and children, savants as well as fools, dislike to do this work, especially for purposes of routine class-instruction. This repugnance to blood-shedding and mutilation is obviously a necessary human feeling worthy to be cultivated rather than blunted. (In the vivisection polemics one sees too seldom perhaps due credit given us animal-experimentalists for the performance of disagreeable death and mutilation on animals whom we of all men best appreciate at their marvelous value and perfection.) Strangely enough, the size of the animal is a factor in the determination of the strength of this feeling of repugnance to mutilation found in all normal human beings, while another of its determinants is complexity. Men of culture who would hesitate to kill a mouse or to drown a puppy have no such feelings ordinarily in regard to ants, however wonderfully efficient in their complex living, or in regard to the medusoids, however large and conspicuous. Thus *the animalcules may be adequately studied by young or old, by boys and girls, without a prohibitive feeling of repugnance to the destruction of life.* This circumstance is both justifiable biologically and ethically and practically convenient for teaching purposes, and gives the animalcules an advantage for scientific purposes not easy to exaggerate.

It has been already sufficiently implied perhaps that this course in practical physiology is for elementary use, although it serves a helpful purpose also as an introduction and advance summary epitome for courses of physiology the most advanced and technical, as routine experience indeed has shown. In high schools, in academies and in academic (collegiate) curricula, particularly in those for women, one might expect its value especially to be demonstrated. From such schools all laboratory-physiology worthy of the name has been heretofore excluded. It is on this basis and with this intent that the present tentative suggestions have been offered to the science of physiology, for development into an efficient new educational method.

THE ARGUMENT FOR THE LARGE STATE INSANE HOSPITAL.*

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

THE Worcester Hospital was opened in 1833 to accommodate 120 patients and was enlarged in 1835 to 250. Taunton opened in 1854 and was intended to accommodate 250; Northampton, 1856, to accommodate 250. Danvers, 1878, to accommodate 400; Westboro, 1887, to accommodate 325.

In 1888, the capacity of the Worcester Hospital had been increased to 771, the asylum accommodating, in addition, 395. Taunton was enlarged to 624; Northampton to 481; Danvers to 715; Westboro to 406. In 1911, the population of the two institutions at Worcester was 2,526; Taunton, 973; Danvers, 1,446; Westboro, 1,138;

* Read at the semi-annual conference of the State Board of Insanity and Trustees of State Institutions, May 21, 1912, the subject under discussion being: "Size of Hospitals for the Insane and Feeble-minded."

Northampton, 893; and the percentage of increase at the different hospitals was as follows:

	1911.	1888.	Percentage.
Worcester,	2,526	1,166	116.63
Taunton,	973	624	55.92
Danvers,	1,446	715	102.23
Westboro,	1,138	406	180.29
Northampton,	893	481	85.65

an average increase for the five hospitals of 105.66%.

It is unnecessary to go into the causes of the increase in hospital population in this place, as you are all familiar with the situation. I call attention to these figures especially for the purpose of showing how the standard of the desirable number of inmates in a hospital changes from time to time, in accordance with the changes in these numbers. Dr. Pilgrim, in a very excellent paper on "The Proper Size of Hospitals for the Insane," published in the October number of *The American Journal of Insanity*, in 1908, points out this fact, though not in the same way that I do here. He quotes what a committee of the Association of Medical Superintendents of American Institutions for the Insane said, in 1850, which was as follows: "The standard number that can with propriety be treated in one institution is 250, while 200 is a preferable maximum." For some years the institutions were kept more or less within narrow limits, but in 1866, owing to the fact that the numbers were creeping up, it was necessary to modify this proposition, and in the form offered to the Association it read as follows: "The enlargement of an institution for the insane, which, in the extent and character of the district in which it is situated, is conveniently accessible to all the people of such district, may be properly carried to the extent of accommodating 600 patients, embracing the usual proportion of curable and incurable insane in a particular community." As Dr. Pilgrim says, though the Willard Asylum was built about this time, for more than two decades the size of institutions was limited to 600 beds. I can remember myself when even this number seemed too large for an ordinary hospital. As late as 1888 the report of the Board of Health, Lunacy and Charity said, referring to Danvers, "It is desirable that this limit, 700, never should be again exceeded, for every patient beyond 700, in Danvers' wards, crowds them and lessens the comfort and possibility of recovery of patients."

Dr. Pilgrim, as you no doubt are aware, comes to the final conclusion that 1500 is about as large a number as an institution should accommodate. His own preference, he says, would be for an institution of not more than 1,000 patients, but that limit might be raised, without serious disadvantage to the patients, to 1,500. He gives what seem to him very good reasons why this number is about as large as can be successfully supervised by one man. He thinks the maximum efficiency is certainly reached, and the probable maximum of economy, also, in institutions of from 1,200 to 1,500 beds.

Dr. William L. Russell, late medical inspector

for the New York State Commission in Lunacy, in their report for 1911, states that he believes that 2,000 is as large a number as should be treated together in an insane hospital, and gives some figures which indicate that the recovery rate falls above that number. He later modifies his statement in regard to the 2,000 by saying that there seems to be at present no way of coming to a definite decision in regard to the maximum number of patients which can be provided for in one institution without loss of efficiency in treatment or of economy in administration. The new hospital which is being built at Mohansic was originally intended for 2,000, but he recommends that it should be enlarged to 3,000.

It would seem from the authorities referred to that, almost of necessity, the ideal size of an insane hospital is a matter rather difficult to determine, and we are obliged to shift from one standard to another as the hospitals grow in size, which is rather conforming theory to practice instead of the other way around. It is an unfortunate fact that we cannot limit the growth of hospitals as we would like to do. They are constantly outgrowing their normal capacity, and a new situation arises. I believe that we are not in a position to carry out any dictum as to what the maximum size of a hospital should be, but no doubt it is well to thoroughly discuss the matter, as the influence of those who have the care of the insane must always carry great weight.

It was the old idea that it was of great importance that the superintendent himself should be actively engaged in the treatment of patients. As institutions grew larger, this became impossible, but it was still felt desirable that he should see as much as possible of the patients. The argument now is that if we have such large institutions as 2,000, or upward, the influence of the personality of the superintendent would not be as dominating as is desirable. Dr. Pilgrim asks "how any man, weighed down with the official duties connected with the management of an institution for 3,000 or 4,000 patients, and 800 or 900 employees, can so impress his individuality and influence upon that number, or keep in sufficiently close touch with both medical and lay matters, as to secure the best results." A few years ago, I should have doubted whether it would be possible for a superintendent to actually overlook the care of as large a number as even 1,500 patients, but as I have studied into the matter, seen large institutions and what it is possible to do with them, I have somewhat changed my opinion. No superintendent in any but a very small hospital can actually treat individual patients. Of necessity he becomes an administrator, and details of treatment he leaves to his assistants, who should be men of the highest medical qualifications. This does not mean that he knows nothing of the patients, because in a well-organized institution he will have a fairly accurate idea of all of the inmates and keep in touch with their medical care. The ideal superintendent for a large hospital is a man of first-rate

executive ability, who has had a long clinical experience. The administration largely concerns medical matters and would rapidly deteriorate if this side were in any way left out of consideration. There have been plenty of trials made of the management of hospitals by laymen, but as far as the writer's experience goes, they have been successful in only exceptional cases. As to the influence of a superintendent, I believe that it will be felt no matter how large the institution may be. A general's influence affects every private in any army; a great statesman will influence a nation; a head master, a great school. Why, then, should not the character, experience and knowledge of a great superintendent have their effect? I believe they are all-pervasive, and every employee and every patient reacts to them.

A large institution for 2,000 and upwards, with plenty of buildings for classification, a sufficient number of medical officers and nurses, and proper facilities for treatment, I believe can do better work and get better results than a small and overcrowded institution with inadequate classification, and a small lay and medical staff. In other words, the size of an institution, up to certain limits, is not of such importance as are these other factors.

It is somewhat surprising, I think, when there has been so much discussion and agitation for the last thirty years about the desirability of small rather than large institutions, that we have seen so little done in this state in the way of starting new ones. Since 1878, for instance, the Boston State Hospital, with its new psychopathic department, has been the only addition to the existing state hospitals for all classes of the insane. We must not forget, however, that the large increase has been met in various ways, first of all, of course, by doubling the capacity of the insane hospitals; then by increasing the number at the criminal hospital; taking insane at Foxboro, and adding to the numbers at Tewksbury; also a hospital for epileptics has been provided, and a new school for feeble-minded and the old one enlarged. Colonies for the insane and the Medfield Asylum have been built, but what I refer to especially is a state hospital for all classes of the insane. I believe Dr. Russell is right when he says that "it is safe to assume that the public is prepared to provide state hospitals only for insane persons for whom institutional care is clearly indispensable." While Massachusetts has, on the whole, been more liberal in its provision for the insane, she follows the lead of New York, preferring to make the existing institutions larger rather than build new ones, and I believe this is a policy which she will be pretty sure to follow in the future.

Theories as to the size of institutions are desirable, but the evolution of the institutions in this state demonstrates that if they begin small, they are pretty sure to become overgrown and end as large institutions. Now, in my judgment, it is better to face the condition rather than to be too much influenced by the theory, and prepare

ourselves for large hospitals. The proper plan, it seems to me, would be to have, in the Boston district, a large institution, which, as Dr. Russell thinks about a metropolitan hospital in New York, should be permitted to be larger than others in the state. How large, it is much better not to try to determine too accurately. I should say, though it is a mere matter of guess work, that 3,000 would be none too large. Probably we must expect the new Worcester hospital and Danvers to increase their numbers to 2,000; perhaps Westboro, also, may grow to this number. Northampton can be kept down possibly to 1,500. As to Taunton, I am not familiar enough with the situation there to form any idea how large it may be expected to become from the district surrounding it. Some of the hospitals, according to the population and also the districts where they exist, should be large and others smaller. In considering the enlargement of our state institutions, I have in mind the development of colonies as part of the provision for the increase. From 500 to 1,000 possibly should be taken care of in a colony, in an institution which has grown up to 2,000.

As I have said already, I would not advocate a number as large as 2,000 unless there could be sufficient buildings for adequate classification and proper medical supervision. I believe it would be easier to obtain these things than to get an appropriation for an entirely new institution, and that in the end we might be as well off. There are many difficulties under which those who have the charge of state hospitals for the insane now have to labor. If these could be overcome, I am quite sure we should see an increase in the recovery rate and probably a lessened per capita cost, and the figures would compare favorably with those given by Dr. Pilgrim. But what can we do if we have hundreds of patients sleeping in day-rooms; too few medical officers paid less than they should be; staffs of nurses far from large enough, and buildings so few in number that we cannot make the proper classification? Give the hospitals money enough for what they need, and the results would certainly be better than at present.

It is pleasant to feel that we are entering on a new era in the care of the insane in hospitals in this state. With the Psychopathic Hospital in Boston, which is and will probably continue to be a small hospital, we are going to see much larger numbers of acute and incipient cases treated promptly and radically, and we shall also probably have more medical men who understand mental diseases, interested and willing to take hospital positions. With this hospital a success, others in other parts of the state will be built. It may be that during the next ten years we may expect to see several new psychopathic hospitals, and more room provided for the increasing numbers in new buildings, in more or less close connection with those already existing, and in colonies at some distance. At any rate, there is sure to be a period of much greater activity in the early and after-care of patients, and an ultimate improved recovery rate.

To summarize briefly what I have said: First, it appears that the history of state insane hospital development in Massachusetts shows that hospitals built for small numbers gradually increase these numbers, until they become large institutions. Second, that every dictum as to the standard of size of hospitals has of necessity been raised as numbers have augmented. Third, that at the present time we cannot determine what the maximum size of an institution should be to obtain the greatest degree of efficiency and economy. Fourth, that with a population of 2,000 patients, provided the buildings are adequate and the organization efficient, the results will be as good as in smaller hospitals. Fifth, that psychopathic hospitals will supplement the work of the large hospitals and permit opportunities for the study, close observation and early treatment of patients.

THE PROGNOSIS IN DEMENTIA PRECOX.*

BY A. W. STEARNS, M.D.,

Assistant Physician, Psychopathic Department, Boston State Hospital; Assistant to the Physician for Nervous Diseases, Boston City Hospital; formerly Assistant Physician, Danvers State Hospital.

(From the Danvers State Hospital.)

In giving a prognosis for dementia precox, as the diagnosis is made to-day, there is a growing tendency, especially among institution men, to offer very little or no hope for recovery. This seems to be hardly justifiable if one bases his opinion on existing statistics, and, therefore, it seemed worth while to me to make a study of the records of the Danvers State Hospital with this special aim, — to place in the hands of the profession some figures which would show the exact result of the disease as it is diagnosed at Danvers.

In offering these figures, the chief source of doubt is, of course, in the accuracy of the diagnosis. It has been said that recovery precludes the diagnosis of dementia precox. This my own experience has shown to be untrue, for I have repeatedly seen patients discharged apparently well with the diagnosis of dementia precox affirmed by the entire staff, all expressing the opinion, however, that we would hear from the case later.

A word here in regard to the method of arriving at a diagnosis seems not out of place, so I will describe it briefly. Upon being admitted to the hospital, each patient falls in rotation to some member of the staff, whose duty it is to make a physical and mental examination and obtain a history. This being done after a few days of observation, the case history and later the patient is presented to the staff with a provisional diagnosis by the examiner. Each member of the staff then has an opportunity to question both the patient and the one presenting him or her. Ample time is allowed for discussion, which is usually quite free. The opinion of each staff member is expressed and recorded. Next running notes are made recording the attitude and

* This paper forms No. XIX of the Danvers State Hospital contributions and was first read at the meeting of the New England Society of Psychiatry in September, 1911.