

WHAT IS DEATH?

A PHYSIOLOGICAL VIEW.

To say that death is the separation of soul and body, is to give what sounds like a theological rather than a physiological definition. Yet this is the final definition that is reached by Dr. Louis Meunier, after leaving the question strictly from the physiological point of view. While those who believe in the existence of the soul, Dr. Meunier, who writes in *Comptes Rendus*, November 13, 1918, in "The Cause and Mechanism of Death," asserts that the soul and body can be separated until certain physiological conditions are fulfilled, and his endeavor is to ascertain and describe what the nature of these conditions is. Most modern physiologists hold that these conditions differ, according as the organism in question is composed of a single cell or of a complex union of cells, and so far as to deny that the so-called organism can properly die. With a union of cells, such as man, they hold that the combination may die while many of its elements live on, and they recognize two kinds of death—individual and body death. Dr. Meunier asserts on the authority of the most recent thought and investigation, that there are two deaths. He says:

"When we study the phenomena of death, the only true variety—that found among living organisms—being—we think we are on the lines of its mechanism, study its strong simple uncellular organisms. Some writers have asserted that these are the only true deaths. Professor Weismann, of Friburg, has thus formulated this opinion: 'Death, he says, is an objective attribute of living matter; it is a secondary effect. There are animals that never die. For instance, infusoria and ciliates, and in general all unicellular organisms. An animal dies, however, when almost all parts, such of which continue to live and later divide again, so that there is never any complete death, appear only among multicellular organisms with differentiated cells (and in these cases death is not a secondary effect). Individuals must give place, for the good of the species, to their successors. Hence we must regard death as an imperious institution, but as a necessity of life.'

This view of Weismann's, which has become quite established among students of biology, has called forth a great deal of comment. It is asserted by a French critic, Dr. Perrier, to be founded on an error of observation. Says Dr. Meunier, citing this author:

"M. Perrier, in his investigation of the multiplication of the ciliated infusoria by fission, has shown that the reproduction of these organisms by fission, extended though it may seem to be, has its limits, sooner or later it gives rise only to sterile individuals which are incapable of perpetuating themselves without recourse to a process comparable to that of fecundation among pluricellular beings, and Dujardin, who has discovered these facts in the *Nava* infusoria, has shown how little value must be attached to them."

In man and other higher organisms, the author goes on to say, death is a destruction of cellular elements. These elements do not die at the same time and may even take up an independent course of life. The classical assertion that death must take place through heart, lungs, or brain is incorrect, Dr. Meunier tells us. Suppression of the functions of any one of these organs does not mean death, but only when prolonged. As to the unicellular organisms, they die with the destruction of their correspondence with the nutritive elements in the surrounding medium. This may be lost by the action of chemical, physical or mechanical agents. The most frequent general cause of death in animals is the poisoning of the cells by the nutritive medium. According to Dr. Barth, a recent writer, this may take place in various ways. For instance, the food may not be able to bring to the cells the matter for their nutrition, because of inaction or indigestion; or other work, nutrition does not take place. Or, owing to injury, or heart trouble, oxygen in sufficient quantities is not brought to the cells, and poisoning by carbonic acid takes place. Again, failure of nutrition may result in the accumulation of all sorts of waste products in the tissues, preventing the throwing off of useless substances from the cells. This may result from injury to the large glands, such as the liver or the kidneys. Thus the mechanism of death can always be traced back to one source, both in the unicellular organisms and in the higher animals, cell-poisoning. Dr. Barth is quoted on this point as follows:

"Modifying the usual formula, we may say then: Death is the result of an arrest of cellular nutrition, the provision either becoming incapable of giving rise to the double movement of assimilation and dissimilation, or the medium in which the cells exist undergoing modifications that render exchanges impossible."

The arrest of nutrition is a general phenomenon that is applicable to all creatures. With a few exceptions, failure of one of the mechanisms indicated above, but in the higher organisms it is produced in more and more complex conditions, corresponding to the increasing complexity of the apparatus

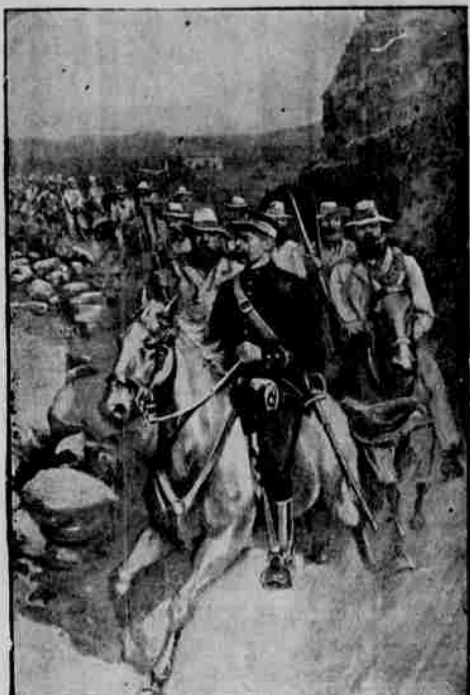
charged with keeping up the activity of the metabolism and with the restoration of the organic environment. Dr. Meunier makes the following comment in closing:

"As the calculation teaches us, death is characterized by the separation of soul and body, but we must recognize the fact that it begins with a condition of the organs that render them incapable of following and manifesting the will of their matter. Life may be only suspended; death becomes definite when the cellular elements, profoundly altered, are positively unable to sleep any longer."—Translation made for the Literary Digest.

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The British feel themselves in a peculiar position in their warfare with the Boers. England at the Hague signed an agreement not to use bacterium for the poisoning of populations and in the Boer campaign, cell-poisoning, Dr. Barth is quoted on this point as follows:

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quency, every blood vessel in the body would break.

PUT THEM TO SLEEP.

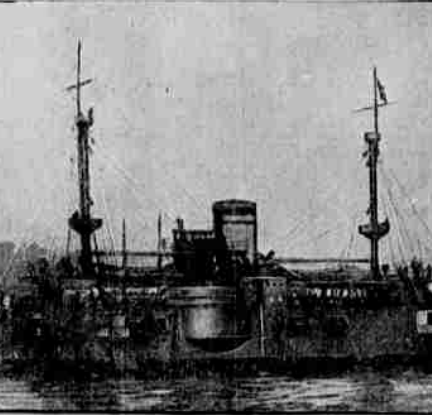
England did not wish to make use of these inventions, but the records of the conference show that they retain the right to use a gas which would put the entire city to sleep. Just what this gas is no one knows, but the invention and certain high officials of the war department.

It is difficult to see how an army could be lulled into slumber without the oxygen in the atmosphere being destroyed, but the possibility of electricity or even of a gas which would induce in any person on the subject, another thing which appears curious is that, as the object of this gas was not to kill, but to render unconscious, what possible objection could be offered to its use?

If the invention had been generally sanctioned the whole art of war would soon be revolutionized. Disasters could then be avoided by falling in which the loss of life would be small. The instruments of war would remain positionally the same, but the object of either side would be to hurl shells which, exploding, would immediately plunge the entire army in unconsciousness. If both succeeded, operations would have to be suspended in the war zone, and this might be repeated again and again till one side failed. Whether such operations could be carried out without loss of life, why it powers out of it should have agreed at The Hague not to resort to annihilating gases, and yet desire to interfere submarine boats, is something.

If they agreed for the sake of applying gas on the grounds that its use would injure the moral spirit of an army, something, although not much, might be said for such an agreement.

BATTLESHIP TEXAS IS BRINGING TO AMERICA THE MAINE DEAD.



Captain Sigbee, who commanded the Maine when that warship was blown up in Havana harbor, is in command of the Texas which will start from Cuba on Tuesday for a point carrying the remains of the victims at 2 o'clock tomorrow. The coffin will be transferred at 10 o'clock to a train for Washington. A plot has been arranged in Arlington cemetery and here the maine dead will be reinterred with appropriate ceremonies.

this area becomes larger. Another feature of the French invention is that that carbonic acid gas, by reason of its great weight, remains in the zone just for hours, any one attempting to pass through one of these traps would not only be killed instantly, but from the weight of the gas, would be crushed to 2,500 atmos in actual weight to be taken. Instead of suffocating in a few minutes, no wounded, he holds, an invention that would be necessary would be to direct against the doomed city one hundred ton batteries of small range.

There could be electrically synchronized and fired at precisely the same moment. In one minute after the discharge there would be one living thing down in the instant annihilated. This invention has a great recommendation—the hospital, no wounded, he holds, an invention that would be necessary would be to direct against the doomed city one hundred ton batteries of small range.

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COMING CENTURY IN AFRICA.

The twentieth-century Africa promises startling contrasts when compared with the Africa of the nineteenth century. With an area four times as great as that of the United States, a population of 400,000,000, a soil and climate capable of infinite variety of production, the greatest known supply of ivory, gold, diamonds, tin, development under the modern methods which are now being applied to it is practically assured. The bones of the oldest civilization, it is the birth of the most advanced, but yesterday's savagery in the darkness of mystery without any ignominious shadows, it is today illuminated by the searchlight of modern methods, and so its importance and attractions are being recognized. With such resources must come development. With two million Europeans scattered over its vast area, the continent is being developed with its natural conditions and requirements, with the steam, the railroad, the telegraph, and the telephone carrying light and knowledge and civilization to its remotest corners. Africa cannot bear to remain unknown or unexplored.

It was only after the explorers—Livingstone, Speke, Stanley, and others—had discovered, through persistent and heroic efforts, that there existed vast navigable waterways above the falls which flow from the interior, that European powers, at present almost entirely confined to the coast, began to turn their eyes toward the interior. And then, in a twinkling, the Dark

continent was seized upon and divided up, and before us, by magic, a vast European "Empire." However the map of the world shows a vast continent, the sum of the United States, and we are not to be deceived by an advertisement of the European powers. At present almost entirely confined to the coast, began to turn their eyes toward the interior. And then, in a twinkling, the Dark

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