the community, and paid for by the community.

5. Medical practise combined with public health service is an incompatibility.

Recently it has been argued that the training and experience of the sanitary engineer qualify him for public health work. As a matter of fact much of the sanitary engineer's training is exceedingly valuable in public health work, but the sanitary engineer as such is certainly no more qualified than the physician. The fact that several sanitary engineers have proved successful as administrative health officials by no means proves that the training of the sanitary engineer is the ideal foundation for public health work. The same arguments that have been presented for the sanitary engineer might be advanced for the training and qualifications of the attorney, the statistician, the chemist, the bacteriologist, the parasitologist, the veterinarian or the sociologist. All have labored in the field of public health, and all have at least some qualifications of great value.

Public health is now casting off the swaddling clothes of its infancy, and entering upon a period of vigorous youth. Medicine has been one of its parents, but now that the child is endeavoring to travel its own path we hear that parent uttering warning cries and, like all good parents, prophesying immediate or ultimate disaster if its rules and precepts are not heeded. For example, witness Dr. V. C. Vaughan's statements before the 1915 convention of the American Medical Association in San Francisco, and Dr. Ford's paragraph at the top of column 1 on page 13. We have heard several such utterances lately. Some we may suspect of having ulterior motives behind them; others, as the ones referred to, are admittedly cries of alarm on the part of the medical profession at the prospect of a fancied loss of prestige and influence.

In the last analysis the highest type of public health official will be a statesman, an administrator, an educator, above all an efficient public executive. He will have a broad public vision, partly from native qualifications, but developed by a broad training in public health *as such,* which will include much that is in medicine, but leave out much of medical training; which will include all that is essential in sanitary engineering, law, sociology, and the various fundamental sciences such as chemistry, biology, bacteriology, etc. He will also have an excellent foundation of general culture. He will superintend the work of physicians, engineers, statisticians, chemists, bacteriologists, attorneys, veterinarians and the like employed for special limited but intensive fields in public health, and will be the guiding hand in shaping public policy with respect to health. His life work, training and ideal will be public health, not private practise with public health on the side.

I realize that in thus criticizing some of Dr. Ford's statements I also have relapsed into dogmatic statements. This is difficult to avoid in the brief space of a letter, where proof would require a volume. I hope, however, that I have been able to show that certain viewpoints and theories in public health are debatable, and to have presented briefly a different, and I hope a better viewpoint.

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BOARD OF PUBLIC SAFETY,
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THE ATTITUDE OF THE STATE OF CALIFORNIA TOWARD SCIENTIFIC RESEARCH

THE note on the Scripps Institution for Biological Research which appeared in SCIENCE, June 18, 1915, contains the statement that the state of California contributes $7,500 a year toward the support of the institution.

This should be amended to the extent of saying that at the last session of the legislature, which adjourned a few weeks ago, the contribution was increased by $5,000, thus making the income of the institution from the state after July 1, 1915, $12,500 a year.

This discrepancy in statement is too small a matter to be in itself worth noticing, but as indicative of the attitude of the state toward the institution and toward scientific investigation generally, it is quite deserving of notice.

Two years ago when the first allotment was made by the state to the university for the

institution, and this year when an increase was asked, representatives of the state in both its legislative and executive branches charged with the task of preparing the budget for maintaining the state institutions during the ensuing biennium visited the institution, went over with the scientific staff and business manager in considerable particularity the work being prosecuted, and were unequivocally assured that the problems under investigation are all first and foremost scientific, and that only some of them might be expected to have a money value to the state.

Great emphasis was, however, laid by the men of the institution on the two facts that all increase of knowledge of nature is capable of being made useful to the people of the commonwealth in one way and another, either for their enlightenment or pleasure or material gain; and that the institution holds itself under as much obligation to make its discoveries utilizable in some form, as it does to prosecute the investigations themselves.

The attempt has always been made to impress upon officials and public that this institution is one in which private benefaction wishes to join with state benefaction for serving the community through *research in pure science*. And it is pleasant to record that the officers of the state government have been found to be at least not less responsive to the appeals for financial aid than have been the president and regents of the university.

Mr. John F. Neylan, chairman of the state board of control has taken the pains to expressly state that the placing of the institution's item specifically in the allotments to the university, which allotment is in turn a permanent element in the state budget of running expenses, should be understood to mean that the state accepts the institution with its avowed commitment to research as a definite and perpetual charge upon the state. And from Mr. H. W. Wright, chairman of the ways and means committee of the last assembly, comes the declaration: "We recognize that the state must support institutions of this kind."

From what California has done toward maintaining the Lick Observatory through a considerable term of years, and is now doing for the Scripps Institution, the conclusion seems justified that the state is definitely committed to the principle of state aid to scientific research, even though such research has no direct and primary industrial aims. In discussing these matters with officials, I stoutly contend that in the long run about the most telling criterion of success of popular government will be the extent to which it contributes to the highest development, spiritual and physical, of the naturally best endowed persons who live under and who participate in such government. The facts and reasonings that can be presented in support of this proposition, particularly those touching the question of leadership in scientific discovery, seem to appeal with special force to men grappling earnestly with the practical problems of government for a modern community.

Experience strongly inclines me to the view that the serious derelection of our national and several state governments in the support of scientific investigation is chargeable quite as much to scientific men themselves as to government officers and the people at large.

Wm. E. Ritter

La Jolla, California

A REPLY TO DR. LITTLE

If we are ever able to discover what part hybridization plays in evolution, it is immeasurably more valuable to find out the behavior of natural species rather than of forms created in the laboratory under more or less artificial conditions, and which are never found outside the laboratory. This effort to place hybridization among evolutionary causes has been one of the chief aims of students of heredity.

My repetition of the standard cross between grays and albinos to discover the behavior of coat color in mice was carried on with wild housemice and not with artificial laboratory grays.

It is still open to question whether the wild housemouse (*Mus musculus*) inevitably fur-