AN INAUGURAL DISSERTATION
ON
Man Anatomically & Physiologically considered

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To Professors T. R. Jennings & A. H. Buchanan, of the University of Nashville, Tenn.

Man, anatomically & Physiologically considered,
"There is a noble strife, than clashing spears,
A noble peril, than the battle field;
'Tis where, with trust in God, worn as a shield
'Midst universal losses, scots, & sneers,
The man of truth, with brow serene appears,
And stands forth singly, for the right appeal
To the Eternal Empire; nor will yield
One backward, step from policies & fear.
The savage bandit, may the brute, is stilled
Gainst bristling danger—e'en the worm appears
Beneath the foot, his tiny sting, to crave
A venom'd vengeance; but immortal ears
Are full of glory like the Christian brave,
Who dare to suffer wrong, that they from wrongs may save"
It is wise & just & elevating for man-
kind, to entertain the belief that
all things were created, in accordance
with an eternal code of immutable
laws, that these laws operate upon
a divine & universal system of end,
cause, & effect; and that all human
individuals, as well as birds, flowers,
minerals, worlds, & universe, have
a message to deliver from on high
a mission to fulfill—an end to
accomplish. Everything is designed,
to subserve an end, a purpose, in
the vast & boundless laboratory of
the all-wise Divine Mind. From
effects we learn cause, but the end,
always preceding & prompting the cause
to the production of the effects,
which effects imbody, correspond to,
and represent the use, the end, for which they were made, and also the nature & specific magnitude of their producing causes. To properly comprehend man's anatomical structure & physiological functions, therefore, we must first comprehend the use or end, which such forms & functions were originally designed to accomplish.

Man has been, & ever will be, the great & leading contemplation of man. Every thing centers in him, finds in his nature its counterpart, its companion, itspository, its representative, its correspondence, its explanation, & its home.

Every thing proceeds from God through nature to man; and every thing returns from man
through gorgeous spheres to God. Hence man is the most complicated, the most wonderful, the most enigmatical, the most fearful, and yet the most simple of all created things. But how unprofitable & unsatisfactory are these scenes of anatomy & physiology now in the world, which have, for their foundation, the mere form & function which man's organization presents to the senses! The anatomy & physiology of the human constitution, can never be properly comprehended until the soul has ascertained the ultimate object of its development. To ascertain and teach, as physiologist have so done, that the stomach is designed to digest food, the liver to secrete bile, the heart to
to circulate the blood, the lungs

to receive air & maintain life,

and the brain to control the entire

system, is to ascertain & teach but

the most external & superficial truth

of human physiology. These things

embrace no more of the boundless

field which physiologists profess to

explore & understand than does a

vestibule reveal the gorgeousness and

possessions of the temple to which

it belongs. And the same may be

said of the present condition of

anatomical science. It has enumerated

classified, and named, & also determined

upon the apparent use of the various

bones, muscles, ligaments, tendons,

etc., etc. of the human body, but here

it ceases to advise. The science of
anatomy has, therefore, only progressed to a full understanding of the initiatory lessons which the philosophy of the human structure furnishes for contemplation. The field is but just entered; the curtain which has for centuries hung between man and this almost infinitude of knowledge, is only about to be rolled up; and the great anatomical, physiological, and psychological drama which has been enacted for thousands of years on the earth, is about to be comprehended by the human soul. But this comprehension of man's constitutional possessions must depend wholly upon the response which the stupendous organization of nature makes to the following interrogatory,
For what purpose was man made? Let the principle of intuition open its countless avenues to the reception of the answer, and let the principle of reason unfold to comprehend its magnitude and application. For should we ascertain that man was designed for some higher and nobler purpose than that of living, sleeping, eating, toiling, and dying upon the earth's surface, then will we perceive higher uses and more beauties in the anatomy and physiology of his constitution. Then will we realize, not only the sublime truth that the stomach was not made merely to digest food, the liver to secrete bile, the heart to circulate the blood, and the brain to control the body, but we will discover and contemplate...
deeper truths - structure within structure, function within function, even a spiritual anatomy & physiology of the most magnificent character & momentous import. But to the question, how & for what purpose was man created? Previous to the present structure of the Universe, the immeasurable realms of immensity were channels through which flowed seas of unformed materials. Infinitude was filled with elements of divine power & with essences of progressive external tendencies. And residing in the center, yet extending to an unimaginable circumference, was the Holy Artisan - the Divine Architect - the great Positive Mind. This Almighty Power and Creative Principle is called God.
The eternal elements of his being, conceiving in their utmost depths a sublime creation — a sacred embodiment of celestial principles. For there was then but two great coeternal principles in all the wide spread universe — mind & matter, or God, and the elements of his physical organization. And having perfected the plan of the Universe, God said with the full cooperation of his indwelling elements & essences of love "Let us make man". And then the first attribute of Wisdom, which is love, said "Man shall be a culmination of universal nature; he shall be so organized in his body as to receive and elaborate the animating elements of nature into an eternal & unchangeable soul; and his soul, being constituted..."
of those principles which are in themselves pure, everlasting, and infinite, shall possess and obey the tendency to unfold and progress forever. And then the second attribute of Wisdom, which is justice, said, "Man shall occupy such a position in the Universe as will secure to all things organized or unorganized, visible or invisible, a permanent equilibrium of power, possessions and demands." And then the third attribute of Wisdom, which is power, said, "Man shall be created through the mediums and instrumentality of countless suns and planets, and also through the regular and continuous development of minerals, vegetable, and animal, each of which shall correspond to, represent, and embody,
some particular portion of this organism.
And then the fourth attribute of Wisdom, which is Beauty, said, "Man shall represent & embrace all the suns & planets, all minerals & vegetables; & also the energy & strength, & symmetry, & structural beauty of all animals & vegetables in his form, organs, & functions." And then the fifth attribute of Wisdom, which is aspiration, said, "Man shall know himself to be immortal, he shall be the king, the Lord, the crown, the coronation of nature; he shall aspire to be an angel, a seraph, a God."
Then the sixth & highest attribute of Wisdom which is harmony, said "Man shall be an exact embodiment of the great Spirit who creates him; he shall represent, in a finite degree, The
elements & attributes of the Infinite; he shall desire, & be capable of, & enjoy, the most ineffable blessedness; he shall aspire after harmony, shall unfold it, & shall give his eternal existence to its maintenance; he shall be an embodiment of Nature, a revelation of harmony, & an image of God.

Such is deeply impressed upon my spirit as the far shadow of the divine plans & celestial contemplations of the Great First Cause, previous to the creation of man, & the elaboration of the present immutable universe. And immediately subsequent to this occurrence of plans & decisions in the wisdom of the supernal mind, there rolled forth into the sublime depths of infinite & endless chain of the
most magnificent orbs, suns of
immeasurable magnitude & inutterable
grandeur. And in the manner,
circle after circle of suns were un-
folded from out the deep bosom
of the previous seas of unorganized
materials; and thus the universe
was organized & spread throughout
the innumerable realms of bound-
less infinitude. But for what pur-
pose were all these stars, planets,
& satellites unfolded? What use was
this universe of moving orbs to
subsist? Why create them at all?
Because the great attribute of Om-
nipotence, in accordance with the
immutable principles of being &
doing, both said that "Man shall be
created through the medium & instru-

mentalities of countless suns and planets, & also through the regular & harmonious development of mineral, vegetable, and animal. From these divine revelations we must draw the following conclusions:

1. That the stupendous universe is organized for the ultimate purpose of developing and organizing man.

2. That the anatomical & physiological constructions of man are designed to receive & elaborate the animating elements of nature into an immortal & endlessly progress soul. The subject under consideration is now before the mind, I will therefore proceed to a more minute examination of the proposition that man is a culmination of.
universal nature. Notwithstanding
the unpopularity of the philosophy
which accounts for man's existence
upon principles of progressive
development. Nevertheless, it
is the only philosophy which
reason can sanction, and
the soul cherish as its own.
But it is exceedingly difficult
for those minds which have
been educated in the midst
& under the influence of myth-
ological theology, to see its truth
& understand its application.
It is easier for a blind man
who never saw the light, to
understand the properties and
beauties of the distant landscape,
then for an uneducated, or a
wrongly educated mind, to
comprehend the truths of this
philosophy. Should you, there-
fore, have your reason clouded,
or your intuition so buried
beneath a superficial and dogmatic
education as to cause you to
shrink from the present in-
vestigation, then you should
arise with mighty strength to
unshackle your thoughts, and
to burst open the dungeon
door, that your imprisoned
understanding may come
forth and be free. One breath
of Liberty's atmosphere—one
glimpse of the serene light
which emanates from Truth
and knowledge—is sufficient to
compensate the soul for years—yes, for a life time—of intellectual and spiritual slavery. Probably the most repulsive feature of this philosophy to the uninitiated inquirer, is the proposition that man came from the animal creation; or perhaps the implicit denial of this generally received doctrine which maintains that man, as well as every thing else in nature, is a direct and immediate creation from God's own hand. But here, on the threshold of our examination, let it be deeply impressed that I do not teach that there is any sudden or miraculous meta-
morphosis of the quadrumanum into man; nor that man is an effect of the immediate transfiguration of any particular organization to be found in the animal kingdom; but I think man was made and developed subsequently to minerals, vegetables, & animals, by a focal concentration of all the elements, essences, & substances, under the most perfect condition & influence which exist in nature. The Deity operates & creates according to unchangeable & impartial laws. For as much as the general of any thing includes innumerable particulars, it is agreeable to the highest reason to believe that
God made provisions for the immediate objects in the universal plan. This having a mighty and sublime end to accomplish, God instituted the wide-spread universe, with all its parts and powers perfectly and exquisitely adjusted. And as the growing plant arrives at a period when branches are unfolded, and at another when buds burst forth, at another when fruit is developed, or yet at another when the fruit is matured, so has nature, according to the unchangeable workings of divine law, arrived at a period when mineral were unfolded, and at another when vegetables burst.
forth, and at another when animals were developed, and at another period when all conditions, elements & essence conspired to the organization of Man. It is just as reasonable to believe that God creates & shapes like the potter, from the dust of the earth, each little bud & twig, & acorn of the oak, and places them upon the tree, as to believe that he created, by any special & personal action, the multiform forms and human structures that breathe and move upon the earth's surface. But here you may inquire - "If by perpetual & harmonious development Nature has produced plants, birds,
and man, why do we not see these different organizations "springing up spontaneously without a germ, from the ever advancing earth?" The answer is, that Nature is a vast and powerful organization, and that it was originally designed to unfold through countless series, degrees, and groups of physical and sentient organizations, the material and spiritual constitution of man. Therefore, when Nature arrives at the point where she could accomplish this portion of her mission, it was no longer necessary nor possible that she should continue in the old path of specific formation. The ultimate use of Nature is fo-
individuality & to immortalize
the human spiritual principle.
It is proper, therefore, to consider
nature as a mighty & magnificent
machine, and the Divine Mind
as the omnipotent & omniscient
Artisan. Now we may consider
the machine as perfect, as not
wanting in any thing - as being
complete & adequate to the great
ultimate end for the accomplish-
ment of which it was instituted.
That Nature is perfect & complete
in all her parts, is demonstrated
by the perpetually preserved fact
that human beings are born,
and that human spirits ascend
to higher spheres. If then, God
has constructed this great machine
upon principles of unchanging order, harmony, and progression, and if it is perfect even to the adjustment of an atom, it is unreasonable to inquire why he is not still engaged in constructing it. We must understand that every mineral bed is a foundation stone, so that every class of plants is a belt, so that every animal is a wheel in the sublime mechanical structure of Nature; and Man—that wonderful, fearful, enigmatic being—is the glorious result of its harmonious movement. Hence, should we see plants growing without their germs, or the quadruped changing into man, or man de-
veloping by other than by the familiar means of impregnation and reproduction, I say should we behold these phenomena which belong to centuries past, then would nature be imperfect because God would still be engaged in constructing & in perfecting this vast invention. But since the whole is in a high state of perfection, we may expect to note such observance of creative principles; on the contrary, it is only right to expect the various wheels in Nature to move harmoniously in the ceaseless performance of their allotted labor. At an earlier period, in the earth's history, & subsequently to the formation of the primary & secondary strata, a mighty & universal
change occurred in the constitution of the atmosphere. This change, being caused by a general earth quake, was attended with a corresponding alteration in the structure of many intermediate strata, & also in the improvement in the condition & refinement of almost all the terrestrial & divine elements which were previously tending to a higher formation. In consequence of the favorableness of this change, new strata were formed & new elements & essences were unfolded, capable of developing & sustaining new and various veritable organizations. Now let the mind pass rapidly over many centuries—remembering that the principles of progress & development...
were incessantly working out their legitimate mission, that there was going on constantly a refinement & rarefaction of all atoms, substances & essences throughout Nature, & now we come to an interesting era in the system of physical development. The igneous rocks are formed, the primary, secondary, transition, and superficial strata are fully confined in their structure & position; the diluvial & alluvial systems are nearly complete, the mineral formations are perfect & are engaged in generating & eliminating many elements of life & vitality; & the various orders & growths of the vegetable kingdom have arrived at the summit of the susceptibility to the proliferation
of surrounding substances, essences, and conditions. Now there occurs a marriage between the highest forms and essences in the vegetable kingdom—in other language, those particles of matter or elements of life in each system which experience an affinity for one another; so the consequence was, assisted by surrounding conditions and circumstances, a development of the first form of animal life. It is not my intention at present, to examine the evidences which support this system of organic creation. My object now is to trace the progressive development of the animal kingdom up to man. By the first form of animal life I mean
the most inferior order of the radiates, including in its subsequent developments the various & almost innumerable classes of zoophytes, polyplacenta, &c, which then abundantly peopled the sea. But another era arrived in the order of creation, & then came forth a new & higher class of organization, fitted to the conditions & influence of the food & atmosphere which then existed. Thus the saurian kingdom was unfolded, including in its many & various developments, every species of vertebrated animal, such as the crustacea, pleurodactylus, ichthyosaurus, together with every species of crocodiles, reptiles, crustaceous fishes, & batrachians.
The last named order, salamandra, includes frogs, toads, salamanders, and many species of salamanders, which change their anatomy and physiology several times during their brief existence. This phenomenon in nature is illustrated by the frog, which, previous to assuming its ultimate form, undergoes two distinct and important anatomical changes. After the minerals and vegetables unfold the pieces or fish kingdom, and after this kingdom unfolds the salamander kingdom, then the latter arrives at the point of extreme development and unfolds the bird kingdom. Of course the first order of birds are vastly inferior to these which now exist.
but by constant progressive improvement in the physical condition of the earth and the atmosphere, the inferior orders gradually advanced into the formation of the most perfect of the form of animal life. And then there was another focal convergence of the elements and substances which planted the germ, which germ, being urged on and quickened into full development by the conspiration of animal nature, resulted in the unfolding of the Marsupial kingdom. Marsupials are animals possessed with pouches in which they carry and cherish their young, such as the Opossum and Kangaroo. Succeeding this kingdom in consequence of a similar process...
of concentrated germinal properties and circumstantial prolification, the mammalian organization was unfolded. Mammalia embrace all animals which suckle their young. Thus the higher we ascend in Nature, the more closely allied do we find the organization of man. It is almost impossible to contemplate Nature with a comprehensive generalizing eye to determine which to first term man, whether the highest of the quadrupeds or the lowest of the human type, so gradual and progressive is the emergence of one kingdom into another. The mammalian order of animals include these genera, the Sartor, the Sirenia, the Edentata, the Pachydermata, the Digiti grade, the
plantigrade, & the quadrumanous. The
primary change from the quadrumanous
into the inferior types of the human
organism is so easy & unnoticeable
that to the scientific & systematic
investigator the anatomical and
physiological transformation is
scarcely perceptible. For when Nature
is sufficiently perfected to unfold
from out of her inexhaustible
properties & essence, the fish, the
saurian, the bird, the Marsupial &
the Mammalian kingdoms, it had
become an easy, imperceptible, and
a comparatively harmonious work
to develop man, every atom, every
element, every essence, every mineral
vegetable, & animal organization in nature
aspirè to be man. The next spirè
and descending in nature from to
be man for he was the grand ult
imate end for which those form
were originally designed to accomplish.
Hence when every form of organic
life arrived at the consummation
of its development, & when nature
was spread all over with beauty
& with good atmosphere & geo-
graphical conditions, the earth
was prepared for man, & by a
universal combination & conspiro-
ation of tendencies & efforts on the part
of each & every thing he was un-
folded. Though at first huge &
unrefined & resembling in his anat-
omical & physiological structure,
the quadrumanus more than any
other type of the animal creation,
yet man's innate tendency was
onward to perfection, & hence he
finally became in his anatomical
& physiological structure what he
now is, a coronation of universal
nature & an image of God. The
anatomical or structural law, &
the physiological of functional law,
operate with an omnipotent influence
throughout the empire of nature.
Commencing with the elaboration of
worlds, these laws display themselves
in the geological, in the vegetable, in
the animal developments & organizations
which constitute & decorate these worlds
surfaces. The anatomical law is
manifested in various actions long
prior to the physiological law, but
when the vegetable organism is reached,
the two principles became matted as it were, therefore move on and work upon parallel or nearlyidentical plans throughout all the descending kingdoms of nature up to & in man. Each kingdom is represented just as it was unfolded in nature, that is to say, minerals & vegetables converged at some distant era in the earth's physiological & organic history, by the commingling of their forces, merged into & unfolded the fish kingdom. The fish kingdom expanded for many centuries & then it also converged & unfolded the saurian kingdom; & thus by a constant succession of convergencies & divergencies, on the part of each descending
the whole animated kingdom arrived at a high state of perfection, which state is represented in the anatomical, physiological, & psychological possessions of man. The diagram, therefore, is illustrative of the true order of nature’s physical development. A full synopsis of man’s creation may be obtained by simply interrogating nature, for she points up to the eternal Mind, which instituted laws that manifest themselves throughout their unfoldings and led us consider the principles of association, progression, and development. Because under the powerful & constant direction of these forces, laws we perceive the unbroken & the perpetual tendency
of all forms & substances towards perfection, unity, & organization.
Every created thing demonstrates that the great central mind that proceeded from the elements & substances which formed throughout infinitude innumerable nuclei. These nuclei individually extract their elements & substances that have corresponding individual affinities, and these accumulate, condense, & purify, to form suns, and systems of suns, and planets, satellites, & comets, and these planetary organizations form the central mass and fertile womb of each orb which rolls in space. And from such orbs rudimental particles ascend by undergoing a process analogous to that whereby the planets were made, these particles
ultimately in & develop mineral combinations. Then, again, by the incessant action of body upon
body, essence upon essence, substance upon substance, the mineral composing,
by such proliferation, not only generate vivifying fluids & medicines such
as electricity, magnetism, etc. but
actually & constantly lose themselves
in vegetable organizations. By a
similar action, & by a new & higher
combination of appropriate parts, the vegetable loses itself in the an-
imal organization, and in the
development of man.

James William Williamson