SUBJECT:
Returning
Supervisor Charles'
report.

Indian Industrial School,
Phoenix, Arizona,
January 2, 1909.

The Honorable

Commissioner of Indian Affairs,

Washington, D. C.

Sir:

Inclosed please find the report of Supervisor Charles in regard to conditions at Carlisle, which were sent to me by the Office at my request some time ago.

Very respectfully,

Joseph A. Murphy.
Medical Supervisor.

Please return this

Report to Indian Office

when through with it.

Letter in reply to the following:

Department of the Interior,

OFFICE OF INDIAN AFFAIRS,

WASHINGTON, March 11, 1905.

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OFFICE OF INDIAN AFFAIRS RECEIVED JAN 8 - 1909 File

Hon. Commissioner of Indian Affairs,

Washington, D. C.

Sir:

Complying with instructions contained in Office letter "Education 7610-1905", dated January 31, 1905, I have inspected the school plant at Carlisle, Pa., and respectfully report on general conditions and requirements of same.

This school plant was formerly an Army Post and most of the buildings are very old. The arrangement of the buildings is defective for school purposes, some buildings being dangerously near each other (the space between girls' building and gymnasium being only 9 feet), while others are widely separated. All the dormitory buildings are constructed of brick, with metal roofing. Many defects are found in walls, floors, etc., but I find that the cracks in walls are of long standing and found no new evidences of weakness. The floors are uneven from old settlements and shrinkage of timbers. The repairs have been well taken care of and the buildings are found to be in much better condition than first appearances would indicate.

The grounds fall towards the west and north sufficiently to provide perfect surface drainage.

A very efficient heating plant is installed here, all the buildings being supplied with steam from same. The third story of girls' quarters and third story of large boys' quarters are not well heated. Authority has been granted for increased radiation at the points

mentioned and same will be installed during the coming summer. With the exception of the two floors named, all buildings of the plant are reported to be well heated. The severe weather experienced during January and a part of February just past giving a severe test. Pipe coils are used as radiation in most of the buildings and proves efficient. The principal defect in the system being the lack of ventilation. There is no provision made in any part of the plant for proper ventilation. This defect is most serious in the school building, girls' quarters and large boys' quarters. The school building is extremely long, two stories in height, with basement under its west wing only. The building is constructed of brick with slate and metal roofing. Sixteen school rooms of liberal size; a group of seven smaller rooms for the Normal department, A chapel, office and library are found in this building. No provision is found for supplying fresh air to any of these rooms, except through the windows and doors. The rooms become foul after being occupied a short time, windows are opened, the cold air striking the pupils, colds result, and the hospital is occupied largely by pupils taking cold in this way. The chapel is found defective in the same way. It is found impossible for the pupils to occupy this room many minutes without admitting fresh air, which is done by opening the windows or doors, or both. The doors are located at north end of building (where stage is located). Great discomfort is experienced by those exposed to the draughts from doors and windows.

Successful ventilation can be secured only by introducing a constant supply of warmed fresh air, providing proper outlets for

impure air, which should be carried through roofs. There are various ways of warming and introducing this supply of fresh air. The air must come in contact with a heated surface on or before being introduced into the room. The building referred to above is provided with direct radiation, which warms the several rooms in a satisfactory way. It will not be necessary to warm the air to a high temperature, the more important thing to accomplish is to introduce liberal quantities of moderately warmed air, which will not necessarily raise the temperature in the room and which should not absorb the heat already found there. Either of the two following methods can be adopted here:

First. Circulation of air secured by use of a fan.

Second. Circulation of air by gravity.

The objection to the fan system is it adds another machine to be looked after by the engineer's department and in most cases the writer would prefer to recommend the gravity system. In this particular case, however, I am of the opinion that the fan system will prove the most practical. Electricity can be adopted for motive power; day current is already in use for motive power at the school. It would be necessary to run fan only when school rooms or chapel are occupied. The current can be turned on or off at will by means of switch. The building is extremely long (being over 300 ft. in length). It would be necessary to install stacks of indirect radiators under each department, and an additional steam circuit would be necessary if the gravity system is installed. Two thirds of this building is without basement and great difficulty would be

experienced in reaching the indirects, which will require some attention during cold weather. The distances are so great it would not be practical to convey the air through pipes by gravity from the portion excavated without mechanical help. A fan can be installed in basement and pipes extended to the different departments from this central location. The pipes conveying air from fan can be very much smaller than would be necessary if the gravity system was installed, and flues found in twelve of the school rooms will answer for vent flues, which would be of little value without mechanical force.

A by-pass should be provided so that air can be turned into chapel when desired, as it is unnecessary to supply the school rooms and chapel with fresh air at same time, as they are occupied at different periods.

A 4" steam pipe extends from power house to school building. This is a branch of the low pressure main which supplies steam to all the principal buildings of the plant. High pressure steam will be required for heating the steam coil in basement if this fan system is adopted. There are two ways of accomplishing this:

First. Run a new high pressure pipe to south side of girls' quarters, connecting with main at this point, which runs to employes' quarters and school building, turning this into a high pressure pipe, installing a reducing valve at employes' building, introducing high pressure steam into coil and reducing pressure at a point beyond the fan for direct heating as at present.

Second. Carry high pressure steam through main to all buildings, installing a pressure reducing valve at each building.

The principal objections to latter plan are the fact that each building would require more attention by the engineer, and the noise always present where steam passes through these valves.

The dormitory buildings should also be supplied with a system of ventilation. 281 girls are found in 78 bed rooms in their building, while 314 boys are found in 85 rooms in large boys' quarters, and 124 boys in 36 rooms in small boys' quarters. No provision has been made to ventilate either of the buildings named. Each room is occupied by three and sometimes four pupils. Sufficient air space is found in the several rooms to comply with the Department Rules on this point (400 cubic feet per pupil). It requires a constant change of air in this space and such change was evidently contemplated when the rules referred to were adopted. True, windows are found in each room and fresh air could be admitted through same. It is found, however, that pupils will occupy their rooms with windows closed during winter weather regardless of conditions. The conditions are found particularly bad on second and third floors of large boys' quarters. The same is true in less degree in girls' quarters, while in still less degree in small boys' quarters. The rooms occupied by the pupils are warmed from the halls. No radiators being installed in the chambers referred to.

The conditions can be improved in the buildings named by introducing a liberal quantity of fresh warmed air into the halls on

second and third floors, providing vent flues through roof for exhaust. The chambers are located on both sides of halls, which extend full length of buildings on each floor. A transom space is found above the door leading to each room. A circulation can be secured by placing a screened opening in lower rail of door and the several rooms be thus supplied with fresh air through transom space above and the outlet being through foot rail of door. This contemplates the location of fresh air inlets and vent flues in halls.

I am of the opinion that stacks of indirect radiators placed directly under halls in basement at four points each for girls' building and large boys' building and at two points for small boys' building, conducting fresh air from outside directly to indirect radiators through galvanized iron ducts, and from the radiator boxes to second and third floor halls as mentioned before, we will succeed in making a great improvement in the conditions now existing at the buildings named. The fresh air ducts leading to indirect boxes should be provided with screens at inlet and dampers for controlling the supply in same. The flues leading from radiator boxes to upper floors should be of galvanized iron inclosed, using small channel irons for studding. Wire lath and plastering. The warm air flue registers should be located 7' 0" from floor, the ventilating registers being located close to floor.

Most of the plumbing throughout the building is in fair repair. Some of the fixtures are extremely old. This is especially true of the water closets at small boys' quarters. It is found impossible to procure repairs for these fixtures as they are no longer on the

market. The engineer finds it necessary to devise ways of making repairs to keep the above fixtures in service. The above closets should be replaced with modern fixtures. All the closets are operated by chain or cord. Those in girls' quarters are found in good condition, those in boys' quarters are neglected, the boys failing to flush after use, the closets in many cases are foul as a consequence. The individual closet system is economical in use of water and I believe is the proper system for our schools where economy of water is necessary. It is necessary to have a seat operating device, however, which flushes the closet positively after its use. The closets in the girls' building are looked after closely and no trouble is found in this direction there. The seat operating closets being used by the Department at other schools require a water pressure of 15 lbs. per square inch to successfully operate same. The pressure at the buildings at this time is not reliable. New water mains are being installed, which will greatly improve the supply, but the actual pressure should be observed after new water mains are installed, before fixtures requiring a given pressure are installed.

Sewer System.

The sewage of this school is carried to a point approximately one mile north-west from school plant and there delivered into Letort Creek. The sewer lines have been installed at various times without general plans. Some of the lines are reported to be in bad condition, it being necessary to dig same up frequently to keep it in service. The engineer reports that some of the sewer lines

have serious traps, which interfere with their proper work. No catch basins or grease traps are installed. When trouble exists there is no way of locating the trouble, except excavating to pipe line and keep at it until the trouble is corrected. The natural grades at this school site are very favorable for the flow of sewage, otherwise the present system would cause constant and serious trouble. At present no plans are to be found which show sewer lines. The writer walked over the grounds with the engineer, who has been employed at this school during the past twelve years. I found him familiar with the location of all sewer, water and steam lines, valves and fittings in the ground, while in many cases no evidences were visible on the surface.

A plan of the grounds showing the relative levels every one hundreed feet should be made by a competent engineer. Said drawings should indicate location of all buildings, sewer, water and steam lines (Scale of drawings should be 1" - 50' 0").

The writer endeavored to find floor plans of the several buildings of the school plant while at Carlisle, but was unsuccessful. I find there are no plans on file in the Indian Office in this city. Floor plans of the buildings, drawn to a scale of 1/8" - 1' 0", should be on file at the Indian Office in this city and at the office at the school. This work can be done by the school force, without expense to the Government and should be done at once.

Water Supply.

The school is supplied with water from the city main. There is an abundant supply, but very little pressure at the school.

This is to be overcome partially by enlarging the mains on the grounds. Water has been supplied under an old contract at a very low figure ($240.00 per year). A new contract has been entered into, which takes effect in the near future, when a meter is to be installed and 3-1/3 cents per one thousand gallons is to be charged. This will increase the expense, but is a very low rate.

Fire Protection.

A Man-power fire engine is found at this school, which is the only protection against fire, except six chemical fire extinguishers distributed through part of the buildings. The engine referred to will supply two streams through 2-1/2" hose. This engine is kept ready for use at all times and is efficient. There is not sufficient pressure on the mains to be of value as fire protection, the engine referred to above (which is operated by the large pupils) being relied on. The buildings should be supplied with two dozen additional chemical fire extinguishers, which should be located at convenient points throughout the several buildings. All the employes and large pupils should be familiar with the operation of these extinguishers, as their efficiency depends on promptness.

No fire escapes are found on any of the buildings of the plant. The girls' quarters and large boys' quarters are both three story buildings. These two buildings especially should receive early attention and be provided with substantial fire escapes, extending from 3rd floor to grade at each end of each building. An electric light should be located at a point near each fire escape, which

would make it difficult for any one to enter the building at night unobserved. As an extra precaution the lower section of escape might be hinged and operated from above, so that pupils could not reach the stairs from grade line. This girls' building would be found particularly dangerous in case of a fire. The walls continue on four sides of a square, leaving a court in center. There are three entrances on south side, while one door is found in north wall, leading to space 9' 0" wide between this building and gymnasium. This door is kept locked, a porch floor running across same near center. A trap door is formed - this floor which being raised, makes free exit through door named. The pupils would be liable to find their way to this court should fire cut off the general exits on south side of building. The confusion that might result would be liable to prevent the escape of many pupils from this court. The small boys' quarters is a two story building, with a hall extending through center of second story its entire length. A fire escape located at each end would enable the pupils to escape regardless of location of fire. A dangerous condition exists in chapel in school building which will be explained later.

The fire escapes should be constructed of iron in a manner that would make the exit of excited pupils safe. The treads should be flat rather than round, so that the foot would be secure. A gas pipe rail should be provided for all fire escapes, otherwise the danger of injury from falling is very great. Platforms should be constructed at each floor landing, having gas pipe railing around same.

The platforms and stairs can be supported on iron brackets bolted through brick walls of buildings.

Gymnasium:

One of the important buildings of this school is its gymnasium. This building is of brick with metal roofing. It is well fitted for its purpose. The results of work done in gymnasium are quite evident in the general appearance and movements of the pupils. The discipline at this school is of the highest standard.

Hospital:

This is a frame building of frail construction, and poorly suited for its intended purpose. The plumbing found here is crude and is installed at the most inconvenient points to reach. The building and its appointments are of the cheapest kind and difficulty is found to occupy some of the rooms during stormy weather on account of faulty construction. The location of this building is the very worst that could have been selected on the grounds. It is in vicinity of the barns, athletic grounds and quarters occupied by the boys of the school. It is the noisest portion of the grounds, while the opposite condition should exist. The close proximity to boys' quarters and athletic grounds is objectionable, too, on account of the exposure of the girl pupils (who, when convalescent should spend much of their time on the porches) to the boys at their quarters and on their way to and from the athletic field, as well as the danger of contagion during an epidemic should it exist. The objections to being near the barn are evident.

At the time the writer visited Carlisle it was expected that a new hospital was to be provided in the near future. The ground was looked over by Captain Mercer and myself and a point 550 feet south from office building was selected as being the most suitable. This site is at extreme south east corner of school grounds and away from dormitory buildings and play grounds. Successful connections can be made with sewer lines and heating pipe at school building. The ground falls from the building and good surface drainage is assured. The view from front of building is good. One objection is in evidence. A railroad freight line passes the property a short distance south of the site selected. The Superintendent is of the opinion that this will not prove serious, as only few freight trains pass and the noise continues for a brief period only.

On reaching Washington I learned that the appropriation for new hospital had been taken from the bill and a provision of ten thousand dollars made for an addition to present hospital. I am of the opinion that it would be a serious mistake to use this appropriation for this purpose. No expense should be incurred in attempting to make this a permanent hospital for the reasons set forth before. A well equipped modern hospital should be provided as early as possible.

The dining hall building is of frame construction with shingle roof and is the only large frame structure on the grounds.

The usual chapel services are held in assembly room on second floor of school building. This room is not large enough to accommodate all the members of the school. A stage is erected at north end

of building. The doors leading to the room are located at each side of the stage and is the only way of entering or leaving the hall. If fire occurs in this hall it is liable to be in the vicinity of the stage; should this take place at a time when the room is filled, the outlet would be entirely cut off. The stage should be at the opposite end of the hall. The south end of this building should be extended 30 ft. for accommodation of stage and accessories, the space on first floor being used for library purposes. The present space is very limited. A stairway should extend from this addition to grade, which could be used in a general way for entering and returning from building and furnishing an additional exit in case of fire. This would give space now occupied by stage for seating purposes. A small gallery extends across south end of room, which should be removed to opposite end.

Power House.

Four boilers (of 150 horse power capacity each) are installed here. The Roney Mechanical Stokers are in operation and are doing good work. The boilers generate steam for laundry work, cooking and heating. No water is pumped. No electricity is generated at the school, both being supplied from the city of Carlisle. The engineer's department includes a great deal of work at this school.

The piping system in the buildings is defective and requires a great deal of repair work. This has received the close attention of the engineer, who has been at this school twelve years and is a very competent man. Many improvements could be made in these pipe

lines and will be found necessary in the future. The lines are working fairly well and will continue to do so for some time if repairs are kept up as at present.

The industrial shops are in charge of competent employes generally. The details were interfered with at time of my visit, as preparations were being made for the inaugural parade of which the pupils were to form a part. I find here as elsewhere some lack of appreciation of the value of time by employes and pupils. This is an important point that should be impressed on the pupils by those having them in charge. Pupils are often found idle during working hours. It is the duty of the employe in charge to furnish work for the pupils and see that they are kept employed during work hours. The pupils should understand that time is valuable and it is their duty to improve all the time they are in the shops just as thay are expected to do in the school rooms.

Mr. A. H. Murtoff,"Blacksmith" is a competent and industrious employe.

Mr. H. Gardner, "Carpenter" was away from the school on leave during my visit. He is reported to be an industrious employe, but not considered valuable as an instructor.

John A. Herr,"Asst. Carpenter", is competent and industrious.

Harry E. Weber, "Engineer", is competent and industrious. Mr. Weber is deserving an increase in salary. He is now paid $780. per year and in my opinion should receive $1,000 per year. I respectfully recommend that this matter be favorably considered. This is not solicited by Mr. Weber. I think, however, that an efficient

and industrious engineer in a large plant of this class should receive the amount named.

Mr. W. S. Dysart, "Shoemaker", seems rather indifferent and requires stirring up.

Mr. Coleman, "Disciplinarian", is doing excellent work, while his assistant,Mr. Metlock, is only partially successful.

Those in charge of the other industrial departments are doing acceptable work.

Very respectfully,

John Charles.

Supervisor of Construction.

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March 11 - 1905.

John Charles.
Supervisor of Construction
Reports on Conditions
at Carlisle Pa

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