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# SANITARY COMMISSION.

No. 41.

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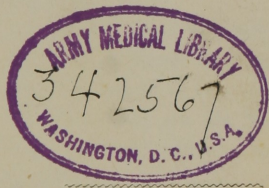
## TWO REPORTS

ON THE

## CONDITION OF MILITARY HOSPITALS

AT

GRAFTON, VA., AND CUMBERLAND, MD.,



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## NOTICE.

Immediately on Cumberland being placed within the Department of Western Virginia, the General commanding ordered the inspection, the results of which are detailed in the following Reports.

The 55th Ohio regiment had been but a short time within the limits of the Department when its condition was brought to the notice of the General.

Copies of these Reports have been furnished for publication at the request of the Sanitary Commission, and with the approval of the Medical Director, Assistant Surgeon J. Letterman, U. S. A., and Brig. Gen. Rosecrans, U. S. A., commanding the Mountain Department (lately the Department of Western Virginia).

It is manifest that the sick and wounded volunteers crowded into these Hospitals, so called, have been exposed to greater dangers, and allowed less chance of recovery, than if lodged in tents or the rudest sheds.

Cleanliness and abundant fresh air are the first and most indispensable conditions of recovery from disease or injury. In both respects these Hospitals were found grossly deficient.

It is well settled that 1200 cubic feet of air to each patient is the very smallest allowance under which he can expect a favorable convalescence. And this is obviously no extravagant estimate, for it represents a space only ( $10 \times 10 \times 12$ ) ten feet square by twelve in height.

It appears from these Reports that in several instances only about two hundred cubic feet of air had been allowed to each patient. In one instance only one hundred and twenty-six feet to each, which is equivalent to a space six feet by four, and less than six feet in height; and in another only eighty-four feet, being the amount of space contained in *a cube of a little more than four feet*.

Even with the most rigorous attention to cleanliness and hygiene, this overcrowding could not fail to produce disastrous mortality; but when

buildings thus overcrowded are found in the condition of filth described in these reports, with scanty supplies of Hospital stores, and deficient medical attendance, they appear to embody all the conditions necessary to constitute a pest-house.

Other defects in these buildings, and their system of administration, will be readily perceived, but they are comparatively unimportant.

The frightful abuses and defects disclosed by these Reports appear to have been remedied in the case of the hospitals to which they particularly refer. But there is reason to believe that these cases are by no means exceptional; and the fact that evils so monstrous have been allowed to exist for a single day in a single hospital is amply sufficient to justify the communication lately made to Congress by our wise and humane Secretary of War, that the present organization of the Medical Bureau is inadequate to the wants of the service.

It is respectfully submitted that Congress can have before it no work of more urgent importance than that of ascertaining who is responsible for the condition in which these hospitals were found, and for the wasted lives of their inmates; of enquiring whether there be not other military hospitals equally crowded, filthy, and pestilential, to which the sick or wounded volunteer is consigned—nominally to be cured, but in fact to be poisoned by foul air, and at best retarded in his recovery—and finally, of devising efficient measures to terminate for ever abuses so destructive to the army and so disgraceful to the nation.

HENRY W. BELLOWS, D. D.	} Executive Com. of U. S. Sanitary Commission.
FREDK. LAW OLMSTED.	
WM. H. VAN BUREN, M. D.	
WOLCOTT GIBBS, M. D.	
C. R. AGNEW, M. D.	
GEO. T. STRONG.	

## REPORT ON HOSPITALS AT GRAFTON, VA.

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GRAFTON, Va., March 10th, 1862.

Sir,—In compliance with telegraphic instructions received whilst at Cumberland, I inspected to-day the 55th Regiment of Ohio Volunteers, encamped at this place. The inspection was, of course, limited to the sanitary condition of the regiment.

The 55th has been five months in service, and has been stationed at Grafton since the 17th of February. The camp is located on a knoll, on the south side of the river, and, as far as situation goes, it may be considered advantageously placed. The soil and subsoil are clay, which is bad, on account of its retaining moisture a long time. At present, the mud is six or eight inches deep all over the camp ground.

The tents are in a very bad state of police, and, for a permanent camp, over-crowded. They contain from ten to fourteen men each. The effluvia from them, on entering, was stifling. The straw is changed once a week. The tents have not been struck since the regiment has been at Grafton, and, consequently, the ground over which they are pitched must be reeking with gaseous emanations from the men. They are partly floored; the boards are not placed upon joists, but directly on the ground.

The camp sink is located between the tents and the river. It is covered with fresh earth about twice a week, when the medical officer specially sees to it. The men, however, generally make use of the ground in the vicinity.

It can scarcely be expected that proper sanitary measures will be enforced in this camp, so long as the field officers do not reside in it, and experience the discomfort which arises from their neglect. The Colonel, Lieutenant-Colonel, and Major occupy a house in a high, airy situation, half a mile from the camp.

I find the medical officer in charge active and energetic in the discharge of his duties, which are onerous in the extreme. The Surgeon is absent, sick, and the whole medical care of a large number of sick falls upon the Assistant Surgeon, Dr. Spooner.

The measles appeared in this regiment on the 13th of February. At that time 165 men of the command had never had that disease; of this number, 100 have since had it. The probability is, that unless something is done to arrest its progress, the remaining 65 will have it. There has also been a good deal of other sickness, consisting principally of chest affections, diarrhœa, and dysentery. At present, there are, as near as can be ascertained, 120 sick; which, in a force of 950 men, is excessive. One-seventh of the command is thus unfit for duty.

Of the sick, the greater portion are scattered about the town, in private houses. The Hospital embraces five hospital tents, and two frame houses.

The tents contain 18 men, mostly cases of measles. They are in a tolerably good state of police, and the men would be com-

fortable, but for the fact of the lamentable deficiency of bedding. There are bunks, badly made, and straw alone. No bedsacks, nor any other articles of bedding, have been received from the United States, except 40 blankets.

House *A* has four rooms occupied by the sick. One is  $8 \times 12 \times 7 = 672$  cubic feet, about half the quantity of space requisite for one patient, and yet there are *eight men* in this horrible den; each man has, therefore, *eighty four cubic feet* of space. Can it be wondered that men die of measles (a proverbially mild disease) when crowded in this manner? The stench from this room was sickening. There were but two windows, and they were closed.

On the same floor is another room  $10 \times 12 \times 7 = 840$  cubic feet, with three windows. It contained six men. It is a dark, dismal room, the windows being closed, and covered with India rubber cloth to keep out the light, and to retain the moisture as much as possible.

On the second floor are two rooms; one is  $10 \times 12 \times 7 = 840$  cubic feet, has four windows, and contains four men. The other is  $15 \times 15 \times 7 = 1,575$  cubic feet. It has four windows, and contains six men.

The following table embraces the foregoing facts, and shows the proper capacity of the house, giving to each patient the *minimum* allowance of 1,200 cubic feet of space:

	Capacity in cubic feet.	Present number of patients.	Proper number of patients.
1 Room.....	672	8	$1\frac{1}{2}$
1 ".....	840	6	$2\frac{2}{3}$
1 ".....	840	4	$2\frac{2}{3}$
1 ".....	1,575	6	$1\frac{1}{4}$
Total.....	3,927	24	$3\frac{1}{2}$

Throughout the entire building, as an average, the patients have but about one hundred and sixty-three cubic feet of space each.

The police is very bad. No bedding but straw, bunks, and the men's own blankets, with such odds and ends as have been furnished by the Sanitary Commission and individuals.

House *B* is a small two-story frame structure, with two rooms as wards, and a kitchen. The latter is very dirty. One of the wards is  $14 \times 14 \times 7 = 1,372$  cubic feet of space. It has three windows, and contains seven patients. The other is the same size, has two windows, and contains five men. In this building there are accommodations for two men. *It contains twelve.* Each patient has, therefore, about 229 cubic feet of space. The police of the building is not different from that of the other, and there is the same deficiency of bedding.

Only 44 of the 120 sick are in Hospital. The others are scattered about the town in private houses.

Since the regiment has been at this place ten men have died; one of typhoid fever, one of pneumonia, and eight of measles. The probability (almost amounting to a certainty) is, that, had these last-named been properly supplied with bedding and air, their lives would have been saved.

I directed the Medical Officer in charge to make out a requisition for what he wanted for the comfort of the sick, and send it to you for your approval.

I have to suggest the following means for improving the sanitary condition of this regiment:

1st. That the commanding officer be directed to move his camp, if only to the distance of a few hundred yards, and to



spread his encampment over a larger area. His men are now inhabiting a space of 30,000 square yards, and the population of his camp is at the rate of 1,000,000 to the square mile; and is more densely settled by five fold, than the densest and most degraded parts of London. There is an excellent site for a camp on the north side of the river, where the 15th Ohio Regiment was encamped.

2d. That his attention be called to the filthy state of police which prevails, and that he be directed to strike his tents and change their location a few feet every week.

3d. That a shed capable of accommodating properly fifty patients be built as soon as possible, upon the plan specified in my report on the condition of the Cumberland Hospitals.

4th. That the houses now used as Hospitals, be immediately abandoned, and the sick placed temporarily in floored Hospital tents.

5th. That additional medical aid be supplied as soon as possible.

I believe it would be better to remove the 55th entirely from Grafton.

There may be military reasons against this measure; there can be none, however, against those above recommended.

If something is not done soon to lessen the sanitary evils under which this regiment now labors, the heat and moisture of Spring will undoubtedly increase the amount of sickness and mortality.

I am, Sir, very respectfully

Your obt. servt.,

WILLIAM A. HAMMOND,

Assist. Surg. U. S. A.

Dr. J. LETTERMAN,

Assist. Surg. U. S. A.,

Med. Director,

Wheeling, Va.

## REPORT ON HOSPITALS AT CUMBERLAND, &amp;c.

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WHEELING, VA., March 12th, 1862.

Sir,—I have the honor to report that I left Wheeling on the morning of the 6th inst., in pursuance of the following order :

“ HEAD QUARTERS DEP'T OF WESTERN., VA. }  
 “ WHEELING, VA., March 5th, 1862. }

“(SPECIAL ORDERS,) }  
 “ No. 52. }

\* \* \* \* \*

“ 8. Assist. Surg. W. A. Hammond, U. S. A., will proceed  
 “ without delay to Cumberland, Md., and inspect the Hospitals  
 “ at that place. He will examine them in reference to their  
 “ adaptability for the proper care of the sick, their location, the  
 “ number and size of the rooms, and the number of patients in  
 “ each building, and the number of sick that each building can  
 “ properly accommodate ; the light, ventilation, diet, and cook-  
 “ ing, and police ; the supply of medicines, hospital stores, &c.,  
 “ and the quantity and quality of beds and bedding, and their  
 “ condition in each hospital.

“ He will ascertain the number of cooks and nurses in each,  
 “ and whether properly instructed in their duties.

“ He will also ascertain the names of the medical officers in  
 “ each Hospital, and the manner in which their duties are  
 “ discharged.

“ He will not confine himself to the subjects enumerated in



a portion of this, according to the agreement, being expended in making necessary repairs.

Before proceeding to report the result of my inspection, it is proper to call to mind that the buildings were only occupied the day previous, and that no time had been afforded to clean them, or put them in order. The terribly crowded condition of the Cumberland Hospitals rendered it imperative upon Dr. Suckley to do all in his power to empty them—even with the certainty of much discomfort to the sick who were transferred.

In the following report the buildings are designated by the letters of the alphabet :

### A.

This is a brick building two stories high, with attic. Has verandahs to both the first and second stories, front and rear. Those to the back of the building are used as mess-rooms. It is proposed to board them up, so as to shelter them from the weather ; but this would cut off light and air, to a considerable extent, from the wards opening on them.

*1st Floor.* A wide hall runs through the centre of the main building, with two rooms on each side.

These rooms are each  $24 \times 20 \times 11$  feet in dimensions, and, therefore, contain 5,280 cubic feet. The corner rooms have four windows; each of the others two. The rooms on one side communicate by folding doors. At the time of my visit the rooms were crowded to excess. Fifteen men occupied each. The air was close and offensive, the supply of light good, and the capacity for ventilation very fair.

The kitchen is situated in the back building, and is of ample size. It contains a good cooking-stove and large fire-place. The police was bad, and the walls were black with smoke and dirt,

*2d Floor.* A wide hall, like that of the lower floor, runs through the centre to the front and back verandahs.

There are seven rooms on this floor. Five of these are in the main building. One is  $24 \times 20 \times 10 = 4,800$  cubic feet; has four windows, with plenty of light and capacity for ventilation. Police bad; fifteen occupants.

Four are each  $20 \times 20 \times 10 = 4,000$  cubic feet. One has three windows, and the others two each. Each has ten occupants.

There is also a small room with no windows, which could be used as a store-room.

In the back building, opening on the verandah, are two rooms, each  $20 \times 20 \times 10 = 4,000$  cubic feet. One has two windows, the other only one. There were eleven men in each.

The attic of the main building has also a wide hall, and three rooms. The largest is  $20 \times 12 \times 6 = 1,440$  cubic feet; the other two are each  $12 \times 10 \times 6 = 720$  cubic feet. These rooms, though having very low ceilings, are well ventilated and lighted. They were not occupied, but would do for cooks or nurses.

The attic of the back building is not habitable.

The capacity of this Hospital, (having a due regard to hygienic considerations, and the number of inmates it has at present,) is as follows:

	Capacity of each in cubic feet.	Total cubic feet.	Total number of inmates at present.	Proper number of inmates.
4 Rooms.....	5,280	21,120	60	18
1 " .....	4,800	4,800	15	4
6 " .....	4,000	24,000	62	20
Total.....	.....	49,920	137	42

The basis of the above calculation is that each man sick in Hospital requires at least 1,200 cubic feet of space. If he gets

less than this, with all the advantages of perfect ventilation, recovery is invariably retarded, and a fatal result often induced. *The inmates of this building have but a little more than 364 cubic feet, an amount only half that which is proper for well men in barracks, who have free access to the open air at all times and seasons.*

### B.

This is a frame building, formerly used as a store. It is entirely insulated from the other structures.

There is no hall, the front door opening directly into a room  $30 \times 30 \times 01 = 9,000$  cubic feet; has but two windows.

Back of this, and connected with it by a door, is a room  $20 \times 20 \times 8 = 3,200$  cubic feet. This room has four windows, at opposite sides. Ventilation good, with plenty of light.

*2d Floor.* One large room  $60 \times 30 \times 12$ . The last figure is approximate, the room being unceiled. The cubic contents are therefore about 21,600 feet. This house is unoccupied at present. It requires cleaning and whitewashing. The capacity is as follows:

	Capacity in cubic feet.	Proper number of inmates
1 Room.....	9,000	7
1 " .....	3,200	3
1 " .....	21,800	18
	33,800	28

### C.

This is a frame shed, unceiled; one door, with two small windows. It is  $28 \times 20 \times 12 = 6,720$  cubic feet. It will, when put in order, accommodate five patients.

**D.**

This is a small two-story house, at present occupied by a private family. It was not inspected, but will accommodate about ten patients.

**E.**

This is a small two-story frame house.

*1st Floor.* One room  $20 \times 15 \times 8 = 2,400$  cubic feet; has two windows. One room  $12 \times 15 \times 9 = 1,620$  cubic feet, with two windows, and one,  $10 \times 15 \times 10 = 1,500$  cubic feet, with two windows. Thirty men slept in these rooms the preceding night.

*2d Floor.* One room  $20 \times 20 \times 7 = 2,800$  cubic feet, with three windows. This room has not yet been occupied.

	Capacity in cubic feet.	Present num- ber of inmates.	Proper num- ber of inmates.
1 Room.....	2,400	30 in- mates.	2
1 ".....	1,620		1
1 ".....	1,500		1
1 ".....	2,800		2
Total.....	8,320	30	6

There was no time to clean this house before it was occupied. It was in a very bad condition. The air of the rooms in which the men had slept was perfectly stifling.

**F.**

This is another small two-story frame house, on the opposite side of the road from the others. The rooms are so small that it will not answer for patients. It might be useful as a store-house. A few men slept in it the previous night.

There are, therefore, accommodations at Clarysville at present for 81 patients and attendants, instead of the 175 which now are there. There are two large barns, however, which, with repairs and large stoves, will accommodate 50 men each.

In addition to the buildings named, there are several out-houses, which serve for surgery, guard-house, privy, &c. This latter will, when put in order, answer the purpose very well.

I should have stated that all the rooms are heated by large grates, except two or three, where stoves will be required. There is a large garden attached.

The establishment is under the charge of Dr. Townsend, a citizen physician who resides in the neighborhood. A ward-master is the only person exercising authority who lives on the premises.

The nurses are inexperienced; the ward-master in charge appears to be an energetic person, but is uneducated. There is an apothecary, who is an intelligent man. The cooking is only tolerable. The bread is good, being baked in Cumberland. The food was all of good quality, and in sufficient quantity. No attention appeared to be paid to diet. All ate alike. The hospital stores have not all been brought up yet. The bedding is deficient both in quantity and quality. There are no blankets, sheets, nor coverlets; no pillows, nor pillow-ticks, or cases; no bunks—nothing, in fact, but bed-sacks filled with straw, and the blankets of the men. Neither is there any probability of any improvement, in this respect, from the supplies on hand.

In reference to this establishment, I cannot too highly commend the energy displayed by Dr. Suckley in fitting it up. When put in order, it will make an admirable place for convalescents, as the fresh bracing air cannot fail to exercise a salutary effect upon them. But I would earnestly recommend that orders be issued fixing the capacity of the institution in



accordance with the principle set forth in this report. Otherwise it will inevitably fall into the condition of those in Cumberland.

I returned to Cumberland on the 7th inst., immediately after having finished the inspection above detailed, and proceeded to inspect the several hospital buildings in that place.

These are fifteen in number, and are designated by the letters of the alphabet. They are all situated immediately on the street, and are hotels, warehouses, engine-houses, &c.

### A.

This is a three-story brick building, formerly used as a hotel (Barnum's), on Baltimore street. It is badly placed for ventilation, and the surroundings are filthy in the extreme.

*1st Floor.* The main hall is large, but in a shocking state of police.

Two large rooms on this floor, and opening into the hall, are used as surgery and office. In addition, there are several other large rooms.

Ward 1 is a good room— $36 \times 18 \times 11 = 7,128$  cubic feet. It has recently been occupied by 27 men, lying on the floor as thickly as they could be packed, *each man having about 23 square feet of space.* It is in a horrible condition. Straw is scattered all over the floor, upon which are placed three rows of filthy bed-sacks, with no other bedding. It is now empty, the occupants having been sent to Clarysville. It has four windows, and three doors. The light is good, and with a little management the ventilation might be made tolerable. Walls papered and very dirty.

Ward 2. This is also empty at present. On the day before my inspection it contained 25 men. It is  $25 \times 18 \times 11 = 4,950$

cubic feet. Each patient has had, therefore, 18 square feet of space, or not quite 200 cubic feet. It has two windows and four doors. Is filthy in the extreme.

Ward 3 is  $48 \times 24 \times 11 = 12,672$  cubic feet; has six windows and three doors, good light and ventilation, and might be made a comparatively good ward. It has recently been occupied by 100 men, who had each 11.5 *square feet*, or 126 *cubic feet of space*. This room is now full of old straw, which has been used for bedding.

The night after my inspection, these rooms were again filled by a fresh arrival of patients, without having been cleaned in the meantime.

The mess-room joins ward 3. It is  $24 \times 12 \times 11 = 3,168$  cubic feet. Is a good room for the purpose, except as regards size. Is in a filthy condition.

The kitchen joins this room—is  $24 \times 16 \times 11 = 4,124$  cubic feet. Is a good room for the purpose. Has one range, one cooking-stove, and a large fireplace. Is stinking and filthy in the extreme. Cooking tolerable—food good—vegetables every day.

The condition of the yard of this building defies description. It is simply disgusting. The outhouses are filled with dirty clothes, such as sheets, bedsacks, shirts, &c., which have been soiled by discharges from sick men. The privy is fifty yards from the house, and is filthy and offensive, *ad nauseam*. It consists of a shed built over two trenches. No seats; simply a pole, passing along each trench, for the men to sit on.

*2d Floor.* Ward 9 is  $15 \times 12 \times 9 = 1,620$  cubic feet. Has three windows. Light good: *contains five men*; police bad; stench from the room stifling.

Ward 10. Same sized room as preceding—*contains six men*; police very bad; two of the men sleep on the floor.

Ward 8. Same sized room as preceding—*contains five men* police shocking.

The other rooms on this floor, in this, the main part of the building, are occupied by medical officers, and male and female nurses. One of these rooms, occupied by a male nurse, is worse than a pig-stye. The floor is soiled with excrement, and almost every other imaginable kind of filth.

The back building of this story consists of a corridor, with rooms opening on it at each side. There is one room at the end.

The rooms are nine in number, and are each  $15 \times 10 \times 8 = 1,200$  cubic feet. They have each one window. *Six of them contain three men each; two, four men each; and one, five men.*

The police and general condition of these rooms is disgraceful. No attention whatever appears to be paid to ventilation or cleanliness.

The halls of this floor are extremely filthy.

*3d Floor.* In the main building, room 25 is  $20 \times 14 \times 11 = 3,080$  cubic feet; has one window, and *contains nine men!*

Room 28 is  $14 \times 14 \times 10 = 960$  cubic feet; has two windows, and contains *four men*. Room 36 is  $12 \times 8 \times 10 = 960$  cubic feet; has one window, and contains *four men!!*

Room 37 is  $10 \times 14 \times 10 = 1,400$  cubic feet; has one window, and contains three men. Room 38 is  $12 \times 15 \times 10 = 1,800$  cubic feet; has one window, and contains five men.

Room 39. Same size as the preceding; has one window, and contains three men.

These rooms form no exception to the others, as regards police, ventilation, &c. They are so much crowded, that it is impossible well men could exist in them, and preserve their healthy condition.

The back building of this story contains ten rooms, similar in size, number of windows, &c., to those of the story below.

Two contain two men each ; three, three men each ; and five, four men each. Ventilation is entirely disregarded, and the police deplorably bad. Bed-pans and chamber-pots, containing urine and excrement, were standing in many of the rooms out on the floor, uncovered. The stairs are crowded with chamber-pots, slop-buckets, and other utensils.

The capacity of this Hospital, the number of inmates it now has, and the number it should have, are shown in the accompanying table.

	Capacity of each in cubic feet.	Total Cubic Feet.	Total number of Inmates at present.	Proper number of Inmates.	
1 Room,..	7,128	7,128	} Empty.	6 (?)	
1 " ..	4,950	4,950		4	
1 " ..	12,672	12,672		12	
2 " ..	1,620	3,240		10	3
9 " ..	1,200	10,800		21	9
1 " ..	3,080	3,080		9	2½
1 " ..	1,960	1,960		4	1½
1 " ..	960	960		4	1 (?)
1 " ..	1,400	1,400		3	1
2 " ..	1,800	3,600		8	3
10 " ..	1,200	12,000	33	10	
Total,..	.....	61,790	92	52	

This table requires explanation.

It will be seen that but 92 inmates are reported. On the morning of my visit, the morning report of this hospital stated that there were 159 patients and 47 attendants. 113 inmates are therefore unaccounted for. Some slept in the offices, *but the great majority must have slept on the floors of the rooms in use as wards.* The three large rooms on the first floor, containing 24,750 cubic feet of space, were not in use ; they were, in

fact, locked when I made my visit. The total amount of space available, then, for patients, was but 37,040 cubic feet. If we add to this 10,000 cubic feet (a large estimate) for the rooms occupied by female nurses, the offices, &c., and we have 205 persons occupying 47,040 cubic feet, or about 229 cubic feet each.

I found it impossible to ascertain where these men slept, and therefore I have judged of the number of inmates in a ward by the number of bunks in it. It is seen, however, that my estimate was far below the mark.

I do not hesitate to say, that such a condition of affairs *does not exist in any other hospital in the civilized world*; and that this hospital is altogether worse than any which were such *opprobria* to the allies in the Crimean war.

It is under charge of Drs. ——— and ———, the former a citizen, and the latter belonging to an Ohio regiment not on duty in this department. He was sent by the Governor of Ohio. There are five wardmasters, twenty-seven nurses, five cooks, and ten matrons. The nurses are uninstructed, and their duties very badly performed.

## B.

This hospital is "Belvidere Hall," and is situated on Baltimore street. It consists of two floors.

*1st Floor.* Ward 1 is  $75 \times 20 \times 12 = 18,000$  cubic feet. It contains 30 men. It is badly lighted, at one end only, and is not at all sufficiently ventilated. The police is bad.

Ward 2 is the same size as the preceding, and similarly lighted. It contains 31 men. The police is bad.

The kitchen is a tolerably good room. It has one range and one cooking stove. The cooking appears to be good. The police is bad.

The yard is in a horrible condition, as is the privy.

Ward 3 is in the 2d story, and is "Belvidere Hall" proper. It is  $75 \times 40 \times 25 = 75,000$  cubic feet. The beds to the number of 60, are arranged in four rows, which, of itself, is bad. Light and ventilation good. The whole front is composed of windows, and there is ceiling ventilation. Police and general condition bad.

Ward 4. This is in the rear of the preceding ward. It is  $40 \times 20 \times 10 = 8,000$  cubic feet. It contains 17 men. The police is bad.

The following table is appended :

	Capacity of each in cubic feet.	Total cubic capacity.	Number of inmates at present.	Proper number of inmates
2 Rooms... ..	18,000	36,000	61	30
1 " .....	75,000	75,000	60	62
1 " .....	8,000	8,000	17	6
Total.....		119,000	138	98

One ward in this building, and the only one in the place, is not overcrowded. The rest have too many inmates, and consequently the average allowance of cubic feet per man is reduced to about 848.

This hospital is under charge of Surg. ———, of an Ohio regiment, not in service in this department. There are one wardmaster, fourteen nurses, five cooks, and two matrons. The nurses are inexperienced.

### C.

This is the upper floor of a building, the lower story of which is not rented. It, also, is situated on Baltimore street.

The kitchen is a shed in the yard, and is in as good a condition as circumstances will allow. It has one cooking-stove. The cooking is good, the pantry in excellent order, and the utensils clean. The yard and privy are disgustingly filthy. Hall dirty.

The ward is  $48 \times 36 \times 14 = 14,192$  cubic feet. It contains 27 patients, and 9 attendants—total, 36. The beds are arranged in four rows. There are eight windows at opposite sides. The ventilation is comparatively good, the windows being kept partly open at the top. The light is good. The police is bad. At the time of my visit, several bedpans were standing unemptied about the room.

This is the *typhoid fever* hospital. The patients look badly. Erysipelas has appeared among them. They are altogether too much crowded. In an hospital of this character, at least 1,500 cubic feet of space should be allowed to each man; so that the capacity does not exceed nine men. At present there are 36, who have only a little over  $39\frac{1}{4}$  cubic feet of space each. A condition, therefore, exists which is deplorable in the extreme, and yet this ward is not so full as it was a short time since. It is under charge of Dr. ——, who was sick when I made my inspection. Dr. —— has charge at present. Both are citizen physicians.

#### D.

This Hospital is also situated on Baltimore street. It is an unplastered warehouse of three stories, closed entirely at the sides.

The first floor is only partially used. There is a mess-room some sixty feet long, and with scarcely any light, there being but one small window at the end. It is extremely dirty.

Behind this is the kitchen. It is badly lighted and ventilated, and very filthy. It was crowded with soldiers and women,

romping together. It contains a good range, and a cooking-stove.

The yard is unutterably filthy. The privy is built over a running stream, but it is so dirty that the wonder is how men can use it.

*2d Floor.* This is taken up with two wards, each  $80 \times 20 \times 10 = 16,000$  cubic feet. One contains twenty-three beds, the other thirty—all occupied. There are three windows in each ward. The rooms are unplastered, dark, and badly ventilated. Police and general condition bad.

*3d Floor.* This floor has two wards, each  $40 \times 20 \times 10 = 8,000$  cubic feet. They have each two windows. They are unplastered, and are dismal and badly ventilated rooms.

The ventilation is, however, better than in the rooms below, as the effluvia can, to some extent, escape through numerous holes in the roof, the rooms being unceiled. One contains 19 inmates, and the other 18.

There are, at present, ninety patients, and nine attendants.

The latter sleep on the floor in the mess-room, &c.

The proper capacity of this house is seen from the following table :

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
2 Rooms.....	16,000	32,000	53	27
2 " .....	8,000	16,000	37	13
Total.....		48,000	90	40

Each patient has, therefore, only about 532 cubic feet of space. This hospital is so badly lighted and ventilated, that it is altogether unfit for the purpose. It is under the immediate charge of Dr. Watson, a citizen physician.



## N.

This is an appendage to "D." It is the upper story of an engine house, situated in the rear of "D" hospital. It is  $50 \times 30 \times 16 = 24,000$  cubic feet. It is well lighted, and ventilated from windows in the sides and ends. It has contained as many as thirty-six men. It now has seventeen in it. Police bad. The cooking is done at the kitchen of "D." Dr. ——— has charge. It is capable of comfortably accommodating twenty men, and is therefore not overcrowded.

## O.

This hospital is situated in Baltimore street. There are no wards on the first floor, which is occupied for mercantile purposes. The halls are very dirty, and the yard and privy disgustingly filthy.

*2d Floor.* There are three wards on this floor, each  $20 \times 20 \times 9 = 3,600$  cubic feet. They have two windows each. Two contain seven beds each; the other, twelve; all are occupied.

These wards are in tolerably good condition, are well lighted, and have tolerable ventilation. They are very much overcrowded.

The mess-room and kitchen (one room) occupies the front of the house on this floor. It is  $36 \times 20 \times 9 = 6,480$  cubic feet. It has one cooking-stove; is very dirty; cooking tolerably good.

*3d Floor.* One room  $45 \times 57 \times 8 = 23,085$  cubic feet. It has eight windows at opposite sides, and is occupied by thirty-eight men in four rows of beds. Light and ventilation good. Police tolerable. Is heated by a stove.

One room  $20 \times 30 \times 8 = 4,800$  cubic feet, has five windows, and sixteen beds, all occupied. Police tolerable. Heated by a stove.

One room  $18 \times 20 \times 8 = 2,880$  cubic feet, has twelve occupants; three windows. Police tolerable.

This building, therefore, contains ninety-two men. Of these, eighty are patients. It is altogether too much crowded. The police, though not so bad as in other hospitals in Cumberland, is yet such as should not prevail in any institution intended for the reception and treatment of the sick and wounded.

The following table shows, at a glance, the capacity of this house :

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
3 Rooms.....	3,600	10,800	26	9
1 " .....	23,085	23,085	38	19
1 " .....	4,800	4,800	16	4
1 " .....	2,880	2,880	12	2
Total.....		41,565	92	34

At present, each man has but 450 cubic feet of space, instead of the minimum of 1,200. This hospital is under charge of Medical Cadet — —

### E.

This, like the other hospitals described, is on Baltimore street. The lower floor is not occupied by the hospital.

The kitchen is on the 2d floor. It is a small, dirty hole, without a window; has a range. The cooking for "F" hospital, which joins this, is done here.

The halls and staircases of this building are filthy in the extreme.

One room  $54 \times 14 \times 10 = 7,560$  cubic feet; has four windows

at opposite ends of the room. Has eighteen occupants. Carpet is used, in many instances, for bed-covering. Police very bad. Ventilation bad.

One room irregularly shaped,  $40 \times 15$  (average)  $\times 13 = 7,800$  cubic feet (approximate.) Has four windows and twenty inmates. Police bad. Ventilation bad.

*3d Floor.* Front room  $20 \times 18 \times 14 = 1,440$  cubic feet; has three windows, good light and ventilation; *has nine occupants.* Police tolerable.

There is no yard to this building, and the men defecate no one seems to know where. The general condition of this house is very bad.

It has sixty-nine inmates. Of these, fifty-seven are patients, and twelve, attendants. Only forty-seven of the whole occupy beds in the wards; the remainder sleep in the halls, on the floors, &c.

The following table is appended :

	Capacity of each in cubic feet.	Number of inmates in each.	Proper number of inmates.
1 Room.....	7,560	18	6
1 ".....	7,800	20	6
1 ".....	1,440	9	1
Total.....	16,800	47	13

Without counting those who sleep no one knows where, (twenty-two in number), each of the above men has 375 cubic feet of space. Including these twenty-two, there are 243 cubic feet per man. In one ward where there are now nine persons, there are but 160 *cubic feet for each.*

This hospital is under charge of Medical Cadet ———, who has had the superintendence but two days.

**F.**

This hospital joins the former, and is under the same management. The first floor is not hired.

*2d Floor.* There are here two rooms connected by folding doors. The two constitute, in reality, one room  $54 \times 18 \times 10 = 9,720$  cubic feet. There are two windows at each end. The light is good; the ventilation might be so. There are twenty inmates. Police bad. The floor is disgustingly dirty, and the walls filthy.

One room  $50 \times 18 \times 14 = 12,600$  cubic feet. This is a good room, well lighted, and might be well ventilated. Has twenty-three beds, all occupied. Police bad.

*3d Floor.* On this floor is one room similar to that last described, and of same size. It contains twenty occupants.

This house is crowded to excess, and, as a consequence, the ventilation is bad.

The proper number of inmates for this hospital, upon the basis already mentioned, is shown in the following table :

	Capacity in cubic feet of each.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
1 Room.....	9,720	9,720	20	8
2 " .....	12,600	25,200	43	21
Total.....		34,920	63	29

The occupants at present have about 554 cubic feet each. Of the sixty-three, six are attendants.

## III.

This building is a warehouse situated on the canal, the water of which, at times, runs into the cellar. It is three stories high.

On the 1st floor is the kitchen, which is of good size, and in tolerable order. It has one range and one cooking-stove; is  $25 \times 25 \times 14 = 8,750$  cubic feet. The cooking is good. There are five beds in the kitchen, occupied by the cooks. On this floor is also a ward  $30 \times 30 \times 14 = 12,600$  cubic feet. It contains 16 beds, all occupied. It is heated by a stove, has but two windows, and is badly lighted and ventilated. Is unplastered. Police tolerable.

*2d Floor.* Has one room  $57 \times 30 \times 10 = 17,100$  cubic feet; has thirty-five inmates; is unplastered; has five windows. Light bad, as is also the ventilation. Police bad. Is heated by a stove.

*3d Floor.* One room, same size, &c., as one below; has 34 inmates. Police tolerable.

The following table is appended:

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
1 Room.....	8,750	8,750	16	7
2 " .....	17,100	34,200	69	28
		42,950	85	35

Of the 85 above referred to, 78 were patients; the remaining seven were attendants. There were, in addition, several Sisters of Charity, who are not included in the above, as they did not reside in the building.

The inmates of this hospital have a little over 550 cubic feet

of space each. It is under charge of Dr. ———, a citizen physician.

### I.

This hospital has a situation similar to the one last described, and is the same character of building.

The kitchen is a shed detached from the main building; cooking good; police bad.

The mess-room is in the main building on the 1st floor. Is dark, dismal, and very dirty. It is flooded at high water; has four beds for cooks, which are very filthy.

*2d Floor.* 1 room  $50 \times 26 \times 12 = 15,600$  cubic feet—has twenty-two inmates, is unplastered, badly lighted and ventilated; has two stoves.

*3d Floor.* Has two large rooms, each the same size as the preceding, except as regards height. Being unceiled and having high pitched roofs, the number of cubic feet is materially increased. Each is of about 30,000 cubic feet capacity. One has twenty-eight, the other thirty-four inmates. Holes have been broken in the wall for ventilation. These, with numerous cracks and openings in the roof, accomplish the purpose very well. There are five windows in each. Police bad.

The following table shows the capacity of this house:

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
1 Room.....	15,600	15,600	25	13
2 ".....	30,000	60,000	62	50
Total.....		75,600	87	63

Each inmate has now 869 cubic feet of space. Of the 87 inmates, 70 are patients. The two upper wards of this building are the best ventilated of any I have examined in Cumberland.

Dr. ———, a citizen physician, has charge.

## P.

This hospital is situated on a back street. It embraces two buildings—one brick, and the other frame, each two stories high. The hall is in tolerably good order.

*1st Floor.* 1 room  $14 \times 14 \times 7 = 1,372$  cubic feet; has 5 occupants. Police tolerable, ventilation bad, air stifling, has three windows.

1 room  $14 \times 14 \times 8 = 1,568$  cubic feet; has two windows. Police and ventilation bad; light good; *contains nine men!*

1 room  $18 \times 16 \times 8 = 2,304$  cubic feet; has three windows. Police tolerable, ventilation bad; has five inmates.

*2d Floor.* 1 room  $14 \times 14 \times 7\frac{1}{2} = 1,165$  cubic feet; has two windows, and *contains eight men!* Police and ventilation bad.

1 room  $33 \times 16 \times 7\frac{1}{2} = 3,960$  cubic feet; has four windows and *eighteen beds, all occupied!* Light good, police and ventilation bad.

1 room  $10 \times 10 \times 7\frac{1}{2} = 750$  cubic feet; has one window. Light and ventilation bad. Filthiness reigns supreme in this room, which *contains five men*, two of whom sleep in one bed! The air from this room is suffocating.

On the lower floor is a good mess-room in good order, and a kitchen clean, and in good police generally. The yard is shockingly dirty, as is the privy.

This hospital is excessively crowded, and should be at once abandoned.

The following table shows its real capacity :

	Capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
1 Room .....	2,304	5	2
1 " .....	1,568	9	1½
1 " .....	1,165	8	1
1 " .....	3,960	18	3
1 " .....	750	5	½
1 " .....	1,372	5	1
Total.....	11,119	50	9

On an average, the men have, in this hospital, about 222 cubic feet of space each. In some of the rooms, however, the amount is *less than* 150. There are bad ventilation, bad bedding, bad nursing, and bad police. The men look badly, and the establishment is altogether a disgrace to humanity, and to the country.

In addition to the sick (fifty in number), above referred to, there are about fifty men scattered over the town belonging to the command to which this hospital appertains. There are also six attendants not counted above. The establishment is under charge of Dr. ———, of the Maryland Home Brigade.

#### III.

This hospital is situated on a side street, and consists of the upper floor of an engine-house. There is a shed kitchen recently built. The cooking, from what I saw of it, is bad; dirt in all its forms, prevails.

The yard and privy are both in a disgusting state of police.

The ward occupies the whole of the upper floor. It is a large room, but overcrowded. It is  $48 \times 25 \times 20 = 24,000$  cubic feet. The light is good. There are nine large windows, which afford



excellent facilities for ventilation, which, however, are not improved. The air is bad, the police neglected, the beds very dirty. Some of the bunks were without bed-sacks, the straw being placed on the slats.

This ward has, at the most, accommodation for but twenty men instead of the thirty who now occupy it, and who have but 800 cubic feet of space each. Their condition is, however, comparatively comfortable, when compared with that of patients in others of the hospitals, but still far short of what is demanded by hygienic considerations. It is under charge of Dr. \_\_\_\_\_.

### G.

This is a building at the corner of Baltimore and Mechanic streets. It is three stories high, and was formerly a hotel. The halls are in a tolerable state of police.

*1st Floor.*—1 room, used as Ward and Surgery, is  $40 \times 15 \times 10 = 6,000$  cubic feet. Has six inmates—four windows. Light good—police and ventilation bad.

Mess-room same size as preceding room. Police bad—used as sleeping-room for the cooks. Kitchen communicates with the mess-room, and is in tolerable order, though a very dingy room. Cooking tolerable—has a range.

The yard is in a horrible condition, this and the stable being used as privies by the men. The privy is filthy beyond description.

*2d Story.* This is divided into a number of small rooms:

No. 7.	$15 \times 18 \times 10 = 2,700$	cubic feet,	one window,	four men.
“ 8.	$15 \times 18 \times 10 = 2,700$	“	two “	five “
“ 6.	$15 \times 18 \times 10 = 2,700$	“	two “	five “
“ 3.	$15 \times 8 \times 10 = 1,200$	“	two “	four “

No. 19.	$14 \times 12 \times 8 = 1,344$	cubic feet,	two windows,	four men.
“ 20.	$10 \times 13 \times 9 = 1,170$	“	one “	five “
“ 18.	$10 \times 13 \times 9 = 1,170$	“	two “	five “
“ 9.	$18 \times 12 \times 10 = 2,160$	“	no window	three “

On the *third floor* there are also a number of small rooms, as follows:

No. 10.	$15 \times 18 \times 9 = 2,430$	cubic feet,	one window,	six men.
“ 11.	$20 \times 18 \times 9 = 3,240$	“	two “	four “
“ 17.	$15 \times 15 \times 9 = 1,925$	“	two “	six “
“ 13.	$24 \times 15 \times 9 = 3,240$	“	three “	seven “
“ 14.	$15 \times 7 \times 9 = 945$	“	one “	four “
“ 16.	$20 \times 15 \times 9 = 2,700$	“	three “	seven “
“ 15.	$15 \times 8 \times 9 = 1,080$	“	two “	three “

In addition, there are a number of patients who sleep in various out-of-the-way places, and on the floors of the Wards. These men are convalescent, and do not frequent the Hospital, except at meal-times, and at night. The total number of inmates in this Hospital is 169—of whom 138 are patients, and 31 attendants. The total capacity of this House for patients and nurses, is 36,704 cubic feet. It will, therefore, at the most, accommodate 30 inmates. The 169 who now inhabit it, have, on an average, about 272 cubic feet of space each.

This Hospital is altogether filthy in the extreme. No attention is paid to ventilation, or the first principles of neatness. It is under charge of ———an *enlisted man*!

#### L.

This is the Academy Building, and as a temporary Hospital, is one admirably adapted to the purpose. It is situated on high ground, on the south side of the canal. It is isolated from other buildings, but its natural advantages are not improved by the physician in charge.

The yard and privy are, as usual with the Cumberland Hospitals, in very bad condition;—the kitchen is a good shed, with one range. Police bad.

On the 1st floor are two fine large rooms, well lighted by five windows each. Ventilation might be made good, but is bad. Each of these rooms is  $45 \times 15 \times 12 = 14,100$  cubic feet. One is used also as mess-room, and has fifteen beds, all occupied. The other has nineteen inmates. The police of both is extremely bad.

On the 2d floor is one large room, well lighted at both sides and one end, by eleven windows. It is an admirable room, but ignorance has not made use of its advantages. The air in it is close and stifling.

This room is  $48 \times 48 \times 14 = 32,356$  cubic feet. It contains 39 inmates.

The following table is appended :

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
2 Rooms.....	14,100	28,200	34	23
1 Room.....	32,356	32,356	39	27
Total.....		60,556	73	50

Of the present number of inmates, eight are attendants and sixty-five patients. Each man has about 830 cubic feet of space—quite a happy condition when compared with others in this place. The physician in charge is Dr. \_\_\_\_\_ a citizen.

### III.

This hospital is located in the upper story of the Court House, and is immediately opposite to "L." The yard is in a bad

state of police, and the kitchen, a shed detached, is exceedingly dirty. There is a good range in it.

The main ward is a large room  $42 \times 50 \times 16 = 33,600$  cubic feet. It has six very large windows, which, with the shutters, were closed. The room was, therefore, dark and stinking. The number of inmates was thirty, and although less crowded than any other ward in the place but one, ignorance of sanitary science made it a disgrace.

Another ward,  $12 \times 15 \times 16 = 3,080$  cubic feet, was greatly overcrowded, it having seven beds all occupied. There are two large windows in this room, and it might be well ventilated. There is another room of the same size, occupied by the ward-master.

The annexed table shows the capacity of the house :

	Capacity of each in cubic feet.	Total capacity in cubic feet.	Present number of inmates.	Proper number of inmates.
1 Room.....	33,600	33,600	30	28
1 ".....	3,080	3,080	7	2
Total.....		36,680	37	30

This house is, therefore, not greatly overcrowded, each inmate having over 990 cubic feet of space. It is less crowded than any other hospital in the place, with one exception.

This completes my inspection of all the hospitals at Cumberland. There are yet some general facts, which I desire to state :

1st. The supply of medicines and hospital stores is very scarce. There is no wine or brandy, and whiskey is bought at the place.

2d. The bedding in all is very scant, and, what there is, is of bad quality. No articles of bedding have been received from the United States, except a few blankets which Dr. Suckley obtained from the quartermaster's department. The bed-sacks are perfectly filthy, as there are no sheets to cover them with. Some of the hospitals have sheets enough to change with once in ten days.

3d. There is a great lack of hospital furniture ; the most common utensils are wanting.

4th. The physicians in charge of the several buildings are altogether inexperienced in the management of hospitals ; and the chief surgeon, Dr. ——— is by no means fitted to take the charge of such a large establishment as these hospitals constitute.

5th. The records are very imperfectly kept.

6th. Men are sick all over the town, of whom no account or care is taken. *Five died in ten days without any record being had of them.*

7th. No attention is paid to the diet of the patients ; all eat alike. In not one of the hospitals did I see a diet-table.

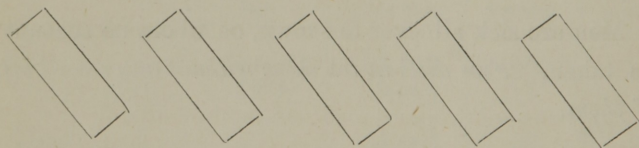
8th. The utmost confusion appears to exist about each hospital ; consequently duties are neglected, and a state of the most disgusting want of cleanliness exists.

With the view of mitigating, in some measure, the sanitary evils which exist at Cumberland, I make the following suggestions :

1st. I recommend that measures be at once taken to abandon all the buildings now occupied as hospitals in Cumberland, ex-

cept L & K. As warm weather approaches, the mortality, which has already been fearful, will be greatly increased.

2d. That huts, each capable of accommodating fifty patients, with the necessary attendants, with others for the administrative offices, kitchens, &c., be at once erected. These huts should be each 150x30 feet, ten feet high at the eaves, and unceiled. Each would, therefore, have over 70,000 cubic feet, if the roof, which it should be, is sufficiently high pitched. They should be ventilated at the sides and ends by windows, and at the top by ridge ventilation. Thirteen would, I think, be sufficient; ten for patients, one for offices, &c., and two for kitchens. The three latter need not be so large as the former, and might be differently arranged. These huts should be so placed that the wind, no matter from what quarter it should blow, would circulate freely around them. This would be accomplished by placing them *en echelon* thus:



I think accommodation for 500 would be sufficient; as, by the time they could be erected, the number of sick would be reduced, by death, discharge, recovery &c., to that figure. This neighborhood is, I think, the best in the Department for a General Hospital, and it would always be kept full.

3d. I recommend Clarysville, or its vicinity, as a proper place at which to locate these huts; it is high—has a pure bracing air, and is removed from the vicinity of the town. Water and fuel are abundant, and turnpike and railroad lead to it.

4th. Should it be deemed inadvisable to incur the expense of these huts (they could be built for \$1,000 each, the whole costing less than the money value of thirty soldiers to the United States), as the next best measure, I recommend that the sick be placed in tents at once. A camp *sanitarium* might be established at an advantageous place on the railroad. The sick would be infinitely better off in such a camp, than they are now, and a place could readily be found where it could be placed, even at this early season. Clarysville would be too cold at present. Grafton, or its neighborhood, would answer very well. I regard it as indispensably necessary to get the sick out of the wretched establishments at Cumberland as soon as possible, and therefore I make no recommendation for their improvement, except as regards L & K. These buildings should be placed in charge of suitable persons, thoroughly cleaned and whitewashed, and orders issued fixing their capacity in accordance with the requirements of sanitary science.

5th. Additional Medical aid should be at once sent to Cumberland, and Dr. ——— should be relieved.

6th. The surgeon in charge should be immediately instructed to make requisition on the Medical Purveyor, at Wheeling, for the necessary stores, bedding, &c., for the use of the sick under his care.

7th. The convalescent hospital at Clarysville should in any event be continued, but as there is a disposition to overcrowd it, its capacity should be fixed by order.

I am, sir, very respectfully,

Your obed. servt.,

WILLIAM A. HAMMOND,

Assist. Surg., U. S. A.

Dr. J. LETTERMAN,

Assist. Surg., U. S. A.,

Medical Director.

## NOTE.

The suggestions contained in the foregoing reports have been carried out by the Medical Director, Assistant Surgeon J. Letterman, U. S. A., and Brig. Gen. Rosecrans, U. S. A., Commanding the Department, and with the happiest results.

Huts are being constructed at Cumberland, which it is believed will fulfil every sanitary indication, especially in regard to light, ventilation, and space. Each patient will have over 100 square feet and over 1,700 cubic feet of space.

An extensive camp *sanitarium* has also been planned, and will be located at an advantageous point as soon as the necessary tents are received.

The 55th Ohio Regiment has now less than the average amount of sickness. It has been moved from Grafton, proper sanitary measures were at once ordered, and the sick were taken out of the filthy houses, and placed in tents. At this date (March 29) there are but sixty on the sick report, and of these, forty-five are convalescent.