

NON-FICTION

William Osler

Mans Redemption of Man

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A PUBLIC DOMAIN BOOK

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*A Lay Sermon,
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BY

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{4} Note.--This address was delivered at a service held for the students of the University of Edinburgh, in connection with the Edinburgh meeting of the National Association for the Prevention of Tuberculosis.

{5} And a man shall be as an hiding-place from the wind, and a covert from the tempest; as rivers of water in a dry place; as the shadow of a great rock in a weary land.

And the voice of weeping shall be no more heard in her, nor the voice of crying. There shall be no more thence an infant of days, nor an old man that has not filled his days.

(Isaiah.)

To man there has been published a triple gospel--of his soul, of his goods, of his body. Growing with his growth, preached and professed in a hundred different ways in various ages of the world, these gospels represent the unceasing purpose of his widening thoughts.

The gospel of his relation to the powers unseen has brought sometimes hope, too often despair. In a wide outlook on the immediate and remote effects of the attempts to establish this relation, one event discredits the great counsel of Confucius (who realized what a heavy yoke religion might be) to keep aloof from spiritual beings. Surviving the accretions of twenty centuries, the life and immortality brought to light by the gospel of Christ, remain the earnest desire of the best portion of the race.

The gospel of his goods--of man's relation to his fellow men, is written in blood on every page of history. Quietly and slowly the righteousness that exalteth a nation, the principles of eternal justice, have won acquiescence, at any rate in theory, though as nations and individuals we are still far from carrying them into practice.

And the third gospel, the gospel of his body, which brings man into relation with nature,--a true *evangelion*, the

glad tidings of a conquest beside which all others sink into insignificance--is the final conquest of nature, out of which has come man's redemption of man, the subject to which I am desirous of directing your attention.

In the struggle for existence in which all life is engaged, disease and pain loom large as fundamental facts. The whole creation groaneth and travaileth, and so red in tooth and claw with ravin is Nature, that, it is said, no animal in a wild state dies a natural death. The history of man is the story of a great martyrdom--plague, pestilence and famine, battle and murder, crimes unspeakable, tortures inconceivable, and the inhumanity of man to man has even outdone what appear to be atrocities in nature. In the *Grammar of Assent* (chap. x) Cardinal Newman has an interesting paragraph on this great mystery of the physical world. Speaking of the amount of suffering bodily and mental which is our lot and heritage, he says: "Not only is the Creator far off, but some being of malignant nature seems to have got hold of us, and to be making us his sport. Let us say that there are a thousand millions of men on the earth at this time; who can weigh and measure the aggregate of pain which this one generation has endured, and will endure from birth to death? Then add to this all the pain which has fallen and will fall upon our race through generations past and to come. Is there not then some great gulf fixed between us and the good God?"

Dwelling too exclusively on this aspect of life, who does not echo the wish of Euripides: "Not to be born is the best, and next to die as soon as possible."

Some of you may remember Edwin Markham's poem, "The Man with the Hoe," based on Millet's famous picture.

Bowed by the weight of centuries he leans
Upon his hoe and gazes on the ground,
The emptiness of ages in his face,
And on his back the burden of the world.
Who made him dead to rapture and despair,
A thing that grieves not and that never hopes,
Stolid and stunned, a brother to the ox?

It is a world-old tale, this of the trembling heart, the failing eyes, the desponding mind of the natural man. "And thy life shall hang in doubt before thee; and thou shalt fear day and night, and shalt have none assurance of thy life: In the morning thou shalt say, Would God it were even! and at even thou shalt say, Would God it were morning! for the fear of thine heart wherewith thou shalt fear, and for the sight of thine eyes which thou shalt see" (Deut. xxviii.).

The condition of Hopeful and Christian put by Giant Despair into "a very dark dungeon, nasty and stinking to their spirits," and beaten with stripes, and made to feel that the bitterness of death was as nothing to the bitterness of life, illustrates in allegory the state of man for countless centuries. In darkness and in the shadow of death he lay helpless, singing like the prisoners vain hymns of hope, and praying vain prayers of patience, yet having all the while in his bosom, like Christian, a key called Promise, capable of unlocking the doors of his dungeon. Groping between what Sir Thomas Browne so finely calls "the night of our forebeing" and the unknown future--the dark before and after, he at last came to himself, and with the help of this key unlocked the mysteries of Nature, and found a way of physical salvation.

Man's redemption of man is the great triumph of Greek thought. The tap-root of modern science sinks deep in Greek soil, the astounding fertility of which is one of the out-standing facts of history. As Sir Henry Maine says: "To one small people ... it was given to create the principle of progress. That people was the Greek. Except the blind forces of Nature nothing moves in this world which is not Greek in its origin." Though not always recognized, the controlling principles of our art, literature and philosophy, as well as those of science, are Hellenic. We still think in certain levels only with the help of Plato, and there is not a lecture room of this university^[1] in which the trained ear may not catch echoes of the Lyceum. In his introductory chapter of his *Rise of the Greek Epic*, Professor Murray dwells on the keen desire of the Greeks to make life a better thing than it is, and to help in the service of man, a thought that pervades Greek life like an aroma. From Homer to Lucian there is one refrain--the pride in the body as a whole; and in the strong conviction that "our soul in its rose-mesh" is quite as much helped by flesh as flesh is by soul, the Greek sang his song "For pleasant is this flesh." The beautiful soul harmonizing with a beautiful body is as much the glorious ideal of Plato as it is the end of the education of Aristotle. What a splendid picture in Book III of the *Republic*, of the day when "our youth will dwell in a land of health, amid fair sights and sounds and receive the good in everything; and beauty, the effluence of fair works, shall flow into the eye and ear like a health-giving breeze from a purer region, and insensibly draw the soul from earliest years into likeness and sympathy with the beauty of reason." The glory of this zeal for the enrichment of the present life was revealed to the Greeks as to no other people, but in respect to care for the body of

the common man, we have only seen its fulfilment in our own day, but as a direct result of methods of research initiated by them.

Philosophy, as Plato tells us, begins with wonder; and, staring open-eyed at the starry heavens on the plains of Mesopotamia, man took a first step in the careful observation of Nature, which carried him a long way in his career. But he was very slow to learn the second step--how to interrogate Nature, to search out her secrets, as Harvey puts it, by way of experiment. The Chaldeans, who invented gnomons, and predicted eclipses, made a good beginning. The Greeks did not get much beyond trained observation, though Pythagoras made one fundamental experiment when he determined the dependence of the pitch of sound on the length of the vibrating cord. So far did unaided observation and brilliant generalization carry Greek thinkers, that there is scarcely a modern discovery which by anticipation cannot be found in their writings. Indeed one is staggered at their grasp of great principles. Man can do a great deal by observation and thinking, but with them alone he cannot unravel the mysteries of Nature. Had it been possible the Greeks would have done it; and could Plato and Aristotle have grasped the value of experiment in the progress of human knowledge, the course of European history might have been very different.

This organon was absent, and even in the art of medicine Hippocrates with all his genius did not get beyond highly trained observation, and a conception of disease as a process of Nature. The great Pergamite, Galen, did indeed realize that the bare fact was only preliminary to the scientific study of disease by experiment, and to the collecting of data, from which principles and laws could be derived. On the dark horizon of the ancient world shone the brightness of the Grecian dawn so clearly that the emancipated mind had an open way. Then something happened--how, who can tell? The light failed or flickered almost to extinction: Greece died into a mediaevalism that for centuries enthralled man in chains, the weary length of which still hampers his progress. The revival of learning awakened at first a suspicion and then a conviction that salvation lay in a return to the old Greek fathers who had set man's feet in the right path, and so it came about that in the study of chemistry, and in the inventions of Copernicus, Kepler and Galileo, modern science took its origin. The growth of the experimental method changed the outlook of mankind, and led directly to the development of the physical and biological sciences by which the modern world has been transformed.

A slow, painful progress, through three centuries, science crept on from point to point, with many mistakes and many failures, a progress often marked and flecked with the stains of human effort, but all the same the most revolutionary and far-reaching advance ever made by man's intellect. We are too close to the events to appreciate fully the changes which it has wrought in man's relation to the world; and the marvellous thing is that the most important of these changes have been effected within the memory of those living. Three stand out as of the first importance.

My generation was brought up in the belief that "Man was in his original state a very noble and exalted creature, being placed as the head and lord of this world, having all the creatures in subjection to him. The powers and operations of his mind were extensive, capacious and perfect"--to quote the words of one of my old Sunday-school lessons. It is not too much to say that Charles Darwin has so turned man right-about-face that, no longer looking back with regret upon a Paradise Lost, he feels already within the gates of a Paradise Regained.

Secondly, Chemistry and Physics have at last given him control of the four elements, and he has harnessed the forces of Nature. As usual Kipling touches the very heart of the matter in his poem on "The Four Angels," who in succession offered to Adam fire, air, earth and water. Happy in the garden, watching the apple tree in bud, in leaf, in blossom and in fruit, he had no use for them; but when the apple tree was cut down, and he had to work outside of Eden wall,--then--

out of black disaster
He arose to be the master
Of Earth and Water, Air and Fire.

And this mastery, won in our day, has made the man with the hoe look up.

But the third and greatest glory is that the leaves of the tree of science have availed for the healing of the nations. Measure as we may the progress of the world--intellectually in the growth and spread of education, materially in the application to life of all mechanical appliances, and morally in a higher standard of ethics between nation and nation, and between individuals, there is no one measure which can compare with the decrease of disease and suffering in man, woman and child. The Psalmist will have it that no man may redeem his brother, but this redemption of his body has been bought at a price of the lives of those who have sought out Nature's processes by study and experiment. Silent workers, often unknown and neglected by their generation, these men have kept alive the fires on the altars of science, and have so opened the doors of knowledge that we now know the laws of health and disease. Time will only permit me to refer to a few of the more important of the measures of man's physical redemption.

Within the life-time of some of us a strange and wonderful thing happened on the earth--something of which no prophet foretold, of which no seer dreamt, nor is it among the beatitudes of Christ Himself; only St. John seems to have had an inkling of it in that splendid chapter in which he describes the new heaven and the new earth, when the former things should pass away, when all tears should be wiped away, and there should be no more crying nor sorrow. On October 16, 1846, in the amphitheatre of the Massachusetts General Hospital, Boston, a new Prometheus gave a gift as rich as that of fire, the greatest single gift ever made to suffering humanity. The prophecy was fulfilled--*neither shall there be any more pain*; a mystery of the ages had been solved by a daring experiment by man on man in the introduction of anaesthesia. As Weir Mitchell sings in his poem, "The Death of Pain"--

Whatever triumphs still shall hold the mind,
Whatever gifts shall yet enrich mankind,
Ah! here, no hour shall strike through all the years,
No hour so sweet as when hope, doubt and fears,
'Mid deepening silence watched one eager brain
With Godlike will decree the Death of Pain.

At a stroke the curse of Eve was removed, that multiplied sorrow of sorrows, representing in all ages the very apotheosis of pain. The knife has been robbed of its terrors, and the hospitals are no longer the scenes of those appalling tragedies that made the stoutest quail. To-day we take for granted the silence of the operating-room, but to reach this Elysium we had to travel the slow road of laborious research, which gave us first the chemical agents; and then brave hearts had to risk reputation, and even life itself in experiments, the issue of which was for long doubtful.

More widespread in its benediction, as embracing all races and all classes of society, is the relief of suffering, and the prevention of disease through the growth of modern sanitary science in which has been fought out the greatest victory in history. I can only refer to three subjects which illustrate and lead up to the question which is in the minds of all of us to-day.

You have in Scotland the merit of the practical introduction of a method which has revolutionized the treatment of wounds, and changed the whole aspect of modern surgery. I am old enough to have been a dresser in a large general hospital in the pre-Listerian days, when it was the rule for wounds to suppurate, and when cases of severe pyaemia and septicaemia were so common that surgeons dreaded to make even a simple amputation. In the wards of the Edinburgh Royal Infirmary and of the Glasgow Royal Infirmary, Lord Lister's experimental work on the healing of wounds led to results of the deepest moment to every individual subject to an accident, or who has to submit to an operation. It is not simply that the prospect of recovery is enormously enhanced, but Listerian surgery has diminished suffering to an extraordinary degree. In the old days every wound which suppurated had to be dressed, and there was the daily distress and pain, felt particularly by young children. Now, even after operations of the first magnitude, the wound may have but a single dressing, and the after-pain is reduced to a minimum. How well the older ones of us realize that anaesthetics and asepsis between them have wrought a complete revolution in hospital life. I asked the Superintendent of Nurses at the Royal Infirmary to let me know how many patients last night in the wards had actual suffering, and she has sent word that about one in eight had pain, not all of them acute pain.

But man's redemption of man is nowhere so well known as in the abolition and prevention of the group of diseases which we speak of as the fevers, or the acute infections. This is the glory of the science of medicine, and nowhere in the world have its lessons been so thoroughly carried out as in this country. It is too old a story to retell in detail, but I may remind you that in this city within fifty years there has been an annual saving of from four to five thousand lives, by measures which have directly prevented and limited the spread of infectious diseases. The man is still alive, Sir Henry Little-John, who made the first sanitary survey of the city. When one reads the account of the condition of the densely crowded districts on the south side of the High Street, one is not surprised that the rate of mortality was 40 and over per thousand. That you now enjoy one of the lowest death rates in Europe--15.3 per thousand for last year--is due to the thoroughness with which measures of recognized efficiency have been carried out. When we learn that last year there were no deaths from smallpox, not one from typhus, and only 21 from fevers of the zymotic group, it is scarcely credible that all this has been brought about within the memory of living men. It is not too much to say that the abolition of small-pox, typhus and typhoid fevers have changed the character of the medical practice in our hospitals. In this country typhoid fever is in its last ditch, and though a more subtle and difficult enemy to conquer than typhus, we may confidently hope that before long it will be as rare.

Here I would like to say a word or two upon one of the most terrible of all acute infections, the one of which we first learned the control through the work of Jenner. A great deal of literature has been distributed, casting discredit

upon the value of vaccination in the prevention of small-pox. I do not see how any one who has gone through epidemics as I have, or who is familiar with the history of the subject, and who has any capacity left for clear judgment, can doubt its value. Some months ago I was twitted by the Editor of the Journal of the Anti-Vaccination League for maintaining a curious silence on the subject. I would like to issue a Mount Carmel-like challenge to any ten unvaccinated priests of Baal. I will take ten selected vaccinated persons, and help in the next severe epidemic, with ten selected unvaccinated persons (if available!). I should choose three members of Parliament, three anti-vaccination doctors, if they could be found, and four anti-vaccination propagandists. And I will make this promise--neither to jeer nor to jibe when they catch the disease, but to look after them as brothers; and for the three or four who are certain to die I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration.

A blundering art until thirty or forty years ago, preventative medicine was made a science by the discovery of the causes of many of the serious epidemic diseases. To any one of you who wishes to know this side of science, what it is, what it has done, what it may do, let me commend Radot's *Life of Pasteur*, which reads like a fairy tale. It is more particularly in connection with the great plagues of the world that man's redemption of man may be in the future effected; I say in the future because we have only touched the fringe of the subject. How little do we appreciate what even a generation has done. The man is only just dead, Robert Koch, who gave to his fellow-men the control of cholera. Read the history of yellow fever in Havana and in Brazil if you wish to get an idea of the powers of experimental medicine; there is nothing to match it in the history of human achievement. Before our eyes to-day the most striking experiment ever made in sanitation is in progress. The digging of the Panama Canal was acknowledged to be a question of the health of the workers. For four centuries the Isthmus had been a white man's grave, and during the French control of the Canal the mortality once reached the appalling figure of 170 per thousand. Even under the most favourable circumstances it was extraordinarily high. Month by month I get the *Reports* which form by far the most interesting sanitary reading of the present day. Of more than 54,000 employes (about 13,000 of whom are white), the death rate per thousand for the month of March was 8.91, a lower percentage, I believe, than any city in the United States. It has been brought about in great part by researches into the life history of the parasite which produces malaria, and by the effectual measures taken for its destruction. Here again is a chapter in human achievement for which it would be hard to find a parallel. But let us not forget that these are but illustrations of wide-spread possibilities of organization on modern lines. These are sanitary blessings. To make them available in the Tropics is the heaviest burden of the white man; how heavy you may know from the startling figures which have just been issued from British India. Exclusive of the native states for the year 1908, the total deaths from fever and cholera exceeded 5,000,000, out of a population of 226,000,000. The bright spot in the picture is the diminution of the mortality from plague--not fewer than a million fatal cases as compared with 1907.

These are brief indications of the lines along which effective progress is being made in man's redemption by man. And all this has a direct bearing upon the disease, the fight against which brings us together. Tuberculosis is one of the great infections of the world, and it has been one of the triumphs of our generation to determine its cause. With the improvement of sanitation there has been a reduction in its mortality, amounting since 1850 to above 40 per cent. But it still remains the most formidable single foe, killing a larger number of people than any other disease--some 60,000 in Great Britain and Ireland in 1908, and 589 of this city. Practically between 10 and 11 per cent. of all deaths are due to it. A plain proposition is before the people. We know the disease--how it is caused, how it is spread, how it should be prevented, how in suitable cases it may be cured. How to make this knowledge effective is the prime reason of this conference. It is a campaign for the public; past history shows that it is a campaign of hope. The measures for its stamping out, though simple on paper, present difficulties interwoven with the very fabric of society, but they are not insuperable, and are gradually disappearing. It is for this reason we urge you to join with enthusiasm in the crusade; remembering, however, that only the prolonged and united efforts, carried through several generations, can place the disease in the same category with typhus fever, typhoid and small-pox.

In the comedies and tragedies of life our immutable human nature reacts very much as in the dawn of science, and yet, with a widening of knowledge, the lights and shadows of the landscape have shifted, and the picture is brighter. Nothing can bring back the hour when sin and disease were correlated as confidently as night and day; and how shall we assess the enormous gain of a new criterion, a new estimate of the value of man's life! There are tones in human sentiment to-day which the ancients never heard, which our fathers indeed heard but faintly, and that without recognizing their significance. The human heart by which we live has been touched as with the wand of a Prospero. What availed the sceptred race! what the glory that was Greece, or the grandeur that was Rome! of what avail even has been the message of the gospel, while the people at large were haunted by fear and anxiety, stricken by the pestilence of the darkness and the sickness of the noon-day? The new socialism of Science with its definite mission cares not a rap for the theories of Karl Marx, of Ferdinand Lassalle, or of Henry George; still less for the dreams of Plato or of Sir Thomas More--or at least only so far as they help to realize the well-being of the citizen. Nor is there need to fear that in weighing the world in our balance we may drain the sap of its life, so long as we materialize in the service of man those

eternal principles on which life rests--moral fervour, liberty and justice.

The outlook for the world as represented by Mary and John, and Jennie and Tom has never been so hopeful. There is no place for despondency or despair. As for the dour dyspeptics in mind and morals who sit idly croaking like ravens,--let them come into the arena, let them wrestle for their flesh and blood against the principalities and powers represented by bad air and worse houses, by drink and disease, by needless pain, and by the loss annually to the state of thousands of valuable lives--let them fight for the day when a man's life shall be more precious than gold. Now, alas! the cheapness of life is every day's tragedy!

If in the memorable phrase of the Greek philosopher Prodicus, "That which benefits human life is God," we may see in this new gospel a link betwixt us and the crowning race of those who eye to eye shall look on knowledge, and in whose hand Nature shall be an open book, an approach to the glorious day of which Shelley sings so gloriously:

Happiness
And Science dawn though late upon the earth;
Peace cheers the mind, health renovates the frame;
Disease and pleasure cease to mingle here,
Reason and passion cease to combat there,
Whilst mind unfettered o'er the earth extends
Its all-subduing energies, and wields
The sceptre of a vast dominion there.

[1] See note on page 4.

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