the taking of animal life. The great mass of modern critics of animal experiments does not base its arguments on any special religious belief, but claims to support it on the general principles of humanity; that the causation of needless pain is a crime; that it is not justified by any useful results and is brutalizing in its effects on the actors themselves and the public. It is to be granted that if it is ever justified by its results, however, the basal ethical issue is closed. It only remains to insure this fact and to see that the minimum of pain is caused to the creatures used, and that the indirect effects on the public or students are not brutalizing and injurious. We have no calculus by which we may estimate the amount of pain to an animal or the amount of suffering saved to other creatures by its sacrifice. There is ample evidence, however, of the benefits obtained if we only take the prevention of smallpox and diphtheria, to mention only two out of a constantly lengthening list. It would be ridiculous to claim that all experiments on animals have as striking justification as this, however; but, as said above, these are enough to close the fundamental ethical issue. The problem which remains is simply that of determining the circumstances and conditions which warrant particular forms and cases of the method. The question that most concerns medical men here is as to what precautions should be thrown around animal experimentation and who shall control it and see that these precautions are followed. It is evident that there is a chance here for officious and unintelligent interference that may seriously cripple research. Personal opinions vary largely according to idiosyncrasy. If one is going to inquire seriously into the ethics of our human relations to animal forms, the same principles that would forbid animal experimentation would also apply to the killing of a mosquito because it is a nuisance, and the trend of modern opinion is certainly toward the right of society to protect itself from disease as well as crime. The public is coming to a juster appreciation, also, of the relation of science to social welfare. Science is simply the intellectual aspect of social progress, and when this conception is more familiar to us all we shall hear less of the "merely scientific interest in animal experimentation, as though there were any genuinely scientific interest which could escape contribution to social advance." Biologic science as well as pure medicine ought, therefore, to be free to pursue its researches in the general interests of mankind by such methods as are found necessary. To obstruct it by a general prohibition of experiments on animals is to sin against the light and turn back the hands of progress. The question as to the moral effects of animal experimentation on the persons who undertake it or observe it offers some difficulties. There is no need of denying that brutalizing effect may be thus produced, but in every reputable laboratory the practice is conducted as humanely as possible. Anesthesia is the universal rule and it is certain, Angell says, that the total amount of suffering the animals undergo is far less than they endure in the ordinary course of their natural lives. A loss of original squeamishness does not imply a loss of tenderheartedness, and in the larger view that looks to the welfare of mankind the experimentors are among the most valuable humanitarian members of society. He sees no reason to condemn animal experimentation in our intuitive moral convictions or traditional morality. To some sentimentalists it will never be justifiable, but to the public taking a calm and discriminating judgment, in the long run it should be recognized as valuable and necessary.

Tuberculosis.

J. Girdwood, Baltimore (Journal A. M. A., December 4), states that the responsibility of the family physician in case of tuberculosis has not been sufficiently emphasized. As he is first to be consulted he is responsible for the early diagnosis, and special attention should be given by him to the first symptoms of cough, afternoon fever, and loss of weight, and thorough physical examination cannot be too strongly insisted on. The examination of
sputum is also another necessary measure in all cases though it may not always reveal bacilli. A positive result is proof of the disease but a negative one does not always exclude it. There is no reason nowadays why the family physician should neglect tuberculin diagnosis and another important measure which should be more generally employed, is the examination of those who have been exposed to the disease. That the physician should tell the patient the truth in regard to his case is also insisted upon by Girdwood, and he thinks the time is not far distant when the doctor will be held legally responsible when he neglects the proper means for diagnosis or hides the truth afterwards. Some have even denied to the patient the existence of tuberculosis when the latter had been informed by other more conscientious physicians, with the result of the discontinuance of all prophylactic measures and the encouraging of a false hope in the individual. Such a case has recently come under Girdwood's observation and it cannot be too strongly condemned. Many physicians, he says, fail in their obligations to society. The public should be protected from the danger of the consumptive and Girdwood goes so far as to say that partial or complete isolation of the consumptive must become the most effective method of conquering the disease. We must discourage marriage or nursing of infants and must protect the laundress and housecleaner and the family whose servant has tuberculosis. All these come within the obligations of the physician. His responsibility to the state is also too much lost sight of by the physician. The advantages of registration are no longer disputed and yet physicians neglect to report their cases and Girdwood thinks that he is conservative in saying that 90 per cent of cases when reported are in the second or third stage, and not more than 10 per cent of early cases are reported. There are several reasons why these conditions exist. First, incompetency of the physician. Second, inexcusable carelessness. The third reason, economic considerations, is more difficult to combat. It is not always profitable for the physician to tell the patient the diagnosis or report him as consumptive, but this must be done if the physician does his duty.

**Blood Smears.**

E. R. Hayhurst, Chicago (Journal A. M. A., December 4), describes a method of making blood smears preparatory to staining them which he thinks should be included in every text-book. He says that a correctly made smear is of as much importance as the stain. The object is to make them uniform and not to crush or distort corpuscles or other elements but have them evenly distributed on the surface. Use a good quality of glass slides cleansed by breathing on them and wiping with a clean old linen handkerchief, than which rarely anything more is needed. Cleansing the ear lobe with alcohol or anything else is seldom necessary. The lobe of the ear is rarely dirty enough to contaminate the blood as it is taken off. The needle should be well cleansed to avoid carrying infection on it from other uses. "Have two clean slides, A and B, ready. Stick the ear lobe with a Hagedorn or similar cutting needle. No blood appears, as a rule, until gentle pressure is applied to the lobe. Touch center of slide A to the rounded drop of blood which exudes. Do not press the slide against the surface skin. Now grasp the right end of slide A, with blood drop on top, between thumb and fingers of the left hand (palm of hand upward), and hold slide horizontally with its left end directed obliquely away from the body and projecting two-thirds its length over the radial border of the hand. Take slide B in the right had, apply one end to farther edge of drop and pull B back toward you about one-eighth of an inch. This is to make the drop spread by contact sidewise in the acute angle formed between the slides. Next, holding slide B in place, pull slide A steadily backward beneath it and toward your right until the slides slip past one another. The blood-cells adhere to the moving horizontal surface of slide A and fall off from the