

Henry MacCormac (1800–86)

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It is a law of the human mind that thought, in whatever form, short of some strong awakening impulse, like motion, tends to perpetuate itself indefinitely. We daily see persons who actually pass through the longest terms of life without any attainment in mental power or general knowledge to distinguish their most advanced age from their youth. The mill-horse round is an apt enough comparison for the manner in which their days are spent. It is only through mental effort within, or stimulus from without, that a change in the respects I have mentioned can be wrought. For knowledge will hardly come of itself. Mental power cannot be realised without mental effort. This law of mental inertia extends to all classes and conditions of men. It is a highly conservative law, since it preserves in its degree our knowledge and identity, which else might incur risk of impairment and loss. But it preserves error also – keeps things stationary and without advancement. If you want to change the current of thought in yourselves or others, you must work to accomplish your purpose. The old thought will not give way to the new thought, or even keep company with it, without an effort. Any one cognisant of the progress of his own mind, when there has been progress, must recollect his adhesion to things which he very well knows to have been erroneous.

If mental inertia, however, have its uses, it also has its drawbacks. For, if we yield to it unconditionally, it puts a stop to all improvement or advancement whatever. Let us, indeed, hold fast by the old truth; but, then, let us also take on with the new, let us not forswear inquiry, unless we desire to become as oysters. Unless we have the insane pretension of having arrived at all truth, we must be prepared to advance with the times. Nor is there much danger of advancing too fast. Nature has taken excellent care to prevent that. For the most part we prefer not to disquiet ourselves too much. We are all inert enough. It is so much easier to take matters for granted. Thought is so troublesome, so difficult. It is so much more convenient to sleep over it and be at rest.

Heaven preserve you, says the Spaniard, from

novelty. We are all in our way Spaniards, if we would but own it. We hate everything new or unknown if it give us the trouble to think over it. Therefore it is that innovators were ever pestilent people. When the thing, indeed, is established, the innovator gains repute. We knew that he was right all along – should have made the discovery ourselves had we been in his place. But, then, we only find this out long after he has succeeded. Everybody is of his opinion now. We have not the trouble of thinking over the matter any longer. It is *established* truth. Until this period arrive, however, innovators have a trying enough time of it. Some have been burnt, and others thrown into prison. A good many have been banished; and stripes, confiscation, neglect, starvation, and abuse generally were not considered too bad for them. It is not necessary to enter into the personal history of successful innovators. Indeed, the greatest benefactors of our species have been treated with the utmost ridicule, contumely, and neglect. Every available means were employed to put them down, and their innovations along with them. It would seem needless, did we not know from sad experience to the contrary, to insist on the extreme advantage it is to the community that thoughtful men should be afforded fair play. For thought, profound speculation, sooner or later govern the world. Fortunately, however, there is in the discourse a something – a sort of divine life or fire – an inspiration, that causes him to persevere. He must deliver himself of his thought, though all the conservators in the world were to wage war against him. For the true discoverer has God and right reason on his side; and, should he only prove true to himself, the truth must needs succeed, no matter what the amount of opposition may prove. Mankind, in respect of discoveries, are as children with physic. The bitter draught – the discovery, namely – which, with so much reluctance and loathing they perforce swallow, they slowly – and, ah! how slowly! – discover was good for them after all.

If indeed, you want to know the strength of a fixed idea, require a steady sectary to take up with the opinions of some other sectary; ask a lawyer to abandon the precepts of the common law; tell a physician of some three hundred years ago, could we only revive him, to believe that blood, not air, coursed through the arteries; or, lastly, invite the Medico-Chirurgical Society of London, or rather the few who, on a late occasion, assumed to represent it,

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to endorse my views on tubercle.

Speaking of vaccination, I remember, when a boy, to have seen caricatures depicting children with sprouting horns and the faces of cattle. Behold, said the opponents of vaccination, to what you reduce your offspring. Indeed, no abuse was considered too unmitigated, or mis-statement unscrupulous, for the bold innovator, who, for so it was imputed to him, assumed to take the conservancy of human life out of the hands of Providence, and proposed, insensate man, to avert small-pox by so preposterous an expedient as the introduction into children's veins of matter from sickly cows. There are, however, doctors and doctors. The Imperial Academy of Medicine in Paris appointed a commission to inquire into my views on the production of tubercle. The Medico-Chirurgical Society of London, or some two or three in its name, not only refused to discuss these views, or to thank me for propounding them, but proceeded – hear it, ye shades of Harvey and of Jenner – very seriously to discuss the allowed production of idiotcy from "fruitless sucking" in infancy. How is it possible for people to take in new views when they will not yield them the slightest attention, and when subjects thus handled take precedence of topics which bear upon the welfare of unborn millions?

But inertia must give way, whether it will or no. Indolence of thought, class prejudice, personal jealousy and animosity, all must yield in turn. If my views be true, they must secure universal acceptance. If they be otherwise, no efforts of mine can secure them permanent currency. It is impossible for consumption, for tubercle, to ensue, without, so to speak, a well-ordered, efficient cause, Pulmonary and other forms of consumption, as depending on the presence of tubercle, are not natural states of the human organism. They are induced by artificial, and, therefore, preventable, causes. What that artificial cause is I have often stated. It is not bad feeding, hereditary influences, infection, inflammation. No; it is the deposit of non-oxidised effete tissue within the living organism. I have investigated, more or less carefully, the history of certainly some thousand cases of pulmonary consumption and scrofula, and in every instance found that the disease was preceded by the respiration of air fouled by repeatedly passing through the lung; for air fouled in any other way, however pernicious in itself, is entirely inoperative as respects the production of consumption and scrofula. When such air is more or less habitually respired during a sufficient period of each twenty-four hours, those disorders, one or both, ensue with the

unvarying order of cause and effect.

As tubercle is deposited in every part of the living organism, the lungs, cellular tissue, serous, mucous, and, when they subsist, false membrane, lymphatic and other glands, spleen, bones, muscles, heart, brain, spinal marrow, spine, skin, joints and viscera generally, so also does it abound, the conditions being otherwise favorable to its production, in all breathing creatures. Very often it is the horse which is tubercle-stricken, and out of condition, to the great chagrin of dealers, who, understanding nothing of the matter, shut the poor brute up in yet closer, worse-ventilated stables, and so aggravate the evil which they desire to remove. Still oftener it is the cow, when kept, as she so frequently is, much within-doors. The silk crop is many times endangered by the prevalence among spinning-worms of a malady termed *muscardine*, which as I have elsewhere stated, I believe to be tubercle, induced by the close, ill-aired galleries in which these interesting insects are confined. For the silk-worm, living and spinning in the open air and on the tree-top, is quite exempt from *muscardine*. But the greatest and most frequent victim of all is man. He and his offspring are carried off in myriads. Yet, the more enormous the destruction, the more zealously does he avoid a pure, fresh atmosphere, the more frequently does he resort to useless and ridiculous, indeed wholly inoperative, if not injurious, remedies, to the prejudice or neglect of the great appointed means, so far as scrofula and consumption are concerned, of ensuring bodily health and welfare.

As regards the human economy, there is required for each adult man a solid food supply of some two pounds or so daily. The daily loss is likewise about two pounds. It is obvious enough that one process must balance the other, else the living frame would realise gigantic proportions or dwindle into nothing. Thus, the body is integrated and disintegrated by reason of this interchange of constituents – *Stoß-Wechsel*, the Germans curtly term it – at the rate of two pounds, or nearly, each several day. The old or disintegrated portion is got rid of by oxidation principally, heating the body in the act. But, in order that oxidation should take place efficiently, the air must not have been inspired before. For air once breathed is quite unfit to breathe again, will not sustain combustion, or adequately oxidise effete tissue. And as the living flame is quenched when brought in contact with air but once respired, so also is the life of man quenched, sooner or later, when the lungs are supplied, when the organism is brought in contact with a pre-respired atmosphere.

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Without oxidation, life is at an end. Therefore is the effete tissue retained in the blood, and finally, by a sort of anticipated death, is laid down as tubercle in the living tissues.

The skin, kidneys, liver, lungs – in fine, all the emunctories – play each their several part in getting rid of the daily effete waste. But the lungs afford by much the most important single outlet, and it is through them that the blood in man discharges some eight ounces of oxidised carbon in the four-and-twenty hours. In the horse and cow the amount is greatly larger, rising, in the course of the period just named, to seventy ounces in the one and eighty ounces in the other. The carbon thus discharged, uniting with the oxygen of the atmosphere, is poured out in the form of carbonic acid gas, at the rate of four per cent. in every breath respired. But, if impure air – air impure in the sense of being pro-respired – be habitually breathed, the carbon waste does not adequately unite with oxygen, is, therefore, not adequately burnt off, and deposits of tubercle, sooner or later, are the inevitable result. These facts I have proclaimed and insisted upon in letters, essays, lectures, conversations, ever since 1805, the date of my presumed discovery as to the identity of effete tissue and tubercle, and of the publication of my work on the true nature and origin of phthisis and scrofula. And I venture to assert that it is impossible to arrive at any rational basis of treatment, or – what is yet more important – prevention as regards these maladies, until this theory, as to the retention of effete tissue in the blood in consequence of imperfect oxidation and its after-deposit in the form of tubercle, find universal acceptance at once among medical men and the community at large.

There was not, indeed, the slightest approach to a rational explanation of the origin of tubercle until now. That which I offer is complete in all its parts. It accounts satisfactorily for the disposal of the retained effete tissue – retained owing to insufficient oxidation. On the other hand, it accounts not less satisfactorily for the origin of tubercle itself. It shows, further, that tubercle-deposit is the invariable result of imperfect oxidation of the effete tissue – that without this there is, there can be, no tubercle. There never was even a colorable attempt at explanation before – I mean no explanation in accordance with the physiology and pathology of the case, and the real, not fancied, metamorphosis of tissues, for tubercle, in fact, is effete – that is, dead matter *within* the living organisms, causing pain, irritation, fever, and finally death, of the entire structure. The question lies in a very narrow compass. Daily obser-

vation affirms it. Experiment confirms it. It is easy for the candid inquirer to satisfy himself. Any living breathing animal, if confined in a limited air-space, so as to constrain it, of course without the risk of suffocation, to respire over and over the same atmosphere, will, in some ten or twelve weeks, a little more, a little less, come to labour under tubercle. Tubercle, as thus, is, I assert, invariably induced, and under no other known circumstances or conditions whatever. The chemical processes of the living frame cannot well be submitted to actual inspection, as are those in the laboratory. But when we place an animal in a position such as to prevent the effete tissue from being properly oxidised, and when we find no other adequate outlet of escape for this effete tissue except that of tubercle-deposit, it needs very little power of imagination and ratiocination to identify tubercle and effete tissue as one.

The Creator intends us to live healthily. When diseases so extended, so persistent, and hitherto so inveterate, as those comprised under the terms consumption and scrofula, display themselves, generation after generation, among so many nations, over such widespread regions and in every class and condition of men, and breathing animals generally, it is certain that some law of health is co-extensively violated. I have pointed out what that law is. It is that a fresh, pure atmosphere should be respired continually. The violation is in respiring the same air oftener than once. If, indeed, we would secure health and avoid tubercle-deposits in our-selves and in our dependents, let us let them not respire the same atmosphere oftener than once. This is the very, the imperative law of any animal being. If at each respiration we breathe air freshly renewed, we cannot incur scrofula or consumption. If at each respiration we breathe air that has served for respiration before, whether in ourselves or others, we cannot eventually avoid scrofula or consumption. I believe that, by the practical adoption of the views here insisted upon, there would be approximate immunity from tubercular consumptive disease. As it is, many have been thus saved from the disastrous infliction.

Despite of every opposition, and, worse than opposition – indifference – my views are already to some extent appreciated, So, as long as I enjoy the privilege of respiring that air whose entire purity I have so earnestly advocated, must I persist in their diffusion. Assuredly a day will come when consumption and scrofula, those so dire scourges of our species, at least as at present prevalent, will disappear. And I should desire no better epitaph than that it could be said I had been instrumental in

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inciting the profession, in the safe keeping of whose intelligence and philanthropy, after all, the matter mainly lies, to the successful eradication of both.