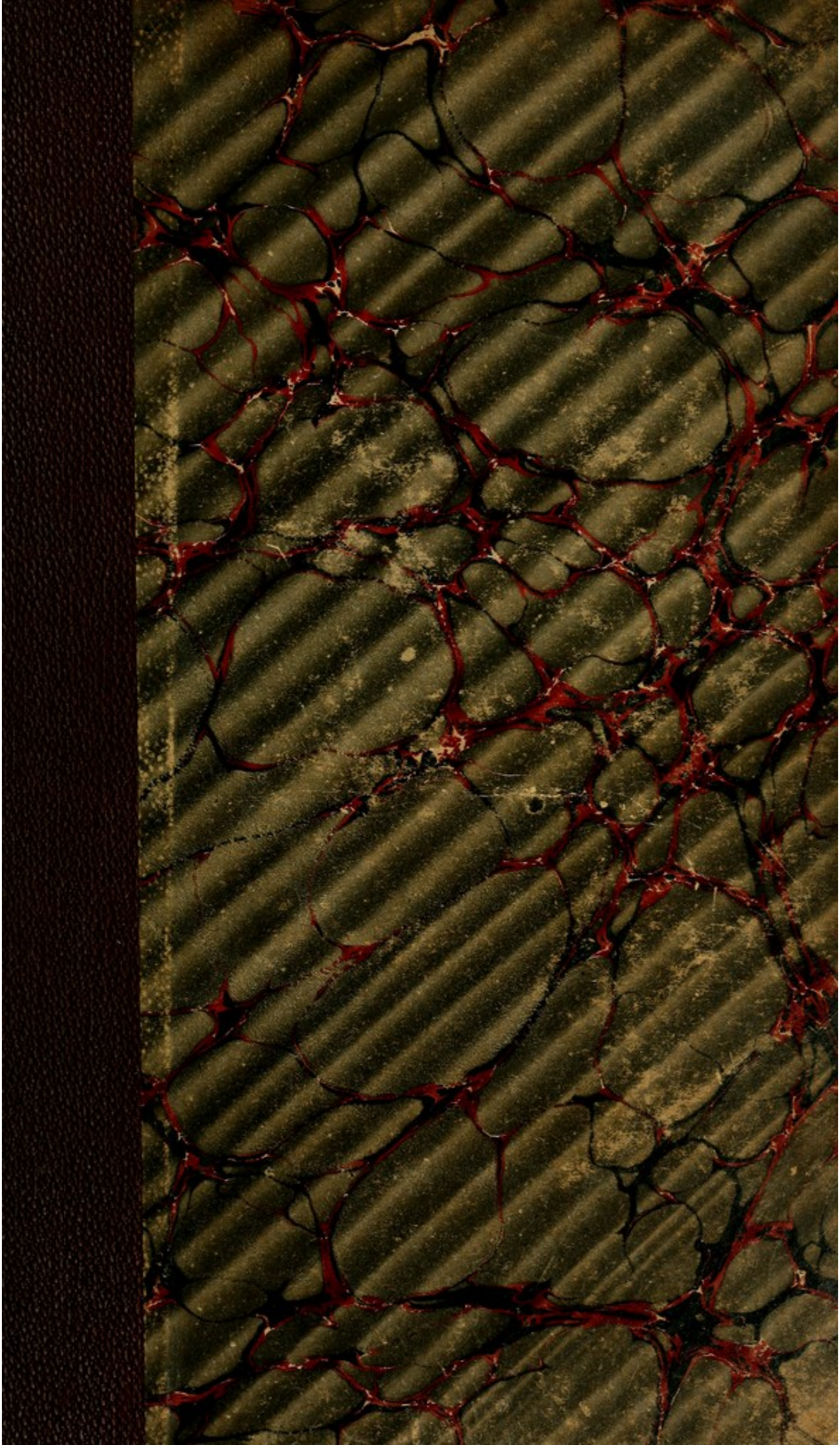
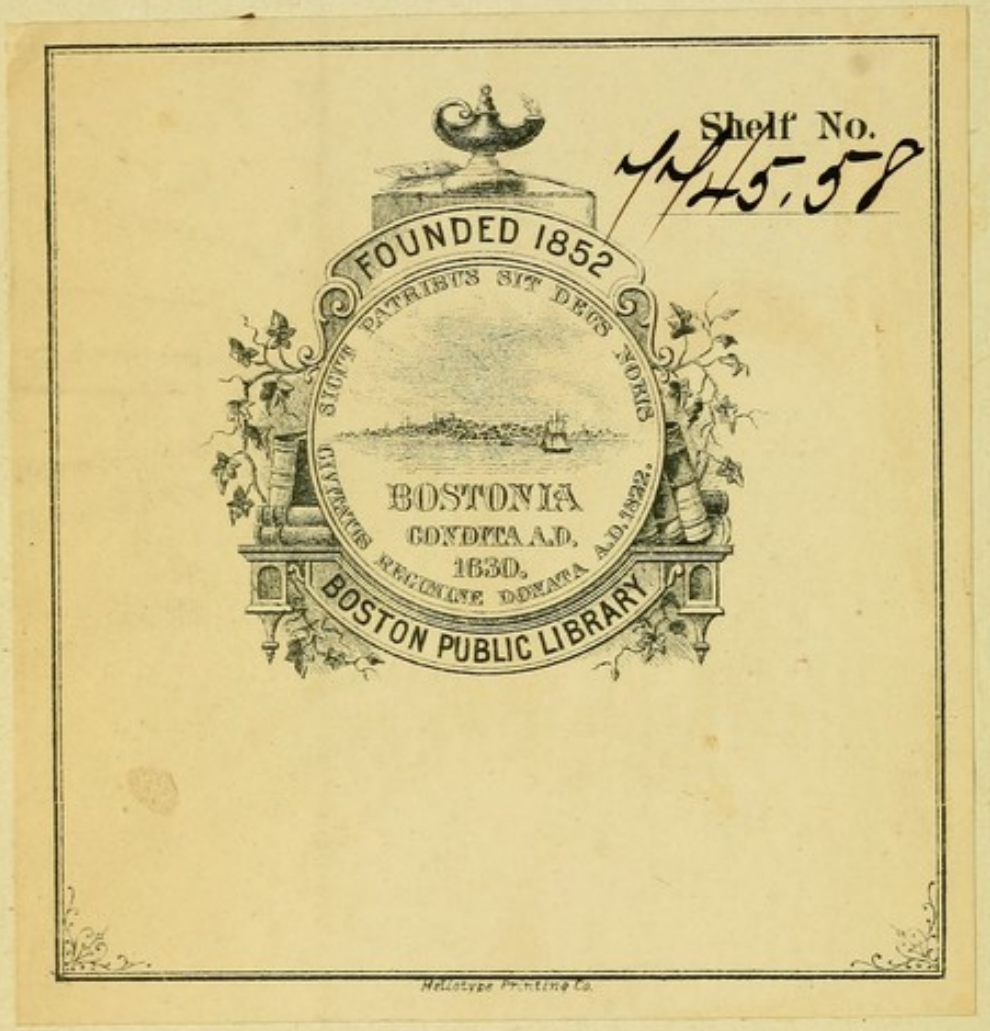
Lecture : introductory to the course of general anatomy / delivered in the University of London, on Wednesday, October 6, 1830 by James R. Bennett.





LECTURE

INTRODUCTORY TO THE COURSE OF

GENERAL ANATOMY;

DELIVERED IN

THE UNIVERSITY OF LONDON,

ON

WEDNESDAY, OCTOBER, 6, 1830.

BY JAMES R. BENNETT, A.B.

ONE OF THE PROFESSORS OF ANATOMY.

LONDON:

PRINTED FOR JOHN TAYLOR,

BOOKSELLER AND PUBLISHER TO THE UNIVERSITY,

30, UPPER GOWER STREET.

1830.

TO

THE STUDENTS

COMPOSING THE CLASS OF ANATOMY IN THE UNIVERSITY OF LONDON,
DURING THE SESSION 1830-31,

AT WHOSE REQUEST IT HAS BEEN PUBLISHED,

This Lecture is Inscribed,

WITH A DEEP SENSE OF THE KIND AND FLATTERING ATTENTION WITH WHICH
INSTRUCTION HAS BEEN AT ALL TIMES RECEIVED BY THEM,

FROM

THEIR ATTACHED AND DEVOTED SERVANT,

JAMES R. BENNETT.

University of London,
October, 1830.

The Delivery of the Course of Anatomy in the University having been divided between its two Professors, the following Lecture was Introductory to the General Anatomy which forms part of the division assigned to the Author. He deems it not unnecessary to apprize the reader, that he is fully sensible of the insufficient manner in which so important a subject has been treated in the following pages. He trusts, therefore, for an apology in the circumstance that it was not intended for publication, and that its appearance now has been permitted solely to gratify the expressed wishes of the Students who were the auditors.

INTRODUCTORY LECTURE.

GENTLEMEN,

IN commencing that part of the course of Anatomy which has been allotted to me, I feel deeply impressed with a sense of its importance; and from the short notice afforded to make preparation for it, I should have altogether declined undertaking such an arduous task, were not my duty to your interests, and to this Institution, paramount to every personal consideration; and did not the recollection of the past assure me, that if my efforts be strenuous, they will meet with favour, so that I may still anticipate the continuance of that estimation, and of those kindly feelings towards me, which hitherto I have been so proudly conscious of.

It is not my intention in this introductory lesson to discuss the objects and utility of Anatomy; they have been considered and explained to you already by my colleague, Mr. Pattison. I shall, therefore, occupy your attention to-day by a few general observations upon some points more particularly connected with my division of the course.

It is highly gratifying to our feelings to reflect, that many of the principal and essential phenomena of life, such as had for ages escaped the scrutiny of those philosophers, whose master-minds almost anticipated us in every science, were discovered and brought to light in this country,—that we had a Harvey, a Hunter, and a Munro; and that amongst our discoverers, the Professor of Physiology in this University is entitled to a place. Still

the science of Anatomy has not been cultivated to any great extent in England. Our attention in this country has been principally directed to the study of that division of it termed Human Anatomy, which has been prosecuted with industry and success; and as its chief object is to afford us an acquaintance with the localities of the several organs of the body, Surgery, or the treatment of external diseases, has been carried to the highest degree of perfection amongst us. But to acquire a knowledge of the diseases of internal organs,—those that are hidden from the observation of our senses,—we must know more than the mere localities: we must also learn the functions of those organs, for it is only from their derangement, those phenomena designated symptoms, that we are enabled frequently to recognize the nature and extent of internal disease. With this object in view, much more than the Anatomy of Man is necessary; we must look abroad upon the wide field of animated beings, observe the common laws which govern their existence, and make organization generally the subject of our research.*

It would be unnecessary on this occasion to dwell upon the distinctions, according to which the entire material world has been separated into the two great classes of organized and unorganized matter. For the purposes of this lecture it is sufficient to observe, that organized bodies which comprise the animal and vegetable kingdoms, are distinguished from unorganized bodies by those actions which constitute, what in ordinary language is denominated, life. Unorganized bodies present comparatively but few phenomena: these have been seized by the genius of a Newton,

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* Verum ab humanâ anatomiâ
Physiologia minimè plena repetitur.

Quotidie experior, de plerarumque partium corporis animalis functionibus non posse sincerum judicium ferri, nisi ejusdem partis fabrica et in homine, et in variis quadrupedibus, et in avibus, et in piscibus, sæpe etiam insectis, innotuerit.—*Haller, Elementa Physiologiæ.*

whose vast intelligence regarded as nought the immeasurable distance of the heavenly bodies, when he made known the laws which govern their form, their relative positions, and their movements. Organized bodies, on the contrary, are so numerous, present such manifold varieties, from the humble coral up to perfect man, and are so complicated in the structure and arrangement of their several organs, that the mind almost sinks beneath the weight of detail; so that not one, but many Newtons have been required to determine the laws which the great Creator has ordained for the formation and existence of animated beings. Upon this subject considerable success has of late years attended the labours of our continental brethren: a Cuvier has exposed the remains of creations that existed in ages long passed away, and that are now buried within the earth, affording beneath our feet equally splendid illustrations, and equally absolute evidences of the creative powers of the Deity, as the heavenly bodies which exist above us. But it is to the labours of a Geoffroy and a Meckel that we are mainly indebted for the advancement of our views upon the laws of organization. It is chiefly from modern research that some light has been shed upon the darkness that hitherto has clouded all our knowledge of the phenomena of life; that a new science has arisen for our enquiry, the cultivation of which may yet enable the human mind to comprehend the mysteries of the material frame it occupies.

The first or grand principle upon which the laws of organization are founded is, that there is an unity of organic composition, at least in the higher classes of animals, for as yet our knowledge does not establish it fully as regards the very lower. The great Newton, though the idea has been ascribed to others, recognised this important fact, when, extending his views of the uniformity which he discovered to exist in the planetary system, he observed, "*Idemque dici possit de uniformitate illa quæ*

est in corporibus animalium." By unity of organic composition it is implied, that the materials which compose corresponding organs in the superior kinds of animated beings are the same, and that the varieties these organs present are only modifications consequent upon their different degrees of development. In other words, an organ being given, it will in one animal perform its functions to a certain extent; in a second it will perform the same in a greater or a less degree; while in a third it will execute additional functions. Now in these three instances, though the organ may present great and striking differences in all its external characters, still the materials which compose it are the same, and it is upon the number and the extent of use for which the organ is destined that its development or degree of perfection alone depends. Thus the teeth, the special use of which is to triturate the food, present a low degree of development in the crustacea, as the crab, where they are situated in the stomach, and perform that single function; in another class, as gramnivorous animals, they are further developed, and occupying the mouth, execute another office—that of prehension; while in a third class, as the carnivorous tribes, they arrive at their maximum of development, and become, in addition, organs of attack. The ribs, which in most animals are intended to protect the lungs, are developed to their maximum in the turtle, and, by uniting, are converted into a case for the protection of the creature. Again, if we observe the anterior extremity of a vertebrated animal, we shall find in one class it is used as an instrument of flight, in another as an instrument of swimming, in a third as an instrument for moving on the surface; in one animal it is a tool for excavating, in another for climbing, in a third it forms a weapon of defence and offence, and in man it is a principal seat of the organ of touch. But if we examine the structure of this extremity in those several animals, we shall discover bones, muscles, nerves, vessels;

in fact, we shall find the same materials, and it depends solely upon their disposition to determine the nature of the function which the organ is destined to perform. The idea of unity in organic composition may appear defective, from the fact that it is only among the higher classes of animals that we can establish an analogy of organs; and further, that organs exist in the higher classes, the least vestiges of which are not to be found in the lower. This objection is, however, at once refuted, by observing, that though our mechanical and chemical examination will not enable us to detect many organs in many animals, it does not follow that these organs are altogether absent, for, at least, their rudiments may exist. Our inability to find bones, muscles, and nerves in the yolk and membrane of an egg does not imply the non-existence of, at least, their materials; it is rather an evidence of the inefficiency of our powers of investigation. Unity of organic composition being admitted to exist, the almost infinite modifications of form and structure observable in organised bodies become an object of our attention; and we are disposed to enquire, if there be not laws to regulate and determine these manifold varieties. Could the most beautiful part of the creation have been abandoned to accident and chance, and left without a scheme to regulate and determine its formation? What would maintain within their respective limits the vegetable and animal kingdoms, their classes, their genera, and their species? What would prevent one class from assuming the form of another, so that the animal kingdom would become an assemblage of irregularly shapen bodies? The organized world would soon present nothing but confusion and disorder, if laws, fixed and immutable as those of unorganised matter, did not preside over the formation of living bodies, and did not maintain each of them within the limits which have been assigned to it.

It is by these laws, as you see them here classified,

that variety in form and structure is determined.* According to them; animated bodies receive certain degrees of organization, which enable us to divide them into their respective genera and species. But in their formation, they all commence in a similar low origin, and as before observed, it is solely upon extent of development that the form and the functions, not only of the animal but of its several parts, depend. Let us suppose for instance,—and there may be some grounds for the supposition,—that the ova from which four different animals are to be produced, are perfectly identical; and that these being placed under the necessary favourable circumstances, set out at the same moment in the march of formation. Now, if after a certain progress, one of these ova be arrested in the course of its composition, the result is, that we shall have an animal of a low degree of organization, as, for instance, a fish; from the second ovum, where the development has proceeded further, we shall have a reptile; from a third, where it has been continued still, a bird; and from a fourth, a higher degree of perfection is attained in a mammiferous animal. But it is to be particularly observed, that at no period of its development, does an animal of a high class resemble in its *totality* an animal of a lower class, and this arises from the circumstance that all the organs are not synchronous in their development; one is more rapidly formed than another; while one organ resembles its corresponding organ in a low animal, another will be analogous to that of a much higher animal. Thus, at the very moment that the nervous system may be on an equality with the nervous system of a reptile, the heart may have surpassed the heart of a reptile, and be analogous with that of a quadruped. Again, the external form or

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* Reference was here made to a plate displaying a classification of the laws of variety, as determined by Meckel, in his work upon Comparative Anatomy.

shape is infinitely more rapid in assuming its proper characters, than any organ or portion of the system. At no period therefore, will a human fœtus, for example, be found, in its totality, analogous to any animal whatsoever; for at any particular epoch of its development, one organ may place it in a low rank, while another may elevate it to a high rank. In this order we find the more perfect animals passing in their formation through a series of phases or degrees of development corresponding to the permanent conditions of the lower. But, before proceeding to details, it may not be unnecessary to make a few observations upon formation generally.

We observe, that not only the entire body, but each individual organ, passes, in the progress of its development, from the fluid, to the solid state. Now, the solidification commences at the surface of the organ, and proceeds inwards, and in this phenomenon we have a grand and capital distinction established between the two great divisions of matter; in the one unorganized, the progress of formation being from the centre to the circumference; while in the organized, it is from the circumference to the centre. This order is observed, not only as respects organs individually, but also in their aggregate. Thus, the brain, which in the commencement is fluid, becomes solid; first, at its circumference; and last, at its centre. The parts which constitute its surface appear first, those which form its centre, last. In the development of the skull, we find the formation of its lateral walls to precede that of its central portion, before and behind. In the chest the ribs and intercostal muscles first present themselves, and not till after them, the sternum. The cavity of the abdomen is formed by the lateral muscles, which appear first, proceeding inwards towards the central line, where they meet before and behind. And here we find the development occasionally arrested or perverted; the abdominal muscles in certain cases would seem to stop in their progress forward, and thus a space or vacuity

is left in front. In another instance, instead of passing in front of, and covering in the abdominal contents; they shall pass behind the latter, so as to leave the intestines exposed. Again, it is by no means unusual to have the central line behind the spine, stopped in its formation, whereby the contents of the vertebral canal protrude, and constitute that disease called Spina Bifida. All single organs are in the first instance double, and it is by their union in the centre that they become symmetrical. Thus, the diaphragm is at first double; the œsophagus, trachea, and intestinal canal are all in the beginning composed of two plates or laminæ, which unite by their borders, and thus form these several tubes. It is by this process that the several foramina and canals are produced; the elementary pieces which compose a part in uniting, leave spaces or holes between them, and these are afterwards occupied by the vessels which pass through. Thus, the lateral halves of the diaphragm in uniting, leave the great openings for the passage of the aorta, vena cava, and œsophagus, and in a similar way are produced the several foramina of a bone. M. Serres, to whom we are indebted for the discovery of these curious facts, calls the principle of the double development of organs, the law of symmetry, and that of the union of the elementary pieces, the law of conjunction.

But to proceed with the several grades or degrees of development and their analogies. We shall find a beautiful illustration of these laws, in the formation of the most perfect and most complex of all beings, —the human subject. The fœtus, in the first moments of existence, occupies the very lowest rank, and is perfectly analogous with the most degraded animal: from day to day it acquires new qualities, which elevate it to a higher grade, and thus successively its organization improves, until, eventually, it acquires those characters which distinguish intellectual man. Commencing with its external form or shape, we find, that in the

first period, the fœtus presents a simple elongated body, in which neither the head nor the limbs are distinguishable: this condition would assign it no higher rank than that of worms or some mollusca. Shortly after, the head begins to appear, and the upper extremities shoot out, but the neck is wanting, and its absence, together with the prolongation of the lower end of the body into a sort of tail, render it analogous to fishes and reptiles. The inferior extremities next present themselves, but the caudal prolongation, which, however, afterwards disappears, confines its rank to that of quadrupeds. The external form runs rapidly through these several phases, so that at a very early period we can recognise the human shape: the individual organs are much slower in their development, and consequently their examination is much more satisfactory.

When we examine the digestive tube, commencing with the mouth, we find that the nasal and buccal cavities are one in the first stage; they then begin to be separated one from the other by the horizontal plate, which afterwards forms the hard palate projecting from each side, and ultimately meeting in the central line; the soft palate is formed in the same manner, and, finally, its lateral portions unite at the same moment that a similar junction takes place in front between the halves of the upper lip. The analogy here is striking with the corresponding parts in the lower animals; thus in birds, the lateral halves of the hard palate are joined only in front, being separated behind; the soft palate is wanting in birds and reptiles, and several animals of the higher classes have the upper lip divided, constituting what is called a harelip. This is a part which is not unfrequently arrested in its development, and we have children born not only with a harelip, but with a cleft palate.

Proceeding to the intestinal tube, we find it, in the first period, shut at both extremities, and this is the con-

dition it presents in intestinal worms. Subsequently it becomes open at one end, while it remains closed at the other, whereby the analogy is established between it and the intestinal tube of zoophytes. Here, again, we find the development occasionally arrested, and children come into the world with an imperforate anus. The inferior extremity, opening at a more advanced period, gives it the character common to the higher animals. Further, the length of the intestinal tube in the first periods is not greater than that of the body, as is observed in the inferior animals. It is also of the same diameter throughout its whole extent, presenting no enlargement corresponding to the stomach or cœcum, no division into small and large intestines; and these are the conditions which it preserves, not only in the very lower animals, but in fishes. The liver, at first, is composed of little pouches, as is found in the crustacea, where they are called cæca; these become loosely connected, as in the mollusca, and it is from their union subsequently, that the solidification of the organ results. The spleen is at first altogether wanting, as in the invertebrated animals, and it is only after birth that it acquires its volume.

When we next direct our attention to the circulatory system, we observe that the several stages in its development are equally striking and curious.* In the first moments, when the fœtus presents a semifluid mass, no vessels are discernible; the fluids circulate in canals grooved in its substance, as is the mode of circulation in certain zoophytes, as the medusa. A principal vessel next appears, a sort of aorta, in which the blood moves to and fro, as in worms, where no heart can be said to exist. Advancing further, the

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* An excellent memoir upon the Development of the Circulatory System has been lately published by Dr. Thompson, Jun. of Edinburgh. Had I entered more fully into the subject of development, I should have found great assistance from his very philosophical and ingenious views.

rudiment of the heart begins by the principal vessel dilating at a point into a little pouch or sac, and thus we have the circulatory system of certain crustacea and arachnides. The sac, at first single, is next separated into two cavities, by a transverse septum proceeding inwards from the sides; or, as Meckel states, by a second dilation taking place from the bottom of the primary sac, the first being the auricle, the second the ventricle. Here we have what is termed a single heart, such as is found in fishes. This is now to become a double heart, and that object is attained by two perpendicular septa being formed, by which each auricle and each ventricle is divided into two. That of the ventricles first appears, and if it be arrested in its formation, we have the heart of some of the superior reptiles, where this septum remains incomplete. Lastly, the septum of the auricles is formed, but not until after birth is it completed, a large opening remaining, which is known as the foramen ovale. At this stage of the development the circulatory system of the fœtus is analogous to that of amphibious animals, where the auricles constantly communicate for certain purposes connected with their respiration. Here again we occasionally find the development arrested in the human subject, and a very distressing disease follows the non-completion of the auricular septum after birth. With regard to the great vessels, we find the aorta forms a distinct trunk before the pulmonary artery appears, and during the entire period of uterine life the two vessels communicate by the ductus arteriosus. Thus in several reptiles we have two aortæ arising from the ventricle, which, after a short trajet, unite into a single trunk, and in some animals, such as the tortoise, the aorta and pulmonary artery always communicate by a large canal. In the number and disposition of the vessels, we find varieties corresponding to the different kinds of animals; and thus it happens, that in the human subject the natural order is frequently departed from, and that followed which belongs

to some other animal. In this manner we can account for what is of material importance to the surgeon, the variety so constantly met with in the course and distribution of arteries.

After the circulatory, the next in point of importance is the respiratory system, but in its formation, the phases or degrees of development are by no means numerous. We can establish an analogy between the modes of respiration of the fœtus and of the lowest animals, by observing, that in the former the function is performed by the membranes, and in the latter by the external envelope of the body. But the lungs themselves, not executing any office during uterine life, acquire almost at once the degree of development which they ultimately possess. In the frog, the respiratory system presents the greatest variety of conditions, for in the tadpole state the animal has gills to respire by, like the fishes; and in the more advanced state, that of a frog, it possesses lungs like the higher animals.

It is in the production of the nervous system, that which superintends, governs, and determines all the other organs, that we have the laws of formation best exemplified. The brain, the central organ, is developed in proportion to the system which it is intended to govern, and in the same ratio is the intelligence possessed by an animal, partially determined. In man, the brain arrives at the highest degree of organization, but the physical characters which this great development confers upon him, are few and trifling, and will never explain the vast disproportion which exists between his spiritual mind and the intelligence of the very highest animals, those which approach him nearest in the perfection of their frame. The efforts of some modern theorists, who affect to make the brain the chief object of their research, to explain the phenomona of mind by referring them to the operations of matter, are weak and powerless; and the sophistry by which these doctrines are concealed, is fully

exposed by the broad light thrown upon the subject by the laws of development. In the words of a French author, " L'Homme est une Intelligence servie par des organes," and the brain is the material organ through which that intelligence manifests itself. But in the progress of its formation, before the body generally has acquired the perfection of the human being; before it becomes capable, as it were, of being the vehicle of mind, the brain passes, like other organs, through its several degrees or phases of development, each of which corresponds to its permanent condition in the lower animals respectively. In following these changes, the examination of the incubated chick affords us the most satisfactory information. So early as the twentieth hour of incubation, (in the human fœtus, not until the fourth week) the rudiments of the spinal marrow present themselves in the form of two white chords running down, one on each side of the central line of the body. In this condition we have the analogy established between the higher classes at this period of their development, and the permanent condition of the lower, as insects, worms, &c., where the nervous system consists in two such nerves, occupying the body in its whole length, and only communicating at the extremity. These chords soon approximate towards each other, and, coming in contact, unite by their anterior borders, leaving a furrow or groove behind. They next meet by their posterior borders, and thereby a canal is formed running the whole length of the spinal chord. In this state the spinal marrow of the fœtus is analogous to that of birds, reptiles, and fishes; this canal soon becomes obliterated by nervous matter being deposited within it, whereby the organ acquires the solid form it presents in the higher classes. In man, about this period, an extraordinary occurrence takes place in the ascent of the spinal marrow. Prior to this epoch the human fœtus presents a caudal prolongation or tail, and the spinal marrow occupies nearly the whole length of the vertebral canal. About

the fourth month, however, it gradually ascends, so as to have its inferior extremity opposite to the base of the sacrum; at the fifth month it is on a level with the fifth lumbar vertebra; at the seventh and eighth it corrresponds to the fourth, and at birth, to the third lumbar vertebra, where it remains for life. In the frog, when it changes from the tadpole state, a similar phenomenon occurs: at that period the animal acquires its posterior limbs, and at the same time loses its tail by that appendage dying, as it were, and dropping off. The spinal marrow, however, escapes by elevating itself in the vertebral canal, in a manner similar to what thus occurs in the human fœtus. During this time the upper extremities of the chords which occupy the head, approach and unite as in the lower animals, where they form a ring round the œsophagus. A little below this point of union, indentations appear where the chords further approximate, and a similar junction between their borders occurring as in the spinal marrow, we have a series of sacs or vesicles formed, the rudiments of the constituent portions of the brain. These are the cerebrum, the optic lobes, the cerebellum, and the medulla oblongata. A longitudinal line, where the lateral parts have united, divides them into equal portions. If the development is not intended to proceed further, the solidification advances to the necessary degree, and we have a brain analogous to that of a fish or a reptile. But in a bird it is destined to be more perfect, and we consequently find, that the development proceeding, the cerebrum rapidly enlarges, and, passing in the direction backwards, covers in, first the optic lobes, and subsequently the cerebellum. The latter increases also in volume, and as it proceeds forwards, the optic lobes are compressed between it and the cerebrum, so that they appear to diminish in size. Such, with the omission of a few particulars, is the degree of development at which the brain of a bird is destined to arrive. In the higher animals it is carried to greater perfection; and not only are

certain of those parts above alluded to, more completely formed, but new and additional ones are superadded to occupy the centre of the organ. It is only at the very advanced period of fœtal life that the nervous system of man acquires those characters in the possession of which he excels all other animals. Thus do we find that his brain, relatively with the nerves and spinal marrow, is greater than in all other animals. The spinal marrow, not occupying the entire length of the vertebral canal, the great size of the lateral lobes of the cerebellum compared with the central lobe, the volume of the hemispheres, their prolongation backwards, the number of convolutions and the depth of the sulci, the size of the corpus callosum and pons varolii, are all so many peculiarities of the human brain. This order of development is, however, by no means unusually departed from in man, and those ill-formed beings are produced, termed monsters. Some are born wanting a brain altogether; in others we find certain portions of it deficient; others, again, present a redundancy of brain, or certain parts are developed beyond the proper standard, at the expence of some which are deficient.

Such is a cursory outline of the phenomena of development; and in reviewing it, we are struck with the wonderful accordance in its laws with the order of the creations that have taken place in successive remote periods of time. The Creator, in his wisdom, thought fit to people this world, in the first instance, with animals of the lowest order. Thus we find the remains of mollusca occupying some of the lowest strata in the fossil state. These passed away, and were succeeded by animals of a higher order, as birds and quadrupeds, whose remains are found in the more recent formations, and, last of all, was created man.

In contemplating the scheme by which animated nature is ordained, we recognise that order, that system, and that regularity, which pervade the universe. We are

made sensible by observation, that there are certain laws which preside over the formation of living beings; and further, we find that these laws are as immutable as those of inorganic matter. Their study affords a splendid field for our researches, and advances us in the only sure path by which we can ever hope to arrive at a knowledge of the laws of life. And, if ever we shall attain that end, how amply will it afford us the means of understanding and of mitigating disease; how rapidly will it hasten us towards the goal of our ambition, the object of our labours, —the alleviation of human suffering!

But there is another subject to which our study of the development of the human body irresistibly leads, and cold and insensible must be the heart that warms not upon its reflection: it is the contemplation of that mind which first appears after birth, and then sets forward in the march of its development. The infant, at its first entrance into life, differs not in its intellectual powers, from the lowest quadruped. Through the medium of its senses, it first acquires a knowledge of physical phenomena; then gradually the light of intellect begins to dawn, sensations are converted into ideas, reason springs up, and reflection and education combine to foster, direct, and lead it to maturity. Aided by the virtues which have grown up with it, it is enabled to combat and subdue those appetites and passions which are inseparable from our physical nature. The mind then prevails; purifies and refines, as it advances in its course; becomes every day more and more independent of its material vehicle; and often, amid the ruin and dissolution of the body, preserves all its energies unimpaired, all its faculties clear and unclouded. May we not infer then, that the mind, during its connection with the body in life, its sojourn within this material frame, is passing through a phase in its existence; and that after death, purer in nature, and more exalted, it moves onwards towards the goal of its destiny,—complete development,—perfection?

Such, gentlemen, are the general observations with which I have deemed it expedient to commence my division of the course. They have been limited to a very few points; for, from its magnitude, the subject could not be treated, in even the most superficial manner, within the limited compass of a single lecture. My principal object has been to advocate, by a short and partial illustration, the necessity of extending your knowledge beyond the narrow limits of the particular anatomy of man. I therefore hope that you have seen sufficient to prove, that common laws have been ordained for the formation and existence of living bodies; and as every deviation from them constitutes one of the innumerable maladies to which humanity is doomed, the study of those laws affords us the only certain mode of acquiring a knowledge of disease, and thereby ascertaining the most appropriate means for its alleviation. The science of organization must therefore be the object of our pursuit; and as the great field of its details is presented in the course of Comparative Anatomy, I have to refer the senior students to the lectures of our highly distinguished Professor, Doctor Grant, for the completion of the subject. Thus, through the united efforts of those who are associated in this University for teaching the science of Anatomy, I confidently anticipate, among the students, a taste for higher and more extended views upon the subject, than have hitherto been exacted from them. One of the great designs with which this University was founded, will be thus partially accomplished in the improvement of a science, which has been lamentably neglected in England, principally in consequence of the want of that legislative protection which, in other countries, has supported and fostered its cultivation as an object of paramount utility to society.

LONDON:
BRADBURY AND EVANS, PRINTERS,
BOUVERIE STREET.