

the time of Sydenham has been noticed, but never explained, in which diseases of spreading type extend uncontrolled when once they are started on their course. In the artificial negative atmosphere which I produced in the manner described above, I observed that dead animal and vegetable substances underwent rapid decomposition, and that slight wounds on living bodies became foetid.

There followed upon these observations other series, in which the effect of the forces of heat and electricity were tried in order to determine whether they would modify the condition of the negative oxygen in respect to its life-sustaining power. The result of these inquiries was to prove that cold added to the negative effect and quickened the narcotism, while a raised temperature, a temperature of 75° F., delayed the narcotism. I also discovered that the passage of electrical sparks through the negative gas restored it to its full activity.

In yet another series of inquiries oxygen, under the influence of the forces of heat and electricity, was rendered active until its sustaining power was destroyed by an opposite process, viz., by the activity with which it entered into combination with the blood. In this manner the action of ozone was observed on animal bodies, and the quickened state of the circulation and over-action which the oxygen in this active state produces were defined. The local action of ozonized air on the air-passages and nostrils in the human subject was tested on Dr. Wood and myself, and the peculiar catarrh and headache which follow the inhalation of ozonized air were described from our own personal experiences.

The whole of these inquiries on the effects of differing physical conditions of oxygen were full of the most useful practical information in reference, if not actually to disease, to the mode in which surrounding atmospheric conditions modify the course of disease. They indicated how men and animals living in the large atmospheric sea are influenced by the action of the great forces of nature on the vital oxygen. They have taught me so much that I could, if I had the means, build a hospital with such appliances for modifying the air, that the course of some diseases might be governed towards recovery by the simple management of the physical conditions of the atmospheric oxygen. In a future and more advanced day of science, this method, the basic principles of which are here sketched out, will be an approved and positive method of treatment. Even now, under the greatest disadvantages, from want of organised plans, I have been able to render useful service to the sick from the experience gained by the experimentation.

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(To be continued.)

#### THE CRUELTY TO ANIMALS BILL

IN the House of Lords the Government "Vivisection Bill" was discussed in a full Committee on Tuesday.

The Marquis of Lansdowne began by a very temperate remonstrance against the Government going so far beyond the recommendations of the Royal Commission on the subject. His speech (which is fairly reported in the *Times*) is by far the best for knowledge and for sense that has yet been made on the Bill, but the provision against which he especially protested—the licensing of places as well as of persons—though warmly supported by Lord Kimberley, still remains part of the Bill. This provision scarcely affects physiologists as such, but may be a means of serious annoyance and hindrance to strictly medical experiments, on, for instance, the contagion of disease or the action of drugs, and would have made the experiments by which Jenner freed the world from the plague of small-pox impossible.

On the first clause Lord Carnarvon stated that the title will be altered from "An Act to Prevent Cruel Experiments upon Animals" to "An Act to Amend the Law relating to Cruelty to Animals," *i.e.* the Bill no longer

pretends to prevent alleged cruelty by scientific men in this country, inasmuch as the charge has not been in a single instance maintained, and only provides that infliction of pain on an animal shall not be screened by the excuse of a scientific object, if the delinquent does not hold a certificate from the Secretary of State that he is a competent person to conduct experiments on animals with all possible humanity and with ability to make them useful.

After some desultory conversation on the definition of the word "animal" (in which one Minister of the Crown committed himself to the opinion that some creatures can feel when their heads are off), the first important amendment was moved by Lord Rayleigh, supported by Lord Cardwell, and accepted, after discussion, by the Ministry. The Bill now, therefore, actually recognises the pursuit of knowledge as equally worthy of respect with that of medicine, and both as entitled to some small share of the immunity accorded to the pursuit of wealth or of amusement. In other words, while the members of the House of Lords have all their lives been vivisectioning their animals without anaesthetics *for fun*, they are now pleased to allow physiologists to do the same under many limitations for the advancement of science. This admission was actually opposed by Lord Coleridge in a speech which was forensic and sentimental in the worst sense of the words.

In the fifth clause, exempting cats and dogs from all experiments (even when painless) if undertaken for physiological or medical purposes, the Government accepted the amendment of the Earl of Harrowby, to include horses, asses, and mules under the same provision; but admitted a proviso for these animals being available on special certificate from the Secretary of State when absolutely necessary for some special investigation. On this clause the Earl of Airlie made a sensible speech, but he was not supported by the peers on the Royal Commission, whose report was implicitly condemned. The other clauses were rapidly run through, the Earl of Portsmouth making a successful attempt to obtain some recognition of the necessity of studying the diseases of animals as well as of man. The absurd regulation which, apparently by an oversight, subjected registered and inspected laboratories to the police visitation intended to prevent experiments in unregistered places, was amended without discussion, and the Bill is now probably in the form in which it will be laid on the table of the House of Commons.

Some of its most glaring contradictions and absurdities have been remedied; and, if worked by a reasonable Home Secretary, competent inspectors, and physiologists as humane as the ten or twelve gentlemen who now possess laboratories in the three kingdoms, it will probably do good. But the whole discussion shows the folly of legislating to satisfy unreasoning clamour, and the hopelessness of Parliament dealing in detail with a subject of which almost all its members are profoundly ignorant.

The reasonable plan would have been to register laboratories, and give certificates to persons duly recommended; to inspect them carefully; to withdraw the licence on any abuse being proved; and then to extend "Martin's Act" so as to apply to all cruelty to animals, whether domestic or wild, whether performed with a bad object or a good one, so long as the delinquent did not hold a certificate. This would have been in accordance with the recommendations of the Royal Commission, would have given far less trouble to Home Secretaries and to physiologists, and would have been a more effectual provision against cruelty. But Parliament has nothing important to do, the Government are in want of popular applause, and very few have the patience or the candour to learn the true state of the case; so that we must be content to hope that the Bill will do less harm than was at first inevitable.