelope, belonging to the anterior lobes and upper convolutions of the hemisphere, is the great physiological change in the cerebral system produced by civilization; this substance bearing a direct proportion in its different parts to the intellectual and moral energies of nations and individuals.

The modern anatomical and physiological discoveries of Marshall Hall, Grainger, and others, have clearly established that the primary

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seat of nervous power in the spinal system resides in the cineritious substance of the chord. Now Ehrenberg has found the cineritious covering of the cerebral convolutions to be analogous in its intimate structure, to this same substance in the interior of the chord. He has shown, also, that the fibres originating from, and forming part of this anatomical element of the brain, are fine, close, and delicate, whilst those constituting the white cerebral substance, are coarser, and more bulky, being in juxta-position with, or, as it were, continuations of the former. Thus the white fibres may be simple conducting media of the power elaborated in the cineritious substance. Hence if recognized as the seat and originator of functional power in the spinal system, the presumption is strong that the cineritious substance is likewise the seat of power, with regard to the various other more important functions of the brain itself.

But, besides, it has already been demonstrated by Spurzheim, that the cineritious substance in the anterior lobes and upper convolutions of the hemisphere increases in an ascending ratio, from animals to man; that in animals, (even in the Ourang-Outang,) the anterior and upper cerebral convolutions are shallow, and fewer in number, with but a scanty development of cineritious substance. In man, on the contrary,

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the convolutions are remarkable for their number, regularity, and depth, and for possessing the greatest development of the cineritious matter.

In addition to these observations of Spurzheim, the important facts to be ascertained by future investigators are, to what extent, and in what proportion to the white cerebral substance, is the cineritious developed, throughout the different regions of the brain, in the savage, in the negro, and other inferior varieties of race, and so on, passing through the intermediate links, up to the highest types in the most civilized nations, distinguished for intellectual and moral energy, and refined temperament of body.

This connexion of functional power with the cineritious substance, once corroborated by future observations, the localization of all the special functions of the nervous system will become extraordinarily facilitated. The whole will form what might be called the system of the cineritious substance, extending to the ganglions of the sympathetic, the spinal chord, the medulla oblongata, the various ganglions imbedded within the brain itself, the cerebellum, and to the numerous convolutions visible all over the surface of the three cerebral lobes.

In this manner will there be found different parts of the cineritious system subserving the functions of organic life, motion, and sensation,

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the special senses, and the entire range of the mental system.

The cerebral substance being thus composed of two distinct anatomical elements, the functions which these elements subserve, must be proportionally modified, according as one or the other may happen to predominate in individuals. And what certain *outward* characters have we to appreciate the proportion of these elements to each other? to determine which is deficient and which is in full endowment? both generally and in particular parts. This difficulty, already foreseen by Dr. Roberton, must always constitute a barrier to practical Phrenology, and affect many discriminative cases which are not comprehended within the scope of its present rules.

CHAPTER XLIII.

PARTIAL CHANGES IN THE CEREBRAL SYSTEM.

It has been already observed that the many physiological changes which take place with civilization throughout the body *generally*, are seldom effected in all their extent and integrity, in any one individual. (Chap. xxxix.)

So is it likewise with regard to the development

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and changes which take place in the cerebral system. In some part or other, they will be found but partially and unequally expressed. All the conditions which form the very highest character of type, are, indeed, seldom concentrated in one person. Some deficiency, or excess of parts, or of temperament, will almost always be observed; or again, the related balance between the brain and the other systems of the economy will have been disturbed.

Even the greatest historical characters, statesmen, and men otherwise of the highest cast for intellect, judgment, genius, and moral will, will often be found subject, in some part or other, to this partial development of the cerebral system. These individual faults have influenced the fate of nations, and the miscarriage of the greatest enterprises, both in thought and action. The pencil of Titian thus gives to the analytic eye of the physiologist the most eloquent and suggestive commentary upon the political system and personal character of Philip II., of Spain; and the defects of many living statesmen, both at home and abroad, in their conduct and principles, are physically pourtrayed by corresponding deficiencies or excesses in certain regions of the brain.

The most usual defects of development lie in the systems of the intellectual and moral organs.

Sometimes the intellectual organic system in

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the anterior lobes, from long inactivity, falls off, or remains stationary in temperament and development—a circumstance entailed upon that class of individuals who live secluded from the influence of intellectual intercourse, or who have withdrawn themselves for generations from the necessary and wholesome stimulus given by the incessant movement and activity of civilization. Such is the usual fate of princes and luxurious nobilities. Agricultural pursuits and habits exclusively followed, excessive physical exertions, a nomadic life, &c., favour this arrest of development by encouraging derivative nutrition from the intellectual organic system in the brain, to the muscular and abdominal systems.

This is evidenced in the difference of type and of intelligence between an agricultural and a town population, and unfortunately there are but too many with this arrested development of brain and temperament, even amongst the easy and proprietary classes in all countries. The brains of these individuals become, as it were, physical records of past times in the midst of a new order of things which has overtaken them. Accordingly their opinions will be found to be more in unison with the periods of civilization gone by, than with those which now exist, or are next approaching.

At other times, the defects of development

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will be found in some parts of the upper convolutions of the hemispheres belonging to the system of the moral organs. In individuals and nations of Germanic origin, the upper cerebral region connected with the moral system, is, on the whole, less frequently subject to partial development, than it is in most others of a different race. The vertical diameter of the head bears a higher proportion in that type, than it does in almost any other. The old Egyptian and Roman types of brain, as before stated, are remarkable for flatness over the upper convolutions.

In short, the immense varieties of brain in all civilized nations, as to form, size, proportion of parts, and temperament, forcibly shows how often, and to what a degree, they are partially developed, and how far they must be from attaining that philosophic standard of type, towards which it is the tendency of civilization to bring them. Partial talent, genius, and character, have also necessarily partial expressions of their several organic conditions in the cerebral system.

So is it with regard to the partial development of the cerebral types of nations. There will be some parts in high characteristic endowment; others, in deficient. Their character and their civilization will be found to correspond to these

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circumstances. Indeed, national communities being but an aggregate of the same elements which compose the individual, they, like him, may be justly said to have certain defects and certain biases of conduct, thought, and character, (Fred. Schlegel,) all which are again apparent in the cerebral type of each nation.

The Hindoo, the Egyptian, the Jewish, the Greek, the Roman, the German, the French, the English, the Scotch, the Irish types of brain, as well as their character and civilization, are all, in some respect or other, widely different; the cerebral type in most of them being only partially developed, and defective, more or less, either in form, proportion, or temperament.

CHAPTER XLIV.

CONCLUSIONS.

From the preceding pages it will be seen how wanting and inconclusive the Philosophy of History must ever be, if considered (as has heretofore been the case,) independently of the physiological element. Without this, no satisfactory solution of its many all-important problems can be arrived at,—every stage of pro-

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gressive amelioration having invariably a material representation in the nervous organization. There are, indeed, written within us, in living characters, the civilization of a thousand years, which, when deciphered by a proper physiological analysis, may be made to disclose the whole history of the successive changes effected in the physical man. The historical demonstration of God's providence in the design and conduct of humanity, would likewise in this way be supported by induction of physiological facts.

Out of this element alone can be obtained our chief means of estimating, with the precision of science, the character and powers of different nations and races, according to their political, moral, and intellectual capacity, as indicated in the general organization, and in the differences of their respective cerebral systems; and besides this, the social and political phenomena resulting from the re-action of these different races upon each other.

It teaches us how unconquerably slow must ever be the progressive stages of civilization, and that they must extend throughout centuries of time; no great permanent change in national or individual character taking place, without additional nutrition, and a certain related development in the nervous masses.

These higher philosophical questions, however,

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of History and Political Science, are left to their professed writers; they are here subservient only to the chief end of this introductory Work —the physiological appreciation of the quality and constituent proportions of organization in man, as produced by civilization, and how much this knowledge ought to influence the principles of medical science in estimating the many modifications and pathological states which present themselves in the higher type of individuals in our present times.

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NOTES.

NOTE I.

It is astonishing what little consideration is given by society at large to a proper estimation of the physiological qualifications which ought to guide individuals in their intermarriages; particularly so, when we reflect that the whole character of their descendants is involved, according to the quality of blood and the type of nervous system hereditarily transmitted from the combined influence of the parents themselves, their families, and the races to which they belong. Some of the more glaring effects of the grosser vices of conformation are indeed recognised and condemned, such as mania, scrofula, phthisis, &c.—the lowest on the scale; but of the less obvious imperfections little account is taken, although they too, as far as they go, have an important influence. In like manner, it is but little impressed upon the minds of society that the more perfect types of conformation have a strong tendency (unless accidentally crossed) to perpetuate themselves hereditarily; and that to enhance the best qualities of bodily organization, and of the mental powers in a family, a serious and calculated attention should be paid to the physiological value of the individual who is to be a party to the alliance. This ignorance becomes more astonishing as the practice followed is greatly different with regard to the races of domestic animals. From the extraordinary judgment and perseverance shown *here*, determinate modifications can be produced, both of structure and of disposition, with an approach to mathematical precision that is truly wonderful. It is needless to repeat, the same physiological

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laws obtain in the economies both of man and of animals. If two individuals form an alliance, each of a weak and lymphatic habit of body, their resulting family will have the *same* habit transmitted, and in a much more aggravated degree; so also if an alliance be made between two individuals possessing each an irritable nervous organization, their offspring will be found still more strongly afflicted with the *same* character of excessive endowment. In short, any great organic imperfection in the different systems and structures of the body will (except in cases where counteracting conditions have been brought to operate,) be more or less reflected hereditarily upon the descending generations. There is no escaping from these laws. With such knowledge before our eyes, it behoves us well to consider it of no slight importance with whom, and with what family, alliances by marriage are made; as assuredly, the physical and mental qualities of the children are compounds, more or less perfect, of the aggregate qualities residing in the parents and the cognate races. Many apparent exceptions will perhaps be found to this rule, but when it is recollected how much in every one the bodily and mental activities vary, and become differently combined, in the course of a life, in obedience to surrounding influences, and the habits compelled by social position, (and it is these different states that virtually represent the character of the individual for the time being,) it will not be difficult to understand how these several modifications in one or both parents should correspondingly reflect themselves upon those of their offspring, whose initial era of intra-uterine existence might happen to take place under such times and circumstances; and in this way to give rise to that variety and even oppositeness of talent and of character which so frequently pervades children of the same parents. Next to an union with those possessing the more perfect types of organization, the physiological principle to be followed by individuals is, to ally themselves, by preference, with those only who possess, in a characteristic manner, the elements wanting in their own case, in order that, with the common sum of both parents, all the elements of the human constitution be fairly represented.

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And this would seem to be an instinct of nature herself; since nothing is more common than alliances between individuals of different, and (within certain degrees,) even opposite temperaments, and contrasting with each other in many qualities of body and mind; these contrasting qualities, as a general rule, becoming harmoniously blended in the constitution of the children. Thus spare fibrous individuals, and those with a quick nervous temperament, are almost always found allied to those of a fuller habit of system, with a more decided proportion of the vascular and lymphatic temperaments, the excess of temperament in each parent being less apparent in the progeny. So also with regard to contrasts in the mind and character. But to carry out into general practice the organic laws, just now laid down, throughout the many varieties of constitution that occur amongst society, requires no slight knowledge of the structure and physiology of the human frame. It is good, however, to know that such knowledge does exist; and as the outward characteristics of the different temperaments and constituent elements are appreciable, without difficulty, with proper study and instruction, it comes within the power of individuals interested, (and who is not?) to possess, if not the whole, at least an essential part, of the necessary information. They will then learn there is as much natural difference between the various qualities of blood and of organization in the human species, as there is between the finest porcelain and the coarsest potters' clay; and from the physiological laws presiding over hereditary transmission, they will be made aware that either the one or the other (as the case may be) will enter into the organization of their descendants.

NOTE II.

Another subject of importance in this department of physiology, is the influence of the constitution and habits of parents on their offspring.

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That the stature, complexion, forms of feature and limbs, &c., as well as the mental peculiarities of the offspring, frequently bear a strong resemblance to those of the parents, is matter of familiar observation;—it is certain also, that resemblances in these respects are observed nearly indiscriminately to both parents;—and it has often been noticed that such peculiarities have passed over one generation, and appeared in the next. Peculiarities of formation, such as supernumerary fingers or toes, have in like manner often been hereditary in families, sometimes descending by the females, and sometimes by the males, and yet been found only in a certain number of the members of these families. In like manner, longevity is very often observed to be hereditary; and it is therefore quite in conformity with other ascertained facts, that we find the tendency to certain diseases, particularly to asthma, gout, mania, and the various forms of disease which are ranked together under the term scrofula, to be much greater in some families than in others; although in many cases it is only by the action of well-marked exciting causes that such diseases, even in persons so predisposed to them by hereditary constitution, are produced.—*Page* 399.

* * * * * *

The acquired habits and mode of life of parents, have likewise a very important influence, which is well ascertained on a large scale, but cannot be easily demonstrated by individual instances, on the character of the vital actions which their offspring will exhibit. In so far as the mode of life of parents is permanently debilitating, and disposes them to scrofulous disease, it is certain that it will generally give a similar tendency to their progeny; as is evident on comparing the amount of scrofulous disease in the young children of a great town, with its amount in the previous generations of the same families, if engaged in agricultural employments. The effect of habits of parents on the vital actions of their offspring is well illustrated by the great variety of appearances assumed by animals when domesticated, and their return, in

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the course of a few generations, in a state of nature to a single and uniform type.

But a more singular fact, which appears well ascertained in regard to certain animals, (dogs and horses,) and probably in regard to the human species also, is the transmission, to the second and third generation, of habits not natural to the animal, but acquired by education and training.— *Outlines of Physiology, by Professor Alison of the University of Edinburgh*, pp. 401.

NOTE III.

The wisdom of Providence is in no instance more conspicuous than in adjusting the constitution of man to his external circumstances. Food is extremely precarious in the hunter-state; sometimes superabounding, with little fatigue, sometimes failing, after great fatigue. A savage, like other animals of prey, has a stomach adjusted to that variety. He can bear a long fast; and gorges voraciously when he has plenty, without being the worse for it. Whence it is, that barbarians, who have scarce any sense of decency, are great and gross feeders. They are equally addicted to drunkenness, and peculiarly fond of spirituous liquors. Drinking was a fashionable vice in Greece, when Menander, Philemon, and Dephilus wrote, if we can rely on the translations or imitations of those writers by Plautus and Terence. Diodorus Siculus reports, that in his time the Gauls, like other barbarians, were much addicted to drinking. The ancient Scandinavians, who, like other savages, were intemperate in eating and drinking, swallowed large cups to their gods, and to such of their countrymen as had fallen bravely in battle. We learn from the 25th fable of the Edda, which was their sacred book, that to hold much liquor was reputed heroic virtue. Contarini, the Venetian ambassador, who wrote anno 1473, says, that the Russians were abandoned to drunkenness; and that the whole race would have been extirpated, had not strong

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liquors been discharged by the sovereign. The Kamschatkans love fat; and a man entertains his guests by cramming into their mouths fat slices of a seal, or a whale, cutting off with his knife what hangs out.....William of Malmsbury, who wrote in the days of Henry II., says, "That the English were universally addicted to drunkenness, continuing over their cups day and night, keeping open house, and spending the income of their estates in riotous feasts, where eating and drinking were carried to excess, without any elegance." People who live in a corner imagine that every thing is peculiar to themselves; what Malmsbury says of the English is common to all nations, in advancing from the selfishness of savages to a relish for society, but who have not yet learned to bridle their appetites.....Of old, there was much eating, with little variety; at present, there is great variety, with more moderation. From a household-book of the Earl of Northumberland, in the reign of Henry VIII., it appears, that his family, during winter, fed mostly on salt meat and salt fish; and with that view, there was an appointment of 160 gallons of mustard. On flesh-days, through the year, breakfast for my lord and lady was a loaf of bread, two manchets, a quart of beer, a quart of wine, half a chine of mutton, or a chine of beef, boiled. On meagre days, a loaf of bread, two manchets, a quart of beer, a quart of wine, a dish of butter, a piece of salt fish, or a dish of buttered eggs. During lent, a loaf of bread, two manchets, a quart of beer, a quart of wine, two pieces of salt fish, six baconed herrings, four white herrings, or a dish of sproits. There was as little variety in the other meals, except on festival-days. That way of living was at the time high luxury; a lady's waiting-maid at present would never have done with grumbling at such a table. We learn from the same book, that the Earl had but two cooks for dressing victuals to more than two hundred domestics. In those days, chicken, capon, pigeon, plover, and partridge, were reckoned such delicacies as to be prohibited, except at my lord's table.

Barbarous nations, being great eaters, are fond of large joints of meat; and love of show retains great joints in

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fashion, even after meals become more moderate; a wild boar was roasted whole for a supper-dish to Antony and Cleopatra; and when stuffed with poultry and wild fowl, it was a favourite dish at Rome, termed the *Trojan boar*, in allusion to the Trojan horse. The hospitality of the Anglo Saxons was sometimes exerted in roasting an ox whole. Great joints are left off gradually, as people become more and more delicate in eating. In France, great joints are less in use than formerly; and in England, the voluminous sirloin of roast beef, formerly the pride of the nation, is now, in polite families, delegated to the side-board. In China, where manners are carried to a high degree of refinement, dishes are composed entirely of minced meat. In early times people were no less plain in their houses than in their food. Toward the end of the sixteenth century, when Hollinshed wrote, the people of England were beginning to build with brick and stone. Formerly houses were made of posts wattled together, and plastered with clay to keep out the cold; the roof was straw, sedge, or reed. It was an observation of a Spaniard, in Queen Mary's days, "These English have their houses of sticks and dirt, but they fare as well as the king." Hollinshed, mentioning multitudes of chimneys lately erected, observes, upon the authority of some old men, that in their younger days there were not above two or three, if so many, in most uplandish towns of the realm, religious houses and manor-places of their lords excepted; but that each made his fire against a rere-dosse in the hall, where he dined, and dressed his meat. From Lord Northumberland's household-book, it would seem that grates were unknown at that time, and that they burnt their coal upon the hearth; a certain sum is allotted for purchasing wood, because, says the book, coals will not burn without it. There is also a certain sum allotted for purchasing charcoal, that the smoke of the seacoal might not hurt the arras.

In the fourteenth century, the houses of private persons in Paris, as well as in London, were of wood. The streets of Paris not being paved, were covered with mud; and yet for a woman to travel those streets in a cart was held an article of

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luxury, and as such prohibited by Philip the Fair. Paris is enlarged two-thirds since the death of Henry IV., though at that time it was perhaps not much less populous than at present. They were equally plain in their household furniture. While money was scarce, servants got land instead of wages. An old tenure in England binds the vassal to find straw for the king's bed, and hay for his horse. From Lord Northumberland's household-book, mentioned above, it appears, that the linen allowed for a whole year, amounted to no more than seventy ells; of which there were to be eight table-cloths (no napkins) for his lordship's table, and two towels for washing his face and hands. Pewter vessels were prohibited to be hired, except on Christmas, Easter, St. George's day, and Whitsunday. Hollinshed mentions his conversing with old men who remarked many alterations in England within their remembrance; that their fathers, and they themselves formerly, had nothing to sleep on but a straw pallet, with a log of timber for a pillow; a pillow, said they, being thought meet only for a woman in child-bed; and that if a man in seven years after marriage could purchase a flock bed, and a sack of chaff to rest his head upon, he thought himself as well lodged as the lord of the town; who, peradventure, lay seldom on a bed entirely of feathers. Another thing they remarked was, change of household vessels from timber plates into pewter, and from wooden spoons into tin or silver.—Lord Kames, Book 1, Sketch viii.—*Progress and Effects of Luxury.*

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