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OBJECTIONS TO THE ANTIVIVISECTION BILL NOW BEFORE THE SENATE OF THE UNITED STATES.

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The following statement has been prepared by the writer in order to meet the requests of several Senators of the United States and of physicians for objections to Senate bill 1063, which has been reported unanimously by the Committee on the District of Columbia. It is believed that many have been misled by efforts of advocates of the proposed legislation to make it appear that the bill is intended only to check alleged abuses of animal experimentation and not to interfere with its proper uses. A main purpose of this statement is to show the error of this assumption.¹ Much of the same ground has already been covered by others in various protests and publications.

The provisions of Senate Bill 1063 are so complicated and in several instances doubtful in their interpretation, and the objections to the bill are so numerous and their full presentation would require so much space, that only some of the principal arguments against it can be considered within the compass of this succinct statement.

1. The bill is entitled "A Bill for the further prevention of cruelty to animals in the District of Columbia." This title is misleading, as it does not indicate that the bill is intended solely for the restriction and regulation of experiments upon animals. The recommendation of the Commissioners of the District of Columbia in their report upon a bill of the same title and of similar contents in the 54th Congress (S. 1552) that the title be changed to read "A Bill to regulate vivisection in the District of Columbia" was not adopted. It may well be questioned whether some who have signed petitions in favor of the bill have

¹ As a matter of fact no abuse of vivisection such as would justify any restrictive law whatever has been demonstrated in this country. The experience in England has shown the folly of the belief of some men of science and physicians that any compromise in this matter with antivivisectionists will check in the least their agitation of the subject. Upon this point I will quote, by permission, a few sentences from a private letter written by Michael Foster, who is recognized in this country as well as in Great Britain as the leader in his department of medical science. The letter was written to a prominent physiologist in this country: "I have always said and always shall say that the necessity of a restrictive law has never been shown. The English Commission failed to demonstrate any abuses such as could justify the measures adopted; and from what I know of America and Americans I am confident no such laws are needed with you. Indeed, my objections to the Act as a politician are quite as strong as my objections as a physiologist; the Act is stamped with that mark of bad statesmanship, *meddlesomeness*, fight tooth and nail against any act at all, on the ground that all such legislative restrictions are unnecessary, that instances of cruelty, that is of needless causing of pain on the part of physiologists are, to say the least, rare, and that public opinion aided by the ordinary law is quite sufficient to cope with such cases. (I of course assume that vivisection is absolutely necessary for the progress of physiology.) And, much as I hate public agitation, I should throw myself into agitating against such measures, sacrificing my little portion of present science for the sake of science to come. My advice to you is, accept no compromise whatever, refuse to admit for a moment the need of such a law, and fight against it everywhere, in the newspapers and on the platform, and if the situation demands it, even imitate your opponents and refuse a political vote to a candidate who will not pledge himself to vote against it. I do not think I can say anything stronger than this last. To repeal a law is a very different thing from opposing the making of one."

not been misled by the title as to the real contents of the bill.

2. The authorship of this bill is claimed by the antivivisection committee of the Washington Humane Society (annual report, 1895, p. 24). The attitude of this society toward experimentation upon animals is apparent in the report of its president for the year 1894, where he said: "The subject of vivisection (experiments upon animals) has been frequently before your executive committee during the past year, and but one sentiment has been expressed, viz., that of utter abhorrence and condemnation of the inhuman practice which, according to the oft expressed opinion of the best physicians and surgeons, is of no practical value to science or medicine." It should be borne in mind that this bill emanates wholly from those hostile to animal experimentation and who, as appears from the foregoing quotation, do not hesitate to misstate the opinion of the great body of the medical profession as to the value of animal experiments. No one familiar with the needs of scientific and practical medicine and of biological science and possessing skilled knowledge upon the subjects which the bill proposes to regulate has been consulted or had any hand in the drafting of the bill.

3. Medical and scientific men have never had adequate opportunity to present the arguments against this bill before the Committee on the District of Columbia, which has reported favorably upon it. At the hearing of a similar bill before this Committee on April 17, 1896, Surgeon-General Sternberg said, "We did not know of this hearing until today, and were compelled to come here without any previous preparation." Surely a bill which is of far more than local interest, as appears from the numerous communications regarding it from all parts of the country, and which in its direct and remote bearings, in the opinion of enlightened physicians and scientists, vitally concerns the future progress of medicine and biological science in this country, never should have been reported by the Committee without thorough investigation as to its necessity and its effects and without full opportunity, granted not only to physicians of the District of Columbia but to others, to prepare and submit arguments against it. An hour's time granted to a few hastily summoned physicians and scientific men of the District, who came without preparation, did not afford the requisite opportunity to present adequately the objections to the bill.

4. Any one who is at all familiar with the writings and the propaganda of the antivivisectionists knows that their ultimate aim is to abolish animal experimentation altogether. They demand only such measure of restrictive legislation in the present bill as they think they may be able to secure at the present time. Concession to these demands will not check their agitation of the subject and their efforts to secure more stringent laws, as has been abundantly

demonstrated in England, where some medical and scientific men unwisely thought that by yielding to relatively moderate demands for legislation, further agitation of the subject would end. On the contrary, bills for the total abolition of experiments upon animals have been introduced into the British parliament since the passage of a bill similar to Senate Bill 1063.

5. Although it is contended by advocates of the bill that it will not interfere with the proper uses of animal experimentation, it is to be noted that the remarks of these advocates at the hearing before the Committee and the favorable report of Senator Gallinger are occupied largely with the presentation of the stock arguments of antivivisectionists against the value and the justification of experimentation upon animals. The most important of these arguments are the following: *a.* That medical and scientific men are divided in opinion upon this subject; *b.* that experiments upon animals have yielded results of little or no value to medicine or science; *c.* that such experiments are conducted with wanton cruelty and are brutalizing to those who witness or practice them. These arguments have been refuted many times. It would require a voluminous treatise to present the evidence relating to them adequately. It must suffice to mention only a few points.

a. It is untrue that there is any material division of opinion among well informed medical or scientific men as to the necessity and value of animal experiments. The names of a very few more or less prominent physicians, in no instance themselves scientific experimenters, are constantly cited, in some cases incorrectly or incompletely, by antivivisectionists in support of their position. Lists of other physicians collected by antivivisectionists as opponents of animal experimentation will not in general bear scrutiny as to the professional standing or scientific attainments of the majority of those whose names are given. The incorrectness of the statement of antivivisectionists here challenged must be apparent from the fact that whereas not a single medical or scientific society is known to have favored this bill, over a hundred such societies, which assuredly represent the great body of physicians and scientists of this country have protested against its passage. These societies represent the rank and file of the medical profession and not exclusively "ultra-scientists," as has been claimed. It is therefore unhesitatingly asserted that the medical profession and scientists, so far as their opinion receives authoritative utterance, are overwhelmingly opposed to this bill.

b. The constantly reiterated statement of antivivisectionists that animal experimentation has been of little or no value to medicine can be the result only of ignorance or of wilful misrepresentation. It would be surprising, indeed, if the experimental method, which is essential to every other science and has been the great instrument of modern scientific progress, should have no value for medical science. Surely this is a matter concerning which the judgment of the great body of enlightened physicians should be decisive. The progress of medicine from the time of the discovery of the circulation of the blood, which was based upon the results of animal experimentation, up to the present time, has rested in very large measure upon discoveries which could have been made only by experiments upon animals. It must suffice here to cite only a few illustrations of the practical value of animal experimentation, such as the establishment

of the germ doctrine of disease, the introduction of anti-septic surgery, the prevention of childbed fever, the antitoxin treatment of diphtheria and other diseases, the prevention of rabies by Pasteur's method of inoculation, the successful treatment of myxedema and cretinism by thyroid extracts. Countless thousands of human lives have been saved and will continue to be saved by methods of prevention and treatment of disease, which are derived from the results of animal experimentation. Recent years have been particularly fruitful in discoveries of the highest importance resulting from animal experimentation. Never was there so little justification to hamper in any way the work of those engaged in searching by experiment for means of preventing and curing disease.

c. The claim of antivivisectionists that scientific experimentation on animals brutalizes those who witness and practice it, is an insult, without shadow of foundation, to a class of scientific workers unselfishly devoted to the investigation of problems of the highest importance to the welfare of mankind.

There is no part of the campaign of the antivivisectionists conducted with such gross misrepresentation of the facts as that intended to make the public believe that scientific experiments upon animals are conducted cruelly, that is, with the infliction of needless pain. A large part of antivivisection literature consists of leaflets and broadsides distributed wholesale among the public, containing pictures of animals and descriptions of experiments, which are in general so erroneous or garbled or unintelligible to most of those who read them, that they convey utterly false impressions. It is repugnant to the spirit of medicine and of science to resort to similar methods in order to counteract the deplorable effects of these emotional and misleading appeals of antivivisectionists to the general public. The charge of any considerable abuse of the practice of animal experimentation on the ground of cruelty, especially in this country, has been abundantly refuted by articles in journals and other publications, which unfortunately rarely come to the notice of the great majority of those who receive the gruesome circulars of antivivisectionists. Whenever the conditions of the experiment permit, and this is in the great majority of painful vivisectional experiments, all trained experimenters place the animal during the operation completely under the influence of anesthetics. There is no evidence that there exists today in any properly conducted laboratory in this country any abuse of vivisection on this score.

6. The advocates of this bill have not been able to point to a single authenticated instance of the abuse of animal experimentation in the District of Columbia. The same inability to specify instances of abuse in Massachusetts was demonstrated in the recent hearing before a committee of the legislature of that State relating to a bill to control animal experimentation. Notwithstanding most violent efforts on the part of English antivivisectionists to excite popular feeling by charges of wanton cruelty against scientific experimenters upon animals, the Royal Commission appointed to inquire into the matter "entirely acquitted English physiologists of the charge of cruelty." The Committee recommending Senate Bill 1063 has attempted no similar inquiry for this country, but it can be confidently predicted that similar charges made in the most reckless and wanton manner against American physiologists would be found to be equally unfounded.

It is not true that secrecy is practiced in the conduct of such experiments. In scientific publications these experiments are described in detail. There is no effort made to prevent properly qualified medical and scientific men from witnessing these experiments. For manifest reasons it would be as improper and undesirable to throw open such experiments to the inspection of those without any training or competence to judge of their character and value, as it would be to give similar publicity to surgical operations. In the absence of any demonstration of abuse of the practice of animal experimentation in the District of Columbia, this bill is unnecessary.

7. It is well understood that the organized and strenuous efforts of antivivisectionists to secure congressional legislation upon this subject is not so much to check abuses in the District of Columbia, where in fact they do not exist, as to influence legislation in the various States of the Union. Although they have made repeated attempts to secure legislation, generally far less stringent than that contemplated in this bill, in different States, they have hitherto been unsuccessful. Wherever full and fair opportunity has been given to physicians and scientific men, they have had no difficulty in demonstrating to the satisfaction of committees of our State legislatures the objections to any such legislation. We would call particular attention to the convincing arguments urged successfully against a much milder bill recently introduced in the legislature of Massachusetts, a State in which the antivivisectionist agitation has been particularly active.

8. The experience with legislation, similar in character to this bill but surrounded with more effective safeguards against interference with scientific experimentation in England, has been most unfortunate in its influence upon the advancement of medical science in that country. Many scientific workers in England, including Lord Lister, one of the greatest benefactors of the human race through his introduction of antiseptic surgery, have preferred to leave their country and conduct their experiments in continental laboratories, rather than submit to the vexatious restrictions upon their work. Earnest appeals have been sent by eminent men of science in England to physicians in this country not to repeat their mistake of yielding to the demands of antivivisectionists in this matter.

9. The District of Columbia already has an unusually comprehensive and effective law for the prevention of cruelty to animals, and there is no need of further legislation in the direction contemplated in this bill. Only properly conducted scientific experiments under proper authority are now allowed. Those who conduct experiments upon animals are no less subject to the provisions of the existing law than other members of the community. If they can be convicted of cruelty in the practice of their experiments, the present law provides adequately for their punishment. The antivivisectionists complain that they are unable to secure convictions of experimenters upon animals under the present law. If so, it is because they can furnish no evidence of cruelty in the conduct of the experiments convincing to a court of justice. Their demand that the doors of laboratories shall be thrown wide open to agents of their societies in order to procure evidence, would lead to a system of outrageous espionage utterly foreign to our system of government, and degrading and intolerable to the scientific men in charge of the laboratories.

10. This bill is unanimously opposed by the great

scientific and medical bodies of this country, National, State and local, who recognize in its provisions a blow to freedom of investigation and to the advancement of medicine and biology. Among the five score and more societies which have protested against this bill may be mentioned The National Academy of Sciences, The American Association for the Advancement of Science, The Society for the Promotion of Agricultural Science, The American Medical Association, The Congress of American Physicians and Surgeons, The American Public Health Association, The United States Veterinary Medical Association, The Association of American Physicians, The American Surgical Association, The Association of American Medical Colleges, The New York State Medical Society and Association, and other State Societies, the New York Academy of Medicine, etc. The assumption that the protests of these societies have been made in ignorance of the provisions of the bill is absurd. It would be incomprehensible if Congress should ignore or disregard the united voice of these great organizations in a matter which directly concerns the welfare of medicine and biological science.

11. Although there is abundant evidence in the Report recommending this bill that the real sentiments of its advocates are hostile to scientific experiments upon animals, it is nevertheless asserted by them that the bill, if it should become law, would not in fact interfere with the proper uses of animal experimentation for scientific investigation and study. Such an assertion can be made only by those unfamiliar with the needs of medical and biological science and with the purposes of experimentation upon animals, or else ignorant of the provisions of the bill. To take up in detail all the provisions of the bill and to point out fully the manifold ways in which they would interfere with proper and legitimate uses of animal experimentation, would require more time and space than can here be given. This work has been done in part, but only in relatively small part by others, notably by the Secretary of Agriculture, the Hon. James Wilson, and by the former Acting Secretary of Agriculture, Dr. Charles W. Dabney, Jr., in their published letters addressed respectively to the Hon. Redfield Proctor and the Hon. James McMillan. It must suffice here to indicate only a few of the ways in which this bill would prove injurious to medicine and biology, but enough will be shown to demonstrate its fatally defective character.

A. The bill provides (Sec. 2, b,) that "The experiment must be performed by a person holding such license from the Commissioners of the District of Columbia as in this Act mentioned, or, by a duly authorized officer of the Government of the United States, or of the District of Columbia." It further provides (Sec. 3) that the Commissioners of the District may require the place in which any experiment is made by a licensee to be registered in such manner as they may direct and that every place for the performance of experiments for purposes of instruction shall be approved by the said Commissioners and registered in such manner as they may direct. It also provides (Sec. 5) "That the Commissioners of the District may direct any person performing experiments under this Act from time to time to make reports to them of the methods employed and the results of such experiments, in such form and with such details as the said Commissioners may require," and again in Sec. 7 the bill provides that "The Commissioners of the District

may at any time disallow or suspend any certificate given under this section."

It is evident that the bill gives uncontrolled discretion to the Commissioners of the District of Columbia in the granting of all licenses permitting experiments upon animals. They may if they choose, grant all applications for license or they may refuse all such applications and thereby prohibit all animal experimentation in the District, except that conducted by officers of the Government of the United States or of the District of Columbia. Experiments by the latter officers, as well as by licensees, they may hamper so as to make the privilege of experimentation practically useless, by demands for reports upon the methods and results of experiments at any stage of the experimental investigation as often and with as much detail and in such form as they choose. An unfinished experimental research can be interrupted or brought to an end at any time by suspension of the license in the discretion of the Commissioners. No provision is made for any hearing by the applicant or the licensee. There is no appeal from the decision of the Commissioners. They are the sole arbiters in the matter. They are made the dictators of the medical profession by this bill in matters requiring expert knowledge and sympathy with the needs of medical science.

No one can foretell in what manner the District Commissioners would exercise the arbitrary powers conferred upon them by this bill. It is certain that if they exercised them so as to meet the approval of those from whom this bill emanates and the antivivisectionists in general, who are its advocates, they would antagonize the medical profession and scientists and would inflict serious injury upon human and veterinary medical science and upon biology. On the other hand, if they administered the law so as to meet, so far as the bill permits, the wishes of physicians and scientific men, they would as surely antagonize the great majority of the advocates of the bill, who would continue their agitation and endeavor to secure still more prohibitory legislation.

Among the many objections to this bill there is none more fatal in the principle involved or likely to be more so in the practical working of the proposed legislation than that this bill places in the hands of a body of men, who need not be and are not likely to be physicians or men of science, arbitrary powers, requiring skilled knowledge in their use, concerning matters of the highest importance to medicine and biological science and to the welfare of mankind and of animals.

B. The bill provides (Sec. 6) "That the President of the United States shall cause all places where experiments on living vertebrate animals are carried on, in the District of Columbia, to be, from time to time, visited and inspected without previous notice for the purpose of securing compliance with the provisions of this Act; and to that end shall appoint four inspectors, who shall serve without compensation, and who shall have authority to visit and inspect the places aforesaid, and who shall report to the President of the United States from time to time the results of their observations therein, which shall be made public by him."

It will be observed that this section makes no provision that the inspectors called upon to scrutinize and report upon the experimental work of physicians and scientific men shall possess any special qualifications for such remarkable and responsible functions.

Can it be assumed that the President will appoint only those who possess the requisite qualifications and where will he find them? Our Universities and Medical Colleges and Hospitals and Government Laboratories search the country over to find men fitted to conduct the experimental investigations which this bill would regulate and control and they have difficulty in finding those with requisite training, scientific knowledge and special skill. And now this bill provides that over such men as these shall be placed inspectors to determine whether their experiments are performed in the proper manner and upon proper animals and for proper purposes and to make reports upon their experiments, which reports shall be made public.

The character of the inspection desired by the advocates of this bill is made sufficiently evident by the provision of the original bill (S. 1552) that the Commissioners of the District "shall appoint and authorize an agent of the Washington Humane Society to make such inspection." The attitude of this society toward animal experimentation is clear from the extract from one of its reports already cited (p. 285). It certainly may be reasonably assumed that this society and antivivisectionists in general will claim and will secure representation among the inspectors provided for in this bill. Nor is it unreasonable to suppose that they may even control the majority of the inspectors. In larger or smaller part, therefore, the inspection will doubtless be by men or possibly women, not only without special scientific knowledge but actually opposed to experimental medical or biological science. It would be entirely in the power of such inspectors to render the conditions for experimental work such that no one would care to undertake it.

It is a libel upon common sense to assert, as is insistently done by the advocates of this bill, that the objection of experimenters to any such system of inspection as that provided for in this act, is due to their fear of exposure of wanton cruelties practiced by them in the secrecy of the laboratories. As a matter of fact, no secrecy surrounds the practice of animal experimentation, and any properly qualified person has free access to the laboratories where such experiments are made.

C. The hardship which would be inflicted upon those engaged in experimental research by the provisions of the bill that at any stage of their investigations they may be called upon to furnish detailed reports of the methods and results of their work and that those, with probably no comprehension of the nature and purposes of the experiments, shall make reports thereupon, which shall be published, can be fully appreciated only by those who are acquainted with the conditions under which scientific inquiry is prosecuted. There are many important scientific investigations which would probably not be undertaken at all under any such vexatious conditions as these. These provisions, as well as others in the bill, can be utilized constantly to harass experimenters in case the law should be administered, as is not at all improbable, by those unfriendly to experimental inquiries in medicine and biology.

D. The bill prohibits important and necessary experiments and surrounds the performance of others with such restrictions as virtually to prohibit them. Exactly how far this prohibition extends can not be determined without an interpretation by the courts of

certain doubtful provisions of the bill, nor can any one foresee what new kinds of experiment, not now provided for in the bill, the future progress of medicine and biology will require.

The bill provides (Sec. 2, a) that "The experiment must be performed with a view to the advancement by new discovery of physiological knowledge, or of knowledge which will be useful for saving or prolonging life or alleviating suffering." If this provision be interpreted according to the explicit language used, and it may be presumed that the courts would so interpret it, no experiment can be made (except demonstrations for lectures provided for elsewhere in the bill) which is not for the advancement of knowledge *by new discovery*, and this knowledge must be of one of two kinds, either physiological or such as will be useful for saving or prolonging life or alleviating suffering.

The term "physiological" is used both in a broad and a narrow sense, and it can not be confidently predicted how the courts might interpret it. To compel an experimenter to pause before each experiment which he is about to make and consider whether he can demonstrate to the satisfaction of a court that the experiment, if not for the advancement of physiological knowledge, is for the advancement *by new discovery* of knowledge, which can be utilized in saving or prolonging life, or alleviating suffering, would not be conducive to progress in the very kind of knowledge specified. The history of scientific discoveries in medicine, no less than in other fields, demonstrates that experiments undertaken without any thought of practical application, and yielding results which appear at the time to be devoid of all practical utility, have often laid the foundations of knowledge of the highest importance to mankind.

Two valuable lines of experimentation at once suggest themselves as forbidden by the words of this section, viz., experiments to confirm results obtained by others, and experiments to acquire manual skill in performing surgical operations. The first of these restrictions was pointed out by Dr. Chas. W. Dabney, Jr., former Acting Secretary of Agriculture. Although the report upon the bill states that "the bill does not bear this limited construction," it is difficult to see how the plain language can be construed otherwise, and, if it was not the intention to prohibit confirmatory experiments, the question arises why those who drafted Senate Bill 1063, in copying this section from the British law, omitted the paragraph in the latter which expressly provides for experiments made "for the purpose of testing a particular former discovery alleged to have been made." Certainly the framers of the British law could not have considered that experiments confirmatory of alleged discoveries were already provided for by the section in question or they would not have added the paragraph omitted from the Senate bill. There is no other natural inference than that it was deliberately intended to forbid confirmatory experiments.

Experiments upon animals in order to acquire manual skill in performing surgical operations, certainly are not experiments for the advancement of knowledge *by new discovery*. Whether it was intended to prohibit such experiments is not clear. In Sec. 2, c, it reads "nor in tests of surgical procedure need animals be kept completely anesthetized during the process of recovery." There is nothing, however, here or elsewhere in the bill to indicate that these tests are

to form any exception to the general requirement that, save demonstrative experiments for lectures, all permissible experiments must be for the advancement of knowledge *by new discovery*. If, as seems to be the natural interpretation of the language of the bill, surgeons are not to be permitted to perfect themselves in methods of operating by experiments upon animals, this prohibition can be characterized as nothing less than inhuman. The only alternative is to make a human being instead of one of the lower animals the subject of experiment. There are many operations which a surgeon may wish first to try upon an animal before attempting them upon a human being. An eminent surgeon has said that a surgeon should not perform the operation for circular suture of the intestine and for intestinal anastomosis upon man without first practicing it on animals.

The bill provides (Sec. 2, c,) that "The animal must, during the whole of the experiment, be completely under the influence of ether or chloroform," excepting in inoculation experiments, tests of drugs or medicines, and during recovery from surgical operations. It is absurd to limit the choice of anesthetics to two. There are other anesthetics which produce equal insensibility to pain, and any one at all acquainted with physiological experiments, knows that there are experiments in which it is safer, better, and sometimes for the purposes of the experiment necessary, to produce anesthesia in other ways than in the only two permitted by this bill.

The absurdity of the claim that this bill is simply restrictive and regulative, and not prohibitive of experiments upon animals, can be shown in many of its provisions, and especially by that which forbids the survival of the animal after an operation unless kept continuously under the influence of ether or chloroform. The only exceptions to this provision are inoculation experiments, tests of drugs or medicines and tests of surgical procedure. The experiments which are prohibited by this provision are so many that they can not even be enumerated within the compass of this statement. All physiological and pathological experiments where the ends of the experiment can be attained only by observation of the animal for days or weeks after some operation, or after the administration (save by inoculation) of anything except drugs or medicines which may give pain, are prohibited by this bill, for it is impracticable to keep animals during such periods of time continuously anesthetized. Such important experiments as those which have shed light upon the functions of the stomach by gastric fistula, or of the heart by the experimental production of valvular lesions, or of the central nervous system, kidneys, and indeed most of the organs of the body by observations extending over some length of time after an experiment, are all prohibited by the conditions of experimentation imposed by this bill. All experiments are prohibited in which anything, except drugs or medicines, is simply fed or introduced into the stomach in case the experiment is calculated to give pain to the animal and extends beyond the limited period in which it is practicable to keep the animal under ether or chloroform.

It may well be questioned whether it was intended to forbid the large class of important and necessary experiments of the characters described. If it was not, then the bill is so loosely drawn that it should never pass in its present form. If it was intended to exclude all of these experiments, then the blow which

its enactment would inflict upon biological and medical science is simply brutal.

There are other kinds of valuable experiments which are prohibited by this bill besides those specified, but enough has been said to show the error of the assertion made in the Report recommending it that "the bill is restrictive, not prohibitive," and to demonstrate that among the prohibited experiments are many of the highest scientific and practical value, including many which involve far less suffering to the animal than some which are permitted.

E. The bill provides (Sec. 4) "That a license shall not be granted to any person under the age of twenty-five years, unless he be a graduate from a medical college, duly authorized to practice medicine in the District of Columbia." There are graduates of Zoology and other departments of Biology under 25 years of age eminently qualified by their training for investigations involving experimentation upon animals. Concerning the effect of this provision upon the work of the Bureau of Animal Industry Dr. Dabney, in the letter already cited, says: "It would at once stop some of the experiments now in progress, and if it had been enforced in the past years would have prevented a large proportion of our scientific employes from doing this class of work."

F. The greater part of the investigations requiring animal experimentation in the District of Columbia are conducted in the Bureau of Animal Industry under the Department of Agriculture. This bill takes the scientific work of a Department of the General Government to a considerable extent out of the hands of the Secretary of Agriculture, and places it to a corresponding extent under the control of officials of the District of Columbia, and that too for matters which concern the agricultural interests of the entire country and only in relatively small measure concern the District of Columbia. The bill accomplishes this by providing that the Commissioners of the District may direct any person performing experiments to report to them from time to time the methods and results of their experiments in such form and with such detail as the Commissioner may require. It will be observed that it is not the Secretary of Agriculture who is to be called upon to report, but it is his subordinates. The bill further provides that if any of five kinds of animal (cat, dog, ass, mule, horse), are used for the experiment, a special certificate setting forth certain facts must be procured. The bill is singularly indefinite as to these certificates, especially not stating by whom they are to be given, or to whom application for them is to be made. If, as is not improbable, it was the intention that these certificates should be granted by the Commissioners, then the scientific work of the Bureau of Animal Industry is placed practically under the direction of these District officials, for no provision of the bill exempts officers of the Government from the necessity of procuring these certificates, as is the case with licenses.

No attempt has been made in this statement to present a complete analysis of Senate Bill 1063 and to point out all of its objectionable provisions or even to exhaust the objections to such as have been considered. No such complete analysis is necessary in order to prove the error of statements in the report recommending it that it is "reasonable and wise," "restrictive and not prohibitive," and permissive of all "useful investigations." It may be that the committee recom-

mending the bill believed it to possess the moderate and reasonable character claimed for it. The defects of the bill are evident enough to those who are familiar with the requirements of modern medicine, in its scientific and practical aspects, and with the needs of biological science. So evident indeed are they that it has generally seemed unnecessary to medical and scientific societies and individuals, who have protested in hundreds against the passage of the bill, to do more than emphasize on the one hand the great benefits derived from animal experimentation and on the other the restrictive and prohibitive features of the bill. Apparently so convinced have many of the advocates of the bill been of its moderation, that they have assumed that these protests have been made in ignorance of the provisions of the bill, a most unwarranted and gratuitous assumption. It is not to be expected that any considerable number of the committee to which the bill was referred should possess that technical, expert knowledge essential for an intelligent judgment as to the effects of a complicated bill which prescribes by whom, and for what purposes, and upon what animals, and in what manner, scientific experiments shall be performed.

It surely could not have been the intention of the Senate Committee recommending this bill to inflict such serious injury upon medicine and science as, in the opinion of those who by their training, occupation and special knowledge of the subject are most competent to judge of its workings, it certainly would inflict.

THE ANTITOXIN TREATMENT OF TUBERCULOSIS.

OR THE DIRECT (TUBERCULIN PREPARATIONS) VERSUS THE INDIRECT (ANIMAL SERUM) METHOD OF IMMUNIZATION AGAINST TUBERCULOSIS.

Read before the Denver Medical Association and Arapahoe County Medical Society, Dec. 14, 1897.

BY CHARLES DENISON, A.M., M.D.

DENVER, COLO.

Since Koch's discovery of tuberculin some seven years ago, we no longer wonder that the majority of medical men were turned away from the employment of this remedy by its ill-advised use, and the resulting gross effects, as shown by Virchow, the great pathologist.

From the absurd advertisement of a Swiss barber "tuberculin injections given here," and the equally preposterous belief which at first prevailed that a means to destroy tuberculosis had been discovered, as easy of use as a household remedy, we have come to learn that if cure it will, it must be by a concentration of skilled effort, and a technique involving as much discrimination in diagnosis and care as does the differentiation of a complicated eye refraction, the microscopic determination of blood changes due to disease, the endoscopic study of internal organs, or any other delicate field of professional work.

The great mistake of the celebrated discoverer of tuberculin (which in a measure is applicable, also to his later discovery tuberculin T. R.) was that there was no due recognition of the failures of physicians in the diagnosis of tuberculosis. In other words medical men failed to recognize the great variation of the disease to be treated by so powerful a remedy. We can now see how unfortunate it was for Koch to