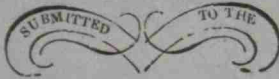


OF AN

INAUGURAL DISSERTATION,

ON

*Death*



PRESIDENT, BOARD OF TRUSTEES, AND MEDICAL FACULTY



University of Nashville,

FOR THE DEGREE OF

DOCTOR OF MEDICINE.

BY

*G. W. Rives*

OF

*Tenn.*

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CHARLES W. SMITH,  
BOOKSELLER AND STATIONER,  
NASHVILLE, TENN.



## Death

It has wisely entered into the views of Providence, that every thing, or the existence of all organized bodies should be temporary; that each body undergoes a change, an incessant change so to speak. Both the inanimate and the inanimate part of creation, are in this predicament; The most minute aggregate of matter; so also the largest material bodies, appear only destined for certain periods of continuation in the present existence. For on looking at our own earth, we see that countries are continually lessened, and perhaps totally destroyed by encroachments of the sea, and various eruptions; whilst on the other hand, from similar circumstances other countries are produced, therefore the appearance of the earth at present is very different from what it was once, and that after the lapse of an age, the appearance will be different from what it is now. Among the many and also

the various objects around us, we see passing  
away. In the human family, they also not alone  
are moving onward; nor we do not meet any  
farther example of this than every day occurrence,  
for it matters not how earnest in our pursuits, or  
how successful in carrying out enterprises of great  
value to fellowmen, with honor, esteem, and enjo-  
yment to ourselves, Death comes and interrupts  
it all. Our part is finished; but the work ceases  
not. The world goes on. This great and wonderful  
change, the greatest that can happen to any of us  
and which is sure to happen to all of us; for  
such is the lesson taught us by those who have  
before just preceded us. Nor is this better realized  
and brought home to our conscience than when  
those with whom we are intimately connected  
by ties of kindred; or by association in business,  
or position ~~we~~ are called away. Then it is we feel  
the reality, the nearness, and the certainty of such

a change. The first we will notice of the human family is in childhood, which is full of life, and all the joy and pleasure is but the impulse of a moment; their minds untaught, talent unshorn. The next note we take of him, he has ripened into maturity, or manhood, with his mind educated, and his talent so powerful and superhuman-like as to cause nations to sweep from his lucid language; but before many years shall have registered their number upon the book of time. We take notice of him again. Now he is old and feeble, and the once proud heroic, and manly form is now fluttering with old age worn out with the toils of this life - his race nearly run. Ere long the machine will have vomited out the exhalent's flag, and he stoops to rest:  
Like a clock worn out with eating time.

The wheels of weary life at last stand still.  
The renovation could only be affected by the

substitution of new for the worn-out machinery. With respect to the animated part of creation, both the animal, and vegetable have but a certain period destined for their existence. This period varies exceedingly, some living but a few short hours; or are no sooner ushered into existence <sup>than</sup> their race is run, whilst on the other hand there are others that appear to live for centuries. But besides this period every animal or vegetable is liable to be cut-off long before this period arrives, being exposed to violence of every kind, not only mechanical violence; but the destructive operations of a thousand causes, and to disturbances from the cessation of the circumstances which are necessary to their existence. One animal is destined to devour another, and myriads of insects are constantly destroyed in storms. Therefore the limit which providence appears to have placed to every thing, is curtailed

It has been said by some philosophers that looking at man one would be led to the conclusion, he would last forever, that at first sight such a machine as the human body unless destroyed by external violence of some kind, would appear capable of lasting for ever; but we think there is nothing in the appearance of this machine which would lead one to suppose it could last to eternity. What we know of nature can be learned only from experience and it would be as correct to say, because it is summer, it will be summer for ever; or because it is day it will be day for ever, unless we have contrary experience, as it would be to say that man appears capable of lasting for ever. All men must die; but all do not die alike, Death is certain, life nothing more uncertain. A little practice in the wards of a hospital or experience in the sick chamber will suffice to teach the

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student of medicine that the ways of extinguishing the flame of life are various. In the one instance the thread of life is suddenly snuffed and the passage from life, and apparent health perhaps, to the condition of corpse is made in a moment; in another the dissolution is slow and tedious, and we scarcely know the precise instant in which the solemn change is made. When maturity has been rapidly attained, decay as rapidly supervenes, therefore when the growth has been slow, and the attainment to maturity longer, the period of declension is proportionably postponed. In certain of the lower animals we have what has been termed very appropriately, cell life. that is each cell is considered to have a distinct life of its own; hence a minute portion may die and be reproduced without the organism of the individual suffering, and so little is the

organism affected by injuries of a part; that when the animal is cut into pieces, each piece may undergo a distinct developement; so as to form as many separate beings. In higher animals this is not the case; for death and reproduction of every part of the frame is taking place in the function of nutrition. Nutrition or nutritive assimilation in the language of Acleron. Is the action by which every part of the body, on the one hand appropriates or assimilates to itself a portion of the blood distributed to it; and on the other hand yields to the absorbing vessels a portion of the material that previously composed it. The precise mode in which nutrition is accomplished is not accurately known, it not being a microscopic object. The source of all nutrition and growth is the blood. Each elementary particle comprising, Nerves, Muscles & Senses to have the power not only of attracting



material from the blood; but of causing them to assume its structure, and to participate in its vital properties. Thus apparently from similar materials nerves form nervous substance, muscle muscular substance, and it is even thought by some that morbid substances have the assimilating power. But besides the impairment and change of composition to which all parts are subject in the discharge of their material functions; an amount of impairment which will be in direct proportion to their activity or physical action. They are liable to decay and degenerate of their particles as Dr. Carpenter clearly showed, that every particle of the body is formed for a certain period of existence in the ordinary conditions of active life. At the end of this time which if not previously destroyed by outward force it degenerates and is absorbed; or dies and is cast out. The simplest example

that can be produced of this is in the hair. An eyelash which naturally falls out without pain, is one which has lived its natural time, and has died, separated from the living. In its bulb such an one will be found different from those that are still living, in every period of their age. It is only when organs that are intimately associated with each other, and whose association is essential to the life of the whole, have their functions interrupted, that the cessation of other functions, and general death follow. Death taking place in the minute parts or cells has been termed, Molecular that of whole body, Somatic. This the last we will find our few lines. But before we take up a few of the various causes of death we will refer to some of the physiological signs preceding it. For some time immediately preceding dissolution of the human body there is

usually a peculiar mixed expression of countenance or a compound of apparent-mental and corporeal suffering, which has given rise to the term agony, this however depending on the lesion of, Respiration Circulation, or of the Cerebral function. The word agony applied to this condition of the individual means in many Languages, a violent strife, or contest; that its acceptation has been so extended as to embrace what have been termed the pangs of death. This expression however, physiologically speaking, instead of being a state of mental and corporeal turmoil and anguish, is one of insensibility. The peculiar sound on *inspiration*; the nose is pinched up, the eyes are sunken, the temples hollow, ears cold and contracted, Skin of the forehead is tense, lips pendent and cold, with the eye ball in this condition slightly elevated. These symptoms and various others we might mention, of approaching death, instead of being evidences of suffering, are signs of the

Brain having lost all or almost all sensibility to impregnation; although from the moment that Respiration, and circulation permanently cease; the body may be regarded as unquestionably dead. Vital properties remain in some of the organs, the presence of which is an evidence that vitality has previously, and recently existed. The vital properties which persist after the animal has become dead to surrounding objects; are those that belong to the organic class. The most marked evidence however of the continuance of a vital property after <sup>death</sup> is in the case of muscles, which can be made to contract powerfully by the application of an appropriate stimulus, even for an hour; or two after death. Absorption is said to have occurred after death and the hair and beard to have grown, to a certain extent this is true in parts that are nourished by imbibition; but the apparent elongation of the hair or beard is owing to the shrinking

of the integument. Death is the necessary, total and permanent cessation of those functions, by which, life is characterized, this cessation may happen at all ages from accident or disease. A few however, cease gradually to live through the affect of ages alone, hence a minute distinction has been made into that kind of death, which is produced by the gradual wear and tear of the organs, one that which cuts off the individual prematurely. The former is termed by physicians, Senile or Natural Death, the latter Premature or Accidental, these differ considerably, and require a distinct consideration.

Natural Death

The natural period of life is different in different individuals. It varies according to appreciable and inappreciable circumstances, the original constitution of the individual, habits of life, the locality in which he may reside, &&

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We notice that whilst some countries are remarkable for the longevity of their inhabitants; others surprise us by the short-period allotted them. M. Florens of France, says that the age-respecting all animals ages, is five times the period they require to mature from birth, this would give man about ninety years; but as he lives quite uncorrected, three score years and ten is nearer the truth of his days on earth. It does not seem that the natural period of life has differed much in postdiluvian periods; for the Platonist writes, the days of our years are three score and ten, yet is their strength, labor and sorrow, for it is soon cut-off and we fly away. Blumenbach asserts that by an accurate examination of numerous bills of mortality, he ascertained the fact that a considerable proportion of Europeans reach their eighty fourth year; but few exceed it. Whilst according to M. Quere, in the insalubrious regions of Provence,

in France, nature begins to retrograde at from  
twenty to thirty and fifty years is the usual term  
of existence. ~~But~~ generally the ~~aged~~ individual  
sinks silently to rest; totally unconscious of all  
that surrounds him, and in many instances he  
preserves his sensorial powers to the last; and is  
capable of locomotion, until to oppression, or  
disturbances of action, of one or other of the vital  
functions, during sleep it becomes the sleep of  
death. The great characteristic of this kind of  
death as pointed by Bichat, in one of the best;  
of his excellent productions, is that animal life,  
terminates long before organic life. The animal  
functions which connect the organ with the objects  
around being annihilated long before those  
that are concerned in nutrition; however, in other  
words, <sup>death</sup> takes place from the circumference towards  
the centre, whilst in essential death the anni-  
hilation of the functions begin in the centre.

and extends towards the circumference. This kind of death regarded as the last sleep characterized by a peculiarity, in which the powers, partly from their lessened sensibility increasing, the difficulty of restoring the sensitive system, become incapable of the office, and the individual therefore, wakes no more.

### Accidental Death

This term has been employed by some physiologists to include all kinds of death happening to the individual before the natural term. The cause consisting in some accidental organic lesion, which arrests the vital movements before they would stop of themselves. This kind of death varies exceedingly from that we have been considering, the individual is perhaps in full possession of all his faculties, his organs have been previously, to all appearance in the most favorable condition for the prolongation of life; and his death instead of natural, and unperceived by the



individual himself, is usually forced and violent. All forms of sudden death commence by the interruption of one — of the three great vital acts.

Circulation, Respiration or Innervation, one of the three functions ceasing first, the others die in succession. we first refer to death <sup>from</sup> circulation,

### Circulation

It will be sufficient for our purpose to remark that life is inseparably connected with continual circulation of the blood, so long as the circulation goes on, life, organic life, at least remains; but circulation being stopped, life is presently extinct, and our investigation of the different modes of dying, resolves itself into an investigation of the different ways in which the blood may be brought to a stand. There is ample provision made in the construction of this essential function. In the first place we have an extensive hydraulic apparatus distributed throughout the whole frame, consisting

of the heart and vessels leading to, and from  
the heart; second there is a pneumatic machine, forming  
a considerable part of the thorax, which is the lungs  
and their cases or pleurae, in which the lungs are  
lodged. This apparatus being the great renovator  
of the blood; and lastly we have the power by  
which this machine is made to work, this being  
vested in the nervous system. Each of these contin-  
-uing to act or the circulation stops, and life comes  
to an end. The functions they perform are called vital  
functions. Their main organs, the heart, Lungs, and  
the Brain, are denominated vital organs. In  
the propelling of the current of blood by the heart,  
and that it may continue propelling it; two  
things are necessary: first there must be a certain  
power, or faculty of contraction, secondly there must  
be a sufficient quantity of stimulus in its  
chambers to be moved. Therefore we have two causes  
in which death may begin at the heart. First we

notice that form of death caused by the close supply of blood cut off from the heart; the best example of this, are those in which it is a consequence of sudden and profuse hemorrhage, as the bursting of an aneurism. In this the circulation fails, not because ~~the heart~~ has lost its power of contraction but because blood does not arrive in its chambers in sufficient equality. It is said we may be assured of this, as on the examination of an animal after death from a sudden loss of blood, when opened this organ is not dilated and full of blood; as it would be if it had ceased to act from a want of power to contract upon its contents; but it is empty or nearly so, <sup>and</sup> contracted. The next form beginning at the heart, is the opposite of that in which we have just now referred to. Here we have no deficiency in the proper stimulus to the heart's action; but we find a total failure of the heart to contract, as in the case of poisons, for there are certain substances

said to have the power, if applied to any part of the body, will speedily produce death; upon examination of this, each chamber of the heart is found to be full of its proper stimulus upon which it has been unable to contract.

The order in which death takes place here is as follows. The heart ceasing to propel its blood, the encephalon and gray matter of the medulla spinalis no longer receive the necessary impulse for the continuance of their functions; they therefore cease to act; The whole Death from Respiration next.

It will sufficient here to remark that there is a passage from the nose or mouth to the respiratory organs, or Lungs. The entrance of air into the Lungs, may be cut off in various ways, by hanging, Drowning. There are two ways in which death may be said, to be connected with the Lungs, first mechanical obstruction of the air to the Lungs, as in hanging; or in

any other way, in which the air is cut-off,  
Secondly when air is breathed into the lungs  
which contains little or no oxygen; yet  
can be respired for a while. The order of death  
is as follows. The mechanical phenomena cease, to  
this the cessation of chemical-phenomena succeeds,  
thus owing to the supply of air being cut-off,  
the blood, not-experiencing the necessary con-  
-version in the lungs, soon stagnates in the  
pulmonary capillaries; but the heart may continuo-  
-ue to beat; owing to the residuary air in the  
minute ramifications of the bronchii, but  
this soon ceases in consequence of a defective sup-  
-ply of blood. The nervous centres die, and others  
parts in succession. There are many instances of  
this on record, which have occurred to persons  
exploring caves or caverns, and many places where  
there is a deficiency of oxygen. We also have death  
from extreme cold, which may fall under this head

This occurrence however rare in this part of the  
of the country, although it occasionally happens to  
those individuals who are intoxicated and lay  
out all night during the very cold weather, we  
have a case of this kind occurring no great way  
from this city during the extreme cold weather we  
have had for several days, This occurs for the most  
part in countries where there are <sup>few</sup> settlers. It produces  
stupor coming on slow, at the same time very late  
the person is totally unconscious of its effects until  
every organ is the power, or under the influence  
of this powerful agent, and they yield to its  
mighty influence, so it is, we meet with much  
difficulty in arousing them from their lethargy,  
very often fainting. In speaking cold we are led  
to say something of ~~water~~ water producing death,  
Of this we might cite to several cases of death  
produced by this agent. As in the harvest fields  
or on parade during the extreme heat of summer

where the individual undergoes great fatigue, and becoming very thirsty, is apt to drink an over-amount of water, which is apt to be moderately warm, which fills <sup>his</sup> stomach to distention, his system becoming relaxed, he yields to its influence. Now as the ~~phlogistic~~ <sup>phlogistic</sup> would say, it was owing to the coldness of the water; but this <sup>is</sup> untrue for, believe it would be impossible for a man to drink cold water enough at one time, to hurt, therefore we think it not owing <sup>to</sup> cold water; but to the amount of warm-water he is apt to take. Lastly we will refer to death from immobility.

### Immobility

This may occur in the gray matter medullæ spinalis, or in the encephalon. By a severe injury done to the head, or the worst attacks of apoplexy producing loss of innervation, his sensorial functions first cease, and the individual lies deprived of sensation, volition, and mental and more.

manifestation respiration may continue, owing to the reflex nervous system being secondarily affected only; but it becomes progressively more irregular and laborious and ultimately ceases. The order of death is as follows;—the interruption of the brain's action destroys first that of the voluntary, and that of the mixed muscles secondly. The mechanical phenomena of respiration cease, and then the chemical phenomena cease. This is followed by cessation of the heart's action, owing to the united loss of nervous influence from the brain, to this succeeds the loss of general circulation, and lastly that of functions of nutrition, secretion, calorification. In conclusion, An easy death is what all desire, the closing scenes, whatever may have been the pains, in most ailments is of this character, in the beautiful mythology of the Ancients, Death was the Daughter of Night; and sister of Sleep.



Among the Ancients, also, death was generally  
depicted in statues as a friendly genius, a  
sleeping child, winged, with an inverted torch  
resting ~~resting~~ on his breast, and in his hand  
a wreath, with an inverted torch, or as Love, with  
a melancholy air, leaning on an inverted torch  
itself a beautiful emblem. In more recent times  
death has been portrayed as a beautiful youth