

A discourse, delivered in the First Church, Boston, on the anniversary of the Massachusetts Humane Society, June 9, 1807 / By William Emerson.

Contributors

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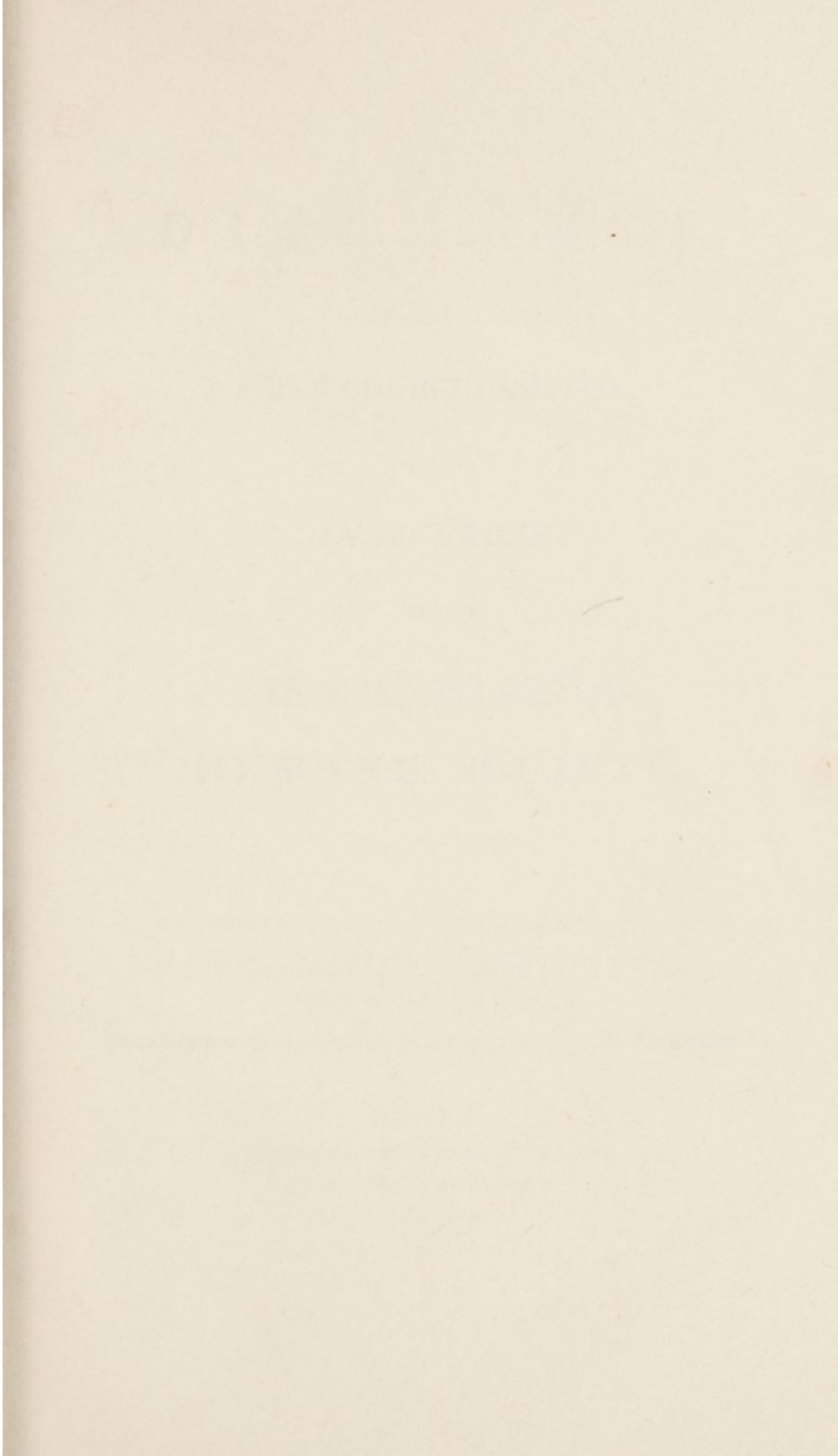
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W. EMERSON A DISCOURSE 1807



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A
DISCOURSE,
DELIVERED IN THE
FIRST CHURCH, BOSTON,
ON THE
ANNIVERSARY
OF THE
MASSACHUSETTS
HUMANE SOCIETY,

June 9, 1807.

BY WILLIAM EMERSON, A.A.S. S.H.S.
Pastor of the First Church in Boston.

BOSTON:
PRINTED BY MUNROE & FRANCIS,
NO. 10, COURT-STREET.

.....
1807.

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RESOLUTION

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THE AMERICAN SOCIETY

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BY WILLIAM THOMPSON, Pastor of the First Church in Boston.

RESPIRATION.

EZEK. XXXVII. 5.

BEHOLD, I WILL CAUSE BREATH TO ENTER INTO YOU, AND YE SHALL LIVE.

THE entrance of breath into a body is essential to its life. We are told of animals, which can live without food, but not without air. Deprived of limbs, of the heart, and even of the head,¹ some reptiles are said to be able to perform almost all the functions of life; yet, as soon as you interrupt the communication between their lungs and the atmosphere, they languish; cut it off entirely, and they die. The smallest insect refuses the gift of life, if denied the privilege of respiration; and the fish itself expires in convulsions under the exhausted receiver.

We grant indeed that nature is not forward to reveal her secrets; and we are grateful for that principle of accommodation, by which she adapts her subjects to their condition and circumstances. We have heard of animals

¹ See an account of the experiments of Spalanzani and others on frogs. Encyclop. Brittan. art. Physiology.

enclosed in stones and in trees, of serpents and polypⁱ congealed with the frost, and of the swallow and the dormouse in brumal retirement.² We have also been made somewhat acquainted with the conjectures of the curious on these wonderful stories. After all, we receive with caution the seeming exceptions to the general law, demanding air for the maintenance of life.

It is the power of respiration, which distinguishes a living from a dead body, inert matter from its animated forms, glowing nature from the imitations of art. The beautiful portrait gives us pleasure, and the statue of exquisite workmanship commands our admiration, only in proportion to their resemblance of life; and there is literally 'no good to the owners thereof, saving the beholding of them with their eyes.' When we approach them, we perceive the canvass to be breathless, and the marble cold. They are warmed by no spirit, and have no irritable fibres nor sensible nerves. Such was the

² The long disputed question, *whither do the swallows go in the winter?* seems not to have received a satisfactory solution: there are many hearsay stories concerning the matter, but no authenticated facts. In *Morse's American gazetteer*, under art. SCITUATE the following account promises somewhat towards answering the question. "A Millpond in this town (Scituate) being suddenly drawn off by a breach in the dam, in the winter season, some years ago exhibited a matter of speculation to many of the inhabitants. The swine of the neighbourhood rooted up house swallows in great quantities from the spot which the water had left, which they ate greedily. Swallows have been found in several other places; at Egg Harbour, in New-Jersey, in a marshy place, a large cedar being blown down, a vast number of swallows were found in the mud of the root." However well informed the author of the *American Gazetteer* may have been with regard to the finding of swallows in the mud at "Egg Harbour and several other places," it is impossible for me to say; but on this point, as it respects Scituate, he was misinformed. The Rev. Dr. BARNES of that place, a respectable philosopher as well as divine, has repeatedly assured me that, after a diligent inquiry into the story, he found it was without a tittle of truth.

³ Eccles. v. 2.

body of our common progenitor, when the Lord God first 'formed him of the dust of the ground.'⁴ Eyes had he, but he saw not ; ears, but he heard not ; neither was there musick nor voice in the organs of speech, until his almighty maker 'breathed into his nostrils the breath of life.' It was then, that 'he became a living soul.'⁴ His lungs, filled with air, commenced their regular operations. They retained a portion of what they received, transmitted it to appropriate cells, and, having used the remainder, returned it for a fresh supply of the uncontaminated atmosphere. The alternate expansion and contraction of the thorax maintained the process of respiration. The blood began its everlasting circulations through the pulmonary arteries. The lungs received it ; exposed it to the action of the air ; revived its power ; renewed its colour ; and returned it to the heart, which poured it forth again into a thousand currents.

It was formerly believed, that the lungs were moved, not by any external agent, but by a certain expansile power, which themselves possessed. It is now ascertained, that in man, and other warmblooded animals, respiration is performed by a diaphragm ; and that in ordinary circulations the lungs are passive. Is the function of respiration then altogether involuntary ? Without doubt involuntary for the most part ; else man would have the power of breathing out his life at pleasure, and there would be no provision for sustaining it in seasons of sleep. It is affirmed, that one hundred and nine cubic inches of air will remain in his lungs, after his best efforts at complete expiration.⁵ It is, however, happy for man,

⁴ Gen. ii. 7.

⁵ Bostock's Essay on Respiration, p. 35.

that his respiratory organs are in some measure subject to his will. Two hundred and eighty cubick inches, it seems, are contained in his lungs, when in their natural condition. He commonly employs no more than forty inches in a single act of respiration; yet is he capable of propelling from his lungs more than four times this quantity of air, after an ordinary expiration. Hence the power of speech, and all the infinite and pleasing variety of vocal musick.

That a principal benefit of respiration is the production of animal heat, is a supposition, which at this day, will hardly be controverted. But it first acts upon the air, and then upon the blood.

Respiration first acts upon the air. The atmosphere, in which we live, is not, as it should obviously seem to be, a simple element. It is composed of two distinct fluids, possessing different properties, and serving different purposes. One of them is friendly, the other destructive to animal life. To the great Dr. Priestley and the celebrated Lavoisier are the world indebted for the most valuable discoveries and beautiful experiments relating to this theory. These and other philosophers have proved to us that, of an hundred parts of atmospherick air, twenty-seven only consist of oxygen. This is the gas, which serves as food to the lungs, which gives to the lamp of life its lustre, and is essential to combustion in bodies universally. Seventy-two hundredths of the atmosphere are engrossed by azote, and one hundredth by carbonic acid. These gasses, when disengaged from oxygen, though fatal to the respiration of animals, have yet their important use. Pure oxygenous gas cannot long be in-

haled with safety. Our creator has accordingly given us a modified atmosphere, in which to breathe, and thus defended our frame against a too rapid consumption.

Another instance of his infinite wisdom, in this connexion, is manifest in the contrariety of food, which is requisite for the support of animal and vegetable life. The oxygen, which to man and most other animals is the vital fluid, is rejected by plants as noxious to their existence, and issues from their bodies in a continual stream; whilst the azotic gas, so poisonous to us, is inhaled by them with eagerness and delight.

In atmospheric air, thus compounded of two or rather three distinct principles, respiration produces a change. It diminishes the quantity of air by absorbing a portion of the oxygen gas; it generates a quantity of fixed air in the lungs; it absorbs, probably, a very small quantity of azote⁶; and it remits a portion of aqueous vapour. So that atmospheric air, which has been breathed, is found to contain a vastly larger portion of fixed air, a less portion of vital air, whilst the azotic air, unfit for the support of either life or flame, remains not sensibly, though, in a very small degree, lessened.

Respiration also acts upon the blood. The oxygenous part of the atmospheric air enters the vesciles of the lungs. The blood, possessing an attraction for oxygen, absorbs a portion of it, and immediately exchanges its purple for a vermilion colour. The oxygen, at first loosely united with the mass of blood, in the course of circulation, forms

⁶ Lavoisier was not sensible of this; but later experiments by Mr. Davy with more accurate instruments than his, determine, that a small portion of azote, viz. about $\frac{1}{80}$ part of the air respired, is absorbed.

a closer connexion with its carbon, whence an oxyd is produced. This oxydated blood loses its florid appearance ; it returns to the lungs ; it discharges a portion both of inflammable and of aqueous matter ; and is recreated and reddened by a new supply of oxygen. Respiration then frees the blood of two noxious principles, hydrogen and carbon ; and insinuates into it a new principle of vitality.

It is evident, that this process must be attended with the production of heat. Caloric, or the principle of heat, combines with different bodies in different degrees, and is the cause of fluidity in all. But it is a well known law of nature, that fluid, changing into solid bodies, or solid, changing into fluid bodies, extricate heat. The oxygen, taken into the blood, recedes from its gaseous state, and consequently heat is evolved. It is oxygen, which, by means of the blood, distributes itself through the parts of the body, and generates heat in all the extremities. This heat, evolved in some sensible form, preserves the irritability of the system. Yet the heat of an animal is not wholly derived from its lungs : the blood imbibes the matter of heat through the sensible warmth, which is externally applied to the body. The lungs are not so much the focus of animal heat, as the spark which enkindles it : they are not a kind of furnace, generating heat for the rest of the body, but, having imparted to the blood a vital principle, each part of the system is left, according to its degree of action, to generate heat for itself. The grand business of a living body is the constant assimilation of new parts.⁷ To cause the new parts to pass

⁷ Bell's Anat. Vol. 2. p. 125. Edin. edit. 1797.

from a fluid into a solid form is the object of all the circulations. The whole nourishment of the system proceeds in the extreme vessels, and is an uninterrupted assumption of new parts. The vessels are constantly occupied in forming acids, oxyds, and secretions. The consequence of this continual labour is a chemical change, and of this chemical change the consequence is continual heat.

Such are the intention, the offices, and the effects of respiration in living bodies. It is only when this power is unimpaired, that the animal can live in the enjoyment of health, vigour, and beauty.

In a contrast with this natural and happy condition, contemplate the effects of suspended respiration upon a human being. Suppose the mischief to have happened by an immersion in noxious air. The first efforts of the victim to inspire are instantly followed by a sensation in the trachea, that there is no provender of life in the fluid. He rejects the deleterious gas; and, the muscles of expiration continuing to act, the vital air is speedily expelled from the lungs, which as speedily collapse.

Similar are the effects of ordinary hanging. The power of expiration performs its office, whilst the trachea cannot be opened for the admission of air: of course the wretch is destroyed from a collapse of the lungs.

Nor are the consequences of drowning totally different. It is not from the intrusion of a little water into his lungs and stomach, that dissolution accrues to a drowning subject. On his first submersion, air is expired from the lungs; and he struggles in vain to supply the deficiency by inspiration. Air is again expelled; a small quantity more of water is received; but, in less than four minutes,

the muscles of expiration cease to act, and convulsions are at an end.

Thus far we venture to affirm with some degree of confidence. But in our progress to investigate the proximate cause of apparent death, in the abovementioned cases, we are bewildered amidst the speculations of philosophers, and the facts of experimenters. Mr. Kite,⁸ by a train of ingenious reasoning, not utterly destitute of support from observation, displays on this question a plausible theory. In his opinion, the consequence of suspended respiration is a congestion of blood in the right side of the heart and lungs. This congestion, he supposes, operates fatally, not on the heart nor on the lungs, but on the brain. Of course, his conclusion is, that those, who die by drowning, die of an apoplexy.

This theory, however specious, meets a powerful opposer in Dr. Edward Coleman. This physician alleges, that "in drowning and in suffocation from foul air, it has been found, that the veins of the head are not more distended than in natural death; and that apoplexy does not take place, as has been supposed, from hanging, is equally true; for if such were the case, a recovery could not be effected; since our endeavours to remove common apoplexy, even while the process of respiration and circulation proceed, frequently prove unsuccessful."⁹

By other arguments and a course of experiments, the last mentioned writer pretty satisfactorily establishes the doctrine, that apoplexy never happens in drowning, hanging, and suffocation; that the immediate cause of the

⁸ Essays and Observ. physiological and medical on the Submersion of Animals. Lond. 1795.

⁹ A Dissertation on Natural and Suspended Respiration by E. Coleman. Second Edit. Lond. 1802. p. 261.

suspension of circulation is, “not the presence of black blood in the left side of the heart, nor the mere want of motion in the lungs, but a collapse of the air cells of the lungs, which produces a mechanical obstruction to the passage of the blood in the small branches of the pulmonary vessels.”¹⁰

Here then the interesting question arises, By what means shall the victims of casualty be rescued from the jaws of death? How shall the mechanical obstruction, which has followed a collapse of the lungs, be removed? What shall change the blood, and stimulate the heart? How shall the natural circulations be restored? How, in a word, shall we CAUSE BREATH TO ENTER INTO THESE BREATHLESS FORMS, THAT THEY MAY LIVE?

An answer to these queries is found in a variety of treatises on this subject by medical and physiological writers. We find, indeed, what might naturally be expected, slight variations with regard to the means, and their use, of resuscitation; yet the most respectable authorities are, generally, agreed in the following reply.

Never by the smoke of tobacco, which uniformly induces such a degree of debility in the human frame, as the best powers of life are hardly able to support. Not by bleeding, since the disease is not a compression of the brain, except in instances where a previous disposition to plethora prevailed, or external violence has been sustained. Nor yet by emetics, until the circulations are re-established. A case of suspended respiration is that of extreme debility, to which nothing surely should be added to increase the evil. To pour poisons into the stomach

¹⁰ Coleman, p. 151.

of a man, breathless through submersion, is at once to quench that spark, which should be gently fanned into a flame : in direct repugnance to the example of him, who came, *not to destroy men's lives, but to save them*, it is violently 'breaking a bruised reed'.¹¹

On the contrary, let the patient have the immediate benefit of gentle stimuli. Let the stomach be warmed with a generous cordial. Let the lungs be expanded, that they may feel the stimulus of the element they love ; but, in imitation of natural respiration, let them be alternately distended and collapsed. Electricity should also be directed to the heart, that every portion of its remaining irritability may be brought into action ; at the same moment, let the shock be uniformly attended with a concomitant expansion of the lungs. Let the access of cold air to the body be cautiously avoided ; and by the application of warmth prevent the escape of heat from the blood, and thus supply, as far as possible, the defect of that heat, which should have been absorbed from the air. When the lungs have been expanded and collapsed, the use of frictions may be advantageously commenced, and should be tenderly and diligently continued. "The final intention of the whole plan of treatment is," in the words of Dr. Coleman, "to imitate the natural circulation."¹² In every stage of the process let your moderation be known by slowly making haste.¹³

¹¹ Matt. xii. 20.

¹² Coleman, p. 272.

¹³ "While the vital fire

Burns feebly, heap not the green fuel on ;
But prudently foment the wandering spark,
With what the soonest feels its kindred touch ;
Be frugal even of that ; a little give
At first ; that kindled, add a little more,
Till, by deliberate nourishing, the flame,
Revived, with all its wonted vigour glows."

Armst.

It is in the use of these instruments of restoration, that the Royal Humane Society of London, and its offspring Institutions, under the blessing of almighty God, have redeemed thousands from a state, in which they soon would have slept the sleep of death.¹⁴ It is by these means, my brethren and friends, members of the Humane Society, assembled in this place, that you are enabled annually to put on record the names of those, who have been ransomed from the grave. Within the last five years you number *one hundred and thirty-eight* persons, whom you have contributed to restore from the borders of destruction to the joys of life and the labours of society. This acknowledgment includes not the multitude of shipwrecked mariners on our coast, the merit of whose deliverance, in the same space of time, you do not exclusively claim, but in which the world allows you an honourable share.

Prosecute, multiply, and, if possible, improve your benevolent exertions for the preservation of seamen, whose useful lives are so intimately connected with labour and perils. Let their huts be continued, and, in some instances, better accommodated, for their reception, when, saved from the horrors of the sea, they are ready to perish on the shore. Already you have their thanksgivings and supplications to heaven on your behalf. But if their honest hearts are thankful for these proofs of your concern for their comfort, what will be their grat-

¹⁴ In the appendix to the Bishop of Gloucester's sermon preached before the Royal Humane Society in 1803, it is asserted, that, since the period of its institution, which was in 1774, the Society has been the means of preserving and restoring the lives of no less than 2,798 persons, who would, in former times, have suffered premature death and interment, so as to have been forever lost to their families, their friends, and the community.

itude, when they shall shortly behold the *Greathead Life-Boat*,¹⁵ which you are building with so much care and expense, as a new token of your mercy for their sorrows, and as the ark of their future safety in moments of tempest and shipwreck ?

Surely it is better to be thus employed in "preserving life and alleviating its miseries," than in spreading havock and wretchedness over the face of the globe. Who would not rather possess the character and the reflexions of a Howard, than the dispositions and fame of the most splendid conqueror ? Blush, O ye sanguinary tyrants and ravagers of the earth, to think, that whilst the humane physician is incessantly toiling for the prolongation of human life, you are equally busy in contriving its waste. He adds treatise to treatise to improve the healing art ; you do the same to multiply the instruments of destruction, and to arm them with new powers. He weeps, that a few noxious animals should be sacrificed for the benefit of discovery ; whilst you, after deluging a world with blood, lament that you cannot repeat the experiment.

But the friends of humanity are richly consoled in the choice and pursuit of their labours from considering the infinite worth of the human soul. In the frame and faculties, in the exertions, attainments, and whole history of man, they perceive his high destination. They see foresight in his plans, and ingenuity in his toils. By patience he converts the rude forest into flourishing fields and

¹⁵ A Life Boat, after the model invented by Mr. Greathead, of South Shields, England, is now in forwardness, under the direction of Mr. E. Sigourney, and before the next anniversary will be fit for use. Of this invention see a copious account in the Amer. Ed. of Dr. Rees' New Cyclop. vol. v. part 1. art. *Life Boat*.

fruitful gardens, and barren shores into magnificent cities. With an enterprizing hand he ploughs the ocean, and, in imitation of Omniscience, ‘ numbers the stars of heaven, calling them all by their names.’¹⁶ They behold him, in brief, made in the image of God, a ‘ little lower than the angels, crowned with glory and honour,’¹⁷ and capable, through the culture of his intellectual and moral powers, of endless progression in knowledge, virtue, and felicity.

Yet is it a fact, that this being, so noble in form and godlike in faculties, is every moment obnoxious to an host of dangers, and to the evil of death in a multiplicity of forms. Moralists and poets have represented his life by similitudes, which, of all objects in nature, are distinguished for their frailty. ‘ It is grass,’ say they, ‘ which in the morning groweth up, and in the evening is cut down and withered.’¹⁸ It is a flower, which is crushed by the foot, blighted by the wind, nipped by the frost, felled by the worm. It is a shadow, a dream, a vapour, vanity, nothing. Such is the life of this lord of the lower creation. He, who can give a new path to the rivers of the wilderness, and disarm the clouds of their thunder; he, who can bind nations together, separated by immeasurable oceans, is himself girded by the bands of death, and reluctantly¹⁹ carried to the tomb. He, by whose voice a whole country is either blessed with peace, or cursed with war, and whose single nod gives law to an empire, ‘ hath no power over the spirit to retain the spirit in the day of death.’²⁰ By the instrumentality of a moth or a hair, ‘ his breath goeth forth, and in that very day his thoughts

¹⁶ Ps. c. xlvii. 4.

¹⁷ Heb. ii. 7.

¹⁸ Ps. xc. 4.

¹⁹ John xxi. 18.

²⁰ Eccl. viii. 8.

perish'.²¹ There is no ransom, which can alter his fate. His treasures, which the seas have submerged, may be redeemed from their miry bed, and the estates, of which fraud, or the fortune of war may have deprived him, may be restored and secured to his children ; but the principle of animation once extinct, it is beyond his utmost power,²² and that of united creation, 'to cause breath to re-enter into his body, that he may live.'

What is the instruction, which is hence given to man ? He is taught the benefits of society. Those arts, which evince the wonderful ingenuity and perseverance of the human mind, are the product not of savage, but of social life. Alone, individuals of our race are weak ; united with their fellows, they are strong. He, who in society can tame the fiercest beasts, construct impregnable castles, and direct the force of machines, almost sufficient to overturn the solid globe, is in solitude helpless and inert ; unable to repel the evils which assail him by means of muscular strength, and too indolent and timid for experiment. It is in society, that he improves upon the designs and labours of his predecessors : it is here, that he transforms the cottage into a palace, and the skin and the coarsest materials into silks : it is here, that he substitutes the immense and beautiful ship, guided by a compass, for the frail bark, that durst not lose sight of the shore : it is here, that, to form a register for his thoughts, he exchan-

²¹ Ps. cxlvi. 4.

²² Life is not to be bought with heaps of gold.
Not all Apollo's Pythian treasures hold
Can bribe the poor possession of a day :
Lost herds and treasures we by arms regain,
And steeds unrivalled on the dusty plain ;
But from our lips the vital spirit fled,
Returns no more to wake the silent dead.

ges the cumbrous tablet for the convenient papyrus, and this for the accommodations and elegancies of the press : it is here, that medicine and physiology present their astonishing discoveries, in the room of senseless conceits and the tricks of astrologers ; it is, finally, here, that HUMANITY and RELIGION, the arts of doing good instead of evil, of saving and not destroying, place themselves on the ruins of cruelty and superstition, and assume the first rank among the arts of civilized life.²³

We are also instructed from our subject to put a high value on human life. Without our knowledge or consent, the inspiration of the Almighty gave us existence,

23 " Sweet is the voice that soothes my care,
The voice of love, the voice of song ;
The lyre that celebrates the fair,
And animates the warlike throng.

Sweet is the counsel of a friend,
Whose bosom proves a pillow kind,
Whose mild persuasion brings an end
To all the sorrows of the mind.

Sweet is the breath of balmy Spring,
That lingers in the primrose vale ;
The wood-lark sweet, when on the wing,
His wild notes swell the rising gale.

Sweet is the breeze, that curls the lakes,
And early wafts the fragrant dew,
Through hovering clouds of vapour breaks,
And clears the bright ethereal blue.

Sweet is the walk, where daisies spring,
And cowslips scent the verdant mead ;
The woodlands sweet where linnets sing,
From every bold intruder freed.

BUT FAR MORE SWEET ARE VIRTUOUS DEEDS ;
The hand that kindly brings relief,
The heart that with the widow's bleeds,
And shares the drooping orphan's grief.

The PIOUS and HUMANE here rise
With liberal hands and feeling heart :
And chase the tears from sorrow's eyes,
And bid each noxious woe depart."

and, slender and precarious as our life is, we cannot end it without violence. Respiration, independently of care on our part, uninterruptedly proceeds, leaving us to sleep in security, to work with diligence, and to study with composure. The inference hence is, that we are not our own. We are the creatures of God. He hath made us, and not we ourselves. Who art thou, then, rash mortal, that usurpest the prerogative of the Most High? Who art thou, that presumest to destroy the life that was given thee? Are you a soldier? Stay, and complete your warfare. Have the courage to meet the dangers of your post, and await the dismissal of your commander. Are you a scholar? Live, and finish your task. Learn the lessons, which are set you in the school of affliction and hardihood. Be ashamed and afraid of playing truant under the highest advantages and the most awful discipline. Think not, that the end of life is to eat, and to drink, and to play. You were made with far nobler views, than merely to feast and be feasted, to marry and be given in marriage, to preserve alive the name of an ancestor or the title of a family estate, to be misled by fools, or defrauded by knaves. You were made to be immortal. Of course you are placed in a mixed state, and were designed to breathe, not the pure oxygen air of sensitive delight, but the compound atmosphere of health and sickness, of labour and ease, of joy and sorrow. You are stationed in an apartment of the creator's works, not to be an idle and laughing spectator of the stupendous scenes around you, but to be interested, impressed, enlightened, and improved by all that you see, hear, and know. Yes, the culture of his intellectual and moral powers is the end of man's creation, and the means

