journals and indices in which the facts of medical science are systematically compiled. Then it became evident that this organism and this disease which the surgeons at the front had regarded with horror as a new plague, had been discovered and described many years ago and long before the war, exactly as it is described to-day, by Dr. Welch, Professor of Pathology in Johns Hopkins University.

Gas-gangrene was thus not a product of the war; it merely was rendered abundant by the circumstances of the war. Prior to the war it was a very uncommon type of infection, only rarely observed and still more rarely described in scientific terms. But it is due to an organism, a bacillus, which normally inhabits the intestines of horses and cattle; trenchwarfare in fields cultivated and manured for centuries rendered their inoculation into wounds inevitable and very frequent; hence the sudden outburst of cases of a disease formerly regarded as so rare that a single instance consituted a medical curiosity and serious attempts to combat it seemed unnecessary in comparison with the urgent need of learning to combat more prevalent infections.

But now the need had arisen urgently indeed, and the problem of combating the disease was promptly undertaken. But even here no new principles were invoked, only principles with which the epoch-making researches of Pasteur and of Behring have made us long familiar. It was indeed a singular stroke of fortune that these principles sufficed to solve this unexpected problem, for if new principles had had to be evolved gasgangrene might still have been claiming its toll of thousands. All that proved necessary to be done, however, was to prepare an antitoxin for this bacillus in exactly the same way as diphtheria antitoxin has been prepared ever since Behring showed us the way. The result was fully as successful as the great achievement of Behring, and one more of the blind

malignant forces of nature was brought under the control of man.

One more instance must suffice to illustrate my thesis. We have known for centuries that certain gases are poisonous when inhaled. We have known that chlorine is an irritating and corrosive gas ever since the Swedish chemist Scheele discovered it in 1774, and we have known of hundreds of others even more corrosive or more deadly. But what we did not know and could not anticipate was that any race of human beings existed who could have sunk so low in humanity and sense of honour as to deliberately initiate the employment of such a treacherous and torturing weapon of warfare.

Gas poisoning in warfare may be of two kinds, incidental and purpose-Incidental gas-poisoning has ful. doubtless been an occasional occurrence in warfare ever since the first employment of combustibles and explosives. With the introduction of picric acid derivatives as explosives, incidental gas-poisoning became more common; it was frequently encountered, for example, in the Boer war. Then, again, the fumes from the breech of a gun fired in a confined space, as for example in a naval turret, may often give rise to incidental gas-poisoning of the gunners. But in all these cases the poisoning is an unforeseen and undesired incident which is not at all essential to the main purpose, that of exploding a shell or propelling a projectile. It is quite otherwise with gas-poisoning as practised by our opponents and which constitutes a characteristic contribution to the savagery of warfare by which Germany of to-day will be recognized and judged in the histories which will be written in the centuries to come.

The gases first employed by the German army were chlorine and bromine. Since then a variety of gases have been employed by the Germans, and also, after long and honourable hesitation, by the Allies. But I doubt very much whether any new (formerly unknown) gas has been employed.