we are able to show it experimentally or not, there is, I suppose, very little doubt of the fact that the materials formed pass somehow or other into blood; and, when we compare these results of supra-renal injection with the converse effects obtained by their removal or destruction, it is possible that of this fact, in the studies of tuberculous, we can come to no other conclusion than that we have before us a well-marked instance of an internal secretion. The general results to which we are led from a consideration of these facts are, and others to which I have had no time so much as to allude, point strongly in favour of a theory of internal secretions, and it is obvious that such internal secretions may be of no less importance than the better recognised functions of the external secrertory glands. The functions of these secretions have to be taken into account by the physician, while at the same time the therapist will be able to pervade himself of the active principles which they contain, and in certain cases to use extracts of internally secreted things as remedies. This is, therefore, the line of preventive action which I have clearly set out the lines of preventive action on which I should rely. This summary reads thus: (1) notification (compulsory) as in fevers; (2) isolation (with legal procedure for breach of law, as in fevers) etc.; (3) disinfection; and (4) diseased meat (destruction of).

Now in the issue for April, 1893, of the same publication I have clearly set out the lines of preventive action on which I should go, and these I will repeat as a basis of comment; but before doing so I should like to say that, no doubt unconsciously, Dr. Armstrong has quite misunderstood my position. I have never proposed isolation with legal procedure for breach of law as in fevers, nor have I thought of such a proceeding. On the contrary, I am under the impression that an isolation hospital would be regarded as a boon by many families one of whose inmates was phthisical, and that there would be no need of compulsory legal procedure for breach of law as in fevers; but this, again, is not part of the main front of my position. Then, again, disinfection of rooms should be carried out, if possible; but this, again, is not part of the main front of my position. Nevertheless, the way which the physiological has attempted to show may be followed by the practitioner, and the result of these physiological experiments may now be utilised for the diagnosis and treatment of disease.

ON THE PREVENTION OF PHTHISIS.

BY JAMES NIVEN, M.B. CANTAB.,
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In the issue of Public Health for December, 1894, is a paper read by Dr. Henry Armstrong before the North-Western Branch of Medical Officers of Health on the subject above, in which he does me the honour to quote my name in connexion with preventive measures. He does not, however, agree with the summary of measures which he attributes to me as being those on which I should rely. This summary reads thus: (1) notification (compulsory) as in fevers; (2) isolation (with legal procedure for breach of law, as in fevers) etc.; (3) disinfection; and (4) diseased meat (destruction of).

In the issue for April, 1893, of the same publication I have clearly set out the lines of preventive action on which I should go, and these I will repeat as a basis of comment; but before doing so I should like to say that, no doubt unconsciously, Dr. Armstrong has quite misunderstood my position. I have never proposed isolation with legal procedure for breach of law as in fevers, nor have I thought of such a proceeding. On the contrary, I am under the impression that an isolation hospital would be regarded as a boon by many families one of whose inmates was phthisical, and that there would be no need of compulsory legal procedure for breach of law as in fevers; but this, again, is not part of the main front of my position. Then, again, disinfection of rooms should be carried out, if possible; but this, again, is not part of the main front of my position. Nevertheless, the way which the physiological has attempted to show may be followed by the practitioner, and the result of these physiological experiments may now be utilised for the diagnosis and treatment of disease.

The main positions which it is necessary to bear in mind in planning out measures of prevention against the spread of phthisis are: 1. That tuberculosis bacilli or their spores are in a state of infective matters from phthisical patients are capable of lighting up the disease in guinea-pigs. This is a fact of cardinal importance. 2. Tuberculosis is widely distributed amongst the mammalia and is especially destructive to milk cows. 3. Tuberculous meat is concerned, the grounds for believing it to be a source of abdominal tuberculosis are mainly experimental. 4. Tuberculosis is widely distributed amongst the mammalia and is especially destructive to milk cows. In particular it has been shown experimentally that the milk of tuberculous cows is capable of lighting up the disease in guinea-pigs, especially if the udders are affected by the disease. There is, moreover, good reason on other grounds for believing that the milk from tuberculous cows is responsible for those cases of disease in which the tuberculous meat is concerned, the grounds for believing it to be a source of abdominal tuberculosis are mainly experimental. 5. Phtisis is not rare amongst country people, and they are not in like manner, though to a less degree, dangerous. 6. The infective matters from phthisical patients are capable of destruction by chemical agents and are easily destroyed by steam. In the shape of pure cultivations, and therefore as cutaneous tissue, they are as infective by direct contact as the virulent tubercle bacillus. These experiences are those in which exposure of a wound to tuberculous material has been followed by local tuberculosis, subsequently extending to the lungs. 7. Other tuberculous discharges besides sputum contain the infective matter, and are in like manner, though to a less degree, dangerous. 8. The infective matters from phthisical patients are capable of destruction by chemical agents and are easily destroyed by steam. In the shape of pure cultivations, and therefore as cutaneous tissue, they are as infective by direct contact as the virulent tubercle bacillus. These experiences are those in which exposure of a wound to tuberculous material has been followed by local tuberculosis, subsequently extending to the lungs.
not liable unless the same be proved. Acts and under similar conditions to I wish to point out that the discovery of tuberculosis amongst notifiable diseases could be effected under Clause 7 of Notification Act, 1889. Whom, then, are the reasons for proposing such a step? In the first place, it is manifest that tuberculosis, as an infectious disease, the motives of propagation of which we know with great definiteness. It is especially in the later stages of the disease that the largest amounts of infectious material are being discharged from the system, and notification would, I believe, be very valuable in the extreme stages of the disease. It is, moreover, especially in the later stages when phthisical patients require nursing and constant attention, and when through weakness their personal habits of life become deranged. In these circumstances, those in contact with them are exposed to the greatest amount of risk. I would propose at first to exclude from notification cases of closed glandular, bone, and joint affections, and only to deal with such cases as from the presence of discharges, whether from the lungs, mouth, skin, or bowels, are manifestly liable to convey the disease. I do not agree with Dr. Armstrong that the expense of such notification would be enormous, and I have given figures1 to show what small amount of additional expense would be incurred.

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1 Public Health, April, 1893.
Providing the fee of 2s. 6d. can be paid for each case reported, I do not object to voluntary notification being first tried, as it gives time practically to ascertain and deal with the difficulties of administration. At the same time it seems to me quite clear that, the connexion between sanitary conditions and the communication of phthisis being so close as it is, this alone would be a sufficient argument for compulsory notification. With the aid of a written diagnosis, the veterinary inspector would have no difficulty in the early stages in determining the probable condition of the animal. Compensation should be given, the taking place of the animal to be stopped. If his diagnosis was clear and unhesitating the treatment of the patient would be carried out. The sale of milk from this animal would be prohibited and a copy of the resolution would be sent to the sanitary committee of Oldham as well as to the medical journals.

3. My third proposition was that isolation hospitals should be provided by sanitary authorities, jointly or separately, at the expense of the rates, for the isolation of cases of tuberculosis likely to cause infection. As it is, workhouse hospitals do at present provide a considerable amount of isolation for the very poor. But there are a vast number of artisan families which would decline to avail themselves of that refuge, and where the patient is a danger and a burden. I feel quite sure from the conversations I have had in the course of my inquiries that the provisions of good hospital isolation would be hailed as a blessing by such families, and it would be the means of removing infection, from not only, but those treated in the hospital for a time would be thoroughly indoctrinated with the measures of precaution taken, which would become part of their daily habit. They would therefore, on their return, be centres for the diffusion of knowledge on the subject. It is in the later stages of the disease that infection is most likely to occur and that the disease is most burdensome. This is precisely the stage which is passed with such unhesitating rapidity, which, I think, should be dealt with in the interests of public health. This proposal is, however, not necessary to the success of the first two.

4. Tuberculosis in cattle should be brought under the Contagious Diseases (Animals) Acts, and special veterinary inspectors should be appointed by sanitary authorities, singly or jointly, to carry out the objects of the Acts in relation to tuberculosis and other diseases, and to attend to the general sanitary arrangements of the cowsheds. I may be allowed to quote the conclusion: "The officer to be appointed should be a young veterinary surgeon, to have great respect for the farmer, to have access to the large number of cases of tuberculosis likely to cause infection. As it is, workhouse hospitals do at present provide a considerable amount of isolation for the very poor. But there are a vast number of artisan families which would decline to avail themselves of that refuge, and where the patient is a danger and a burden. I feel quite sure from the conversations I have had in the course of my inquiries that the provisions of good hospital isolation would be hailed as a blessing by such families, and if it would be the means of removing infection from the home. Not only, but those treated in the hospital for a time would be thoroughly indoctrinated with the measures of precaution taken, which would become part of their daily habit. They would therefore, on their return, be centres for the diffusion of knowledge on the subject. It is in the later stages of the disease that infection is most likely to occur and that the disease is most burdensome. This is precisely the stage which is passed with such unhesitating rapidity, which, I think, should be dealt with in the interests of public health. This proposal is, however, not necessary to the success of the first two.

5. Perforation of uterus by sound or curette.

1 THE LANCET, April 29th, 1871.
2 THE LANCET, May 13th, 1871.
3 Progrès Médical, 1877.