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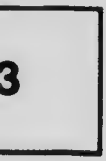

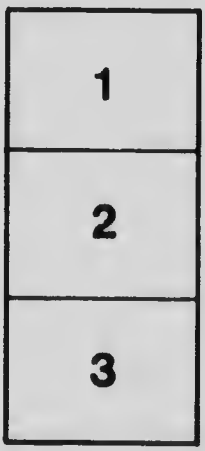

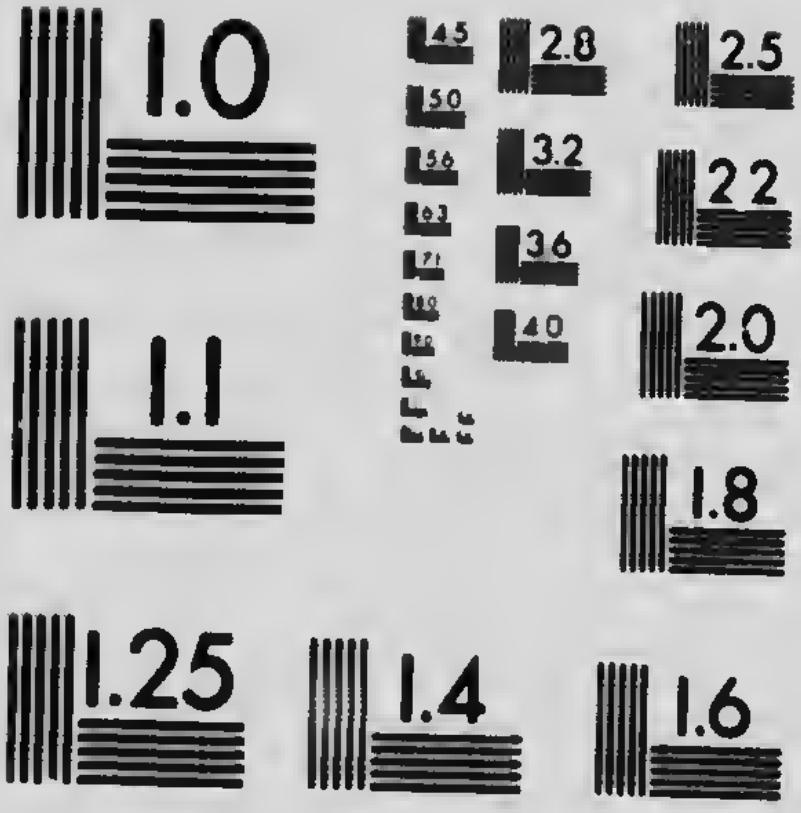

Investigation

Board of Education Contracts

Report of Judge Winchester

E. Nield, C.S.R., Official Stenographer

Toronto
1913

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INVESTIGATION

BOARD OF EDUCATION CONTRACTS

REPORT OF JUDGE WINCHESTER

Toronto, December 18th, 1913.

H. C. Hockin, Esq.,
Mayor of the City of Toronto,
Toronto.

Sir,—During the investigation into certain charges with reference to Mr. L. S. Levee, Chairman of the Board of Education for the City of Toronto, I received a resolution of the Council dated April 3rd, 1911, as follows:

"Whereas the Board of Education at a meeting held on Saturday, April 1st, 1911, passed the following resolution:

> "Whereas during the recent investigation before Judge Winchester, one of the witnesses made certain allegetions concerning the manner in which certain of the Board of Education contracts were made; therefore be it resolved, that the Board of Education for the City of Toronto hereby requests the City Council of the said City to refer to Judge Winchester, as Senior Judge for the County of York, a request that he make a full investigation of all matters concerned with the letting of such contracts or purchasing of property, and such other contracts, as he may deem advisable, by the said Board of Education, and that for this purpose the Judge be requested to investigate the actions of the said Board in regard to such matters for as many years back as he deems advisable.;

"And whereas it is considered desirable by the Municipal Council of the Corporation of the City of Toronto that such investigation should be held;

"Therefore be it Resolved: That under the authority of Section 324 of the Consolidated Municipal Act, 1903, and in the interests of the good government of the municipality in regard to the conduct of a part of the public business therefore, his Honor Judge Winchester, the Judge of the County Court of the County of York, be requested to make a full investigation of all matters concerning the letting of any of the contracts, whether for the purchase of supplies, material or work, by the Board of Education, and also all matters concerning the purchase of any property or properties, and to make a full investigation of all matters relating in any way to, or arising thereout and connected therewith; and that his Honor Judge Winchester be further requested to report, pursuant to the Statute, the result of such investigation or inquiry, and the evidence taken thereon, at the earliest possible moment; and that the Board of Control be authorized to provide Counsel for such investigation and inquiry, and arrange for a stenographic report of the proceedings."

I was unable to take the matter up until I had completed my report in the Levee Inquiry, and immediately upon its conclusion I obtained the books and contracts from the Superintendent of Buildings, but was again interfered with by reason of inquiries I was directed to make into matters connected with the Board of Works and Waterworks of the City of Toronto, and my regular Court duties. In the meantime, however, I instructed Messrs. C. Doughty and H. Johnson to inspect a number of the heating plants installed in the schools, and subsequently I instructed Professor R. W. Angus to inspect a number of the ventilating plants installed in the schools, and while they were making these inspections I proceeded to investigate the various accounts of the Department.

On the 17th day of June, 1912 I was prepared to proceed with the inquiry, having obtained the reports of Messrs. Doughty and Johnson with respect to the radiation in the different schools, and on that day I was attended by Mr. H. L. Drayton, K.C., Counsel for the City of Toronto, Mr. F. E. Hodgins, K.C., Counsel for the Board of Education, and Mr. M. K. Cowan, K.C., Counsel for the

Connell Coal Co. and the Fred Armstrong Company, Limited, respectively. Mr. Hodgins on behalf of the School Board asked that the Inquiry be postponed until after vacation as it would be practically impossible for the officers of the Department to devote the time necessary for the investigation until after the holidays were over. Mr. Cowan was also unable to proceed on behalf of his clients. The matter was accordingly adjourned until after vacation. Before, however, the resumption of the investigation Mr. H. L. Drayton resigned his position as Counsel for the Corporation and his successor was not appointed until some time later. Mr. Hodgins had also been appointed to the Supreme Court Bench, and his successor had not been appointed, However on the 29th November, 1912 I resumed the Inquiry and was attended by Mr. G. R. Geary, K.C., who had been appointed in the meantime as Counsel for the City of Toronto. Mr. A. C. Heighington appeared on behalf of the Board of Education, but stated that he wished the matter to stand until the successor of Mr. Hodgins had been appointed by the Board of Education. Mr. M. K. Cowan, K.C., was present for the Fred Armstrong Co. and the Connell Coal Company. I proceeded with the examination of Mr. Wheeler and Mr. Fred Armstrong and directed their books of account to be produced.

Having previous to this time, received information that some of the builders had been substituting hemlock for white pine in the construction of the schools, I examined Mr. William Williamson as to the conditions of the Riverdale High School. He stated that there was hemlock used instead of white pine and Georgia pine contrary to the specifications in connection with this building, and that there was a difference of $8 a thousand between Georgia pine and hemlock and $5 difference between white pine and hemlock, and that in using hemlock instead of what was specified, the builders had obtained a considerable advantage over the Board of Education.

I immediately employed Messrs. Robert Jessemin and James Craddock to inspect a number of these schools with reference to the quality of lumber that had been placed therein by the respective builders and to report generally on how the work and material complied with the specifications.

Mr. E. Perceval Brown, having been appointed solicitor by the Board of Education, was notified of the proceedings and on the 28th February, 1913 was able to attend for the first time, when the

taking of evidence really began, and has continued from time to time until the present, the delays occuring in the meantime being occasioned by the inability of counsel to appear when the matter was ready to be proceeded with.

During the Investigation I examined 113 witnesses, many of whom were recalled several times. I also examined thousands of accounts in connection with various contracts with the Board of Education during the years 1906 to 1911, as well as a large number of invoices, cheques, and correspondence of the Department and officials, and also of contractors.

CONNELL COAL COMPANY CONTRACTS.

The first matter which was inquired into was that of the Connel Coal Co. The evidence showed that the company had obtained the contract for the supply of a certain number of the schools with their semi-anthracite coal during the years 1907 and 1908, being in those years the lowest tenderer for that kind of coal. In the year 1909 tenders were submitted by the Connell Coal Co., the Crown Coal Co., and Elias Rogers Company, the Elias Rogers tender being the lowest.

Nothwitstanding the Rogers Company tender was the lowest by at least 20 cents a ton on the average, amounting on the years sale of coal to the schools of $1,000 or over, the Property Committee of the School Board recommended awarding the contract to the Connell Coal Co. whereupon Mr. Alfred Rogers strenuously objected, and as a reslut the Board on the 18th June, 1909 referred the matter back to the Property Committee ordering that a test be made. A test was accordingly arranged for by Mr. C. H. Bishop, Superintendent of the Building Department, and he selected a number of bags from the Connell Coal Co. and a similar number from the Elias Rogers Company stock, after having arranged with Mr. Graham Campbell, Superintendent of the Univeristy to have the test carried on in the Physics Building of the University by Engineer Corrigan. The coal selected from the Connell Coal Company's yards and the Elias Rogers yard by Mr. Bishop was taken to a shed at the York St. School, and locked up by Mr. Bishop, and on the following day put into separate bags purchased from the Elias Rogers Company and marked by Mr. Bishop. He also had a number of bags filled at the Wellesley School with Connell

Coal which had been left over from the previous year. These were taken to the Physics Building and tested in the presence of representatives from the two coal companies and the School Board. The report on the result of the test by Mr. Graham Campbell showed that the Connell Coal was the superior coal and this report was received by Mr. Bishop and presented to the Property Committee who reaffirmed their recommendation of acceptance of the Connell Coal Company's tender. Mr. Alfred Rogers found fault with the proceedings and suggested that the test had not been properly made, he had, he stated, employed a man to follow the conveyance taking the coal from the different yards to York St., and also from York St. to the Physics Building, and his man reported that another man was also following it, and that this other man went immediately afterwards to the store of trustee W. H. Smith.

During the taking of the evidence in connection with this coal contract, it was shown that the Connell Coal Co. delivered a considerable amount of coal to Mr. Graham Campbell's residence, and Mr. Wheeler stated at the request of Mr. Connell, President of the Company, he was directed not to charge Mr. Campbell for the coal so delivered. Mr. Campbell however applied for and after a time received an account for the coal and sent a cheque for the amount to the Connell Coal Company. It appears from the books of the Connell Co. that the amount of the account for coal delivered in September 1909 to Mr. Campbell was $195.25, and that Mr. Campbell sent a cheque for the amount on the 7th October, 1909. Mr. Wheeler in his evidence with regard to this matter said, "Well, I had taken the matter up then with Mr. Connell our President, and I told him the treatment Mr. Campbell had given me and the consideration, and I says, 'Now, Mr. Connell, why not suggest to Mr. Campbell that he try it in his own house'? and he says "Well, I think that is a capital idea," and he says, 'Now, I will tell you what I want you to do; I want you to tell Mr. Campbell that we will put his coal in with my compliments,' which we did do. Mr. Campbell I think a month after that, paid for the coal, it went through our cash book and our ledger in the regular way. And about I think, a month after that, Mr. Connell was over here and I told him that Mr. Campbell had paid for that coal. 'Well, now' he said, 'Here'—I won't say whether he gave me the money then or whether he sent me a draft, I cannot say which, but anyway he says, 'I want you to return that to him' which I did, and that was the circumstance of the case."

Mr. Wheeler stated that this transaction had reference to the consideration shown to him by Mr. Graham Campbell in connection with tests made for the University and the sale of coal to the Univerisity by the Connell Coal Company, and not in connection with the tests made for the School Board.

Mr. Campbell admitted receiving the coal from the Connell Coal Company and stated that he had sent his cheque for the amount, and the amount was repaid to him by Mr. Wheeler in cash and that he expended the money in the purchase of supplies for the University, and afterwards notified the Chairman of the Board of the University that he had received the money and expended it in this way.

DELIVERIES OF COAL TO TRUSTEES.

In investigating the matter of delivering the coal to trustees by the Connell Coal Co., I found that Herbert Raymer, a trusted employee, had, during part of the time he was employed, charge of the deliveries of coal from the Connell Coal Co. yards and had been in the employment of the Connell Coal Co. from October 1906 to October 1909 when he was taken ill and continued ill until his death in June 1910. Mr. Raymer was a person who would receive instructions as to sending out coal in a particular way, Mrs. Raymer stated that her son had left some slips at the time of his death representing coal that he had sent out to different people, and their signatures, without any price, so many tons and kinds of coal on a printed form sent out from the yards of the Connell Coal Co. the slips were in her son's pocket, and after his death she had destroyed them. She produced, however, two memorandum books of her son's in which the following entries appeared: "C. A. B. Brown, 47 Wellesley, Hand picked; L. O. D. mixed."

"Rowlinson, 22 Maple Ave.; hand picked, L. O. D."

"Levee, 101 Brunswick, hand picked, L. O. D.; Dec. 26th, two ton, extra."

"Dr. Ogden, 184 Spadina, hand picked, mixed."

"H. A. E. Kent, 320 Huron, hand picked, very special."

"Rush, 97 Lippincott, Dec. 28th, 2 s. no charge (W. H. Smith.)"

The first five were trustees while Mr. Smith was a tax Collector of the City of Toronto.

Mr. Wheeler being examined as to these entries was asked:

Q.—What does that mean C. A. B. Brown, 47 Wellesley St., L. O. D. mixed.

A.—That would be of course as far as hand picked is concerned to pay special attention to that when they are screening it up not to be careless with it.

Q.—Rawlinson, Maple Ave., hand picked?

A.—As I say they are going over the coal and screening it up, taking the screenings and being very careful about these orders.

Q.—Levee, 101 Brunswick, hand picked, December 28th, 2 tons, extra—what does that mean?

A.—I do not know.

Q.—Dr. Ogden, 184 Spadina, hand picked, mixed, what does that mean?

A.—That would be mixed, different sizes together.

Q.—Here is one 320 or 370 Huron, H. A. E. Kent, hand picked, very special?

A.—Yes.

Q.—They were probably instructions he had got in regard to that.?

A.—Yes.

Q.—What is this, Rush, 97 Lippincott, December 28th, 2 s., that is 2 stove—no charge (W. H. Smith)—what does that mean?

A.—I could not say—I think it is Mr. Rush a City Tax Collector.

Q.—Have you an account with him?

A.—Yes.

Q.—Is there anything in the account December 28th or anything charged to him (Rush) on December 28th?

A.—No.

Q.—So that, leaving aside the name of Mr. Smith there, would you say that 'No Charge' has any significance in any entry made by the man sending out stuff?

A.—No, not that I remember.

Q.—But seeing that in a book belonging to the man who had charge for you of shipping coal from your yard—did he take any pains to tell whether the coal that went out was charged for somewhere, was that his business?

A.—Yes, he had to make a record.

Q.—And he had to keep account and charge agalnst somebody for every ton of coal that went out?

A.—Yes sir.

Q.—If he has one ear-marked 'No charge' it might have significance, might it not, that there was one he was not to account for?

A.—I cannot call that particular case why it should be that way.

In the second memorandum book of Mr. Raymer's the following entries appear:

Hall, Seaton St., 8 tons.

Corrigan, Gladstone Ave., 6 tons.

Hunter, Charlotte St., 6 tons.

Mr. Wheeler was asked:

Q.—Who is Hall, Seaton St.?

A.—That would be the fireman up at the University.

Q.—That is Corrigan the engineer and Hunter the fireman?

A.—Yes.

Q.—Hall was the fireman at the test?

A.—Yes.

Q.—Hunter was another fireman?

A.—Yes—I do not know why it should be down in that book at all. Wait—Mr. Raymer in that year was acting partly as my city manager, I think, and he may of course have been around for orders and got the orders in that way; and I remember we had some little mix-up at the yard and I sent him back to the yard again and he remained there I think until he was taken sick, and that may be where he got those orders by going around, because often we go up to the University up to the buildings to see if they are requiring any coal, and going around he might get orders in that way.

Q.—Have you these amounts of coal entered in their accounts in your books—the Hall account; Hall is down here (in the memorandum book) for 8 tons.

MISS DAVIDSON (head bookkeeper for the Connell Coal Co.) There is no entry in the ledger; it may have been a cash transaction.

Q.—Is there any entry for Corrigan for six tons.?

MISS DAVIDSON: That must have been the same.

Q.—Hunter on Charlotte, 6 tons; he has no six tons item in his account?

MISS DAVIDSON: No. These three items were all apparently cash transactions. Hunter's may have come through on a University order.

Q.—Could you trace in the University account to see if Hunter had an order for six tons?

A.—Yes (after looking at accounts) there is no order there for six tons.

Mr. Charles A. B. Brown was examined and produced vouchers for payment of his accounts with the Connell Coal Co. since 1908; he denied ever receiving any coal from the Connell Coal Co. for nothing, and never heard of any one getting any. He stated when he changed his account to the Connell Coal Co. in 1908 he was told by Mr. Wheeler that Mr. Wheeler would give him the lowest rate possible.

Q.—That was at the contract rate?

A.—I suppose so.

Q.—You heard your name mentioned when we were going over some of these cheques, and hand picked coal and so on, do you know anything about that?

A.—No, I supposed Mr. Wheeler would send me the best coal, being on the Board naturally he would do that, he would not send me the worst.

Dr. William W. Ogden stated that his account with the Connell Coal Co. began in 1908, that he had been dealing with Wheeler for years before that. He was asked:

Q.—Were you charged at the rate the Board was paying?

A.—I do not know; I paid what they asked me to pay; I did not ask any questions; I never do; when I order a thing that I do not specify, I pay without a murmur.

Q.—You did not make any arrangement as to the way in which the coal was to be handled for you or picked out?

A.—No.

Mr. Rawlinson in answer to the question:

Q.—You understood you were paying the market price or the school contract price, said,

A.—My reason in the firstplace was when I ordered I think a ton or something like that, one ton, I had a little conversation with Mr. Wheeler and I thought, some of the caretakers were perhaps not so pleased with the coal as others, and I think I spoke to Mr. Wheeler and he said, "Try it yourself, I will send you a ton up," and I said "All right," and I got the ton and following that I think I followed on.

Q.—That ton was paid for in the ordinary course?

A.—Yes. Then I tried it for one winter; I did not have it the next year, because that contract came up in 1909.

Mr. Rawlinson said he remembered the discussion in the School Board in reference to coal tenders in 1909 when he was Chairman of the Board, and that a test was made after the tenders had been

opened; he wanted to get the best coal for the schools; he voted and tried hard for the Rogers coal, his reason being that he thought it would be in the Board's interest if both coals were the same to give the contract to Rogers at 20 cents a ton lower than the tender of the Connell Coal Company. He was asked as to complaints by caretakers with reference to the quality of the coal:

Q.—The first two years it was not so satisfactory?

A.—I think that is the reason we asked the report from the caretakers; some favored it and some did not.

Q.—There had been complaints during the first year or two that the Connell Coal people had the contract?

A.—Just ordinary by the caretakers, they did not like the coal and I was often in the schools. Mr. Bishop got a report from every caretaker.

Q.—Did you and Mr. Bishop arrange the particulars of the test?

A.—I think we had some discussion how it should be done and if I remember right I think that we sent three tons down to the University. I believe three tons was got from Wellesley School, I forget the school, and then I think three tons was got from Rogers and three tons from Mr. Connell's yards. I think Mr. Bishop thought it would be a good idea, at least I did, perhaps, that we should know what coal we already received and then we should know what the coal was that we were going to supply the Board of Education with, by taking it from the yard, and the same with Rogers, I think that is how it was done.

With reference to H. A. E. Kent, Mr. Wheeler in his evidence said that they had supplied Mr. Kent with coal, but on being asked to produce their accounts for the coal supplied to Mr. Kent he could not do so. In Mr. W. H. Smith's account there appeared to be an item for coal delivered to the residence of Mr. Kent on Huron Street.

In his examination Mr. Smith explained this as follows:

Q.—You remember when Mr. Kent was on the Board; did you have any dealings with him about coal; in your account I see there is a charge for a ton of coal sent up to his place, to 370 Huron St.?

A.—Yes.

Q.—Two tons of nut?

A.—Yes, I remember that case.

Q.—Do you remember anything about it?

A.—Mr. Kent was in the Manning Arcade on Yonge St.; he

used to do my legal work, I was in there one morning to see him and he says, 'On the way down I was to order some coal and I did not do it,' and he gave me the money, I think it was $12, I do not know just what it was, he gave me the money and asked me to order it for him. Instead of going up to order it I telephoned it, I said, send it to that address and charge it to me, and I had the money. Mr. Kent had no telephone; he asked me to do it; he was going to drop in and he did not do it.

With reference to the account of Mr. L. S. Levee, the Coal Company's books showed that Mr. L. S. Levee ordered coal from the company and Mr. Wheeler gave evidence as follows:

Q.—The Levee account starts in March 27th, 1908 and was a pretty active account until June 9th, 1909?

A.—Yes. (In the old ledger).

Q.—At which time it amounted to $346.55 and on which nothing had been paid?

A.—Yes.

Q.—This was partly business and partly house?

A.—Yes, I think it was all that way, partly business and partly the house, and his sons' too.

Q.—That account is charged to the Slocum Medicine Co. in your new ledger and runs up to $497.41 through 1908-9-10-11?

A.—Yes.

Q.—In 1910 you got cash $100 on account of this?

A.—Yes.

Q.—Then you got a dividend of $176.97 in liquidation?

A.—Yes, that is just recently?

Q.—December 1912; so that the account stands now $220 on the wrong side unpaid today?

A.—There is more than that, because his sons' comes in.

Q.—He started doing business with you at this house in March 1908 and ran down to January 31st of the current year?

A.—Yes, a very slow account.

Q.—The total charge to Mr. Levee is $192.45; you got nothing on account of it between 1908 when it opened and January 12th, 1912 when you got $10.60?

A.—As I say; he wanted me from time to time to accept his notes and I did not want to do that.

Q.—You let that account run on all that time without getting that account?

A.—Yes, we had sent after it to try and get it.

Q.—You kept delivering coal to him and keeping him supplied and you got no cash?

A.—No cash, only two times.

Q.—January 12th, 1912, $10.60 and Feb. 14th, 1912, $13?

A.—Yes.

Q.—The balance is still outstanding?

A.—Yes.

Q.—Who is E. F. Levee?

A.—That is one of his sons.

Q.—He has an account of $50.50?

A.—Yes.

Q.—1908 and 1909, and you have got nothing on account of that?

A.—No, he says he has not any money, but he will pay it to us.

DELIVERING OF COAL TO THOSE ASSISTING AT TEST.

I have already referred to the delivery of coal, to Mr. Graham Campbell who had superintendence of the test.

Mr. Corrigan the engineer who made the tests at the University swore that he did not receive any free coal from the Connell Coal Co. at any time. He was unable to produce any tickets for coal delivered to him and explained that the test was carried out honestly so far as he was concerned; that he commenced dealing with the Connell Coal Co. in 1908 or 1909, the first coal he received being three tons, for which he paid at the rate of the University contract.

The Connell Coal Co.'s books showed that a number of Corrigan's friends as well as himself received coal at the contract price, his friends' accounts being charged to Corrigan.

William Hall, referred to in Mr. Raymer's book, and fireman at the University, was examined as to obtaining coal from the Connell Coal Co. He remembered the tests made of the coal in 1909, and that at the time of the test he was living at Davenport Road and did not need any coal there, that he moved to Seaton St. in the fall of 1909, and that he got his coal then from the Connell Coal Co., that he never got eight tons at one time to his knowledge, that his coal bins would not hold eight tons. His wife being called, stated they moved to 47 Seaton St. in September, 1909, she said she could not say what coal she got immediately following going into that

house; it was not eight, nor seven nor six tons; she could not say how much less than that it was, but they had never had six tons at one time because the space allotted for the coal would not hold six tons.

Mr. G. C. Mooring the representatives of the Board at the test also received his coal from the Connell Coal Co. at the contract price subsequent to the test.

Edward F. Rush being asked to explain as to the entry in Mr. Raymer's book stated: "I have no statement to make, only I have no remembrance of anything of the kind; all the explanation that I have to make is that I have no remembrance of getting any coal without paying for it.

Q.—Would you go any further than that, did you get any coal or not?

A.—I have no remembrance of it.

Q.—Cannot you go further?

A.—I do not know that I can.

Q.—Could they have given it to you without your knowledge?

A.—I could not say that, I have no recollection.

A number of the caretakers complained as to the quality of the coal during the first two years, that it was dirty and left a great deal of ash. Subsequently the complaints were not so numerous. It is stated that they were shown how to fire up in such way as to get rid of their complaints. The evidence shows that number of these men dealt with the Connell Coal Co. for coal for their own personal use, receiving the coal at the same rate as the contract with the School Board. These caretakers certified to the Board the number of tons of coal delivered as per receipts of the weigh-masters of the different weigh scales in the city. I find a large quantity of the coal delivered was not represented by the city weigh scale certificates; a number of them were reported as having been lost and duplicates were sometimes obtained in order to be produced to the Department in support of the accounts of the company. In many cases Miss Anketell, who had the checking of the accounts for the Board, had to refer to the original tickets in the possession of the Coal Company, and when she satisfied herself as to them the accounts were passed by her and paid for by the Board. In going over the different accounts with the Board during the years 1906 to 1911 there was only a small sum in dispute, and the adjustment of some I have left in the hands of Mr. Kerr, the Clerk of Supplies.

I discovered in a very large number of cases no account was taken by the Board where the coal was under-charged one hundred pounds or under or over-charged 100 pounds or under, but since 1910 when this work was transferred to Mr. Kerr, Clerk of Supplies, that has been discontinued and the true weight is now ascertained and paid for in every case.

From the evidence I find that the trustees whose names are mentioned have obtained their coal from the Connell Coal Co. at the amount of the contract price with the Board of Education, which is at a lower rate than that given to individuals, and that this coal was superior to that delivered to individuals or to the schools, it being hand picked whilst the other was not.

Trustees of estates are not permitted to law in benefit themselves in connection with their dealings of their trust estate; it would be well to apply such principle to those holding public positions.

With reference to the caretakers in my opinion the Board should allow the caretakers to receive the coal at the rate of the contract with the Board if they so desire to accept it, but it would be well to have their accounts certified and paid to the Coal contractors by the Board and charged against the caretakers salaries, as I found a number of the caretakers indebted in considerable sums for coal delivered some years previously. This would also apply to clerks and officers of the different departments.

TRUSTEE MR. W. H. SMITH.

In Mr. Raymer's memorandum book there also appears the following entry:

July 23rd, Chk. for $700, W. H. Smith.

July 13th, Smith, 434 Brunswick, 5 tons egg, July 23rd.

2½ tons stove coal, phoney tickets.

Mr. Wheeler on being examined as to these entries on the 27th February, was asked:

Q.—Now this also is a book of Herbert Raymer's. Here is an entry 'July 23rd, Check for $700' and under it appears the name of 'W. H. Smith'—has that any connection at all?

A.—No.

Q.—Was there any cheque for $700 in which W. H. Smith was concerned, or any payment?

A.—No.

Q.—You do not remember, Miss Davidson, any $700 that Mr. Raymer would have charge of in any way?

MISS DAVIDSON: (head bookkeeper) No Sir, he had nothing to do with our accounts.

MR. GEARY: You cannot explain that item in any way?

MR. WHEELER: No.

Q.—'July 13th, Smith, 434 Brunswick', who is that?

A.—I do not know.

Q.—Five tons egg, 'July 23rd, 2½ tons stove coal'; is that in Mr. Smith's account?

A.—No.

Q.—What are 'phoney tickets'?

A.—I never heard it.

The cash book previous to 1910 and also all the other books of the Connell Coal Co. were not produced, Mr. Wheeler stating that they had been forwarded to the head office of the company at Scranton, United States, as soon as audited, and although efforts were made to examine Mr. Connell, the President of the Company, with reference to these books and other matters, he was not produced for examination. It is true on one Saturday afternoon Mr. Cowan telephoned to myself stating that Mr. Connell was in the city and would come up and submit himself for examination. Mr. Geary, Counsel for the City, and Mr. Nield, the Stenographer, were not available, and I suggested to Mr. Cowan that Mr. Connell should appear on Monday. However, I received a letter from Mr. Cowan, stating that Mr. Connell had to leave on Saturday night or Sunday and was unable to be present. Subsequently I wrote to Mr. Cowan requesting Mr. Connell's presence to be examined, but this has been refused, I had no power to examine Mr. Connell in the United States, and without his examination the books could not be produced although they were not sent out of the country until after this investigation was ordered.

During Mr. Wheeler's examination it was further ascertained that the cheques, cheque stubs and bank books of the company prior to 1910 had all been destroyed or delivered up to Mr. Pullar as waste paper on the 8th March, 1911 before the investigation was ordered. I was therefore compelled to obtain evidence through the banks as to the deposits and checks made by the Connell Coal Co. during the years previous to 1911, and with the consent of Mr. Wheeler and Mr. W. H. Smith I obtained assistance from the managers of the different banks in connection with the matter. I

ascertained from the banks books that the check mentioned in Mr. Raymer's memorandum book for $700 under date 23rd July, had been drawn by the Connell Coal Co. on the Bank of Hamilton and deposited to Mr. Smith's credit in the Bank of Montreal on the 23rd July and paid by the Connell Coal Company on the 24th July as appears from the entries in the books of the Bank of Hamilton

Mr Hagerman, local manager of the Bank of Montreal at Portland St produced the deposit slip of W H Smith dated the 23rd July, 1909 on which the $700 cheque was referred to

On the 21st April Mr Wheeler being again examined with reference to the cheque for $700, was asked as follows:

Q —You were asked a question whether you knew anything about an entry of July 23rd in there reading, 'July 23rd, check for $700, W H Smith'?

A —Yes.

Q.—And you said you knew nothing about it?

A.—I did not at the time, I did not recall the circumstances at the time.

Q.—But this entry of Raymer's now conveys something to you, does it?

Q.—Yes it does. When I got back to the office I started to look up and ask questions about it and I found there was an entry in our books around that date, but whether it was in his book I could not say as to that.

Q.—It does coincide with some cheque for $700 to W. H. Smith?

A.—Yes.

Q.—So that it is correct entry there so far as it goes?

A.—Yes.

Q.—You do not know what this 'pnohey tickets' means on the same page and part of the same entry?

A.—No.

Q.—You are telling me that is correct; tell me what it means further?

A.—Yes, this was in connection with the trip.

Q.—That Scranton trip?

A.—Yes.

Q.—What have you to say about it?

A.—As I say our plans had all been made to leave here on Monday for the mines, for Scranton and the mines, and I got that letter.

(The letter referred to, dated 21st July, 1909, was a letter from

Mr. Connell, President of the Company, asking Mr. Wheeler to make a trip to Detroit and see Mr. Scully and then proceed and see Mr. McStephen in Chicago, and then to meet his people in Buffalo).

Mr. Wheeler stated that he had made his plans a week or two before that, to take a trip with all his managers in Canada to the Scranton mines and had notified them when the meeting was to be held. He proceeded in his evidence as follows:

"So on the night of the 22nd, it was late I know in the evening when I got Mr. Connell's letter asking me to go to Chicago and Detroit. I rather think the last mail in the evening or first mail after dinner, it comes in different times, but I never got that letter, I may have been out in the city of course, but I got that letter in the evening, that is after five o'clock when he asked me to go there, and the bank was closed, and we had not any money, so I knew of Mr. Smith.

Q.—You say the bank was closed; did you go to the bank and try to see if there was any money that could be had?

A.—Yes.

Q.—What bank did you go to?

A.—The Bank of Hamilton, our own bank.

Q.—Where?

A.—Opposite.

Q.—They were all closed up.

A.—Yes.

Q.—Do you remember that?

A.—Yes, of course I have known Mr. Smith as you already know, pretty well, and I knew during the summer he had considerable money on him, and I rang him up and told him the nature of the trip we were taking on Monday and also this trip to Detroit and Chicago and asked him if he would cash a pretty large cheque. I told him in the neighborhood of $700. 'Well' he says, 'I have not got any such money as that on me, I do not believe all told two or three hundred dollars, but he says, ' will see what I can do for you, I will ring up a friend of mine and see what I can do.' I said 'Get as much as you can and whatever you do get I will give you my cheque for,' and he says 'All right, I will ring you up,' and shortly afterwards he rang me up and said, 'If you are down here inside of half an hour I will have the money for you', I said 'How much?' and he said 'I will have the whole thing.' So I had the cheque made out for $700 and went down personally and got the money.

Q.—That was the 22nd?

A.—Yes.

Q.—You made out your cheque and Smith practically cashed it?

A.—Yes.

Q.—Let us look into that a little bit; where does that $700 appear in your books?

A.—In proportionate account.

Q.—Why?

A.—This here should have appeared in the proportionate account too.

Q.—This $200?

A.—Yes.

(A $200 cheque had been cashed on the 26th July by the Connell Coal Co. in connection with the trip and had been entered in selling expense account in the ledger; and referring to this Mr. Wheeler said that it should also have been entered in the proportionate account).

Q. —This part of your trip appears in selling expense, which seems to be the proper place, if I may say so?

A.—Not a trip of that kind, my expenses, for instance I take a trip to Detroit or Chicago or Buffalo or New York or anything like that in connection with my business, that is selling expense, but where I go in a trip of this kind, where I take the managers, it is not; it is proportionate expense, so much written off each month and it is taken care of.

Q.—That is the 30th July?

A.—Yes.

Q.—Where is the entry for that cheque of the 23rd?

A.—That would be the entry.

Q.—That is the entry as made on the 30th July?

A.— It is a different date here.

Q.—Is it a different date; is it not the fact that that was your expense, that $700 was your expense money and it had nothing to do with the $700 of Smith at all?

A.—No.

Q.—Why should it be entered a week or ten days later?

A. Often my cheques are entered that way when I go away on a trip.

Q. The 26th July is entered right, is it?

A.—That is on Monday morning when we started for Scranton

Q.—When did you draw it?

A.—On the night of the 22nd.

Q.—It was drawn before the $200 cheque and still it is entered eight days later?

A.—Yes; you can find that through my book, that oftentimes when I drew a cheque to go away on a trip, supposing I am going to Chicago, I say 'Make me out a cheque for $100 or give me a cheque' and I go on that trip and that entry is not made till I come back.

Q.—Why is it on that particular occasion, and when it is important for us to know what happened, that we find the $200 entry was made accurately?

A.—I would not say that that was not on the 26th, you cannot tell by that posting that that was not on the 26th.

Q.—Where is that $200 item (looks at account)? That is dated July 26th, that is the date you went away?

A.—Yes.

Q.—It is entered in the proper place, July 26th $200?

A.—Yes.

Q.—You say you had this transaction with Smith on the 22nd July and it does not appear in your books until the 30th?

A.—Yes.

Q.—Still it was a cheque for the office?

A.—Yes.

Q.—That ($200 cheque) got through early, and this transaction with Smith of $700 which you knew nothing about last time you were examined and have discovered since is alleged to have taken place on the 22nd July, and it does not find its way into the books until the 30th?

A.—Possibly our bank account at our bank would show it was the 22nd.

Q.—It went in there on the 24th July?

A.—Mr. Smith's bank would show that.

Q.—That cheque is destroyed and your stub is destroyed but Mr. Smith's deposit slip shows that cheque on the 23rd July?

A.—Yes.

Q.—For $700?

A.—Yes.

Q.—And on the 24th July it was paid out of your bank in good time. You do not know anything about Mr. Smith's arrangement for getting that money or anything of the sort?

A.—No.

Q.—All you did was to have him cash that cheque?

A.—Yes.

Q.—You remember that you were given every opportunity the other day in regard to this matter and here is what you said, page 150:

'Now this also is a book of Herbert Raymer's. Here is an entry July 23rd, cheque for $700 and under this appears the name W. H. Smith—has that any connection at all?

A.—No.

Yes, I could not recall the circumstance at that time.

Previously Mr. Wheeler was examined with reference to the trip to Scranton with his employees or managers and gave the following evidence:

Q.—When was that trip?

A.—On the 26th July.

Q.—You left here on the 26th July?

A.—Yes.

Q.—How long did you stay away?

A.—Around a week I think.

Q.—How many of you went?

A.—There was on that trip eleven.

Mr. Wheeler then gave the names of his managers and their wives, three persons from Montreal, two from Ottawa, two from Hamilton, one from London and his chief bookkeeper, himself and wife.

Q.—You went down from here all together?

A.—Yes.

Q.—Did you all come here, the Hamilton people and all?

A.—Yes, all came here.

Q.—When was the 26th July?

A.—It was on Monday.

Q.—What hour of the day?

A.—I cannot just remember; I would say in the morning; I think we stayed over at Niagara Falls and had dinner there.

Q.—So that you left in the morning?

A.—Yes.

Q.—You were here every day up to the 26th which was Sunday, you were here then and all Saturday until the 26th?

A.—No, I was not here; I got back from a trip on Sunday.

Q.—The 25th?

A.—Yes.

Q.—Where had you been?

A.—Detroit and Chicago.

Q. —When did you leave for there?

A.—I left on Thursday night.

Q.—What date was that?

A.—That was an unexpected trip I took because we had made all our arrangements to go to Scranton on Monday, and I received a letter from Mr. Connell asking me to make a trip to Detroit and see Mr. Scully and then go on and see Mr. McStephen, Chicago and then he mentioned in the letter at the time that I would have to meet my people in Buffalo.

Q.—What day was it you left here for Detroit?

A.—I left on the night on the receipt of his letter, I think his letter is dated the 21st and I got that on the evening of the 22nd.

Q.—What arrangements did you make before you left for this other party, any?

A.—Yes, my intention of meeting them in Buffalo; I left that arrangement with Miss Davidson to tell the party.

Q.—To tell them you would join them in Buffalo when?

A.—Monday.

Q.—Did you join them in Buffalo?

A.—No, I joined them here.

Q.—When did you get back here?

A.—Sunday.

Q.—You came back unexpectedly ahead of time?

A.—No, I tried to make the trip to here that way.

Q.—You managed to get to Toronto on Sunday the day before and joined the party on Monday morning?

A.—Yes.

Q.—They were entertaining you in Scranton?

A.—Of course we always go over from our different places for our Annual Meeting.

Q. —This was an Annual Meeting.?

A.—Yes.

Q.—The officials of the company were there of course, it being the company's Head Office, and you spent a week?

A.—I think that time I was down to New York, I think Miss Davidson and Mrs. Wheeler and I went to New York and they returned back home here.

Q. You charged this up to selling expense, that trip, did you?

A. Yes, selling expense.

Q.—E. W. $200?

A.—That was drawn the Monday morning when I got back here from Chicago; I drew that $200 cheque here.

Q.—That was to take you over to——?

A.—Of course I had previously drawn a $700 cheque for that trip and I spent some on this trip, and for fear I would be short I drew this here.

Q.—What is ir fare to Scranton?

A.—$5.20 from here to Buffalo, and the fare to Scranton I think is $11.55 from Buffalo.

Q.—You bought all your tickets here on the 26th?

A.—Yes.

Q.—You have not any accurate statement of the cost in there?

A.—I never give any statement of expenses.

Q. You put it in that way, selling expenses, E. W., Scranton, $200 and that is sufficient?

A.—Yes.

Q. That is as particular as you can get in on your expenses?

A.—That is all.

Q. You cannot tell me what the expenses of the journey to Scranton of the eleven were?

A.—No.

Q. You did not know at that time?

A.—I knew I drew $900 to take me to Detroit and Chicago and the trip to the mines and then if I had any left over after that I suppose I would naturally, because two parties went down with me from Detroit, Mr. Scully and the partner Mr. Teon on the fifth; anything I had left over from that other would be to take those two gentlemen down there.

Q. You paid their expenses, did you?

A. Largely, yes.

Q. What do you mean by largely?

A. I think I did, when I met them in Buffalo.

Q. Did you pay Mr. Moorehouse's expenses from Montreal to Scranton?

A. No.

Q. Did you pay any portion of Mr. Moorhouse's expenses on that trip?

A. Yes.

Q. What portion did you pay?

A. Hotel and railroad fare.

Q.—How much did you pay?

A.—I could not tell you the detail of it.

Q.—How long were you in Buffalo?

A.—I think we had two meals there, one or two meals there on our way over.

Q.—Where did you stop at Scranton?

A.—At the Hotel Jermyn.

Q.—What expense did you pay there?

A.—I cannot tell you.

Q.—Did you pay the expenses of Moorehouse, Reynolds, Barber, Nettleton, and their wives?

A.—Yes.

Q.—Where from?

A.—The hotel expenses.

Q.—Only the hotel expenses in Scranton?

A.—Oh no, we had carriages and entertainments of that sort.

Q.—The Head Office did that did it not?

A.—No.

Q.—Did not the Head Office at Scranton, Mr. Connell entertain all the managers and their wives in Scranton?

A.—He gave us one dinner at the club.

Q.—Did he pay the expenses in connection with their stay there.

A.—No sir.

Q.—Who paid the amount from Montreal to Scranton for Mr. Moorehouse and his wife?

A.—He paid his own from Montreal to Toronto; when we left Toronto then I took the party in charge and paid the expenses.

Q.—You bought the tickets for the whole of the party in Toronto?

A.—Yes.

Q.—That cost you $55 or somewhere in that neighborhood?

A.—Something like that.

Q.—You paid their dinner at Niagara Falls?

A.—Yes.

Q.—Two meals at Buffalo?

A.—One or two, I just forget; I guess they would be only one, because I think we lunched at the Kaltenbeck at Niagara Falls.

Q.—Who paid their return fares and expenses?

A.—I bought their return tickets. I was not with them on the way back; they would pay their own expenses on the way back.

Q.—They paid all their expenses coming back themselves, they

were allowed all the money that they paid in their charge against the company?

A.—Of course they all took money you know.

Q.—And they were allowed these expenses against the company in their statements to you from their offices?

A.—What they spent on that trip, yes.

Q.—Did you get a statement from them?

A.—No, because I O.K. the books of the different branches.

Q.—You go over these books in which these entries are made?

A.—Yes.

Q.—Did you get a statement from Barber and Nettleton?

A.—No.

Q.—Reynolds or Jackson?

A.—No.

Q.—Did they enter in their books the cost of that trip so far as they personally were concerned?

A.—Yes.

Q.—And they were allowed those sums in their accounts with you?

A.—Yes.

Q.—Do you know the amounts of those sums?

A.—No, I could not tell you offhand.

Q.—What was the necessity of you paying anything?

A.—Because the arrangement had always been that I pay the expenses.

Q.—Is that the only ground upon which you base your evidence now, that you always do it?

A.—Yes.

Q. You cannot tell any sum you paid during that trip for these people?

A.—No, you can see our different entries in our books.

Q.—No, if I could I would not have you here. What did you do with the money you got from Mr. Smith on the 22nd July, 1909?

A.—I took it with me, not expecting I would go back to Toronto.

Q.—You got it all that night?

A.—Yes, and I took it with me to Chicago.

Q. When?

A.—On the night of the 22nd and when I was in Detroit I cashed part of it in a bank there and changed it to American money.

Q. And you found out when you came back on Sunday the

25th or on Monday the 26th you wanted $200 more and you had that $700 with you?

A.—I took that for fear I would want it.

Q.—Did you bring any of that back?

A.—I cannot say.

Q.—You left here on the 22nd expecting not to come back?

A.—Yes.

Q.—Expecting that your party would have started out on Monday and would join you in Buffalo on Monday?

A.—Yes.

Q.—How were they going to finance that if your story is correct, how was that to be financed, you had got this for the purpose of financing the party and still the party's departure was to be financed without your being in Toronto?

A.—In that case I would leave word here with Miss Davidson, I cannot go into the details and remember what arrangement was made, but they would pay it themselves and I would give it to them.

Q.—You were going to be in Buffalo; was not the simple method to take enough expenses for Detroit and Chicago, was not that the natural way and leave word with these people to bring money over?

A.—No.

Q.—There was power of attorney left in the office here?

A.—Yes.

Q.—There was no difficulty about getting it while away?

A.—No.

Q.—Instead of you carrying that $700 around with you for two or three days in Detroit and Chicago the simple way would have been to take your expenses for Detroit and Chicago and have that money brought on to Buffalo?

A.—I did not see any difference whether they would bring it on or I would bring it with me.

Q.—Except it is a good deal more in the ordinary course of business instead of cashing a cheque with a gentleman who was on the School Board?

A.—We were friendly.

Q.—Did you not depend on Mr. Smith very much in connection with your affairs for the School Board?

A.—No.

Q.—Mr. Smith did speak on your behalf?

A.—Yes.

Q.—You discussed the question of getting the contract?

A.—Yes.

Q.—He was active on your behalf; he was the Chairman of the Committee; you knew he was there all the time and he was doing some canvassing for you?

A.—He saw one or two.

Q.—You know he saw some people for you?

A.—Yes.

Q.—In fact you asked him to see some people for you?

A.—Yes.

Q.—You were employing his services—I do not say with pay, you were employing his services as canvasser?

A.—No, I was not employing him .

Q.—He was seeing people and trying to get people to vote for you?

A.—Yes.

Q.—Smith was doing that as a friend?

A.—Yes.

Q.—And no other similar to the Campbell transaction ever took place?

A.—No.

Q.—My information may be wrong about your going up there, you met Corrigan with Mr. Smith about that time?

A.—I would not say as to the time I met him there.

Q.—Did he appear to recognize you when you met him in Smith's place?

A.—Yes, because I had been introduced to him before that.

Referring to his being in Detroit and Chicago, he was questioned:

Q.—You did not put up at any hotel while you were absent?

A.—No.

Q.—Your expenses would be just ordinary meals that you had besides the railway fare?

A.—Yes.

Q.—How much would the railway fare be; what is the railway fare between here and Chicago?

A.—I don't know, I think about $21 or $22 return.

Q.—You took $700 with you for that purpose?

A.—Yes.

Q.—Intending to meet the party at Buffalo?

A.—Yes, I remember distinctly I changed part of that money at the Bank at Detroit.

Q.—You are swearing positively to that as being the fact that he paid you $700 in actual cash on the evening of the 22nd July, 1909?

A.—He did.

Q.—You understand now the question?

A.—Yes.

Q.—In whose presence?

A.—I do not think any one was there.

Q.—Where?

A.—I: his store on Queen St.

Q.—At what hour?

A.—I should imagine it would he around six o'clock.

Q.—Did you ever do such a thing as that before with Mr. Smith or any person else?

A. No, I cannot recall that.

Q.—And he was a school trustee at that time?

A.—If it was that year that he was on the Board, I know he was defeated one year.

Q.—He was on the Board that year and he assisted you in getting that contract?

A.—If he was on the Board that year.

Q.—Did you not give him that $700 for what he had done in getting the contract for you?

A.—No sir, it had not any connection with it.

W. H. Smith being examined with reference to the $700 cheque gave the following evidence:

Q.—You got a cheque for $700 from Wheeler on July 23rd, 1909?

A.—Yes, I got that on the night before it was deposited; I do not know just the exact date.

Q.—You got that from Wheeler; how did you cash that cheque; you did not have the money to cash it?

A.—I had about $300, I cannot say to a dollar. Mr. Wheeler telephoned me what he wanted; I told him I did not have that much money, but I says I will try and get it for you; and I called up a friend of mine Mr. Kean and got the balance from him.

Q.—The hotel keeper?

A.—Liquor store on the corner of Peter and King. I sent down Mr. Nicoll, who was employed at that time by me, and he got the money and brought it up to me. The reason I sent him down my nephew generally did that work but the reason he went

down was because it was between five and six and my nephew goes to supper at five o'clock and that is why he was not there.

Q.—When did you pay Kean back, did you give him a cheque for the amount?

A.—No, that money was coming to me, it may have been all, I cannot say what it was, but it was coming to me at that time I know.

Subsequently on the 2nd June Mr. Smith was examined as follows:

Q.—What time of the day was that?

A.—Somewhere between five and six o'clock.

Q.—How much do you think you got from him (Kean)?

A.—Between four and five hundred dollars, I cannot say exactly.

Q.—Mr. Kean's bank account does not show he had money of that sort, in fact he was even getting money from you and discounting notes up to that date?

A.—You will have to get that information from Mr. Kean, I do not know anything about that.

Q.—Let me know this: did Kean owe you money on the 22nd?

A.—Yes, July, and you want to know what that money was for, that is what you want to get at.

Q.—And have you any objections to telling us?

A.—I will tell you, I have for the last twenty-five years been going to the races and I suppose at times we bet a little.

Q.—Shortly speaking, that is it?

A.—That is part of the money.

Q.—That is the money that he owed you on transactions?

A.—Yes.

Q.—For that day?

A.—I cannot say to the day, I cannot say what day this was on, but at that time there was that much money coming to Smith.

Q.—You do not remember what it was, on what particular account it was or any reason?

A.—I can remember some parts, I can remember a transaction that took place at Fort Erie,.

Q.—That day?

A.—No, not on that day, previous to that time.

Q.—Within a week before that?

A.—No, it may be a little longer than that; if I am not mistaken there were two occasions, I do not know just what dates they were.

Q.—How much money did you put up with Kean?

A.—I think it was $50 to start in.

Q.—When?

A.—I do not know what day it was, some time the first part of July.

Q.—The 13th July you gave Kean a cheque for $130 to assist him in his business?

A.—I do not know that it was to assist him in his business.

Q.—Do you know what it was for?

A.—No.

Q.—It was not for the purpose of betting?

A.—No, as far as my knowledge goes now it was not.

Q.—Where are your cheques for that year and that month?

A.—I said the last time I was here unfortunately those were burned by my nephew.

Q.—Have you any account of the cheques handed out?

A.—No.

Q.—Nor any account showing payments made?

A.—No.

Q.—At that time can you give me what cash passed between you and Kean?

A.—What amount of cash up to that time?

Q.—Yes?

A.—No, I cannot; there has been cash between us for years and I cannot remember any particular sum.

Q.—In July, 1909?

A.—No, I cannot tell, but I know one thing, there was $50 given to him for a certain purpose and that was cash, some time in the early part of July.

Q.—What was that given for?

A.—He was going over to Fort Erie and bet it.

Q.—On what horse?

A.—Capersauce.

Q.—Who owned it?

A.—Mr. Kean did originally own him but Crew owned him at that time.

Q.—How many times did you bet?

A.—Twice, first and second race.

Q.—Do you know how much you won?

A.—I know that all totalled up it was somewhere in the neighborhood of $400.

Q.—I think you say you sent your messenger or at least your man in the store down for the money?

A.—Yes.

Q.—Without any written order?

A.—Yes.

Q.—How did Mr. Kean know him?

A.—I telephoned to Mr. Kean and told him he was going down.

Q.—So that that money was in Kean's hands from the 3rd July roughly till the 22nd?

A.—Yes, in the neighborhood; I do not know the dates and I am not going to attempt to put the dates there.

Q.—What you say is there was a certain horse upon which you had Kean wager some money for you and you won, and he had that much to your credit at that particular time, and that is your explanation of how he came to have $400 to give Mr. Wheeler on the 22nd July?

A.—And not only that one day; this has been going on, Mr. Kean and I have been doing this for twenty years.

Q.—And you handed that money actually to Mr. Wheeler?

A.—Yes, I handed it to him; I can bring a witness; there is a man Nicholls there, he can tell you.

Mr. Charles Kean, in his evidence, stated as follows:

Q.—Mr. Smith has had some arrangements with you from time to time in regard to betting transactions, has he?

A.—Yes, we have had.

Q.—Do you remember any in the year 1909, July?

A.—I do remember it, yes.

Q.—Were you at Fore Erie?

A.—I was.

Q.—Did you place some money for Mr. Smith?

A.—Yes, I believe I did.

Q.—On one or two or three occasions?

A.—I think it was on two occasions.

Q.—And did your horse win?

A.—Yes.

Q.—Do you remember what you placed for Mr. Smith?

A.—I know I think it was originally $50.

Q.—On the first day?

A.—Yes, and I think the second bet was $100, I would not just be sure.

Q.—Do you know how much balance was in Mr. Smith's favor?

A.—I could not tell you exactly what it was; it was something in the neighborhood of $400.

Q.—Were you indebted at one time in that month to the extent of $400 to Mr. Smith?

A.—Yes, I would say $400 or something in that nieghborhood.

Q.—Can you tell me the days upon which you made this money?

A.—No.

Q.—Early in July, what date?

A.—During the Fort Erie Meet, whenever that was held.

Q.—Do you remember Mr. Smith sending down for some money to you on the 22nd July?

A.—I could not tell you about the date; I remember him sending down for the money.

Q.—Do you remember Mr. Nicholls?

A.—No.

Q.—Do you remember that Mr. Smith telephoned that he wanted all the money you had?

A.—Yes, and he sent some one after it.

Q.—And you gave it to this man?

A.—Yes.

Q.—Do you remember how much you gave?

A.—No.

Q.—You gave Mr. Smith this money on the 22nd?

A.—I could not tell you.

Q.—Late in the afternoon?

A.—I could not tell you the date when it was paid to him.

Q.—At all events was it on that day that the money was won?

A.—Oh, no.

Q.—It had been in your hands before that?

A.—Yes, I could not tell you how many days.

Q.—Could you tell me how much it was?

A.—I could not tell you exactly.

Q.—Do you remember these deposits you made in your account, a cheque on the 13th, Mr. Smith, for $130, which you paid back on the 17th July?

A.—No, I do not remember that.

Q.—They are here In your ba book; that is the slip $130, and that is the one that Smith gave you out of his book?

A.—I do not remember that.

Q.—You paid it back on the 17th of July?

A.—I could not remember it.

Q.—On the 12th you discount a note of $350 and you deposited this cheque of Smith's?

A.—Whose note was that?

Q.—Your own; and the same day you paid off $888.70, and then on the 17th you paid him cheque $110?

A.—Yes, there were a great many cheque transactions about that time.

Q.—There is an extract of your account?

A.—Smith and I interchanged cheques a good deal.

Richard R. Davis; statement re W. H. Smith.

Richard R. Davis, who was formerly a school trustee, gave the following evidence in reference to Mr. Smith's interviewing him in connection with the Connell Coal Company. He stated in 1907 he (Mr. Smith) was at the meeting of the Property Committee at the time the contract was being awarded, and was very active canvassing members of the Board to award the contract to the Connell people.

"He offered to place a load of coal in my cellar if I would give it a test and vote for the Connell people's contract; there were tenders before us at the time, the committee. I looked at him, I did not think he could bribe me with a ton of coal or with the whole contract. I said 'You are certainly counting on the wrong man when you think you can bribe me with a ton of coal'; he was not a trustee at that time but was canvassing on behalf of the Connell people. I was sitting in my place at the Property Committee and he came around to see me—I have known Mr. Smith for many years, and knowing him personally for so many years I presume he thought he could take that liberty of asking for his friend's contract, which I did not. He offered to place, he did not say a ton, a load of coal in my cellar to test it if I would vote for the Connell people."

Q.—Were you to pay for the Connell Coal?

A.—No, I was not.

Q.—Did he say so?

A.—Yes, he said it would cost me nothing.

Q.—You were to get coal only if you voted?

A.—I do not know about that; he would have placed the coal in any case if I would have it.

Q.—It was in connection with your vote?

A.—Yes.

Q.—It was the year you were trustee anyway?

A.—Yes, I think it was 1907, the first contract.

Q.—You were in for some years?

A.—I think I was there for ten years.

Q.—And that is your only recollection?

A.—Yes, that is the only time.

In Cross-examination by Mr. Cowan, he was asked:

Q.—I want exactly from you what Smith said and the impression that he left on your mind?

—He left the impression that he wanted my vote, and he to influence my vote by offering me a ton of coal.

Q.—A load of coal?

A.—Yes, which I refused to accept.

Q.—And the words which he used were he would put a load of coal into your cellar if you would burn it and test it?

A.—That is right.

Q.—That was before any tenders were opened?

A.—Yes, the tenders I think were on the table at the time, although they had not been opened I think. It took place in the Property Committee in the Committee's room.

Q.—At all events the Property Committee for the year 1907?

A.—I think that was the year, as near as my memory goes.

Q.—Did he call you to one side?

A.—No.

Q.—Did he go to your seat?

A.—Yes.

Q.—In the presence of the other members of the Property Committee he made you this proposition?

A.—In the presence?

Q.—Yes, so that they did not hear it?

A.—I do not think they heard it; I do not think they could hear it.

Q. At that time the tenders were on the table and were going to be considered by the committee?

A.—To the best of my knowledge.

Q.—Did they get the contract in 1907?

A.—I think they did.

Q.—They were the lowest tenderers?

A.—Yes.

Q.—And in 1908 you were on the School Board that year?

A.—Yes.

Q.—The Connell Coal Company were again the lowest tenderers?

A.—I do not know; I was not on the committee that time.

It appeared afterwards that Mr. Davis was not on the Board in 1907, but in 1908, and he admitted it was during 1908 when this interview took place.

Q.—You thought then at that time that he was trying to bribe you?

A.—I certainly did.

Q.—And you thought that he was endeavoring to corruptly influence you in your official position as trustee of Toronto?

A.—I certainly did.

Mr. W. H. Smith being examined upon this interview, stated:

Q.—In 1908 you were not a member of the Board?

A.—No.

Q.—Mr. Wheeler was then trying to get the contract I believe, did you take any interest in his behalf then?

A.—No, I did not, any special interest.

Q.—Did you canvass anybody?

A.—No.

Q.—Mr. Davis this morning says you were taking an interest in getting it?

A.—Mr. Davis is wrong; I would like to have heard his evidence but I did not hear it.

Q.—You say you were taking no interest in it?

Q.—I do not say I was taking no interest, I say I may have spoken a word on his behalf to a friend of mine, on behalf of Mr. Wheeler, I may have done that, but that is the end of it.

Q.—Mr. Davis said that you had come to him during a meeting of the Property Committee and had wanted him to vote to give this contract to Mr. Wheeler?

A.—Mr. Davis is saying what is not true.

Q.—You never spoke to him about this matter one way or the other?

A.—Yes, I did, but I did not do it up in the Committee Room: I went to see Mr. Davis at his office on Melinde St. right behind the Telegram to try and get a friend of mine appointed caretaker and casually the coal question came up, and if I am not mistaken Mr. Davis told me that he was using Burns coal and that he thought that was the best coal in the city. That is the way it started. I told him at that time, I says, 'You are foolish, Mr. Davis, that you do

not get a load of this Connell coal and try it and you will save money'; that is what I told him and that did not take place in any committee room.

Q.—When you saw Mr. Davis had you been asked by Mr. Wheeler to speak to him?

A.—I would not want to say he did not, he may have asked me, if I met my friends to put a word in for him; I would not say he did or not; it was some time ago. but I will tell you right here any time I had a chance to do it I did it.

Q.—Assuming you are right or Mr. Davis is right as to the place this conversation occurred in, and I do not think that is material, do you dispute what he says when he states what you said to him 'You had better get a load of this Connell coal in for a test and it won't cost you anything?'

A.—I said that?

Q.—He says you said that to him?

A.—I say Mr. Davis is not saying what is the truth.

Q.—Mr. Davis and you have been friends?

A.—Yes, and after that.

Q.—What Mr. Davis said is this, "He offered to place a load of coal in my cellar if I would test it and vote for the Connell Coal Co., I was not to pay for it.

Q.—Mr. Davis has made a mistake, I do not want to think he is willfully saying that, but he has certainly made a mistake.

Miss Clara B. Martin who was trustee for some years was examined by Mr. Smith with reference to conversations in the Committee Room:

Q.—Do you think it is possible to sit around the table and for me to walk in between two trustees and speak as Mr. Davis says, when they are opening tenders without being noticed?

A.—I do not think so.

Q.—You have been on the Board with Mr. Davis a number of years?

A.—Yes sir.

Q.—How have you found Mr. Davis, is he reliable?

A.—I would not wish to say.

Q.—Did not he change quite often?

A.—Yes.

Q.—You could not rely on his word that way, he would tell you one thing tonight and change tomorrow, is that right?

A.—Yes, I do not like speaking about trustees, Mr. Smith; the majority of the trustees are very erratic.

Q.—To the best of your knowledge could that be done in that particular way?

A.—I do not think so.

W. H. SMITH'S ACCOUNT WITH CONNELL COAL CO.

In reference to Mr. Smith's personal account with the Connell Coal Co. Mr. Wheeler gave the following evidence:

Q.—You started doing business with him (W. H. Smith) in 1906 and sold him the ordinary amount of coal, and that was in the autumn of 1906, beginning of 1907, and that account was pretty active in deliveries, but pretty slow in cash was it not?

A.—A little.

Q.—December he paid $66.60 and along in December a year later he paid another $15; cash?

A.—Yes.

Q.—Was Mr. Smith getting a special price from you?

A.—Oh, yes.

Q.—He was from the beginning getting a special price from you?

A.—Yes.

Q.—Why was that?

A.—Just from friendship.

Q.—That account ran on down to July 1st 1909, when there was a balance of $53.40?

A.—Yes.

Q.—Then the account goes on, and at the end of November, 1912 I take it that the balance was $113.50 standing?

A.—Yes.

Q. And in January of this year you got $45, that is just the other day, so that the balance standing against Mr. Smith today is about $130?

A. Yes.

Mr. Smith in his examination referring to this account:

"There is one thing I want to clean up, and that is as regards my allowing my account to run for so long. I might say that the reason I did not pay this account was on account of this investigation; I can pay every cent I owe and right now; that was not left for that purpose. I was advised that way, not to pay a cent until after this thing was over."

DOMINION COAL CO., OWNED BY MR. SMITH AND THE CONNELL COAL COMPANY.

In giving his evidence Mr. Smith admitted that he was conducting a coal business under name of the Dominion Coal Co. which was supplied with coal by the Connell Coal Co. beginning in the month of September or October, 1912.

Mr. Wheeler in his evidence stated that Mr. Smith consulted him about going into the business and had been talking about doing so for two or three years back, and that Mr. Smith was given the exclusive agency by the Connell Coal Co. for East Toronto, east of Greenwoods Ave. and the Connell Coal Co. protects him from outsiders going into that district with their coal.

With reference to the $700 cheque transaction between Mr. Wheeler and Mr. Smith the evidence in support of the explanation by Mr. Wheeler and Mr. Smith is most unsatisfactory and I have therefore set out such evidence at greater length than usual so as to enable the Members of the Board of Education to place such weight on it and come to such conclusions as they may think proper under the circumstances set forth.

With regard to the question of veracity between Mr. Smith and Mr. Davis, I also leave that to the judgment of the Members of the Board.

CARPENTER'S CONTRACT.

REPORT OF ROBERT JESSIMAN AND JAMES CRADDOCK.

On the 28th February, 1913 Mr. Jessiman and Mr. Craddock submitted the reports of their inspections of 42 schools which are filed as Exhibit 15 and forwarded herewith.

Copies of these reports were furnished to the Board's solicitor and to the Superintendent of the Building Department. These reports showed generally that iron weights were used in the window sash in the class rooms while lead weights were specified, the difference in cost amounting in the aggregate to a very large sum. They also showed that hemlock and spruce had been frequently used in place of pine in decking in the roof and as flooring under the hardwood floors, and also that one ply of paper was frequently used where two ply was specified. The reports show to what extent this was carried out.

In their evidence they stated that they had ascertained the difference of the cost of the material as set forth in their reports between the material specified and that supplied to be as follows:

In Carpenter contracts	$ 15,286.96
Plaster contracts	2,881.92
Painting contracts	130 70
A total of	$ 18,299.58

In reply to these reports furnished him, the Superintendent of Buildings, Mr. Bishop, on the 9th June, 1913, handed in a report which was filed as Exhibit 83, with a letter in which he made the following remarks:

"The principal item of difference mentioned by Mr. Jessiman is the use of iron sash weights instead of lead. My only explanation for this is that I think no practical man would expect that lead weights would be required except in cases of necessity such as space in boxes not being sufficient for iron. The class room windows being of special construction lead weights were specified to cover any case that might arise. This placed the responsibility on contractors for sashes working properly and in my opinion nothing more was necessary. Lead weights would have no value whatever in efficiency or durability over the iron. I do not think the Board has suffered any loss on this account and have therefore not considered the Board entitled to any deduction on this item in settling contracts. I believe that Contractors tendering have figured on using iron where possible and charged prices in their estimates accordingly, so the Board has paid only the price of iron.

"The next item in importance as reported by Mr. J. is his statement as to spruce and hemlock lumber being used where pine was specified and the difference in value of these varieties of lumber. My estimate of the difference in prices of these materials for the purpose of adjusting the accounts has been, nothing for spruce and Two dollars ($2.00) for hemlock, instead of Five dollars ($5.00) and Ten dollars ($10.00) per thousand respectively as rated by Mr. Jessiman.

"In a number of cases the question as to using spruce has been asked by Contractors when carrying on the work and in such cases spruce has been accepted as the equivalent of pine for such work as covering floor joists, roof, etc.

"It should be understood that the specification does not call for an expensive grade of pine for this purpose and the spruce has

been supplied in a quantity equal to or superior to the grade of pine called for. In cases where hemlock has been used and reported, the item has been noted for deduction. The use of pine has been almost if not entirely discontinued in Toronto for such purposes in the last few years and the price of spruce and hemlock has advanced so that the former difference has practically disappeared.

"During the period referred to in Mr. Jessiman's report this Department handled over Eight Hundred building contracts, amounting to Three and One Quarter Million Dollars, ($3,250,000.00 on nearly One Hundred different buildings of enlargements or buildings, and hundreds of other contracts for repairs, etc., making a total of business handled amounting to nearly Five Million Dollars ($5,000,000.00).

"On this work the number of building Inspectors for the years 1906 to 1910 was two (2) and for 1911 and 1912 was increased to seven (7).

"The statement herewith shows that Mr. Jessiman's report is in many cases very inaccurate.

"His report refers to work on 91 contracts during a period of about six years in connection with 42 buildings. These contracts amount to a total of $550,000.00. The total amount of difference which might be charged against contractors on items mentioned by Mr. Jessiman instead of being $18,299.58 as stated by Mr. J. is $1,717.18. Many of the items are in contracts not closed and in any case there are balances in the hands of the Board sufficient to cover such items many times over, even including the few exceptional items.

"Except in the matter of a few items it is a fair question whether any deduction should be made from the contracts on work or material reported by Mr. Jessiman.

"There is one fact of great importance to the Board and the Contractors who are interested in these charges, which is known and understood only by those in constant touch with this work, viz,—

"There is probably no building work carried on with more difficulty or inconvenience to contractors and workmen.

"In the many buildings erected under supervision of this Department to the present time not more than three were complete new buildings. All others were either incomplete buildings or

enlargements, mostly the latter, carried on in such manner as to continue the use of the schools at whatever inconvenience to the work. And the worst part of this inconvenience has been borne by a few of the trades in finishing up their work on account of pupils being pushed into their new class rooms when a large part of the contractors' work was incomplete, and then the workmen have been obliged to complete the work bit by bit, a little here and a little there all over the buildings at such times as they could be allowed without interfering with classes or general use of the premises by the pupils. One needs no experience to understand the disadvantage of this to contractors when it is mentioned. The trades most seriously effected by this have been Carpenters, Heating and Ventilating, Plumbing, and Painters, and I wish to say that the various contractors for these trades have done work for this Board under conditions here indicated which have caused losses to them in time of workmen amounting to thousands of dollars, conditions they were obliged to accept. For these losses no Contractor has been allowed extra compensation, but in the matter of adjustments these circumstances have been known and have been considered to the extent that deductions have not been made on a basis of the last cent that might have been exacted but rather on the basis of fairness to both the Board and Contractors, and with a view to encouraging satisfactory contractors to tender on the Board's work.

"Considered on this basis, all statements which have been made, or may yet be made to the effect that contractors have not given the Board full value for its money can and will be shown to be untrue."

Upon comparing the report presented by Mr. Bishop with that of Messrs. Jessiman and Craddock it was thought proper to have certain discrepancies between the reports verified, and accordingly Mr. Craddock and Mr. Cooper were requested to go over the schools together where such discrepancies occurred so as to eliminate any doubts arising from the reports, and that was done, and a further report was presented by Mr. Craddock and Mr. Cooper showing that the discrepancies largely occurred from the fact that the Building Department had given Messrs. Jessiman and Craddock a number of specifications for years different from those on which they had been requested to report.

CAST IRON SUBSTITUTED FOR LEAD WEIGHTS.

HEMLOCK AND SPRUCE SUBSTITUTED FOR PINE.

Examining Mr. Bishop with reference to the supplying of iron weights where lead weights were specified, he was asked;

Q.—It is your custom I believe to allow the substitution of iron for lead?

A.—Clearly—any practical man would know it.

Q.—I am taking that as an instance; every man might not; he would see the specification was lead and he would say 'I have to put in lead?'

A.—I do not think he would be considered sane.

Q.—But it would happen?

A.—I should be surprised to see the man.

Q.—It might happen in others; the man who knew you would stand for that has the advantage of the man who thinks you will stick out for the letter of the specification?

A.—No one has an advantage in tendering in my department as to the knowledge he receives.

Q.—The difference in Riverdale High School—I will just take a few of these—was $97.58; the difference in Norway School was $152.64; the difference in Kimberley School $79.80—I do not need to go through them; and the difference in Balmy Beach School was $74.20; so that it is quite a substantial little item in each case; your specifications called for lead?

A.—Yes

Q.—There was no alternative in the specification, was there?

A.—Not that I know of.

Q.—Nor was there any alternative given as the work advanced?

A.—Not to my knowledge.

Q.—The fact is the contractor in all these cases instead of adhering to the specifications, put in iron for lead?

A.—Wherever iron could be used.

Q.—And that was not made the occasion of any deduction in the contract price by you?

A.—No.

Q.—You have let that go through?

A.—Yes.

Q.—That specification is a rigid term of the contract; there

is nothing in the contract to say that that specification is not to be adhered to?

A.—No qualification.

Q.—And still, Mr. Bishop, would you say to me that it is quite a careful drawing of specifications and carrying on business to enable those who knew your feelings in regard to that from experience, to compete against the man who was strictly trying to live up to the specifications; is it good business, is it fair dealing with contractors whom you did not know?

A.—I would say that any contractor would know that lead would not be specified except where it was a necessity; lead has no value over iron in any way; it is merely the weight that would be necessary to counterpoise the sash.

Q.—How long has that been your view?

A.—Ever since the clause was written.

Q.—Why did not you make a change?

A.—It might have been if the matter had been referred to me particularly after it was shown that a large proportion of the windows could have been done without, the specifications might have been changed.

Q.—Then shortly you are altering the specifications to the trades, you are offering a specification adherence to which you do not insist on?

A.—Where it is necessary we insist on it.

Q.—You have nothing about where it is necessary; you make that a requirement in the specification that it is to be lead weights?

A.—The specification says that.

Q.—You do not attempt to adhere to it; the man who put in lead then or who tendered bona fide thinking, however unreasonably it might be, that he was required to give what you asked for, would be under some disadvantage as against the man who would cut that down to cast iron?

A.—If a man did put in all lead.

Q.—He would be?

A.—Yes.

Q.—And that is the man that is strictly adhering to the specifications, and you have not made any deduction so you say, in this letter, at any time for this outing?

A. No.

As to the difference in cost between hemlock and pine, and between spruce and pine, Mr. Bishop stated that there was a dif-

ference of $2 per thousand only between pine and hemlock, and no difference between spruce and pine, while the Jessiman and Craddock reports showed that there was a difference of $5 between spruce and pine per thousand and $10 per thousand between hemlock and pine; and Mr. William Williamson in his evidence on the 29th November, 1912 stated that there would be a difference of $8 between Georgia pine and hemlock, and $5 a thousand between white pine and hemlock.

Mr. Bishop stated that there would be no objection to using spruce for white pine, that he considered one as good as the other for the purpose for which it was specified, that where hemlock was used instead of pine there would be a deduction for same if the matter was reported to him, that at the present time there was no difference between hemlock and pine for the purpose for which they were used. He also stated that a number of the schools reported on by Mr. Jessiman the accounts had not been closed, and the contractors had money coming to them, and if there was anything wrong the Board of Education would be able to get the amounts out of them.

Q.—You told us that in certain cases where hemlock had been used and reported the item had been noted for deduction, that is not all the cases that have been brought to your attention?

A.—Some where my attention had not been brought there has been no deduction, but where attention has been brought there has been deductions.

Q.—Were your inspectors alive to that?

A.—They certainly should have been—it would appear some of it had been changed and had not been noticed, there was no deduction noted, therefore no deduction had been made.

Since the year 1910 apparently the specifications were changed from pine to hemlock, previous to that the specifications always called for pine, while hemlock and spruce were frequently furnished.

With reference to the Riverdale High School roof reported against by Messrs. Jessiman and Craddock, Mr. Bishop stated that in his opinion it was entirely safe.

Q.—Did you find any fault with it?

A.—Yes, there is fault to be found with it.

Q.—What is the fault that you found?

A.—Poor workmanship; the roof is perfectly safe; it has stood for six years and will stand for sixty; the roof is not dangerous, it is not carried out in a workmanlike manner—if my attention had been called to that it would not have been approved.

Mr. Waste in his evidence stated that some contractors after entering into the contract and making inquiries as to the lumber to be used, obtained permits from him to substitute spruce for pine, but not hemlock, and he admitted that contracts had been closed where hemlock had been used instead of pine without deductions being made.

Q.—What, if any difference, is there in quality of hemlock and spruce on the one hand and white pine on the other?

A.—I do not claim to be able to tell you all the differences—for common flooring spruce is quite the equal of pine and a good quality of hemlock in some cases lots of people would think it was quite equal—I would not admit its equality with pine nor its nearness to pine for the purpose of rafters as I would for common floorings.

Referring to the Inspector's report to the hemlock used at Riverdale High School he was asked:

Q.—What does it mean, 8,208 feet of hemlock, it does not say what was done; that is in the front part, you say it was taken out or was it to be taken out?

A.—No; you misunderstood me if you understood me to say it was taken out in that school.

Q.—That was not taken out?

A.—No.

Q.—Was any action taken, was there ever a deduction taken for that?

A.—That was not actually deducted; it was only in my possession for that purpose—it is the only item that I can call to mind being reported for a deduction; and there may have been other cases mentioned where it had been mentioned where it had been found and taken away.

Q.—Was it reported to you in other cases?

A.—No sir.

Q.—That is the only case of a report?

A.—Yes.

Q.—So that all these cases where pine had its place taken by spruce or hemlock, the inspector had apparently let it go?

A.—Not the spruce, but the hemlock—the Inspectors I think have reported in some cases that spruce was being used.

Mr. Cooper the chief inspector said that on one occasion he asked Mr. Waste if the lead weights had to go in and was told that it was an understood thing always that lead weights could be used only where necessary.

Q.—You knew from your sight of the work that cast iron was going in instead of lead?

A.—It was brought on to the job.

Q.—What did the contractor tell you when you stopped him?

A.—He said he had always used them.

Q.—He had been a contractor before?

A.—Yes. (This was at Oakwood High School).

Mr. Cooper stated that when the contractor brought the first load of spruce on the Oakwood High School job that he stopped him as the specifications called for pine.

Q.—You did what then?

A.—Phoned Mr. Waste; he allowed the spruce to go, said he would see it was better material than pine. We often get spruce. better than common pine.

Q.—You telephoned Mr. Waste and Mr. Waste said that specifications need not be adhered to as far as that goes, he can put spruce in?

A.—Yes, he would allow the spruce.

Q.—And so you let it go on those instructions?

A.—Yes sir.

Q.—You did not know anything about the price of those articles at that time?

A.—No.

As to two ply paper between common flooring and the maple floor he stated that at Oakwood High School while he was there the men were putting down one ply paper and he asked why they were doing it, and the men said that the foreman told them to do it.

Q.—The specifications called for two ply?

A.—Yes.

Q.—What happened?

A.—Then it happened that they promised not to do it any more.

Q.—You made them double it?

A.—Yes.

Q.—You do not know what they did in other rooms before that?

A.—No.

Q.—As a matter of fact one ply under no circumstances could be a substantial complying with the specifications calling for two ply?

A.—The specifications are not altogether clear on that—it says two ply paper. There is a vast difference in the paper between two ply paper and two thicknesses of paper.

Q.—'Two plies of soft paper felt', I guess that means two separate pieces of paper?

A.—It means that—Mr. Crocker always told me that he read it two ply carpet felt until I stopped him at Annette St. I always understood it was to be two thicknesses of paper.

Q.—Did you have any difficulties there that you had to stop work in Earlscourt?

A.—Only over the spruce and pine.

Q.—What was the occasion there?

A.—He (Frank Armstrong) brought spruce on to the job for the common flooring.

Q.—And you stopped it and got instructions did you?

A.—Yes.

Q.—You again asked Mr. Waste?

A.—Yes.

In the face of Mr. Bishop's evidence as to contractors, the following contracting carpenters were examined, namely:

E. R. FRENCH, a well known carpenter and contractor, who had tendered on the School Board contracts, was as[illegible]

Q.—When you tendered and made up your pri[illegible] make it up to adhere to the specifications?

A.—Yes, the specifications as near as I knew.

Q.—Did you figure on lead for the window weights?

A.—I figured for lead; it called for lead.

Q.—Was there a difference in price between lead and iron?

A.—Yes—about 2 to 2½ cents a pound.

Q.—That would make a considerable difference in your tender?

A.—It would.

Q.—Did you figure on putting in pine where it was called for?

A.—Yes.

Q.—You did not know that spruce and hemlock would be accepted?

A.—No.

Q.—Was there a difference between the price of pine on the one hand and of spruce on the other?

A.—Yes, there is a difference between pine and hemlock.

Q.—Pine and spruce?

A.—There is a difference between pine and spruce too; hemlock is the cheapest.

Q.—If you were figuring and knowing you could substitute spruce for pine and in other cases hemlock for pine, and that you

could have put in cast iron instead of lead, would it have reduced the amount of your tender?

A.—Yes.

Q.—I have a list given me of some schools; there is the Howard School in 1907; Mr.. M. Hutchins . got the contract at $6,554; you appear to have tendered for $6,592; there is a difference between you of $38 and the low man got the tender; can you say that you would have been $38 lower or more if you had known that you could put iron in for lead and spruce for pine and hemlock in some cases?

A.—Yes, I could.

Q.—Did you ever get a school contract?

A.—No, I never got a school.

Q.—You tendered for Howard and Kent (1907)—I suppose you are an ordinary every-day-sort of contractor but have some sense, you have not been a failure in your business?

A.—No sir.

Q.—You think you can read specifications?

A.—Yes.

Q.—And you have read those specifications as meaning what they said?

A.—Yes.

Q.—And you figured on that basis?

A.—Yes.

Q.—You have built a large number of buildings in Toronto?

A.—Yes.

Q.—And you are a large contractor in a large way?

A.—Yes, I do quite a bit; I have had quite a bit of experience.

Q.—Did not the use of lead make any difference in the size of the mullions as distinguished from the use of iron?

A.—Well, in the mullions of course you could make the box larger to receive the iron weight in place of lead, but if you wanted to get the light you want to keep your mullions small as possible and get your lead weights in, then you could build it for lead weights.

DAVID C. WALTON, another contractor, tendered in 1910 on Annette St., Humberside and Howard, but did not receive any contract.

Q.—You did not go and tender for schools since then?

A.—No.

Q.—Why did not you?

A.—I considered it was useless, waste of time for me.

Q.—Why do you say for you?

A.—Because I tendered at the lowest possible figure I could put it in and others beat me so much that I thought there was no more use.

Q.—Did you tender on the specifications?

A.—Yes.

Q.—These specifications, for instance, provide for lead weights; did you tender on lead?

A.—If the specifications call for it I did.

Q.—You did not use your own discretion in making any variations from the specification?

A.—No sir.

Q.—Would you as a contractor of experience venture to remodel specifications in tendering to suit yourself?

A.—I would not.

Q.—Do you think you were a sane man in tendering faithfully according to the specifications?

A.—I think I would be a sane man if I figured according to the specifications, certainly.

Q.—We heard from Mr. Bishop that no sane man would think of figuring on lead according to these specifications?

A.—If they were not specified he would be foolish to figure on them, but if they were specified he should do it.

Q.—That is the usual practice of contractors?

A.—It is with me.

Q.—Would you think that where you saw white pine specified you would have to provide white pine?

A.—Certainly.

Q.—Would you under any circumstances reading over the specifications and seeing that pine was specified, undertake to figure also on the assumption that you could put in spruce or hemlock instead of pine?

A.—No sir.

Q.—Tendering as you did according to the specifications in those important matters would there be a difference, would you find yourself obliged to put in highes prices than if you had substituted?

A.—If the specifications called for white pine and they would allow me to use any inferior stuff I would have saved a lot of money by it.

Q.—If you knew the habit of the School Board officials allowing these substitutions your tender might have been considerably lower?

A.—I do not know, I never tried that game; I generally figured according to the specifications.

Q.—If you had taken upon yourself to put in your tender figures representing iron instead of lead, spruce and hemlock in in place of pine, your tender would have been lower?

A.—Certainly, yes.

Q.—Any difference in price between iron and lead weights?

A.—Lead fluctuates at certain times different to what iron weights would. Sometimes I have known them to be as high as 5½ cents a pound more than iron weights, and other times to get down as low as 3 cent difference and 2½ cents.

Q.—Three cents would be a fair difference between the two?

A.—Yes, taking one year with another.

Q.—Is there a difference in the price between pine and spruce?

A.—Yes, spruce would come a little the cheapest.

Q.—Is there much difference between pine and hemlock?

A.—Yes, there would be about as much difference between pine and hemlock as between spruce and pine—according to the quality.

Q.—You would never think of putting in one ply paper where it was called for two?

A.—No.

Q.—Humberside Collegiate, that was another you did not get? Mr. Bulley and Mr. Hutchinson were considerably lower—they allowed the substitution of spruce for pine there and cast iron for lead and it amounted according to Mr. Jessiman's inspection $597, which would be a substantial sum in figuring if you knew that?

A.—Yes.

WILLIAM WELLER, one of the largest builders in the city gave evidence as follows:

Q.—Have you seen the School Board's specifications for any of these schools?

A.—Not for four or five years.

Q.—They call for lead weights?

A.—Yes.

Q.—As a contractor what would your course be?

A.—We would follow out the specifications.

Q.—And you would figure on the price of lead for that?

A.—Yes.

Q.—If it is specified pine you would follow out the specifications?

A.—Yes.

Q.—And you would not figure on a lower price on the assumption that you might induce them to accept the others later on?

A.—No.

Q.—If you did figure on lead and found out later that you might save several hundreds of dollars by putting iron instead of lead and the School Board knew that, should the School Board or should the employer ask for a reduction on account of the cheapness of that job?

A.—They certainly should.

Q.—They are not getting what they contracted for?

A.—That is right.

Q.—Say within four or five years ago was pine of one quality more expensive than spruce?

A.—Yes.

Q.—And more expensive still than hemlock?

A.—That is right.

Q.—Where pine is specified and spruce is used there would be a deduction?

A.—Yes, providing there was nothing else to balance it.

Q.—How does No. 1 spruce compare in quality and price with white pine of the best quality and description?

A.—It is cheaper.

Q.—Even today.

A.—Yes, not very much, but there was quite a difference four or five years ago on account of so much speculative bu..ding going on they have been buying cheaper grades and it has made the cheaper grades dear, and they have not been buying pine, and they have been buying the cheaper grades and it has come up in price.

Q.—How many schools did your firm tender on?

A.—Two or three—Grace St. School was about the last I remember that we tendered on.

(This school was where 2000 feet of hemlock was reported as being used in the tower in the place of pine, joist and top floor joist and one ply paper in place of two of felt and spruce in place of pine).

ALFRED COLEMAN, a well known contractor who had tendered several times on the specifications for carpenter work, stated he would have estimated on lead weights in figuring up his tender.

Q.—It would be a little advantage to you to know you could figure on cast iron?

A.—I certainly think so.

Q.—It would pull your price down a bit?

A.—Yes.

Q.—Because there is a difference in the cost?

A.—Oh my, yes.

Q.—Can you say roughly speaking for the last four or five years what is the difference in cost between iron and lead?

A.—About 3½ cents a pound—lead weights cost more than double the price of iron weights, there is no question about that.

Evidence was also given by lumber dealers and others as to the selling price of pine, spruce and hemlock from 1906 up to the present time, which showed there was quite a difference in the earlier years between the two kinds of lumber and also a difference in the qualities in each kind of lumber. It was impossible to decide on what quality the prices should be charged at under the circumstances, Mr. Waste claiming it was the poorer quality of pine that was required for common flooring and roof covering, notwithstanding the description of the pine in the specification was white pine of the best quality and description.

As a result of the evidence I am of the opinion that while the amounts mentioned in the reports of Messrs. Jessiman and Craddock were too high the amount mentioned in Mr. Bishop's letter was much too small.

LUMBER USED ON THE ELIZABETH ST. SCHOOL.

In connection with the carpenters contracts Mr. Craddock and Mr. Cooper stated that a considerable part of the Georgia pine delivered by Frank Armstrong on Elizabeth St. School was not in accordance with the specifications, it being sappy and punky. Mr. Sexton who was for a part of the time Inspector on this building was blamed for passing this material, but in his evidence he stated that he was only there for a portion of the time and during that time he had rejected about 1500 feet of this material supplied by Mr. Armstrong and that subsequent to his leaving there Mr. Cooper himself was the Inspector and although Mr. Cooper gave evidence subsequently he did not deny this statement. In connection with this Mr. Armstrong gave evidence as to the Georgia

pine used in the school and which he had purchased from Flint Erving & Stoner. He stated that upon their demanding payment for this lumber he wrote them the following letter:

"As your car of lumber which you shipped me on Aug. 26th "was not long leaf Georgia pine as was represented to us, and will "not pass architect's inspection on the job, I have not been able to "send the balance that is due you and will not be able to for at "least two months yet.

"Our building has been delayed on account of cement work.

"We told your Mr. Flint when he was here that we would try "and work off as much of the material as we could and if we should "get one of the easy inspectors we may be able to work off the most "of it, but, if it should be one of their hard inspectors half of the "lumber will be condemned as it is not the quality of lumber which "you represented it to us and we are very much dsappointed.

"When your Mr. Flint was here I arranged with him that we "would try and work off all we could and make a settlement for "the balance which I am still prepared to do but it will be two "months before we can expect any settlement."

Mr. Armstrong attempted to excuse his language in this letter by stating that he did not come across an easy inspector and the lumber was not unfit for use. He at first stated that half of it was returned, but subsequently admitted that he had paid the whole account less $25, thus showing that the greater amount of the lumber had been used in connection with the school. He said he had taken some back to his yard, which was no doubt the lumber rejected by Mr. Sexton as Inspector.

LUMBER USED ON THE HOWARD PARK AVE. SCHOOL.

It was shown by Mr. Craddock and Mr. Cooper that while they were inspecting this building within the last two months they found similar conditions respecting Georgia pine in this school, also supplied by Mr. Frank Armstrong the contractor. They stated it was punky and sappy. Mr. Cooper said he had reported on this to the Department and as a result it had been bridged over and strengthened, such additional work being done at the expense of the contractor.

CARPENTERS' HARDWARE.

There is a clause in the carpenter specification as follows:

"General Hardware:—Include the sum of $.....for hardware not otherwise called for to be selected and approved by the architect such as locks, knobs, butt hinges, etc., etc. (as set forth), the carpenter to provide for putting them all in place. If this allowance is not all required for hardware the balance may be used for other work or deducted from the balance of this contract."

Upon inquiry I ascertained that various contractors had charged more than the sums paid by them for hardware claiming that they were entitled to any percentage allowed to them by the hardware merchant. Mr. Waste agreed to this and stated that they were entitled to same and that he allowed them the full amount. On looking over the accounts as settled by Mr. Waste I found that he had taken off a percentage from Crocker & LeDrew's account of hardware in connection with Earl Grey School in 1910. The amount allowed was $400 and the account rendered to Crocker & LeDrew by the Hardware Company amounted to $421.07, of which $71.33 were for net goods, and on the balance of $349.74 a discount of $34 was allowed by the Hardware Company, leaving $315.74, which with the net goods of $71.33 made $387.07. There was deducted from that amount $12.06 for goods not supplied, leaving $375.01 which was deducted from the $400, leaving $24.99 chargeable by Mr. Waste against the account of Messrs. Crocker & LeDrew, thus benefiting the Board by $32.66 on this account, that sum being for discount allowed by the Hardware Company.

This was the only occasion in which Mr. Waste in settling up accounts took off any percentage allowed to the contractors by hardware merchants. It was shown in evidence that in M. Hutchinson's hardware account for the Kent School Mr. Hutchinson charged the Board the full amount of the account rendered to him by the Hardware Company, and did not give credit for hardware returned by him to the Hardware Company which had not been used on the School ,amounting to $15.51, and the Department did not deduct the amount from his account, showing apparently that the hardware account had not been correctly checked over by the Department.

Mr. Frank Armstrong's account against the Board for hardware was rendered at the amount of an estimate given him by the Hardware Co. instead of at the sum paid by him to them for such

hardware. Mr. John Archer, bookkeeper for Mr. Armstrong who was acquainted with these accounts, gave the following evidence. In referring to two accounts produced in connection with Elizabeth St. School he specified one as containing the prices at which the hardware was sold to them, and the other as the prices that were charged to the Board by Mr. Armstrong.

Q.—You got it at a lower price?

A.—Yes.

Q.—The Board paid you what was billed?

A.—Yes.

Q.—For instance, four pairs 3 x 3 butts, you billed to the Board at 40 cents?

A.—Yes.

Q.—What you paid was 15 cents?

A.—Yes, that is right.

Q.—Is that 200 per cent?

A.—Yes, it might be.

Q.—Butts again, charged 40 cents and paid 15 cents. Other butts you charged 30 cents and paid 12 cents; elbow catches brass, charged 10 cents and paid 3½ cents; combination fasteners and lifts, charged 75, paid 62½?

A.—We have been trying all the way through to get a fair price.

Q.—42 pairs lifts you charged 20 cents and paid only 5 cents?

A.—We might pay 5 cents each for those.

Q.—Butts, $1.45 charged and $1.14 paid; locks $3.25 charged and $2.65 paid; butts $1.45 charged and 48 cents paid; and so on through the list; they are mostly in butts and lifts and locks, and the percentage runs from 300 per cent is the highest profit.

SETTLEMENT OF ANNETTE ST. SCHOOL CONTRACT.

Mr. Sexton, who was the Board's inspector on this school stated in evidence that the contractor in connection with the 1910 contract did not erect the roof over the entire building. He said: "Before the building was high enough to do this the Board decided "to enlarge the building by adding two more storeys and on page 11 "of the specification there is a provision to remove this roof which "was never put on. There are about 1400 feet on same, about " 140 yards worth at least $10 a square."

Q.—That is $1400?

A.—Yes—the cost of taking it off is $200, making $1600; 20% to be allowed to contractor for profits on same, $320, leaving a sum of $1280 in regard to the roof, which should have been deducted.

Q.—You do not know whether that was deducted or not?

A.—No sir, I know I called Mr. Waste's attention to that duplication.

Q.—What did he say about that?

A.—Never said anything. I think you will find it in my report too.

Q.—You reported it?

A.—Yes.

The settlement between Messrs. Crocker and LeDrew and the Board made by Mr. Waste was produced and showed as follows:

Crocker and LeDrew were allowed $300, $200 on the first contract and $100 on the second, deducted value of temporary roof $475; value of old lumber which contractor would have removed from temporary roof $50; contractor's profit if temporary roof had been laid on $67, leaving a balance after you take the $150 and $67 from the $475 of $258, which is all that was deducted in regard to Annette St. carpenter's contract; and Mr. Sexton was asked:

Q. Do you still say that your deduction is proper?

A.—I know I am conservative if you get an outside valuation—it was not a temporary roof, it called for the roof to be put on 2 x 4 scantling blocked up from the roof; the flooring alone if you count up the flooring, would be worth more than that ($475).

Q. And you, as a practical man, knowing the job, say there should have been $1280 deducted there, whereas the balance showed as being deducted here is $258?

A.—They have not allowed anything for taking off the roof and lowering the stuff all down, which is a big item in itself.

Q. You do not allow anything for the old lumber which the contractor would have taken away?

A. No, he is that much ahead; he has given them credit for it there.

Mr. Waste referring to Annette St. School said:

"My recollection is there was a net deduction made there of something near $300; two hundred odd dollars which was explained in my statement that it was based on an estimate of the cost of the

roof or the value of it and an allowance for the contractor's profit and some old materials he already had. The fact that my estimate and deduction in that respect was a moderate one, I fully realize, and I would like to submit to you some reasons why I just made it moderate. At the time that adjustment was made, during the time I had that under consideration, I had also under consideration some four other contracts with the same firm amounting to between fifty and sixty thousand dollars; some of these had been in dispute, some of the settlements had been in dispute for a longer or shorter time, and there were some very considerable claims which I could not allow them and which they thought they were entitled to. Some of those claims hinged on what we might say were rather close to points, points of interpreting specifications and drawings and interpretation of architectural terms, and I felt that while I was standing for what I thought was the Board's side of it I thought there were certain points connected with it which might have made Crocker & LeDrew feel they had fighting ground, and if they had taken that view of it and had perhaps gone into litigation over it they might have had a fair chance of succeeding. The largest item that was in dispute was, in connection with the Essex St. School where it hinged on the question of interpreting specifications and drawings. That item was a little over $900; that was the one that was most in dispute. Then in two or three of the schools they claimed they should be allowed the additional price for the difference between solid doors and veneered doors which I did not allow, and they claimed they should have been allowed for putting some trim to the window frames which they claim were architraves, and which I claimed were not architraves; and I think there was a question of some work they did to a very considerable extent as to whether it was included in the specifications, air and heatings altogether, and with the fact that I was endeavoring to arrive at a definite understanding with them, we arrived at a settlement covering all those things practically at

Upon turning up the account in Essex School to which the $900 referred to appeared under Waste at he had held it was not an extra and disallowed it

Q The discussion was whether it was a contract or an extra?

A.—Yes, that was not the only item there is an account there from Parkdale School which was recognized in the settlement $60, and there is one for $ which never recognized in the

settlement; and I think there was another school or two, I cannot be positive of the amount, similar claims that I would not recognize. I find that these items were all properly disallowed although from his evidence it appears that Mr. Wates took them into consideration in allowing the contractors a larger sum for the roof of the Annette St. School than what they were entitled to in Mr. Sexton's evidence.

Mr. Sexton also referred to the stone work in Annette Street School; he said:

"On page 7 of the specifications the heavy base is to be 14 inches on bed. On the building it is 8 inches. There is about 500 feet run of this base and there should be a deduction of about 350 cubic feet at the rate of $1.25 a foot; that would be $437.50; on page 7 the specifications call for the sills to be 15 inches and they are only six inches."

Q.—And there are about 460 feet run of sills which should have been 6 x 15 making a difference of about [illegible] cubic feet at $1.?

A.—Yes, that is $172, page 7 specifications call for all stone heads to be 12 x 14 on bed and on building they are 12 x [illegible] making a difference of 435 cubic feet at the rate of $1 per cubic foot. On page 4 it states that all joist-bearing walls for upper courses are to be corbelled and to be built in cement; there are about 2600 feet run of wall with extra material and labor a very conservative value would be $200. The walls at below the joists should be corbelled over.

Q.—And they are not?

A.—No; page 11 of the specifications, mason has to build two brick cesspools.

Q.—Was that done?

A.—No.

Mr. Waste referring to the stone work stated that the drawings and specifications for that job and the handling of it was largely in Mr. Webb's hands, he having been engaged as head draughtsman and practically in charge of that work in the office. He added that the difference in the size of the base was a question of the interpretation of the specifications, that while it is specified as 14 inches on the bed, Mr. Webb interpreted it "as being 14 inch stone which was quite ample and in accordance with all good practice for a stone for that kind of a place and for the purpose in every respect." In view of that Mr. Waste said that he made no deduction for the question of the base. When it comes to the question of the sills and heads Mr. Sexton makes a mistake in what he says the speci-

fication calls for. The sills for the first storey or middle flat were called for not of the size that he seems to refer to it in his evidence, but simply says the sills shall be sufficient width to set under the wood frame; also the window heads for the two upper storeys there is open to possibly a little difference of opinion as to what is called for there, but there is a little detail on the plan showing exactly how the stone heads are to be put in on the middle and top flat, just as they are done. That comes down to the question of the basement heads, and the heads on the ground floor, which if a person could measure them up on Mr. Sexton's basis might have made room for a deduction of about $100. In view of Mr. Webb's association with it and the interpretation that he put on it I concluded that I could not consistently make any deduction or do anything other than to allow that the contract for the stone had been carried out in a fair and proper manner.

Mr. Webb in his evidence stated:

I had the detail of the base made under the specification the way I would interpret it or any person else I should think. It said the base is to be 14 inches on the bed and it is.

Q.—Some of the window sill heads have been carried out too?

A.—Yes, they have all heen carried out excepting say the ground floor, and that was undecided; I had not it thoroughly threshed out; I said it was to be done to detail; I had not it thoroughly threshed out when they tendered on it.

Q.—Were those window sills carried out according to specifications?

A.—All the work of first and second floors were carried out right and not as Mr. Sexton says. His statements are wrong.

In connection with this I would suggest that the matter be goue into more thoroughly by the Department before the contracts are finally closed.

Mr. Sexton also gave evidence with reference to the mortar that was used in some part of the brick work at Arnette St. School. He stated that the bricklayer used loam, sharp sand and clay mixed in together in the mortar bed, that he stopped the job and it was stopped a week when Mr. Bayliss told him he would see that he was dismissed and Mr. Sexton thereupon saw Mr. Bishop personally and after a few days was told to let him use just a little. I said, 'If you want to do that you had better keep me alongside the mortar bed the whole time because if you do not the man is going to get two

or three loads of sand alongside of it and he is going to use the loam and I could not watch it, I would have to be away on other schools.

Mr. Sexton said 'You can rake the joints out, there is soft sand in it to-day and loam in it and clay, and I was told to let him use it.

Mr. J. A. Ellis, architect and a trustee of the Board of Education was asked:

Q.—Did you hear what Sexton said about that loam in Annette St. School?

A.—Yes, the loam was used as Mr. Sexton says—I think, I called Mr. Sexton's attention to it.

Q.—At all events there was some conversation you say in regard to that and you know it was used?

A.—Yes.

Q.—Can you say anything about the quantities?

A.—No, no more than judging from the appearance of the mortar in the building. A man accustomed to that work can form a pretty fair idea.

Q.—It was considerable enough to call your attention?

A.—Yes, and I simply called Mr. Sexton's attention to it because I passed there every morning, I used frequently to see him and I asked 'Why do you allow this'? I do not know what was done afterwards.

Mr. Waste stated:

There was a sample of sand brought to me by Mr. Cooper, the Chief Inspector, he brought me some sand and asked me what I thought of it; I examined two samples of sand; one of them was a very high grade of sharp sand and the other was, I should say a a good quality of softer sand, and in testing them one of the samples showed a trace of loam--I stated to Mr. Cooper that I would consider if that sand were used in the proportion of two parts of the sharp higher grade sand and one part of the other that it would make a good sharp sand and comply fairly with the specifications.

Q.—What is the result of your observation?

A.—That the work was carried out in a good workmanlike manner with a good quality of sand.

Q.—What about this loam that was mentioned as permeating the mortar?

A.—It was only a trace of loam in one of those samples. So far as any conversation he claims about loam I never did, or anything bordering on it.

Q.—You heard Mr. Ellis say he looked at it and he could see there was a good deal of loam; what do you think about that?

A.—I would say that I could not see a great deal of loam.

Q.—If there was loam there?

A.—If I went around the building and saw a crack that you could rake out with your finger tips or pencil because it was loam I think I would be able to see it, certainly.

Q.—The loam you observed, would that impair the efficiency of the mortar?

A.—No.

Q.—Would you pass the job as it is now if you were inspector on the job?

A.—I would.

Mr. Cooper in his evidence stated that he first drew Sexton's attention to the sand; that he went to the job and they were using all the soft sand, it was sand that was taken out of the basement and they were using that alone. He brought two samples down to the office and showed them to Mr. Waste, and asked his opinion on it. Mr. Waste looked at the two sands and told him at the time to use two of one with one of the other and it would make good mortar. Then Mr. Cooper said: 'While we were discussing the matter Mr. Sexton came into the office and that is what he told Mr. Sexton to do, to put in two loads of sharp sand with one of the other and it would make good mortar; and to see that it was done; he added that to it, to see that it was done.

Q.—How would you criticize the mortar as it is?

A. There is no loam in that mortar; all of the loam that is in that mortar does not amount to a hill of beans, there is soft sand, you won't get loam out there, it is soft sand and not loam. You can send any man you like to that job and he will tell you it is good mortar.

Q. You do not think the criticism made by Mr. Sexton and Mr. Ellis is accurate?

A. I do not think Mr. Ellis ever saw a bed of mortar made on the job; he saw it after it was made, but I doubt very much if he ever saw a bed of mortar made on the job. I took my knife when Mr. Craddock and I were up there recently and I went around the wall and tried to stick my knife into it and I could not do it, and Mr. Craddock saw me. I asked Mr. Craddock his opinion of the mortar and he said it was good mortar. The building has been there three years and if it had been poor mortar you would have seen it tumble out with the frost, and you cannot see a flaw in it.

CHARGES FOR EXTRAS. UNDER CONTRACTS.

Mr. Andrew H. Reid of Reid and Brown, contractors for structural steel, was examined in connection with a large number of extras in their accounts.

Q.—There are a great number of items of extras in your accounts?

A.—Yes.

Q.—How is that that there are so many extras, almost every contract there are large extras?

A.—Yes. The School Board would have us tender on the specifications and they would be continually altering some of the specifications, departing from them, they would take out some stuff and want something added on, but we tendered them a bill each time for that. They would ask us to put in some other beam in some other section and take out something and we would charge them with it and credit them.

Q.—It would not be the same as the contract price, when you were tendering, you would not tender at a lower item?

A.—No, we generally work it out pro rata what it would be, but if they ordered some steel specifications that we would get and work on last year and it was not finished till this year and came along and said 'we want this,' we would charge what we would have to pay for steel at the market price.

Q.—There would be a considerable difference in the price?

A.—Yes, because steel would be dearer and we would have to buy special sections. They never built their buildings to what they specified.

Q.—Why was that?

A.—I don't know, something wrong with the Department I suppose. We had some of the Schools the original specification we would figure on, there would be half as much again put into the school. Some of our extras were more than the original contract.

Q.—That is the reason I want to get some explanation; it would be a large increase in the price sometimes?

A.—Yes, assume last year we had a job then and we were not completed, and they went on and wanted to put something in this year they would pay more this year than last, we would figure just the same basis as if we were selling to anybody else in the open market.

Q.—That would be higher than a tender?

A.—It would just depend on how the steel business would be. If there was lots of business our price would be higher, and if there was not so much business we would be tendering closer.

Q.—I find the extras are made up of longer beams than what were ordered. Why was that?

A.—That might be caused by the plans and specifications not being satisfactory to the Architect's department.

Q.—The City Architect's Department?

A.—Yes, and the City Architect would not allow them and they would have to come to us and increase the size of the beam.

FORFEITURE OF DEPOSITS WITH TENDERS.

EARLSCOURT AND BROWN SCHOOLS.

Evidence was adduced that Messrs. Teagle & Son tendered for the mason work in connection with the erection of the Earlscourt School and Brown School. The Property Committee on the 13th June, 1910 recommended for acceptance both tenders, that of the Brown School masonry at $16,366. After the tenders had been opened and the amounts of same had become known to the various contractors tendering, word was received by Mr. Bishop that Orr Bros. tender for Brown School was a combined one and included the reinforced concrete as well as the masonry work and put in together at $21,494. Mr. Bishop and Mr. Waste thereupon consulted with Mr. W. H. Smith the Chairman of the Property Committee as to same. On the following day, 14th June, after consultation with Mr. Smith, Mr. Waste telephoned Orr Bros. with reference to the same and they stated that the masonry tender was $16,354, and the reinforced concrete $5,140, making a total tender of $21,494; whereupon either a special meeting of the committee was called prior to the Board Meeting of which no minute was made to consider same or the Chairman of the Committee on his own initiative carried the tender of Orr Bros. at $16,354 for the mason work into the Committee's report in the place of Teagle & Son's and reported it to the Board and that was accepted on the 16th day of June, 1910. Before this was done a letter had been received by Mr. Bishop from Orr Bros. dated 14th June as follows:

"Dear Sir,—In answer to your inquiry re the Brown School, "Avenue Road, prices for the reinforced concrete using the expanded metal" and Fairgrieves and Co.'s drawings and specifications which "was the system used in the present school was $5,120, masonry "$16,354.

Yours truly,
(Sgd). CRR BROS., Ltd.,
ALEXANDER ORR."

This letter showed the tender for reinforced concrete as $5,120, which being deducted from the $21,494 combined tender originally sent in would leave $16,374 for the masonry or $8 over Teagle and Son's tender. Upon the production of Orr Bros.' tender book it was shown that the reinforced concrete and masonry totalled $21,474 although their tender was $21,494, apparently there was a change in the figures, the "54" being originally "74." The tender book also showed that the reinforced concrete $5,120 included cut stone and concrete floors.

The cut stone forms a part of the masonry and has nothing whatever to do with the concrete floors and if that amount had been taken from the $5,120 the tender of Orr Bros. would have been a great deal higher than that of Teagle's. The cut stone contract amounted to $1800 which with the $16,354 would amount to $18,154. In consequence of the Board accepting the tender of Orr Bros. for this work, Teagle and Son refused to carry out the work on the Earlscourt School, their tender for same having been accepted by the Board.

The Board thereupon advertised for new tenders for the Earlscourt work and accepted a tender for $1161 higher than the amount of Teagle and Son's tender.

Prior to this Teagle & Son had a contract for the Harlord Collegiate Institute and there was a balance due to them on account of same but the Board claimed to set off the $1161 against such balance, the result being that an action was brought by Teagle & Son for the recovery of the amount due to them, and the Board defended same on account of the $1161 which they were compelled to pay by reason of Teagle & Son refusing to carry out their contract. The Trial Judge held that Teagle & Son were entitled to the amount of their deposit money held by the Board, that they were not bound by the tender which they had made on the Earlscourt School, and therefore they were entitled to the balance

properly due on the Harbord Collegiate contract; the result being a loss to the Board of Education of $1161 together with the costs paid their solicitor and their disbursements and a large loss to Teagle & Son for their costs in connection with the matter all of which could have been avoided had the officials looked into the matter properly.

TENDERS FOR CALEDONIA ROAD SCHOOL.

On the 31st March, 1911 Mr. Hutchinson put in a tender for the carpenter work on the Caledonia Road School for $17,555, which was accepted by the committee on the same day when all the tenders became public property. Subsequently on the 3rd April, Mr. Hutchinson wrote a letter to the Chairman of the Board saying that he had made a mistake in his tender and requesting that he be allowed to withdraw it without insisting upon forfeiture. The Board permitted him to withdraw his tender and accepted the tender of Frank Armstrong for $20,856, being $3,301.00 higher than Hutchinson's. It was shown in evidence that immediately or shortly afterwards there were dealings between Frank Armstrong and Hutchinson with reference to lumber which Hutchinson purchased some time before and which he delivered to this School at the request of Armstrong under agreement to purchase same. Upon the evidence of Armstrong and Hutchinson, I find there was no corrupt bargain between the two as to the tenders. The solicitor for the Board at that time gave his opinion that a forfeiture could not be demanded under the circumstances.

In connection with these forfeitures of deposits I would recommend that all persons tendering sign a form of tender similar to that now in force in connection with the City Works, such form to be as follows:

To the Chairman and Members of the Property Committee of The Board of Education.

I..... ....declare that..... of lawful age and the only person interested in this Tender; and no person other than herein named has any interest in this Tender or in the Contract proposed to be taken.

2. Further declare that this Tender is made without any connection, knowledge, comparison of figures or arrangement with any other person or persons making a tender for the same work, and is in all respects fair and without collusion or fraud.

3. Further declare that no member of the Board of Education or any officer thereof, is, shall be, or become interested directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise in or in the performance of the Contract, or in the supplies, work or business to which it relates or in any portion of the profits thereof, or of any such supplies to be used therein, or in any of the moneys to be derived therefrom.

4. Further declare that the several matters stated in the said Tender are in all respects true.

5. The undersigned having carefully examined the specifications, plans, drawings, general conditions form of agreement and bond relating thereto, and all the clauses in the Specifications hereby accept the same as part and parcel of this contract, and do hereby tender and offer to enter into a contract, to supply and do all therein called for, on the terms and conditions, and under the provisions therein set forth for the total bulk sum of

($.....

6. If this Tender is accepted, the undersigned agree to furnish approved sureties for the proper fulfillment of the Contract as required under the terms of the Specifications and to execute the Agreement and Bond in triplicate within six days after being notified so to do by the Board's solicitor. And in the event of default or in failure on.....part so to do.....agree that the Board of Education shall be at liberty to retain the money deposited by ..... to the use of the Board of Education and to accept the next lowest or any Tender, or to advertise for new Tenders; or to carry out the works in any other way they may deem best; and..... also agree to pay to the said Board of Education the difference between this Tender and any greater sum which the said Board of Education may expend or incur by reason of such default or failure, or by reason of such action, as aforesaid, on their part, including the cost of any advertisement for new tenders; and to idemnify and save harmless the said Board of Education and their officers from all loss; damage, cost charges and expense which they may suffer or be put to by reason of any such default or failure on part.

And......agrees that the awarding of the Contract based on this Tender, by the Property Committee of the Board of Education shall be an acceptance of this Tender without communication or notice thereof to

And.. ...propose Mr ....
of the City of Toronto, and Mr. ....
of the same place, as sureties, who are willing to become bound with the undersigned for the due performance of the Contract, for which this is a tender.

Contractor's Signature.... .. . .

Witness . ...

The undersigned hereby offer to become bound for the above named Contractor in the usual bond for the fulfillment of the above mentioned Contract if awarded to

Signatures of Sureties..... ....

....

....

Witness.. .. ..

The Deposit accompanying this tender is $.........

Dominion of Canada, County of York, To Wit.	In the matter of a proposed Contract for

Do solemnly declare that the several matters, stated in the above tender are in all respects true.

And make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of "The Canada Evidence Act 1893."

Severally declared before me at the City of Toronto, in the County of York, this day of 191 .

A Commissioner, etc.
or Notary Public.

HAM AND REID'S CLAIM FOR EXTRAS ON THE MANNING AVENUE SCHOOL CONTRACT.

Mr. Isaac Reid of the firm of Ham & Reid, who obtained the contract for the Manning Avenue School, stated in evidence that when he figured on the contract the words with reference to removing the soil from the yards were not in the specifications.

Q.—Do you remember this specification for the Manning Ave. School?

A.—Yes.

Q.—Is there anything that you have been called on to do in connection with the contract that was not in the original contract?

A.—Well, about it being in the original contract, I am not prepared to say that, but we were called on to remove a pile of earth there which you will find there interlined in the specifications that was not there when we figured the job.

Q.—Was it in the specifications?

A.—No, not when we tendered on the job.

Q.—What will it cost to remove that?

A.—It will cost 70 cents a yard to remove it.

Q.—How many yards?

A.—It figures out to 2300 yards.

Q.—You found this clause which was not in the specifications which were given to you to figure on; 'The present old building will be removed—including moving the heap of earth at the rear'—that appeared subsequent to your being here to figure?

A.—Yes.

Q.—And you insist that that is an extra, that $1,400 or $1,600?

A.—We have not asked for any extra.

Q.—I understood you to say you were going to ask the Board for that?

A.—We are thinking something about that.

Q.—The former tender I think required that to be graded?

A.—Yes.

Q.—I suppose if you had been tendering on the basis of this tender as altered you would have increased your tender by sufficient to remove the earth?

A.—Yes sir.

Q.—And when you did originally tender you had no knowledge of this?

A.—No—we knew the earth was there but the specification did not call for it to be removed.

Q.—Do you intent to insist on payment?

A.—We thought of asking them to meet us half way or something of that kind in the matter; we are not sure yet what we will ask them to do—we have not satisfied ourselves what we would think of doing; the contract was let to us, you will see there in 1911, and we were not allowed to start till 1912, and material in the way of bricks would cost us a dollar a thousand more than what it was the day we figured.

Q.—You intend to make that an extra too?

A.—We possibly may.

Q.—When did you first observe this?

A.—I think in signing up the contract; I think I spoke to Mr. Hodgson and Mr. Waste—the gist of it was this, that they did not want to quibble about the thing when it was that far advanced.

Q.—Had you started your work when you saw that?

A.—I think we had; I am not sure whether we had or not.

Q.—What did they agree to do in the matter?

A.—They did not agree to do anything in particular.

Q.—What was the conversation with Mr. Waste in connection with that?

A.—I could not tell you, not to be sure, I think I understood that it would be all right, we were to go on with the job and the thing would be fixed up all right; Mr. Hodgson and Mr. Waste was there at the time we signed the contract.

Q.—You objected to that?

A.—Yes, I raised objection to that article being in there, that it was not there when we figured on the job; I think if you will look our figures up you will see it is not in there.

Mr. Alexander Orr, who was the contractor for the original building, stated that he received instructions from Mr. Bishop to pile the earth up in a heap to fill in the basement of the old school.

Q.—In the result what did happen?

A.—In the result they build another building. I do not know what they call it, a manual training school, that took quite a lot of earth, and they had too much then—there was quite a hole left outside the building.

Q.—And that was to be filled up?

A.—That was to be filled up with the surplus earth out of that place.

Q.—You were not to do that?

A.—No, it was to be left there for whoever was to do it.

Q.—When you tendered for that second job did you figure on how much it would cost you to move that pile of earth?

A.—Yes.

Q.—How much did you estimate it?

A.—$1,400.

Q.—How did you tender to move that pile of earth?

A.—The first time there was nothing in the specifications about this earth, but the second time when they called for tenders the second time I knew this earth had to go away, but I was not asked anything about it; I wanted to have an extra for myself, you understand, for the teams in the winter time, that is if I got the job; but when they called for tenders the second time then I added that to my first tender, $15.000, I added 1400 odd dollars; that was for removing this earth, because the second time it was specified and the first time it was not. I mean in the second contract.

Q.—Have you your specifications, because Reid says not?

A.—Reid cannot say that, because I saw where Reid init'alled opposite when he came in to sign for it—there is one up in the office there initialled, I saw it.

Q.—How do you happen to know this?

A.—I was particularly interested and I certainly was watching him that he was not getting away with anything.

Mr. Waste in his evidence said that he knew of the circumstances and knew how it was taken up in the office, and in tendering, and he claimed that Mr. Reid and his partner understood at the time that they were to remove the earth.

Mr. Webb, the head draughtsman in the department, stated that he remembered the tenders for the second contract in Manning Ave. School.

Q.—Do you remember there was a difference between the first specification and the contract ultimately signed, is that your writing, that interlineation?

A.—Yes.

Q.—When was that put in?

A.—That was put in before the tenders were received, the final tenders—some times we would be forced to put things in.

Q.—How could you be forced to put things in?

A.—In a case of this kind.

Q. How did that arise, the necessity for the interlineation?

A.—I happened to notice there was a heap of earth there that needed removing, and I thought it would be well to have it in the contract. I know it was before the last tender was received.

Q.—Do you know whether it was before the last request or last advertisement for tenders?

A.—No.

Q.—You do not know whether it was in the copies seen by anybody that answered that advertisement with a view of tendering?

A.—They all saw it.

Q.—Do you know they all saw it?

A.—Yes, all those that tendered I kept track of the names.

Q.—Do you know that Reid saw them?

A.—Yes,—he certainly did.

Q.—Do you know his specification had that clause in?

A.—I do, because they all had that in.

Q.—You are quite sure of that as opposed to Reid who said that it was not in?

A.—Yes.

Q.—You say Reid saw that and took a copy of it with him?

A.—Yes.

Q.—Is it initialled by Reid?

A.—Yes, it is initialled twice on the same sheet.

Q.—That is at the time he entered into the contract?

A.—Yes.

Upon the above evidence I hold that Ham & Reid have no claim upon the School Board for an extra in connection with the removal of this earth.

BROWN SCHOOL EXTRAS, ORR BROTHERS CONTRACT.

My attention was drawn to the account of extras rendered by Orr Brothers in connection with their first contract for mason work on the Brown School, amounting as rendered to $2,046.05 and allowed by Mr. Waste at $1,509.82, and I accordingly requested the Board's Chief Inspector, Mr. W. G. Cooper and Mr. I. Reid (Ham & Reid) to measure up the quantities charged for and report on same. This was done and subsequently I requested Mr. Waste to give me any explanation he desired in connection with the account and report.

Before doing so he wished to have a conference with Messrs. Cooper and Reid to which I acceded and on the 16th December, instant; he came before me with Messrs. Cooper and Reid and handed me a letter which he had drawn up and stated that they were willing to sign same if I said it was in order for them to make a statement as to whether the adjustment was as stated in the letter, a fair one. The letter reads as follows:

Toronto, December 16th, 1913

To His Honor Judge Winchester,
County Court Chambers
City Hall, Toronto.

Dear Sir,—Referring to our report of July 7th last re masonry contract at Brown School, we beg to say we have taken up the various items further where differences have been found between our quantities and those in the adjustment as allowed by the Board—most of these differences are not large and are such as will always arise between different people making such measurements. The main items of the differences are two in connection with the large vent stacks and the back wall. Mr. Waste has explained his interpretation of the work and plans in respect to these items and the circumstances in regard to the deductions which he made in the adjustment.

In the light of these interpretations and explanations our conclusion is that the net amount of $1,509.82 allowed to Mr. Orr out of the claim of $2,046.05 is a fair and equitable adjustment and entirely fair to the Board of Education.

Yours respectfully,

As I had not suggested the making of any statement in regard to the matter I examined the parties as to same.

Mr. Waste on examination stated:

Q.—I did not suggest they should make any statement to me in regard to the matter, did I, Mr. Waste?

A.—You did not instruct me in that way.

Q.—You asked the liberty to go over the account before explaining it with Mr. Cooper and Mr. Reid and I gave you that liberty, is not that it?

A.—Yes, I think that is right.

Q.—And you have gone over the accounts with both of them?

A.—Yes.

Q.—They have given you an explanation as to how they arrived at their reports?

A.—Yes.

Q.—And their explanations are that there was a difference in your allowances from what they found on the measurement?

A.—Yes.

Q.—In your letter, however, you asked them to say that they agreed that your account and your payment was satisfactory?

A.—I did not ask them to say anything, your Honor.

Q.—In the light of these interpretations and explanations, our conclusion is that the net amount of $1,509.82 allowed to Mr. Orr out of the claim of $2,046.05 is a fair and equitable adjustment and entirely fair to the Board of Education'—you asked them to sign that?

A.—I have not asked them to sign it in that sense—I simply asked them if that was a correct statement as to the conclusion they came to.

Q.—And they have refused to sign?

A.—They said that they only wanted to know what your pleasure was; whether it would be in order to submit a statement of that kind.

Mr. Reid In his examination stated:

Q.—You have gone over the items of Orr Brothers extras and have put in a report?

A.—Yes sir.

Q.—Your report is honest and fair and reasonable?

A.—Yes sir.

Q.—You find that different from the amount that was allowed to Orr Brothers by Mr. Waste?

A.—We find the difference just as it is stated there.

Q.—That difference is this: Item No. 8, Instead of being an extra, you say it should not have been allowed; instead of that there should have been a deduction for 10,376 bricks?

A.—Yes sir.

Q.—That is correct, is it?

A.—Yes sir.

Q.—At $20, a thousand that should be?

A.—Well, we should think so. Of course that would be my estimation of what it would be worth at that time; that is some two

or three years ago and bricks then were not the price they are now.

Q.—That would be $272.50 at that rate—is that correct?

A.—That would be correct.

Q.—Then item No. 11 you state that there is a claim for 3,773 bricks in back wall. You find there is 972 less in revised plan than in original drawings, so that instead of an extra there should be a deduction to the extent of 972 bricks?

A.—Yes.

Q.—At $20.a thousand?

A.—Yes, at same rate.

Q.—Then in item 18 you find that the amount charged for as an extra 9,500 should be only 6,000, and that should only be allowed?

A.—Yes.

Q.—Then in item 22, the extra charged for there is $76.00; how much did you say that it should have been?

A.—It would be $19 less according to that; we did not set a price on.

Q.—I understand that $19 less?

A.—Yes.

Q.—Items 23 and 24 are not extras?

A.—No.

Q.—Items 25 and 26 which cover one item is $202, and you say that is an extra and should be allowed at that rate?

A.—Yes.

Q.—You have added: 'Footings for columns in basement are specified to be three feet below the level of the basement floor, we find they are eight feet seven inches deeper and twenty one-inches square making sixty-eight cubic feet not charged for.' That is correct?

A.—Yes.

Q.—How much would that be worth a foot?

A.—That is not brick work; that is concrete; well, 25 cents a foot. I think you will find in their asking for extras they ask for 25 cents a foot .

Q.—That would be $17 in addition to that?

A.—In all other respects you find it correct?

A.—I find it correct.

W. G. Cooper being examined was asked:

Q.—You have gone over it with Mr. Reid and you corroborate his statements with reference to these items?

A.—Yes.

Mr. Reid upon being further examined gave the following evidence:

Q.—Have you gone over all these amounts with Mr. Waste to say exactly what he took off and allowed?

A.—It shows for itself that he took off some $500 off the whole.

Q.—Have you gone over these items to show how he took them off?

A.—No.

Q.—Are you in a position to state whether that is a proper adjustment or not?

A.—I think it amounts to near—no, as far as I could see from what we have taken in measurements and deducted from what he has taken off I don't think the difference amounts to but very little.

Q.—Did you go over to it see?

A.—No.

Q.—Therefore you could not tell until you went over them what the difference might be?

A.—There might be a difference this way or that way—I don't think there would be over $100 or $200 anyway—I would like to compare the figures. How much of a difference does our figures make? That is the question.

Q.—On No. 8 Mr. Waste has allowed them $22.86 and you have a deduction there of $207.52? That would make that $230.38 difference between you two; you follow me, Mr. Waste?

A.—Yes.

Q.—No. 11 he (Mr. Waste) has allowed $48.73, and you have deducted $19.44, that would make $68.17 of a difference. Then, 3500 bricks at $22.50, that would be $78.75 difference. Then the other item is the main one; that was charged at $313.20 and you have allowed $257.00 and Mr. Waste has allowed that at $160; that is, you have given him $97 more than what he was allowed on that. You have deducted $377.20 off the account and you have allowed $97 plus $17, that is $114.00; leaving $226.20. That is right?

A.—That is right; that report is right; we will stand by the report we brought in as right.

Mr. I Reid, being examined by Mr. Waste, said:

Q. You have heard what I have represented to His Honor of what occurred in our discussion of this and the conclusion which I understood we had all come to; the manner in which I mentioned, should I prepare a draft of the conclusion and that you instructed me to do that?

A.—It would look to me from my observations that Mr. Waste was inclined to be fair to the Board and fair to himself and all in settling that account without going into the measuring up of the thing—probably I think if the thing had been measured up and all gone over probably Orr Brothers would have got a little more; that is the idea but I think Mr. Waste was inclined to be fair to himself and fair to the Board and that is my impression from what I can see of it.

MR. WASTE TO MR. REID AND MR. COOPER.

Now I would like you gentlemen to state to His Honor whether you think my interpretation, as I explained to you there about those shafts where I thought that they should not be calculated at a greater thickness of wall than 14" above the ceiling joist, that when I explained that to you did not you think that was a fair interpretation on my part?

MR. REID:

That interpretation may be fair enough but a man figuring a plan, the plan is there and he figures on what is there. The interpretation may be all right and he might if he was awarded the contract he might when he come to build it, he might say to the architect or say to whoever was supervising the job that a 14" wall was quite sufficient and was all within it and all that sort of thing and be allowed to do it but when he is figuring on a job, if it calls for an 18" wall and measures 18" he is surely going to pay for it.

Q.—In the figuring there you will notice when we were discussing it this morning that those plans are very roughly sealed, and as I pointed out to you in our discussion of that part of the wall it is what is called a roof plan and that the scaling in any case is very rough and that you might have called it more and you mignt have called it less, and that there would have to be a reasonable interpretation?

A.—That is true.

Q.—I only want to remind you that you agreed in that interpretation

A.—We in measuring out measured what was there.

Q.—Now, the other principal point, because in this I mention only two principal points—in regard to the back wall where you measured the omission of certain parts of it and I explained to you

how I had interpreted that part of wall, considerations in regard to certain angles and piers that were built there and I understood that you agreed in that as being a fair interpretation although it does not appear in your calculations?

A.—The rule of measurement of course allows a contractor half-openings up to a certain extent but in this case that opening—the effect of that as a matter of fact is that the wall does not begin in this case until it gets up to a certain portion of a certain place. In the original plan of course it started from the foundation up but in this case it stands up on iron beams.

A. D. Waste was further examined as follows:

Q.—Were these items measured up and checked off by you before the settlement with Orr Brothers?

A.—Not by myself personally.

Q.—By any person with you?

A.—By Mr. Simpson.

Q.—Where are his measurements?

A.—I could not say.

Q.—Did he make a report in writing?

A.—No report in writing.

Q.—You had never any report in writing from Mr. Simpson?

A.—No, not from Mr. Simpson.

Q.—You have not measured these by yourself and you have not any memo. showing how they were arrived at?

A.—No, I have no detail.

Q.—You have every confidence in Mr. Reid and Mr. Cooper?

A.—Yes, most assuredly. And then the point I was going to call Mr. Reid's attention to in regard to that opening I made allowance on the basis of proportion there.

Mr. Waste: (to Mr. Cooper).

Q.—The only point of difference between us at all is this—as a matter of fact under your former instructions you did not consider what was the final conclusion from all these measurements?

A.—No, our instructions, as I understood them, was to simply measure the thing up and see what was there.

Q.—In this discussion this morning that side of it was taken up, and in view of all the differences there was your conclusion was at that time—am I correct in saying that your conclusion was that it was a fair judgment?

A. Oh, yes, I myself would say that.

Q. What from?

A.—Well, from the figures you had; you worked from the figures you had.

Q.—From the whole circumstances that was your conclusion?

A.—Yes, from the figures you had it was a fair adjustment.

In my opinion the items of extra were not measured up properly before the account was settled and had they been measured correctly the allowance to Orr Brothers would have been $226.20 less than what they were paid under Mr. Waste's certificate.

WORK PAID FOR BY THE BOARD AND WHICH SHOULD BE PAID FOR BY CONTRACTORS.

The evidence showed that contractors in carrying out their work put fellow contractors to expense in connection with the work which they were doing; as an example: George White, who had a contract for plastering at Humberside and Earl Grey Schools, in his examination referring to extras, stated:

Q.—They (extras) were not in your contract?

A.—Several of them were not in my contract.

Q.—What were they occasioned by?

A.—Of course there were a good many occasions we were finished before the other trades were finished, and then they came along and damaged our work. I patched several places twice before that.

Q.—Some other trade would come along, say heating?

A.—Yes, and the iron stairs men.

Q.—They came along and destroyed your work?

A.—Yes.

Q.—Did they make good after doing that?

A.—They made their work good, but we had to go over and make ours good.

Q.—And you had to do that, and you have charged it as an extra?

A.—Yes.

Q.—That was $34.55, in November, and $32.85; do you remember those items?

A.—Yes.

Q.—Iron stairs work being done over again, $7.60?

A.—Yes.

Q.—Frankland, the iron stairs man $35.20, and electrician $10; and $6 item on Fern Ave.; those are right?

A.—Yes.

Q.—Do you remember the Ogden and Huron St. Schools?

A.—Yes. I had to do the ceiling on the roof over again.

Q.—On account of the leaking?

A.—Yes, there came an awful storm while we were on the work and went through and washed off some of the ceiling.

There were other accounts which were rendered as extras in the same way. These extras do not seem to have been charged by the Department against the contractors whose fault occasioned the extras thus charged the Board.

SUMMER REPAIRS AND ALTERATIONS.

A statement was produced from the Department setting forth the amount expended in connection with the summer repairs and alterations to schools during the years 1906 to 1911, amounting to $265,539.37.

The greater portion of this sum was tendered for by contractors, but a very large portion was done by day labour and materials provided by the contractors, and the evidence shows that there was little or no supervision over the work so done by the various contractors on the part of the Building Department. In many cases the number of hours were not even mentioned in the accounts, in other cases larger rates were charged per hour by a contractor in the same business than by another contractor. Until within the last two or three years no attempt was made to check up the time or material on these repairs. Since then an attempt has been made to have this done by the appointment of certain district inspectors, but clearly their work has not been carried out as it should be, as the evidence showed that hours were charged beyond the number actually occupied in connection with some of the work.

In my opinion the Board has lost very large sums of money in connection with the repair accounts which if the officials had been more alert and had a better business system been used in looking after same, would have been saved to the Board

ACTION OF PROPERTY COMMITTEE.

In the fall of 1911 a sub-committee was appointed by the Property Committee to investigate the Building Department, such committee being composed of Messrs. W. O. McTaggart, J. A. Ellis and R. B. Fairbairn. The Committee after conducting an investigation into the methods of the Building Department reported that they were unanimously of the opinion that the present methods were decidedly unsatisfactory. Building operations were prolonged an unreasonable time, involving considerable expense and a disorganization of the schools immediately concerned. They attributed this to the enormous increase of the work in the Department and to the policy of the Board which has been not sufficiently aggressive, or in other words practising false economy. This report was dated the 29th September, 1911 and on the 26th October following a further report was made by this sub-committee, setting forth a statement of the conditions which they found in a number of the schools. Inasmuch as this report has already been before the members of the Board of Education I do not go into it more fully. As a result of these reports the Board decided to appoint an architect under Mr. Bishop in connection with the new work and a Sanitary Engineer was also appointed. In giving evidence on this report Mr. Ellis was asked:

Q.—You know of School buildings and you know what in other cities they are getting for the money they spend in school buildings; can you say in a general way, have we been getting as good value for the money in our city as in other cities?

A.—No, not for our money.

Q.—You know something about this business?

A.—Yes.

Q.—You are an architect?

A.—Yes, our firm.

Q.—You say we have not been getting the value of our money here that we should?

A.—I am speaking up to the time that we had the new architect appointed; I do not attribute that to any fault of our officers; it was simply the men were endeavoring to do more than they could do; their organization was not right.

In my opinion the result of the action of the Board on the Property Committee's Report has not helped the Department in its business management.

CONNECTION OF OFFICIALS WITH OUTSIDE MATTERS.

During the investigation it was ascertained that Mr. Bishop had a large share in the stock of the Central Electric and Supply Co. previous to the year 1904 when the High School and the Public School Boards were amalgamated and the supplying of the high schools with electrical and other instruments was transferred to Mr. Bishop's department. He considered it was not advisable that he should be known in connection with the company and assigned his shares to his brother-in-law in trust. The company tendered for supplies to the Department from 1904 to 1910 inclusive, the volume of the business received by them from the Board being a little over $5000 during those years. In 1910 that part of the department which covered the supplies was transferred to Mr. Wm. Kerr, Clerk of the Supplies of the Board. He received a tender from the company in that year, but it being too high, was not accepted. Subsequently the company went out of the School supply part of their business and had nothing further to do with the Board of Education.. During all this time Mr. Bishop was not known to have anything to do with the company, and he took every precaution to keep to himself the knowledge of his connection with it, Thus showing that he was aware that it was improper for him to be connected with a company having business to do with his own department —not only did he transfer his interest in trust but the dividends received by his brother-in-law from the company were paid to Mr. Bishop in bank bills not in my opinion to save bank charges as stated by Mr. Bishop, but to prevent discovery of his connection with the company. Had it been for the purpose of saving bank charges the endorsement of the dividend cheque payable at Toronto would have saved all such charges.

While the amount of sales to the department might not be large, it should be considered that it is an advertisement for such a company to be able to distribute their goods among the schools throughout the city.

The only way in which Mr. Bishop could possibly have been benefited was through any profits that the Central Electric and Supply Co. could have made in connection with their business with the Board, and that in my opinion was very small in comparison with their general business.

It was also given in evidence by Mr. Bishop that during the past four years he had invested sums of money at various times in

the purchase of property in the outlying districts of the city, but not nearer than within a quarter of a mile of any school,—he made some thirteen different purchases. As Mr. Bishop states that a considerable part of his time was for the last four or five years taken up purchasing the property for the School Board and recommending sites for schools, the question is one that should be brought to the attention of members of the Board of Education. Mr. Bishop stated in giving evidence with reference to his purchase of the real estate that he could have become very wealthy had he chosen to take advantage of his position in the purchase of property for the School Board, but that his interest was "a long second to the Board."

He and Mr. Waste were interested in the purchase of certain of these properties.

It was claimed that Mr. Doughty, Heating and Ventilating Engineer of the Board, had drawn up plans and supervised construction of buildings during the time of the Board. Mr. Doughty was examined as to this and while admitting that he had drawn three or four plans during the evenings for some neighbors he did nothing whatever in connection with same during the Board's time; it was all done in his own time.

It was also shown that Mr. Charles Wilkes, caretaker of the Technical School demanded and received $5 from the Fred Armstrong Co. for assisting them in connection with their work at the school after hours, that some years previously he had received $9 from the Painting Contractor at Louisa St. School in connection with his work. It was also shown that the Fred Armstrong Co. had presented Mr. Carscadden caretaker formerly of Dufferin School, a reading lamp at Christmas some years ago.

I found no evidence to show that any of the officials received any benefits from contractors doing business with the Board.

REPORTS OF MESSRS. DOUGHTY AND JOHNSON, AND OF MESSRS. JOHNSON AND ENTWISTLE.

Messrs. Doughty and Johnson in their report showed shortages and variations from the specifications and the report of Messrs. Johnson and Entwistle showed the estimated value of such shortages.

BROWN SCHOOL.

The shortages of radiation in this school was reported as being 1601 sq. ft. of radiation, shortage of 2 radiators, automatic water feed not installed, smoke pipe made out of No. 14 gauge iron instead of No. 10 gauge charcoal iron. The specifications call for mica covering in canvas, where directed or necessary by the architect. Mains and branches leading from header on boiler covered with mineral wool; paper cased and whitened. Mains leading to exhaust shafts, lavatories and corridors not covered, pipes painted.

Contractor: J. R. Seager. Estimated loss on shortages $468.63.

DEWSON STREET SCHOOL.

Total shortage of radiation 1774 sq. ft. Specification called for steam mains and returns to be fitted with valves, so that all direct radiation could be cut off, leaving the indirect coils and the coils in vent shafts working, and so the indirect coils or the coils in the vent shaft could be used independent of each other. No valve on steam main to control the direct radiation as specified. Specification calls for all pipes to be covered where necessary or directed by the architect with mica covering in canvas.

No covering has been placed on steam pipes. Thermostat value on radiator in Manual Training Room has not been connected up to control system. Indirect coils in fresh air rooms; Specification calls for indirect coils for each group of flues to be fitted up in two sections, so that one or both may be used.

These coils have been fitted up in two groups but cannot be operated separately as they are fitted up with one pair of valves in place of two pair of valves.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $442.21

DUFFERIN SCHOOL.

Total amount of shortage 127 sq. ft. of direct radiation, a total amount of indirect radiation more than specified 99 sq. feet, making the total amount short 28 sq. feet.

Pump and receiver installed different from that specified. Housing constructed of No. 13 gauge steel instead of No. 10 Foun-

dation for engine is not capped with stone as specified. Engine bolted to brick foundation. Blower housing set on brick with wood capping. Pressure on coils and radiators in halls, etc., has a pressure of 35 to 40 pounds on them in place of a low pressure of about 3 to 5 pounds. Mains and returns are not run according to size marked on blue prints. No catch basin installed for drip from exhaust head to empty into or blow off from boilers.

All galvanized iron, horizontal ducts in basement, also all the machinery to be painted and finished in accordance with the colors selected by Architects. Horizontal ducts in basement kalsomined instead of painted.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $172.01.

FRANKLAND SCHOOL.

Shortage of radiation 1787½ sq. feet. Drip pipes from air vents on radiators not extended to basement. Specifications call for all pipes in basement to be covered with asbestos or mineral wool covering in canvas, seven rooms in basement not covered.

Contractor: J. R. Seager. Estimated loss on shortages $477.39.

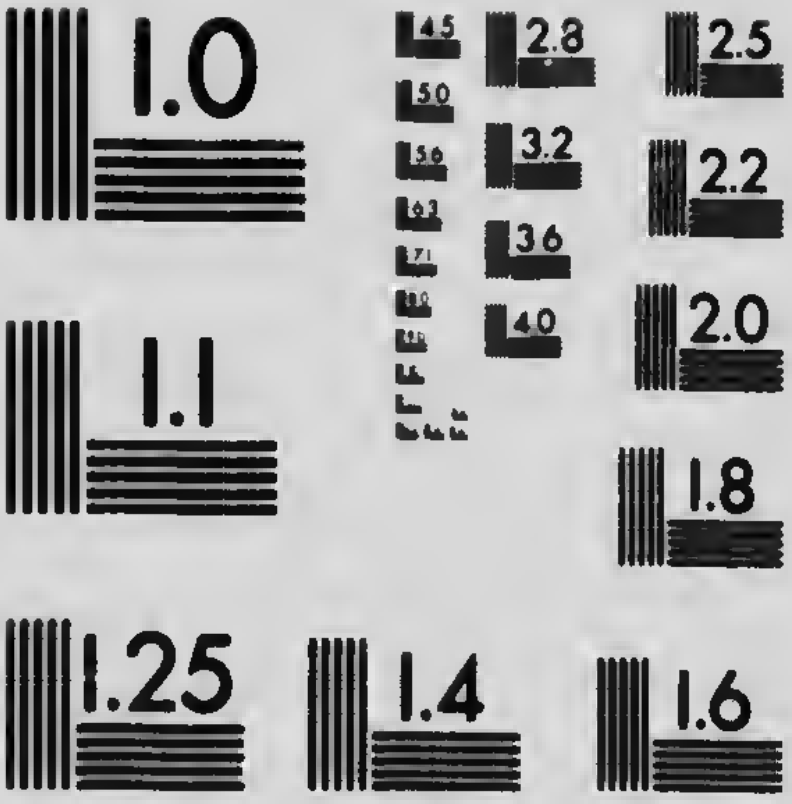
KENT SCHOOL (1907 Contract).

Shortage of radiation 1720 sq. feet, boiler installed different from one specified, and is 2 feet shorter and has two 3 inch-tubes by 16 ft. less than specified, boiler grates different from those specified, no automatic water feed. No covering has been put on any of the steam pipes in portions covered by this contract, although mica covering in canvas is specified to be placed where necessary or directed by architects.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $367.05, but see page 137 of this report as to settlement of this shortage.

KENT SCHOOL (1909 Contract).

Total amount of radiation short 3097¾ sq. ft. The smoke pipe 12 gauge installed instead of 10 gauge, Automatic water feed not installed, blow off tank fitted up contrary to plumbing by-law and



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

not as specified. Over flow is not of sufficient size to carry off the water discharged into the tank. Cut out valves as specified have not been placed so that class rooms may be cut off, and the coils in halls and ventilating shafts used separate from the other radiators. To follow out the intent of specifications it would require separate steam and return mains to feed halls and ventilating shafts, fitted with valves to control these independent of the mains and returns feeding class rooms.

Feeding pipes for the ventilating shafts are specified to be carried up outside the shafts and enter the radiators at the top. This has not been done. Indirect stacks, not installed according to specifications. Exhaust steam cannot be used on indirect radiation only on account of 6 inch valve being left off low pressure steam at the header. With this valve not being on it allows the exhaust steam to pass into mains feeding the direct radiation and exhaust shaft coils. Pressure reducing valves between the boilers and direct radiation not installed as specified No pipes covered although specifications require same to be covered with mica covering and canvas where necessary or directed by the architect.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortage $1234.07. But see page 137 of this report as to settlement of this shortage.

KING EDWARD SCHOOL (1902 Contract).

Shortage of radiation 1104 sq. feet. No covering done under contract of 1902 although specification calls for same. The pipes were covered about 4½ years ago with asbestos sectional canvas cased in certain places.

Contractors: The Fred Armstrong Co. Ltd. Estimated loss on shortages $240.26.

KING EDWARD SCHOOL (1907 Contract).

Monash air vents were removed and Jenkins automatic air vents installed and drip pipe run from these air vents and connected to present air pipes on first floor. The specification calls for Monash four way drain air valves No. 6 on all radiators with drip pipes for these pipes carried to basement.

Shortage of radiation, 448 sq. feet.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $103.12.

LANSDOWNE PUBLIC SCHOOL (1908 Contract).

Specifications were amended in June 11th, 1908 and called for the contractors tendering to submit full detailed description of the apparatus they proposed to use and indicate on plan the layout of the system. Specification does not ask for any other system of heating. The system installed is altogether different from the one specified. System installed is known as Mechanical Hot Blast system of the Plenum Chamber type, except the halls, Principal's office and cloak room on second floor which are heated by direct radiation. Also corridor and two lavatories in basement. The Board's specification calls for 7,383 sq. feet direct and indirect radiation; the specifications of the Fred Armstrong Co. Ltd., call for 3,777½ sq. feet, which was apparently installed.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $70.90.

OGDEN SCHOOL.

The Armstrong blue prints showed total radiation to be installed 12,991 sq. feet while they installed only 12,697 sq. feet, or a shortage between their blue print and installation of 294 sq. feet. The shortage between the Board's specifications and the amount installed is 3,403 sq. feet. The tenders were made by the contractors on the Board's specification. The number of radiators shown on the Armstrong Company's blue print are 112, less seven for portion of building not completed, leaving 105 shown; only 99 installed. 6-inch valve on high pressure side from boiler, also 12-inch valve on low pressure side to feed direct radiation, have not been installed. In place of 6-inch valve and by-pass connection as shown, 3-inch valve and by-pass in connection have been installed. 3-inch exhaust head has not been installed. Catch basins or blow-off tank for the blow-off pipes from boilers, also drips to discharge into before entering sewers, not installed. The system installed in this school is not put in according to blue prints submitted by the Fred Armstrong Company in regard to run of mains, returns, number of radiators installed. Automatic water feeds not installed. Mica covering not used; the pipes covered with sectional mineral wool cased in canvas. The boilers installed have only 76 tubes 3½ x 16 instead of 104 tubes 3 x 16 according to specifications.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $757.07.

PARKDALE PUBLIC SCHOOL.

Shortage of radiation 2,954 sq. feet. Monash automatic air valves specified. D. R. automatic valves installed. Mica covering not used. Mineral wool, paper cased used on the mains and branches in the boiler rooms, corridors and fresh air rooms. Six cast iron man-hole doors and frames for access to large flues and one cast iron soot door, 12" x 12" specified; the only door supplied is one 2 ft. x 14½ inches for smoke flue. The south exhaust shaft ventilates the girls range closets, and also takes foul air from class rooms at east of building. The wall between this double shaft has never been bricked up, so as to make two separate flues, the consequence is the foul air from girls closets can pass up into the class rooms. Sewerage has backed up, forcing up part of the concrete floor in boiler room at some time and has not been repaired. Windows outside below grade of ground and surface water comes in.

Contractor: J. R. Seager. Estimated loss in shortages $590.96.

QUEEN ALEXANDRA SCHOOL (1905 Contract).

Shortage of radiation 4866 5-12 feet. Specification calls for covering of pipes where necessary or directed by the architect with mica covering in canvas; the only pipes covered are part of steam pipes in lavatories, steam main in fan and fresh air rooms, covered with mineral wool in canvas.

Contractors: Fred Armstrong Company, Ltd. Estimated loss on shortages $1,132.62.

RIVERDALE HIGH SCHOOL (1906 Contract).

Shortage 1805½ sq. feet. No separate valves on the two stacks of climax to control each section. The four pipe coils in foul air shafts are not fitted with valves as specified. None of the steam pipes in basement have been covered where necessary or directed by the architect as specified Risers and branches on ground floor leading to radiators in teachers sitting room, first floor, covered with sectional mineral wool covering.

Contractors: The Fred Armstrong Co. Ltd. Estimated loss on shortages $345.52.

RIVERDALE HIGH SCHOOL (1909 Contract). (Enlargement).

Shortage of radiation 1025 sq. feet. Galvanized iron ducts have not been carried along basement ceiling from fresh air rooms No. 3 and 4 and connected to warm air flues at rear of Aessmbly Room.

Radiators in fresh air rooms No. 3 and 4 are fitted up in one bank in place of two banks as specified.

Valves have not been placed on steam and return mairs, so that direct radiation can be cut off independently of direct coils as required. Branches to supply indirects are taken off direct mains in close proximity to indirect coils. If valves were placed where specified it would require separate mains and returns to be run from headers on boilers to indirect stacks and exhaust shaft coils with cut out valves in same. Mica covering is not used, though specified.

Contractors: The Fred Armstrong Co. Ltd. Estimated shortages $387.80.

RYERSON SCHOOL (1905).

Catch iron basin not installed although specified. No cap stone on foundation for engine as specified.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $77.00.

WELLESLEY SCHOOL (1908 Contract).

Shortage 284 sq. ft. Blue prints submitted by the contractors Fred Armstrong Company, together with specifications. This specification does not call for automatic fittings for boiler, and does not call for covering of the pipes.

Contractors: Fred Armstrong Co. Ltd. Estimated loss on shortages $53.96.

YORK STREET SCHOOL.

Total shortage of radiation 996 sq. feet, 2-inch pipe railing at side of steps of boiler room not put in as required by specifications, leaving a pit 20 inches deep unprotected in basement corridor. Pipes covered with mineral wool canvas cased Instead of mica covering.

Contractors: Keith & Fitzsimons. Estimated loss on shortages $259.09.

Prof. R. W. Angus reported on the ventilation plants in the following schools as follows:

ANNETTE STREET SCHOOL.

The Board had drawn up a specification for the work while the contractor had submitted drawings which were different to a certain extent from the specifications of the Board, the work having been made to comply more with the contractor's drawings than with the Board's specifications. He reported that both specifications required that the reducing valve in connection with the pipes in the boiler should be arranged so that the system could be operated through a by-pass if it was desired to repair the reducing valve. As installed this was impossible, a 10-inch valve as shown on the contractor's specifications having been omitted. The contractor's specifications show two main drips each of 2½-inch pipe, but only one was installed and partly on account of its small size the heater does not drain properly. The main supply to the engine is 4 inches at the boiler and 4½ inches where it enters the engine. It should be uniform in size throughout, and the Board's specification requires 5-inch whereas the contractors show 3-inch, which is altogether too small.

The return pipe to the boilers is 2½ inches, this pipe being branched into two 2-inch pipes, one to each boiler, each 2-inch pipe being provided with a gate and a check valve but as the check valve is nearest the boiler the valve could not be repaired without taking all the water out of the boiler, a very bad arrangement.

Blow off tank; is about 26-inch diameter while the specifications of the Board require a tank 30 inches by 48 inches, and there was no cold water supply as required by the Boards specifications. The vapor pipe is not carried to a flue as specified.

The pipe covering has been done where required, but no painting is done on basement pipe covering. Mineral wool has been used instead of the specified mica.

Heaters for ventilating shafts, four required by Board's specifications but none installed.

Fans: Size equired by Board's specifications was No. 21 multi-vane with wheel 90 inches diameter by 57 inches wide, running

at 100 revolutions per minute, the casing to be 60 inches wide and capacity of 51,000 cubic feet air per minute.

The size installed is apparently No. 20 having a wheel 84½ inches in diameter by 54 inches wide and a casing of 56 inches wide; it runs at about 135 revolutions. The fan is substantially built; it has two inlets each of which is 75½ inches diameter, the outlet being 70 [illegible]6 inches. The Board's specification require 80-inch inlets and [illegible] 60-inch outlet.

The fan is a smaller size than specified, and runs at a higher speed, both of which points make it inferior to the specifications.

Heaters: Heater is made up of vento sections in four rows; the specifications of the Board require 10,000 feet of 1-inch pipe while the contractor's specification shows 2,976 sq. feet surface. The castings are arranged in four groups, three with thermostats and one without; the specifications of the Board require five groups all with thermostats.

With reference to the galvanized iron ducts, the bracing on this work is altogether too light in many places and the larger flues are badly sagged and vibrate during operations. The flues are not properly stiffened and the supports are light in many cases.

The direct radiation, Ground Floor only, showed a shortage of 150 feet as required by the Board's specifications.

On the 11th February, 1913 the ventilation was examined, and it was found that certain rooms got practically no ventilation while others got altogether too much, but that the total of air coming into the ground floor rooms was approximately the amount required to supply fresh air to them six times per hour. The dampers in all the galvanized ducts were wide open, and these should be at once adjusted so that each room would receive only its share and no more; unless this is done the system is of little value.

Contractors: The Fred Armstrong Co. Ltd.

BROWN SCHOOL

Specification regarding the ventilating apparatus is so indefinite that there is nothing to serve as a guide as to what is required. For example there is no statement anywhere that a fan is to be installed, and it is only by inference that any one would know it was required, hence there is no statement of what conditions it is to fulfill. Further, the engine does not seem to be mentioned directly or indirectly, the sizes of the ventilating flues etc., are also omitted.

There are no diffusers or other devices to properly distribute the air leaving the fresh air flues, and the openings in the wall are not splayed although this is specified.

Contractor: J. R. Seager.

DUFFERIN SCHOOL.

Professor Angus in his report on this school accepts the report of Messrs. Doughty and Johnson with reference to the radiation, and stated that he tested the system on the 6th of March for the purpose of determining the capacity of the fan as to whether the guaranteed number of changes of air per hour had been made. As the distribution to different rooms is largely under the control of the caretaker he can adjust the volume dampers in the various flues to suit himself, he did not think it desirable to measure more than the total air supplied to the building, and therefore took the volume of air entering the building from outside, using an anomometer, and correcting this for the heating due to the coils; found the amount of air available for the rooms. In this way he found the cold air entering the fan to be 8,000 cubic feet per minute and that entering the flues to be 42,400 cubic feet per minute. The total volume to be furnished by the contractor as shown by the table on one of the drawings would be 47,400 cubic feet per minute. However the actual discharge of the fan would depend upon its speed, and as the contractor has made no guarantee in this regard he might be able to increase the speed enough above 165 revolutions to give the guaranteed quantity. The contractors guarantee allows for six changes or more of air per hour per room.

Contractors: The Fred Armstrong Co. Ltd.

EARL GREY.

Specifications covered only the basement and ground floor.

Referring to the steam piping he reports that the 5-inch pipe brings steam to a 5 x 10-inch reducing valve, a gate valve being provided on the 5-inch side of this but the 10-inch valve shown on the other side of it in the drawing has been omitted and the reducing valve cannot be repaired without shutting down the entire heating system. The 10-inch valve shown would have obviated its trouble as a 2½-inch by-pass pipe with valve has been provided around the reducing valve as required.

The specifications require 3,592 feet of direct radiation and 600 sq. feet in the vent shafts, making 4,192 sq. feet, although the same specifications ask for a total of 4100 sq. feet, so that the two statements do not agree.

For the vent coils the specifications require three coils of 200 sq. feet each, while the drawing shows 20,-1¼-inch pipes 20 feet long in each shaft, making a total of 170 sq. feet per coil. The one near the boy's lavatory room was measured and found there were 17-1¼-inc oes each 17 feet 6 inches long, making a total of 130 sq. feet each. As each of the others had 17 pipes and the length was probably the same as in the one measured there would be a shortage of 210 sq. feet below the specifications and of 120 sq. feet below the drawing.

The steam supply to these coils enters at the bottom although the specifications require it to enter at the top. He found that one of these coils had no air valve and that the steam blew from it continuously.

The pipes in the basement have been covered with asbestos covering but the covering has not been painted.

The specifications require a No. 21 multi-vane fan to deliver 51,000 cubic feet of air per minute at 100 revolutions per minute, the wheel of the fan to be 90-inch diameter by 57 inches wide, with casing 60 inches wide. The specified inlet to be 80-inch diameter, outlet at least 60 inches or 70 inches, and the shaft to be 4 7-16 in diameter.

The fan supplied is No. 19, having a wheel 78 inches diameter by 49 inches wide, with casing 52 inches wide. It has two inlets each 68 inches diameter, and the single outlet 52 inches by 66 inches and a shaft 3 15-16 inches diameter.

The pulley on the shaft is 26 inches diameter and as it is driven by a 9-inch leather belt which passes over a 15-inch pulley on the engine shaft the speed of the fan being given as 144 revolutions per minute, the speed of the engine being given as 250 revolutions. The fan is thus a smaller size than specified, and runs at a higher speed.

The indirect heater is to have the equivalent of 10,000 lineal feet of 1-inch pipe to be built in two groups, each group to be 5 sections deep according to specifications. The heater installed is made up of vento sections and is arranged in four groups, three of which are controlled by thermostats and one has no value at all. There are altogether 112 castings of 40-inch section having a total

surface of 1288 sq. feet and 112 castings of 50-inch section, having a total surface of 1568 sq. feet, making a total area for the heater of 2,856 sq. feet, which is the equivalent of 8,280 lineal feet of 1-inch pipe, thus showing a shortage of 1720 lineal feet.

Contractors: The Fred Armstrong Co. Ltd.

HESTER HOWE (Elizabeth St).

There is no blow-off tank as far as could be found the boiler water being blown directly into the sewer. There should be a water-cooled tank between the boiler and the sewer The steam main at the boiler has two main branches. The piping for the one supplying the vent coils near the boys lavatory as well as three direct heating loops has not been put in according to the plan, which shows a 6-inch pipe with a 4-inch and a 4½-inch branch, the 4½-inch supplying 4-inch and 2½-inch lines. As installed the 6-inch pipe has a 4-inch and a 4½-inch branch, but the 4-inch branch has to supply a 2½-inch line, a 3-inch line, and a considerable number of smaller lines, for which it was not designed. This part of the piping should be altered to conform to the drawing. In some other ways the piping does not agree with the drawings. Thus the returns to the return tank are 2-inch while those shown are 3-inch, and the work is not put in according to the drawing, for the latter shows all return mains going into the tank, while those from the indirect coils actually are connected to the boiler feeds.

The radiator in the boys lavatory slopes the wrong way, the feed entering at the lower end and thus making the radiator ineffective. The main part of the indirect heater is inaccessible. The tempering coils consisted of 41 castings of 60-inch vento section having a total of 666 sq. feet as compared with 400 sq. feet shown on the drawing, but it would not be unlikely that the other part of the indirect radiation might show a shortage equal to the present excess. This measurement is taken from the 1910 catalogue, showing the rate for the vento sections.

The specifications require not less than 7,730 sq. feet of direct radiation, but there must be a mistake in this as the specified amount only adds up to 4,740 sq. feet, and probably it was intended that the specification should read 4,730. The exact amount specified has been installed except in two cases, namely in the kindergarten a total of 460 sq. feet has been installed instead of the 496 specified, while in the centre class rooms on the first floor there is a

shortage of 4 sq. feet making a total shortage in the school of 40 sq. feet or a total amount installed of 4,700 as against the specified 4,740 sq. feet.

In the shaft at the girl's lavatory there are two radiators having a total of 38 sections giving 494 sq. feet radiation as compared with 500 sq. feet shown on the drawings. In the shaft near the boys' lavatory there are two radiators with a total of 28 sections, having 364 sq. feet as against a specified amount of 400 sq. feet. The vent shaft coils are all controlled by independent valves but are not connected with the hot water heater as required.

Fan: The specifications for the fan and motor do not appear to have been made to fit the case under consideration. The fan installed is of the Sturtevant multi-vane type, with wheel 40-inch diameter x 21½ inches wide at tip, and having two inlets each 35 inches diameter, while the casing is 28 inches wide and there is a single 28 x 34-inch outlet. The speed of the fan is [illegible] r.p.m. The motor supplied is 5 Brake H. P. 25 cycles, 220 [illegible] volts, and has a 6-inch pulley for driving the fan. The motor speed is 1390 revolutions. The motor specified was to be [illegible] direct connected to the fan.

The galvanized iron work is very badly designed, the [illegible] ducts being 9 feet wide by 8 inches high, which is a very [illegible] Further, the one on the south side has to dip downward [illegible] inches to pass a pipe.

While the work has been done on the whole according [illegible] drawings it is not a good piece of work.

There are no dampers which can be used to control the [illegible] to the different flues, and thus in some of the rooms there is [illegible] enough fresh air, while in others there is very little, and there is [illegible] way of controlling it. The workmanship is only fair and the [illegible] scheme can be hardly looked to for very satisfactory results. The [illegible] part of the work also includes the foundation for the motor but [illegible] there is no foundation installed, the motor being practically on the [illegible] floor. A proper foundation which would raise up the motor would be very desirable.

Capacity of apparatus: The air was measured in the ducts leading from the temperating coils to the fan room, in the southern duct at the fan room and, but in the northern duct at the coil owing to the danger from the pulley and belt. The average velocity in these flues was 600 feet per minute, so that the total air entering the fan was 10,400 cubic feet, and that to the rooms was 11,200

cubic feet per minute, which is sufficient to change the air in the rooms on an average of about 5½ times per hour instead of the 6 times specified. The discharge of the fan as measured being much below what might properly be expected of this fan he could only conclude that there is undue resistence in the ducts owing to their peculiar shape.

Practically all of the steam pipes have been covered with asbestos covering· mica covering was specified.

The openings of the warm air flues into the class rooms should be provided with baffles to prevent the direct draft striking the pupils' heads. Deflecting plates should also be arranged in the flues to discharge to make the whole area of the outlet effective instead of only part of it.

The specifications require dampers for regulating the flow of warm air into the brick flues but no dampers have been provided.

Contractors: Keith & Fitzsimons.

HARBORD STREET COLLEGIATE.

Water Supply: The ¾-inch pipe has a necessary globe valve, but a check valve is also required by the specifications and has not been installed.

Steam Piping: This is on the one pipe system with two loops as required. No arrangement is made to permit the operation of the two loops separately, and as the flue heating coil receives steam from one of the loops this coil cannot operate when the direct system is shut off.

Large Vent Shaft: 20 coils of 1½-inch pipe each 13 feet long have been fitted making a total surface of 130 sq. feet; the specifications require 400 sq. feet.

Pipe Covering: The specifications require the covering of all pipes where necessary or directed by the architect, but no covering whatever has been put on although it is necessary in many places. The work in many places is not painted, although this is specified.

The vent shaft coil may be worked independently of the indirect radiation, but cannot be worked unless the direct radiation is in use.

The ventilating flues are constructed without baffles inside or on the face of the opening, and the air only comes out of the upper part of them, rendering a fairly large proportion of the opening useless. Further, without the baffles the blast from the flue strikes down upon the student's heads.

In comparing the galvanized iron flues in the basement with the drawings it was found that in many cases the sizes installed are not the same as those specified. The following is a list of the pipes not up to sizes:

Specified size in	25x40	25x64	25x48	36x48	16x22
Actual size	25x30	25x54	21x29	25x32	14x20

This galvanized iron work has been moderatel well installed but in some places has sagged and in many places is not painted.

Capacity of apparatus: For the ventilation he made a series of tests with a calibrated anemometer and found that the circulation was very good in some rooms and poor in others. In almost all the rooms the air can be changed from four to five times per hour (the specifications require six times) but in the room on the top northwest corner the circulation was very poor at the time he measured it, a change of air only occurring about two or three times per hour. In some of the rooms the blast is altogether too strong, but with proper adjustment of dampers below this can be somewhat modified.

Baffles should be installed on all outlets to make the flue most useful, as at present only about ¾ of the discharge is effective. Further in the assembly hall the air rushes out so strongly as to make a part of the gallery unbearable. This should be properly altered.

General: On the whole the specifications are not at all rigid and it is quite impossible by means of them to find out exactly what is intended.

Contractors: Fred Armstrong Co. Ltd.

HUMBERSIDE COLLEGIATE NSTITUTE.

Boilers: There are two boilers built by the John Inglis Company, each boiler being 60-inch diameter and having 78 tubes 3-inch diameter and 12 feet long; the size specified is 66-inch diameter with 96 tubes 3 inches by 16 feet. The valves on the pipes to each boiler are in the wrong relative positions as the gate valve should be nearest the boiler. The blow-off pipe from the boilers discharge into a blow-off tank about 24-inch diameter. This tank should have a discharge connection to the cesspool, but at present it is almost useless, as the water cannot get away from it, but fills it up and runs around the floor. Further, city water should be connected to the tank as specified to cool the water entering it, and the vent pipe should be connected to a chimney.

Between the boilers is an eight-inch pipe but the main supply for the whole building is only 5-inch, this should be at least as large as or larger than the 6-inch steam pipe from each boiler. On this 5-inch main is a 5-inch by 10-inch pressure reducing valve, there being a 5-inch valve between it and the boiler. There is a 2½-inch by-pass with angle valve around this reducing valve so that the latter may be shut off and the system supplied through the by-pass but no provision is made for repairing the reducing valve without shutting off the entire system. The specifications require a 4-inch by 8-inch reducing valve.

The steam supply for the engine is 4-inch at the boilers and enlarged to 4½ inches; just before entering the throttle valve of the engine; it should be 4½ inches all along.

The steam supply to the coils enters at the bottom although the specifications state it must enter at the top.

Kerr valves have been largely used on radiators but air valves marked "D. R. Co." have been used instead of the Monash valves specified.

Pipe Covering: All pipes in the basement except those to the vent coils have been covered with mineral wool but have not been painted. Mica covering was specified.

The fan specified is a No. 21 multi-vane fan with a capacity of 51,000 cubic feet of air per minute at 100 revolutions per minute. The fan wheel was to be 90 inches in diameter and 57 inches wide, fan casing 60 inches wide; the fan inlet to be 80 inches diameter, outlet 60 inches by 70 inches, the fan installed corresponds to that listed by Sheldons Limited, Galt, as No. 20, and has a wheel 84 inches diameter, 52 inches wide, with a casing 56 inches wide. The single inlet is 76 inches diameter, two outlets 56 inches by 25 inches, and 56 inches by 48½ inches; the normal speed of the fan is about 135 revolutions per minute, this fan is of smaller size and runs at a higher speed than specified, both of which make it inferior to the machine required.

The engine, built by Sheldons Limited, has a cylinder 16-inch diameter by 12-inch stroke, running at a normal speed of 250 revolutions, the specifications require an engine 18 inches by 12 inches, but on comparing this with a similar plant at Annette St. School the size specified for the latter was 16-inch by 12, although both are supposed to give the same power under the same conditions. The specifications require a 30-gallon Gurney Defiance heater to be connected to the coils in the closet vent shaft. The present boiler is not so connected.

3500 sq. feet indirect heating specified, and 2964 sq. feet installed; direct heating 4300 sq. feet specified and 4083 installed. Thermostatic control allowed on two groups instead of three groups.

Registers and register faces; these are not provided with deflecting plates so as to distribute the air properly through the registers and also to keep it from striking directly on the pupils heads.

Contractors: The Fred Armstrong Co. Ltd.

KENT SCHOOL.

Register faces: The fresh air openings are not splayed as is specified, and there are no diffusers or baffles to properly distribute the air coming through the flues.

The specifications require that the fan shall have a capacity of 60,000 cubic feet per minute at 110 revolutions per minute while the measurement of the air entering was slightly over 27,000 cubic feet per minute, from the fan as compared with the 60,000 cubic feet per minute. The speed of the fan during the test averaged 118 revolutions.

Contractors: The Fred Armstrong Co. Ltd.

KING EDWARD SCHOOL.

The specifications require 24 iron valves on the flues 23 have been provided. The openings of the flues are not right, as in operating the air only discharges from approximately the upper two-thirds of the opening. Some deflecting device should be placed in the flue to make the whole opening operative. Deflectors should also be placed to keep the blast from striking directly upon the pupils. The capacity of the fan is given as 30,000 cubic feet of air per minute. Upon test the discharge of the fan was considerably under 30,000 cubic feet. The ventilation in two of the rooms was tested and it was found that there was only sufficient capacity to change the air in the room about three times per hour instead of six times specified.

The specifications have left no margin on the capacity of the apparatus, as the fan is only sufficient capcaity to change the air in the rooms exactly six times per hour if it had worked as anticipated. As a matter of fact it does not give the results expected.

Contractors: The Fred Armstrong Co. Ltd.

LANSDOWNE SCHOOL.

The specification of the Board of Education of 1908 calls for a combination of direct and indirect heating and ventilation. The Fred Armstrong Co. submitted a specification on an entirely different system called the hot blast system for the class rooms, with direct radiation in the halls only. The work was done under the Armstrong & Co. specification.

Capacity of Apparatus: On the 11th February, 1913 he took tests in eight rooms in different parts of the building and on different floors for the air supplied. There was little wind but the night was cold. Taking an average of the results would only account for a total discharge from the fan of about 25,000 cubic feet per minute, while the specifications require 32,585 cubic feet per minute at a speed of 214 revolutions. The speed during the test averaged 202 revolutions. The average number of changes of air per hour in the rooms would be approximately seven.

Contractors: The Fred Armstrong Co. Ltd.

NORWAY PUBLIC SCHOOLS.

Boiler installed is close to 64-inch diameter, 104 tubes 3-inch diameter x 16 feet long, while the specifications require a 66-inch boiler with 96 tubes 4-inch diameter x 16 feet.

There is no automatic water feed, although one was specified.

The steam supply pipe to the engine is 3½ inches, and the exhaust is 4 inches, while the drawing shows 4 inches and 5 inches respectively. This also means that a 4-inch oil separator has been installed instead of the 5-inch one shown.

A one pipe system with four loops has been installed as specified, but the loops are not separately controlled by valves, as should be done.

The supply pipes to the vent shaft coils enter the coils at the base instead of at the top as required, and the valves for controlling these are in the basement instead of in a class room as specified.

Main Valves: The specifications require the main valve at the boiler (which has a 6-inch outlet), this has not been installed, the nearest valve to it being the 4 inch one at the reducing valve. Separate valves controlling the supply and return from each loop are specified, but the supply valves are not shown on the drawings and have not been installed.

The air vent drips have not been carried to the basement as specified.

Exclusive of the vent shaft coils, which could not be measured, there is a total shortage in heating surface of 230 sq. feet.

The specifications regarding galvanized iron work are very indefinite.

Registers and register faces: All these should have baffles to prevent the current of air striking the pupils heads and deflection plates should be placed in the flues so as to make the air pass out of the entire opening in the room instead of only about the upper two thirds as at present.

During the test the cylinder apparently took in a good deal of water and pounded very badly for a few minutes. This may have been partly due to the uncovered steam pipes or to improper drainage, or both, but it is a very serious defect and might easily wreck the engine.

There was enough air delivered by the fan to change the air in all the rooms on an average of 6.9 times per hour, the specifications requiring 8 times. Some adjustment is necessary to equalize the air in the different rooms however.

Pipe covering has not been put on, and this should be done immediately to all steam pipes in the basement. The specifications require pipe covering where necessary or required by the architect.

Only three automatic regulators have been put on instead of four specified, for the nests at the fan.

The dampers in the ducts leading into the fresh air flues in the basement are all controlled by hand, not automatically as specified.

Contractors: The Fred Armstrong Co. Ltd.

OGDEN SCHOOL.

The blast fan specified was to have a capacity of 55,000 cubic feet of air per minute at a speed of 110 revolutions per minute. The fan supplied is a three-quarter housed, horizontal discharge, double inlet plate fan. The casing is 72 inches wide and the wheel is 96 in. diameter by 62 inches wide at the tips of blades the shaft being 3 15-16 inches; the inlets are 62 inches diameter while the single outlet is 55 in. x 72 in.

The fan is set within about 15 inches of one of the walls of the fan room, thus partly destroying the usefullness of one of the inlets. The fan rests on wooden beams let down flush with the cement floor of the fan room.

The indirect heating coils are set upon brick piers instead of the iron stands specified.

Register faces: None of the ducts have deflectors or baffle plates to give a good distribution of the air into the room. There is no register face on the flue admitting fresh air to room 24; the register faces at the entry of the brick flues into the class rooms are almost entirely of expanded metal fastened with wood strips, although a few of them are of cast iron.

On the 14th of March, 1913 Professor Angus made a test of the capacity of the fan, during the noon hour, and closed all the windows and doors in the class rooms for the purpose. He measured the air entering the fan from the outside by means of an anemometer and found that there was a total volume of approximately 15,000 cubic feet per minute. The speed of the fan was approximately 155 revolutions.

(Subsequently Professor Angus stated that he had omitted to extend the amount of one of the measurements, and the correct measurement was just double, namely 30,000 instead of 55,000 cubic feet as specified).

Contractor: Fred Armstrong Co. Ltd.

QUEEN ALEXANDRA.

The specified automatic water feed has not been installed.

Although pipe covering is specified very little has been put on. There is none of the main piping except in the fan room and parts of the pipes in the lavatory. No diffusers or baffles have been installed to distribute the air properly and to keep it from striking directly on the children's heads. The openings into the class rooms are not splayed as was specified.

The design of some of the ducts is such that it is very difficult to force air into certain of the rooms.

A wire screen is secured over each of the windows where the fresh air enters, but these screens come within about 8 inches of the bottom of the window, leaving the lower 8 inches unscreened.

Contractors: The Fred Armstrong Co. Ltd.

RODEN SCHOOL.

Automatic water feed is not in.

Coils in vent shaft are required to be connected to the hot water boiler, but this has not been done

The specifications require one main and one check and return valve. The main valve has not been put in, but valves have been arranged so that the boiler may be shut off. All radiator valves are specified to be nickel plated, but none of these in the basement are plated.

Drips from the automatic air valves are not carried to basement although specified.

The fan specified is No. 16 multi-vane, while the fan supplied is a B. F. Sturtevant fan of the multi-vane type rated by them as No. 12, being four sizes smaller than specified, but the fan has larger capacity than the corresponding size of Sheldons fan.

Hot water heater has been installed but is not connected to the vent shaft coils as required. In the pipes from the westerly fan outlet there are no dampers, although these are necessary. The whole arrangement of pipes and engine near the fan is very awkward, and it is almost impossible for the engineer to get proper access to the engine.

The specification requires all pipes to be covered with mica covering and canvas: The covering used is asbestos air cell.

Contractors: Keith & Fitzsimons

ROSEDALE SCHOOL.

The hot air system installed by the Rutley Warming and Ventilating Co. is not automatic; it requires the presence of the caretaker in the furnace room almost continually.

Ventilation of rooms: The fan at the test ran at a speed of 135 revolutions, and the air entered the various rooms heated. The hall registers were closed, no heat coming from them, the total air discharged per minute from the registers was 14,260 cubic feet, which would be sufficient on the average to change the air in the rooms 9.7 times per hour. The specifications require 6 changes per hour at a maximum fan speed of 150 revolutions.

Contractors: Rutley Company.

RYERSON SCHOOL.

The Fred Armstrong Co. Specifications are reported on. The pump is 6 x 4 x 7 inch duplex instead of 6 x 4 x 8 inch specified.

A 24 x 36 inch catch basin is specified but could not be found; it appears as if the blow-off goes directly to the sewer, a rather serious defect.

The engine, built by the Chandler & Taylor Co. for Andrew & Johnson, Chicago is as specified, but the construction is of a very cheap type.

The foundations are made of concrete, although brick with stone caps was specified for the engine, and brick for the blower. There is no foundation under the blower, which rests on the floor. Brick piers have been built under the coils as specified.

Plenum Chamber: The specified ⅞-inch matched flooring has been omitted and rough boards put in instead. The chamber is lined on top and bottom with tin instead of as specified with galvanized iron. The dampers in the spaces below the coils are not set level.

The deflectors in the hot room are of one thickness of sheet iron instead of two thicknesses of galvanized iron with one-inch space. The method of adjustment is very crude.

The large fresh air inlet has no screen, although one specified. There is a screen on the smaller duct but this duct is not shown on the drawing. There is nothing to prevent paper and other debris entering the ventilating ducts.

The blast and vent openings have expanded metal screens instead of No. 11 wire. They are not mounted on an angle iron frame as specified, nor have they ornamental corners. At present there is considerable rubbish lodged behind the screens which cannot apparently be removed.

Air compressors: Although an hydraulic air compressor is specified the one installed is an automatic belt driven machine driven from the engine crank shaft. The reservoir is 12" diameter by 4¾ feet high and has a capacity of 24 imperial gallons, whereas the specification requires a 30 gallon tank. The specifications require the fresh air inlet having an area of 5600 sq. feet, but as installed the area is 4,183 sq. feet.

On the 12th March, 1913 the air entering the building through the openings was measured as 24,800 cubic feet per minute as against a guarantee of 46,329 cubic feet. The speed of the fan during the tests was approximately 160 revolutioms while the guarantee is given at 175 revolutions or less. On the 17th March after the engine had been repaired and was running at 180 revolutions, a second measurement of the air supplied to the building was made, and found to be 30,900 cubic feet as compared with a guarantee of 46,329 cubic feet. The boys lavatory was very unpleasant and not properly ventilated.

Contractors: Fred Armstrong Co. Ltd.

The reports of Prof. Angus showed that in other respects the specifications had been practically complied with.

In reply to the reports of Messrs. Doughty and Johnson and of Prof. R. W. Angus, Mr. Bishop wrote on the 23rd June, 1913, as follows:

"The specifications for heating and ventilating on which "tenders were taken for these works were never intended to furnish "itemized or specific description of all materials and fittings, such "as pipes, valves, etc.; nor the details of the engineering and con- "struction required in carrying on the work.

"In a few cases contractors were invited to tender on any system "they might wish to propose and to submit description of same in "form of plans and specifications.

"In a number of cases plans were prepared by contractors after "contracts were let and submitted for approval as to further details "before going on with same.

"In no case were plans prepared by contractors to be used by "other competing contractors in tendering.

"In some cases conditions were found in the progress of the "work which necessitated changes from the plan or specifications "or which made variation desirable for securing the best results.

"These questions were considered in the usual manner and "changes made with a view of meeting all necessities and without "extra cost, if possible.

"I believe the variations made by the direction of this Depart- ment or in consultation, were to the advantage of the Board, and "that extras on this line of work have been very small.

"I am prepared to accept the statement of Messrs. Doughty "and Johnson and of Professor Angus in regard to such details as the "amount of radiation, size of pipes, names of manufacturers or "various parts of the apparatus, etc., etc., as being correct.

"As to results of tests of ventilation made by Professor Angus "I would say I do not think they are as valuable or conclusive as "tests made at various times and the results observed through "seasons covering the different conditions to be met, and the "acceptance of Heating Apparatus has been based on numerous "tests and the records of temperature for a considerable period."

In this letter Mr. Bishop refers to the contracts for heating and ventilating in the following schools as having been closed, namely:

Balmy Beach, Kent, Queen Alexandra, King Edward

Riverdale, Rosedale, Dufferin, Jamieson Ave., Dewson, Ogden 1906 Ryerson, Lansdowne, Wellesley, Winchester, Ogden 1911.

"On these jobs I wish to say that the work carried out sub-"stantially fulfilled the conditions of the contract, give satisfactory "results, and in the settlements the Board has received full value "for its expenditures."

Mr. Bishop in his evidence stated that the reason a large amount of radiation was specified for school rooms was, that in a heating plant it was better to have surplus heating surface rather than a shortage. He said:

"We have always specified enough to cover the contingency, so that if it is required we could secure it. In a school building the heat is not required for as long a period as in an office building, shorter hours, and it is important to be able to circulate the heat through the building in a short period of time. School Buildings are separate and distinct in the matter of heating and ventilation from perhaps any other buildings, from the fact that practically all doors are open. The building we are in you cannot get a breath of air in it as far as the doorways are concerned, it has circling doors, and ordinary buildings are protected with double doors and so on; in school buildings there is no protection at all, every door in the building is wide open for perhaps ten or fifteen minutes before the hour of opening the school at 9 o'clock; then in the middle of the morning, half past ten or quarter to eleven, practically the doors are all thrown open again, so that the building is entirely open and in most cases the windows are opened for the ventilation of the room, so that you can see the necessity for a large amount of radiating surface. Where schools have failed for the want of proper heating as far as I have been able to observe it is largely for the lack of sufficient radiation."

Q.—You have had from time to time discussion with different contractors as to lack of heating in some schools, a room having to be dismiessd, and that sort of thing?

A.—Occasionally—the cause being that on Saturday and Sunday the school is closed down and the whole building gets cold and probably the caretaker does not get up sufficiently early in the morning; I think nine-tenths of the closings would be found on Monday morning."

THE CONTRACTS OF FRED ARMSTRONG CO. LTD. QUEEN ALEXANDRA SCHOOL.

In the beginning of the inquiry into the shortages of radiation in the heating and ventilation contracts, Mr. Fred Armstrong submitted a plan drawn up by himself showing how he had installed the system in Queen Alexandra School, and another plan showing how he might have installed the system under the specifications of the Board of Education on which his tender had been accepted, both plans having been prepared after this investigation had been ordered. A great deal of evidence was taken at a considerable loss of time and expense in carrying out Mr. Armstrong's wishes as to comparing these two plans and the respective cost of same. He admitted that under the specifications of the Board of Education he would have performed his contract honestly and properly.

It appears to me that the submission of these plans was for the purpose of confusing the issue. The evidence shows that the plan which he says he could have done the work under and complied with the specifications would not have complied with the specifications of the Board of Education; and the evidence further shows that the installation as made by him is no better or no more efficient than if he had complied with the specifications of the Board of Education. From the evidence produced it appears that at the end of October, 1904, tenders for heating and ventilation of this school were received from Sherlock & Co., at $12,530; Fiddes and Hogarth, $14,100; Maxwell & Johnson, $14,459; Purdy Mansell, $15,260; Fred Armstrong Co. Ltd., $15,400. The latter company being higher than the others.

The work was not proceeded with on account of there not being sufficient funds, and tenders were again asked for in February, 1905, for a smaller number of rooms than specified in October, 1904. On this occasion the following tenders were received:

Sherlock, $10,650; Purdy Mansell, $10,500; Maxwell & Johnson, $10,410; Fred Armstrong Co. Ltd., $8,500.

The contract was accordingly awarded to the Fred Armstrong Co. Ltd., at $8,500, being $1,910 lower than the next lowest tender.

On the second of March, 1905, the contract was awarded and notice was given to Mr. Armstrong on the third of March, and he executed the contract on the 4th of March. On the same day he addressed the following letter to Mr. Bishop:

"When figures were being received for the heating and venti-

"lating of the Broadview Ave. School, (Queen Alexandra), it was my "intention to have submitted a figure on a system slightly different "to that which is specified. Unfortunately my plans and speci- "fications arrived too late, but I was fortunate enough to secure "the contract on your specification, which was perfectly satisfactory "to me.

"However, in justice to my firm, I think it but right that I "should ask you to favour me by looking over the layout and speci- "fication which I now send for your consideration.

"The layout is so carefully designed and the specification so "explanatory that it is hardly necessary for me to call your attention "to any of the details, but in a general way, to point out the method "of construction, the layout of the different ducts and the simple "and economical system of operation.

"You will observe that we do away with all of the underground "brick ducts and provide for a mixing chamber at the base of "operation, allowing easy access to all of the dampers.

"The blowers are operated by an engine which runs at a very "low pressure, with a large exhaust, and the exhaust is used for "heating purposes, thus reducing the cost of heating and venti- "lation to practically the cost of heating only.

"I have not made up the cost of this system, but am of the "opinion that it would not cost any more than the system which is "now designed, together with the cost of the brick ducts.

"If it appeals to you in any way, or you think there are any "advantages over the specification which you furnished us with, I "would be glad to have your permission to take the matter up with "yourself, or to interest the Property Committee, with a view of "having the system adopted in this, or possibly future schools."

On the 8th of March, 1905, Mr. Bishop, in acknowledging receipt of Mr. Armstrong's letter with tracing and plan showing layout, stated:

"I shall be pleased to look these plans over for consideration "in planning other buildings, but not with a view of making any "change in the work of your present contract."

This shows clearly that at this early date Mr. Armstrong was desirous of deviating from the specifications on which the other tenderers had made their tenders.

The reports of Messrs. Doughty and Johnson showed a shortage of 1806 5-12 sq. feet radiation in this school as well as other deficiencies, and Mr. Bishop was asked:

Q.—Can you tell me that Mr. Doughty and Mr. Johnson's reports are correct?

A.—I have read them over and I would say that as far as I know they are correct.

Q.—That is that the shortage developed in the examination as reported on by them e ts?

A.—Yes.

Q.—Do you know anything about that from records in your office?

A.—Only that, that Mr. Waste may have brought it to my notice in the settlements, where we have settled the work.

Q.—Do you know anything about any arrangement made for allowing a shortage in advance of the actual construction of the work?

A.—Not a case of allowing the shortage—I think there was one or two or possibly more. Mr. Waste can answer that better than I can, but I do not know that I can call distinctly to mind other than the Queen Alexandra where there was a change in the character of the radiation; there may have been others.

Q.—Allowing a less amount of radiation than that specified?

A.—Allowing something used as an alternative.

Q.—Can you tell me about Queen Alexandra.

Q.—Can you tell me about Queen Alexandra—can you remember the contract being executed?

A.—Yes.

Q.—Do you remember some correspondence you had with Mr. Armstrong as to his desiring to show you an entirely different method of heating?

A.—Yes.

Q.—Which you declined to allow?

A.—Yes.

Q.—What is your recollection as to what occurred in regard to the Armstrong contract before the work was actually put under way?

A.—That Mr. Armstrong had prepared and submitted a plan of the layout of the work.

Mr. Armstrong:

I do not think an actual plan was made. I said we had a blue print and took it in to Mr. Waste's office and made a pencil sketch. There was the location of the boilers and ducts, there was no pencilling on that. We would get a blue print.

Q.—Do you know where that is?

Mr. Armstrong:

No; our men would get it and we would never get it back.

Q.—Mr. Bishop, is your recollection sufficiently clear to be able to give me the details of that plan?

A.—No sir.

Q.—You remember looking over some plan?

A.—My recollection is that the plans for some changes were submitted to me.

Q.—What were the changes?

A.—I do not remember.

Q.—Were they changes in quantity of radiation?

A.—I think at one time it was a question of making a change in the character of the radiation?

Q.—There was a change made in respect of the direct radiation in that it was reduced in quantity on the specification, do you remember that?

A.—No.

Q.—Do you think you would authorize that?

A.—On Mr. Waste's recommendation I would.

Q.—Despite the tender and contract and specifications?

A.—Yes, with a view of adjustment, we would not make any addition to or deduction from any work without a view of its being considered in settlement.

Q.—On the understanding he would bear that in mind in making a settlement?

A.—Yes.

Q.—Do you understand the changes particularly?

A.—No sir.

Q.—You would take Mr. Waste's say-so for that?

A.—Yes.

Mr. Waste in his evidence stated that there was a change authorized in the radiation in connection with the Queen Alexandra School, the variation being the installation of pipe coil radiation instead of cast iron sectional radiation in the indirect heating, that there was no deduction authorized in regard to the direct radiation. Cast iron sectional radiation was not mentioned in the specifications, he would understand that it meant cast iron by the word radiating surface, although it states in the specifications coils in the shafts; that the variations authorized by him were not a substantial variation in quantity, but merely a variation to suit fittings.

Q.—Did you know that they contemplated doing this work

in the manner in which they did and put [illegible] sq. feet of direct radiation when 7,400 was specified?

A.—I would not say in every instance that each item was taken up before hand, but in the adjustment on the checking of it I had knowledge of these variations and took them into consideration.

Q.—Did you bring that to Mr. Bishop's attention?

A.—I discussed it with Mr. Bishop, perhaps not the various items in detail, but that we had arrived at a change in the indirect radiation and it was satisfactory to him.

Q.—And a change in the direct radiation?

A.—Yes.

Q.—What was the basis upon which you ventured to make this change?

A.—The basis would possibly be the fact that we had specified a generous amount of radiation, perhaps indirect as well, but particularly in the matter of direct radiation we have always aimed to specify an ample amount more than a great many people considered necessary.

Q.—Mr. Armstrong told us that as a matter of fact he gave you more drips than he needed according to the specifications and put in a better system of distribution?

A.—In some respects he might think he had done more.

Q.—Have you any details of the settlement made in that school, Queen Alexandra?

A.—We have no record in writing.

Q.—You showed me yesterday the statement of settlement that there were no extras and no deductions shown?

A.—No deductions shown.

Q.—Did you ever charge for shortage in direct radiation?

A.—Yes, certainly we did.

Q.—Have you a memorandum of that?

A.—No, not in writing.

Q.—Was there a memorandum made?

A.—The memorandum made at the time of estimate was just a memorandum I had of the work; we have not made a practice in any case unless we have allowed more than the contract or deducted from the contract, of making this memorandum of those items.

Q.—Did you allow anything from that or make any addition to?

A.—We paid the face of the contract there.

Q.—Did you allow anything there or add anything?

A.—In that case we allowed the additions to the work to offset fairly the deductions from the work.

Q.—Did you make a memorandum of it?

A.—I think so.

Q.—Is it fair to say you lumped those?

A.—To a certain extent, I checked it over to satisfy myself that it was a fair adjustment.

Q.—That you were getting from the contractor all he had contracted to give in value?

A.—Yes.

Q.—And you kept no memorandum and there is nothing on record to show?

A.—No.

Q.—None of the figures that came out early in this investigation as to shortage in measurements in radiation was a surprise to you?

A.—None whatever.

Q.—You knew all that before?

A.—Yes.

Q.—You knew of the shortage?

A.—Was familiar with the carrying out of the work. In the adjustment I measured the job myself.

Q.—I see that Queen Alexandra School contract was closed by cheque Dec. 24th, 1907; the work commenced in March or April, 1905?

A.—I think so.

Q.—When did you make these measurements?

A.—Work was progressing from time to time as I might be there and take notice of the progress of the work and then on the job we had other inspectors.

Q.—Did those inspectors give you reports?

A.—No.

Q.—You have no record now in the department of the measurements you made?

A.—Nothing at all.

Q.—Did you finally measure up all that radiation before you closed the contract by final certificate?

A.—I finally put the calculations together to satisfy myself to see that they were equivalent.

Q.—But you kept no memorandum of it?

A.—No.

Q.—There is no correspondence to indicate it?

A.—No—I knew the distribution there was not the total quantity.

Q. By distribution you mean the direct?

A.—Yes.

Q.—You knew that before you let the work go on?

A.—Yes.

Mr. Fred Armstrong, the president of the Fred Armstrong Co., was examined, and said that they had been tendering for school contracts off and on for thirty years and were unable to tell which was the first contract they received.

Mr. Geary:

Q.—Taking the Queen Alexandra School contract, how did you learn of the opportunity to tender for the contract?

A.—An advertisement, I expect.

Q.—What is your next step, having seen the advertisement?

A.—Get the specifications and plans.

Q.—I hand you the specification for 1905, will you say that is the specification upon which you tendered for the school?

A. Yes, I should judge that is the specification although there are no identification marks on it. We submitted a tender.

Q. What was the process of preparation of the tender?

A.—You assemble the quantities, time, and put in the tender; that is about all there is. There is no lay-out considered unless it is shown on the plan; you would know from that plan.

Q. But as to piping and radiation there is nothing shown on the plan you got, nothing whatever?

A.—No.

Q. Have you a book showing that assembling?

A.—No.

Referring to the shortage of radiation, Mr. Armstrong was asked:

Q. You have said already in your evidence that you were short of the specifications in the amount of direct radiation; did Mr. Bishop authorize that shortage?

A. It would certainly come from the office, whether it was Mr. Bishop personally or through Mr. Waste, I could not say now.

Q.—Can you tell me definitely that any one of these gentlemen told you that you might shorten up that radiation?

A Yes, I can certainly—about shortening up radiation, that is a different question; a new distribution of that radiation; there would be a certain amount to put in, and of course we have to guarantee the purpose and the understanding always was that

the quantity and the value put in would be assessed, and that was taken up with the office every time. The lay out and quantity of radiation and its value.

Q.—And if we find, as you have admitted already, that the radiation is short of the amount specified, will you say that that shortage was authorized by the School Board officials?

A.—If short a quantity, yes, it was authorized, but the value is there in dollars and cents, and the efficiency is there; it is merely a different form of radiation in the school.

Q.—Do you say that definitely an official of the school board authorized you to cut down the radiation?

A.—Yes, positively.

Q.—In writing?

A.—No.

Q.—Does not the contract require writing?

A.—I do not know; you will see it there.

Q.—But you know?

A.—Quite so; I do not think we followed the contract particularly; the practice was and is you generally take the word—

Q.—Do you know any variation from the specification which was required to be in writing?

A.—Yes, I know every contract requires that.

Q.—That contract did?

A.—Yes.

Q.—You did not receive it in writing?

A.—No.

Q.—Can you remember the occasion on which you checked up with the officials the amount of radiation in that school?

A.—I believe that was understood at the time we put it in, about the value and quantity of radiation and the kind that was put in; I am under the impression as far as my memory goes that that was arranged.

Q.—Did any one check it up?

A.—I do not know whether it was checked or not.

Q.—Did you check it up?

A.—No, I submitted the facts.

Q.—Did you see any official of the Board check it up?

A.—I did not see any official of the Board in connection with it except when I submitted the plan and quantities—I cannot remember any particular occasion in which I did, but generally I have asked to have it checked up—I should judge at that time any alteration was made at the time it was laid out and we went

into all the details at that time as to the quantity of radiation and the kind of radiation and its value.

Q.—That is the only lay out that you have is the one you have told me of tracing in pencil?

A.—That is the only one.

Q.—That is the way the work was done?

A.—Yes.

Q.—So that that work confirms to your original lay out barring the fact that there is not as much radiation as the specification calls for?

A.—Yes.

Q.—That is a general answer which you do not want to amend?

A.—Yes.

Q.—That is the estimate upon which you tendered?

A.—13,500 sq. feet of direct radiation.

Q.—It is direct radiation and indirect; it is 13,500 of direct and indirect radiation called for by the specifications shown in your assembling of quantities and the basis upon which you fixed your price and tender?

A.—Quite so.

Q.—What was in the specification aws originally in our minds; it was not until a subsequent date after the signing of the contract that we went into the details and then decided on the installation now in.

Q.—Taking this as your estimate which was to enable you to do that work you show a cost of $8,445.91?

A.—Yes.

Q.—That is 13,500 sq. ft. of radiation?

A.—Yes, that is there.

Q.—You estimated the total amount of radiation which was specified, and you estimated on every foot of that?

A.—Yes, all tenders are made on the specifications.

Q.—The total you estimated this was going to cost you, including boilers, smoke pipe, mountings, brick work, direct radiation, time, amounted to $8,445.91; and you tendered for $8.500; you allowed yourself in that a margin of $54.09?

A.—Yes.

Q.—And you were $2,000 at that below the next man. I think that is everything in that statement you want me to bring out?

A.—Yes.

Q.—Would you call what you have put in there generally speaking a good job?

A.—I indeed I would.

Q.—It is not your practice to put in a skimpy or poor job?

A.—Our work was put in properly.

Q.—That is your view in doing this work that you should give a good job?

A.—Yes.

Q.—Did you contemplate any other way of doing the work?

A.—No, I do not think so; I cannot remember that I did and I do not think I did after going into the quantities and seeing what was necessary and the most desirable way of laying out the work.

Q.—Do you say that the officials of the School Board were perfectly aware when the contract was closed and the money paid that there was less radiation in there than it called for?

A.—Less than 13,500?

Q.—Yes.

A.—I should judge so.

Q.—Can you say definitely?

A.—No, I cannot say anything definitely about anything like that, but I know they did know at the time it was put in how much was going in; I knew that definitely enough.

Q.—You know definitely from having told them and received their authority that there was less radiation than 13,500 sq. feet going into that job?

A.—Quite so.

Referring to the plan showing how he might have done the work and comply with the specifications, he was asked if it would have made a good job; he replied:

A.—Yes, a good job; it is a matter of opinion.

Q.—Is it not as good a job, or as good or better job?

A. I am not prepared to give a comparative statement of that kind; I would have installed it in that way and guaranteed it would work and be perfectly satisfactory.

Q. What the result of your evidence is that despite the printed offer or tender, the form of tender supplied, the printed specification and the contract that you had entered into, the school officials agreed with you to do a different work?

A. Oh no, I do not know, I do not know of any contract the Board ever made to take the work that was specified.

Q. They only contracted to do work with you according to the specifications?

A.—I made a contract agreeing to do the work all right, but they did not make a contract to take that and take that alone; the Board reserved the right to take what they please—I offered to do this all right; the plans are only the basis of tendering anyway, but I offered to do it according to the specifications, but I had never found any case that the Board or any other corporation agreed they will take that or anything else; they provide to take what they want.

Q.—You say there was a definite arrangement made at that time that you could put in less radiation under the system you installed?

A.—Yes, it was a question whether they would pay for 5,000 feet of cast iron at the same cost in value.

Q.—In direct radiation, radiators in the rooms of the buildings?

A.—That was cut down.

Q.—That was agreed to?

A.—It was only in the aggregate that the amount was to go in—the value is there, the quantity of radiation, 13,500 feet is not there.

Q.—It is 4,000 odd feet short. Did you have any discussion with any officials of the School Board when you sent through your bill for payment?

A.—No, I did not send any bill for payment. It was several years after the work was done before the amount was paid; I got a cheque.

Q.—There was no discussion as to the arriving at the amount?

A.—Not that I can remember now; there may have been.

Q.—You did leave out an automatic feed?

A.—Yes.

Q.—How much is that worth?

A.—I believe the price for an automatic water feed is between $12 and $15.

Q.—Did you have authority to leave that out?

A.—Yes.

Q.—That was in the specifications?

A.—Yes.

Q.—But after the contract was executed?

A.—No, but before in talking over all those questions, in talking of the details.

Q.—When was this conversation?

A.—When we were going into the details of the installation.

Q.—After the contract was signed?

A.—Yes.

Q. Will you say this in your evidence, that you have covered

with mica covering in canvas every pipe which is necessary or which was directed by the architect?

A.—No, we never covered anything with mica.

Q.—What did you do?

A.—I should judge that asbestos or mineral wool would be used.

Q.—There would be no difference?

A.—I do not think so, but wherever it was directed we put on covering.

Q.—Did you leave that mica covering for the direction of the architect?

A.—I believe we always consulted the Board.

Q.—You did not exercise your own judgment?

A.—No.

Q.—You can say you have covered every pipe where it was directed?

A.—I can say in a general way everything done in any of the schools was done after consultation with the Department; nothing was done on our own initiative.

Referring to the four hard coal burning flue heaters installed and six called for by specifications, reported by Messrs. Doughty and Johnson, Mr. Armstrong said:

There are only four shown on the plan; and a question like that, an inaccuracy in the specifications, would be taken up before you would tender on it; it may not have been noted, but if you will look at the plan you will find the heater is there, there are four in the main part of the building and they have the whole building, and there are six altogether, the six are mentioned for the completed building, and only four in this branch. In taking it off we would see an inaccuracy of that kind.

Q.—Does not the new specification call for eight and only six put in, 1908?

A.—It is so long since I saw them; I believe that all of the flue heaters are installed as was shown on the plan; there is one at the base of the flue and it would be purely an inaccuracy in the specifications.

Herbert Johnson of Maxwell & Johnson was asked how the system of heating and ventilating as installed in the Queen Alexandra School compared with the system provided for in the specifications of the Board of Education on which tenderers were asked to tender. He said: "I found that it was not a superior job to that of the School Board's specifications."

Q.—Was there any difference between the two?

A.—There is a difference in this respect, that there were drips carried which the specifications did not call for, but at the same time what would offset that would be the increased size of the mains, according to the regular catalogue figure, figuring mains for a certain amount of radiation, and the difference in size would counteract the extra returns.

Q.—Was there any difference in the cost as installed from the cost under the Board of Education specifications?

A.—Yes.

Q.—Would it amount to the shortage of radiation?

A.—Yes, it would amount to the shortage of radiation—and not only the cost of the radiation but what was left out which the specification called for.

Q.—What about ventilation? Was it a superior job in regard to ventilation from the amount specified by the Board of Education specification?

A.—In regard to the cost it would not cost any more for that installation but it is superior in this respect, in the air passage there is not the amount of square feet as the Board of Education called for in the pipe coils.

Q.—The plan that Mr. Armstrong said he could have done it by, was that a full plan?

A.—No, that was putting it in just about as skimpy as you could possibly lay out the job—it would not comply with the specifications.

Q.—Either of these plans in respect of which he (Mr. Armstrong) made the comparison, could they have been installed under the specifications?

A.—No.

Q.—In what respects could not it?

A.—In the respects that the mains and valves and piping throughout would have been of increased size that is if it was fitted according to the regular schedule of figuring the sizes of mains and returns.

Q.—Do you say Armstrong installed a system in the Queen Alexandra School which in point of value so far as the Board is concerned, was less valuable by the sum of $1322?

A.—Yes sir.

Q.—That is your deliberate estimate of the advantage of which the Board was deprived?

A.—That is the estimate.

Q.—You think that is correct?

A.—Yes.

Q.—You do not think that the heating as installed was in point of efficiency in value equal to the amount specified?

A.—No, not by the Board of Education that is the job throughout.

Q.—And the Board has lost $1132, that is the estimate of the difference?

A.—There is that much difference.

Mr. Johnson said the value of the shortages amounted to $1132.

Mr. Doughty corroborated Mr. Johnson's statement as to the installation by the Fred Armstrong Co. not being equal to the specification of the Board in respect to the shortage of radiation covering a few other small items. He agreed that $924 would be the value to Mr. Brown of the shortage of radiation.

Subsequent to Mr. Johnson's evidence given on the 1st December, Mr. Bishop forwarded me a letter Exhibit 221, as follows:

"Dec. 4, 1913.

"To His Honor Judge Winchester,
"County Court Chambers,
"City Hall, Toronto.

Re Board of Education Investigation.

"Dear Sir,—Under the permission given by Your Honor at the "Investigation on Monday last, I beg to make the following state- "ment referring to the evidence in regard to the value of the work "done on contract for heating and ventilating at Queen Alexandra "School as compared with the work called for in the specification.

"The blue print plan showing layout as specified, and sub- "mitted by the contractor for the purpose of having these compara- "tive values reported upon by your experts, Messrs. Doughty and "Johnson is, with the exception of avlves hereinafter mentioned, "a fair general indication of the work called for and would have "been accepted by this Department as a satisfactory working basis, "with the required guarantee of the contractor, for carrying out "the work, had we desired to adhere to the specification without "considering any variation.

"In the joint report of the experts on this matter, there is no "intimation that the plan was not fair and satisfactory for the "purpose, and in Mr. Doughty's evidence referring to the report "he was questioned by Mr. Geary, particularly on this very point "(page 1941, lines 10 to 14) and in reply stated that the difference

"would be a matter of some valves amounting to about $36.00 and "that there would not be a great 'deal to come or go on either way.' (pages 1942, line 6 and 7).

"Referring to the figures put in by Mr. Johnson on Monday "last referring to plumbing and heating contracts, I beg to say I do "not understand the purport of these statements, but if it is in- "tended to convey information that in those cases where adjust- "ments have been made, the contractors have been paid these "amounts more than they were entitled to receive, then I say they "are not at all correct. In many cases they refer to variations "which have been adjusted with offsets in the settlements as al- "ready explained in the evidence of Mr. Waste and others.

Respectfully,
Your obedient servant,
(Sgd.) C. H. BISHOP,
Supt. of Buildings."

Upon receipt of this letter I asked for Mr. Bishop and Mr. Waste to give an explanation. This Mr. Waste undertook to do, stating that he had drawn the letter up in conjunction with Mr. Bishop, that it had been revised by Mr. Brown on behalf of the Board of Education and that he had discussed it with Mr. Fred Armstrong before it was forwarded to me; that Mr. Fred Armstrong and he had discussed his former reports and also the plans as to the Queen Alexandra School drawn up by Mr. Armstrong for the purpose of this investigation from time to time during the Investigation.

Mr. Bishop in his letter refers to the evidence of Mr. Doughty; in referring to same it is seen that Mr. Doughty was speaking of the difference between the two plans and not between the specifications of the Board and the pan of installation.

On the following pages of his examination he showed this: at page 1943 he was examined by Mr. Brown as follows:

Q.—The job that is installed is as good as the specified job?

A.—No, I won't say it is in the indirect; I won't say it is at all. I would have preferred to have had the job installed as it was specified and then there would have been no trouble or difficulty after.

Q.—What do you base your figures on?

A.—Indirect and direct, both.

Q.—Are you shy in both?

A.—My report says that on that school

Q.—Is the job as installed from the standpoint of heating as satisfactory as the one specified?

A.—I am not prepared to say because I do not know but what if they put more radiation in there, unless I measured it up that they would get better results from it although they are getting good results as far as the heat in the rooms is concerned as far as the records show.

Mr. Waste gave both Mr. Doughty and Mr. Johnson an excellent character as to their honesty and ability in their positions. I have therefore no difficulty in accepting the statements of both Mr. Johnson and Mr. Doughty in connection with their reports and their evidence on same, which I unhesitatingly do. They have been corroborated by Professor Angus in connection with Queen Alexandra School and by Mr. Armstrong and Mr. Waste in connection with the other schools.

With reference to the Queen Alexandra contract, I have fully considered the evidence of Mr. Armstrong, Mr. Waste, Mr. Doughty Mr. Johnson, Prof. Angus and Robert Jordan with reference to the work as now done and compared with the work required to be done under the specifications of the Board, and in my opinion the weight of such evidence shows that the work as now done is not better than the work required to be done under the specifications, and had the contractors performed the work as required under the specifications the full radiation and other shortage would have been put in in addition to the work as done, thus showing that the contractor has benefited by the amount of shortage set forth in Messrs. Doughty and Johnson's report.

OGDEN SCHOOL CONTRACT.

Mr. Waste gave the following evidence as to this school:

Q.—3,403 sq. feet was the shortage in Ogden School according to the specifications?

A.—According to adjustments and lay out-taken up as the work progressed.

Q.—And although you have a detailed list from the Armstrong Co. of the extras you have nothing here to show a credit for that shortage in radiation?

A.—No, there was a difference in the lay-out, a difference in the amount, just similar to the Queen Alexandra School, a difference in the quantity installed and a difference in the quantity of pipe radiation and we offset one against the other.

Q.—Did you measure this up yourself?

A.—Yes, I measured all those jobs myself.

Q.—You knew there was that shortage?

A.—Yes.

Q.—And you authorized that variation before the work was done?

A.—Yes.

Q.—What sort of plan of Ogden did you have?

A.—I think there were possibly pencil drawings.

Q.—There they are, show me what you had?

A.—I do not know that I can recall all those plans.

Q.—The specification for Queen Alexandra is followed exactly one year later in Phoebe St.?

A.—I think so.

Q.—Despite the fact that you had arranged with the contractor in Alexandra for a better system of drips you did not specify?

A.—Possibly not.

Q.—It does not show drips nor anything to that?

A.—No.

Q.—Against that shortage in radiation what did you set off?

A.—I set off the nature of the work done and increased the quantity perhaps in a different kind of radiation and the amount of work in other respects that I considered was entitled to consideration in the adjustment.

Q.—In that school again I ask you had you a memorandum?

A.—No, I had no memorandum to cover every one of these.

Q.—Is there any correspondence, any letter from the contractor or from you?

A.—I do not think so; I do not remember

Q.—Is there anything to indicate how you tabulated these credits and debits?

A.—I do not think so.

Q.—Who did it?

A.—I did that myself; that is in regard to arriving at the settlement finally.

Q.—And did you ever sit down at a table with that contractor and put the credits on one side and the debits on the other and say these meet each other?

A.—I do not remember that I did.

Q.—How did you come at a settlement?

A.—In the progress of the work I was in close touch with it from the beginning and was familiar with the features as it went

on, and perhaps it was not necessary for me to go into so much of detail in that way as a person not in touch with it would have to do and with a knowledge of the work from beginning to end I knew there was fair consideration there that equalled any deductions or additions.

Q.—You never asked about it?

A.—I do not remember; I may have asked him for certain information on various points at different times, quite naturally would, but I do not remember those things detailed at all.

Q.—What is a quantity of 3,400 sq. feet of radiation worth approximately?

A.—If it is just mentioned as you say radiation, I would say approximately 18 or 20 cents.

Q.—At 18 cents that item is about $612, that was a substantial item?

A.—Certainly.

Q.—And you cannot show you got that substantial item down anywhere with an offset against it?

A.—I cannot say I have a written memorandum made at the time showing just how I arrived at that.

Q.—And this long list of extras that was rendered by Mr. Armstrong shows no credit for the shortages in radiation and it shows no charge for anything else he puts in to offset that?

A.—No.

Q.—Although these details were committed to writing and an account of them submitted to Mr. Armstrong and settled on the basis of that account which probably was adjusted by you, there is nothing to show the adjustment or settlement of these more important items of radiation?

A. Mr. Geary, I think I would say this, that I took it that Mr. Armstrong considered all other questions in connection with the heating plant was to offset one item against the other.

Q.—Did you accept Mr. Armstrong's figures for the extras?

A.—In the case of these items we allowed I think we accepted his figures.

Q.—Did you try to ascertain whether they were correct or not?

A.—I always aimed to ascertain that unless I had as I considered, sufficient knowledge of the values and work as it was going on.

Q.—In Ogden School you accepted his statement there?

A.—It appears so in these items that we allowed, yes.

Q.—Do you remember making any inquiry as to the regular prices for such work?

A.—No.

Q.—These blue prints the contractor furnished, were they checked over by anyone in your Department to see if they would comply with the specifications that had been issued to the public and upon which every contractor or possible contractors had tendered?

A.—They were only checked over for the purpose of knowing whether there was anything in there that would be objectionable, in other words whether they were acceptable as a general lay-out of the work.

Q.—But not to see that they might be comprised within the four corners of the specifications you had issued?

A.—No, not exactly.

Q.—And it is fair to say, is it not, that other contractors might be tendering on the specifications as you put them out to the public?

A.—They had to tender on that specification.

Q.—You did not check over these particular contracts to see if they did comply with those specifications?

A.—Not when the blue print was submitted necessarily, that would be a question as the work progressed how the work would compare with the specifications, the general lay-out, the distribution of the heat or the placing of the pipes as far as we could judge from the plan, sometimes you read a plan and you may find afterwards you have overlooked something, that a pipe had not run the way you thought, and those are looked over to see as to that.

Q. That is all the checking over that was done?

A.—That is all that is necessary.

Q.—You did not check over the plans to see if they came within the specifications when you got them?

A. No.

Q. Is it right that when your blue print shows 112 direct radiators, seven off that for a part of the building not completed it makes 105 shown, and the total amount of radiators installed is 99?

A.—Yes, if those are the correct figures.

Mr. Armstrong in his evidence said that he did not remember how the account was settled but that the same answer that he made to Queen Alexandra would apply to the Ogden School; that prior to doing the work that he got plans made out by an engineer in Chicago and went over them with either Mr. Waste or Mr. Bishop

or perhaps both, and with the changes suggested that was the plan of the installation that was made, and is in there now, that while he submitted to deductions in settlement in Kent School, the conditions affecting the Ogden School were entirely different, but he would be quite prepared to open up Ogden School under the same conditions and go over and get paid for what they put in additional. He was asked:

Q.—You made no charge for additional work?

A.—No; the situation is just this; it was a matter I believe of prior aggreement at the time, but if it was unsatisfactory in any way we would be quite prepared to open it up and make the settlement.

Q.—Where are the details that were omitted, and where will they be found?

A.—They are not recorded at all; they can be found on the job; the specifications are there and the contract.

DEWSON STREET SCHOOL CONTRACT.

Mr. Waste in his examination gave the following evidence:

Q.—Here is Dewson St. School, final certificate, that is an Armstrong contract I think; Dewson St. there was a shortage according to the report of 1774 sq. feet, tell me what was paid on that contract?

A.—The face of the contract.

Q.—Is there any allowance for extras or any deduction for work not done?

A.—Not in the payments on that contract; there is an adjustment made in connection with that work by which we offset the shortage of radiation.

Q.—What was that adjustment?

A.—It is part of the adjustment that we were considering about that time of several schools.

Q.—Did you make them all in one settlement?

A.—Not all in one settlement but about the same time, they were under consideration practically the same time.

Q.—Surely a complicated settlement of that sort leaves behind it some record?

A.—I am very positive I have not anything.

Q.—How many schools were concerned in that settlement?

A.—Possibly two or three, two at least. I would like to say right here, because I have it in mind, I want to say in making these

adjustments I had in mind some things that I thought contractors should fairly get consideration for in the way of work, some cases of a very considerable amount of service that they gave that does not appear in the specifications, it does not appear in any accounts or any records or any claims at all, but was my knowledge in connection with the job as they went along and certainly were given consideration in the settlements. I can mention one or two of the schools the kind of items I refer to, the question of temporary heating in a number of our buildings, in almost every one of them they require more or less, but in some of them a considerable amount of value of service was given us in temporary heating for which there was no claim and specific allowance made as an extra—In no case that I can recall except Kent School we made allowance for those things (temporary heat).

Q.—You say you have made allowance for that, but you have not got it down in the face?

A.—Exactly.

Q.—You bore those things all in mind?

A.—Yes.

Q.—All I am curious about is the difficulty that you must have experienced in keeping the complicated affairs of two or three schools in your mind in making one settlement, but I am surprised and must say that I find no trace or memorandum of them: are you quite sure you have none?

A.—I am sure I have been unable to find them.

Q.—You say in Dewson St. School you knew before the contract and you knew by measuring after the contract that there was a quantity up to 1774 sq. feet of radiation that is not in?

A.—Not before the contract.

Q.—You knew that afterwards?

A.—Yes.

Q.—And you bore that in mind in making a settlement and that item is an item of two or three hundred dollars, that was a substantial item?

A.—Yes.

Q.—Can you tell me what other schools were considered together with Dewson School in making the settlement?

A.—I would say that any and all of the contractor's accounts that is the Armstrong Co. were considered at that time.

Q.—Were they settled?

A.—I would not say they were settled; I would not say we did not consider ourselves entitled to take them up further if necessary.

but I would say we had in mind any and all of the jobs they had done up to that time.

Q.—Did anything pass in any of the correspondence between you and those contractors?

A.—Not that I can recall.

Q.—Was it the occasion of any negotiations and discussions?

A.—There was no discussion different from that has been indicated in the questions already asked me, those items were discussed at different times; that is to say that there was a large item of shortage in Dewson St., and in the [illegible]ement there was a large item the other way in the case of Du[illegible]. that he did $100 of work in excess of what we were entit[illegible] There was no statement of that in writing at that time. [illegible]new of the work before it was done.

Q.—Where was the chimney work, where was it you were referring to, that came into the question of the settlement of Dewson St.?

A.—Dufferin School.

Q.—When was that settled?

A.—It might have been settled at the same time, I don't know just the date of that settlement.

Q.—That was settled in 1907 and Dewson St. was settled in May, 1909 by final certificate, some eighteen months afterwards?

A.—Yes.

Q.—That is eighteen months after the closed contract you took into account in settling Dewson St. some extra work done in Dufferin?

A.—Yes.

Q.—Had you paid this contractor anything in those eighteen months?

A.—On various things we certainly did.

Q.—This amount on Dufferin School was standing all that time and finally was settled by consideration in settling the Dewson St. Contract?

A.—Not entirely Dewson St. matter, but being taken into account as part of the general offsets.

Q.—What were the extras on the Dufferin School?

A.—Additional work was done there was the building of a smoke flue, a large chimney.

Q.—Where is the account?

A.—I have no account for it.

Q.—Was any account ever rendered?

A.—No, not in detail.

Q.—There has been no covering on the pipe in Dawson St., and the thermostat valves on the radiators in the manual training room have not been connected up to control system, these matters were all known to you?

A. The thermostat valves has nothing to do with the heating contract; the other items were taken into account.

Q. The indirect coils in the fresh air rooms; the specification calls for indirect coils for each group of flues to be fitted up in two sections so that both may be used—they are not so fitted up?

A. No.

Q.—Are you still specifying them that way or have you abandoned that specification?

A.—I think we have had the coils and shafts in one control usually.

Q. You have decided from your best judgment that it is not wise to make those separate cut off?

A.—Yes.

Q. You have since specified them?

A.—We may have.

Q.—Why did you not change your specification?

A.—Perhaps we have not checked them over as closely as we might have done; in some respects it might be an advantage: we endeavoured to make a specification that would be a safe basis for tendering and carrying out the job satisfactorily.

Q. Except for this, that a contractor used to doing business with you, and knowing that that will not be insisted on, has some slight advantage in making his tender over the man who does not know?

A. I think any contractor that does business with us and understands what would be expected understands he would be expected to keep to the specification or its equivalent every time.

Q. I am only speaking of the man who has not been doing business and does not know that?

A. I do not think that would give any advantage in any respect.

DUFFERIN SCHOOL CONTRACT.

In the year 1905 there were two sums of $6,000 each appropriated to re-construct the heating and ventilating apparatus in Dufferin and Ryerson Schools. In May and June advertisements

were inserted asking for tenders for heating and ventilation at Dufferin and Ryerson Schools to be opened on the 23rd June, 1905. In answer to this advertisement, Maxwell & Johnson and the Armstrong Co. tendered for the Ryerson School, the latter at $8,492, which was accepted. For Dufferin School the Fred Armstrong Co. tendered the sum of $8,420 but after accepting the tender for Ryerson School the committee decided to leave the tender for the Dufferin School in abeyance for the present. In February, 1906 an appropriation of $10,000 was made by the Board for re-constructing the heating and ventilating apparatus of the Dufferin School, and the 3rd July, 1906 the tender of Fred Armstrong Co. for heating of the Dufferin School at $9,976 was accepted. This was the only tender received by the Committee.

On looking at the advertisement issued for tenders to be put in on the 3rd July, 1906 the heating and ventilation of Dufferin School is not inserted, so that the public had no notice of this considerable amount of work being required at that time. The only advertisement that was issued at that time and inserted in the newspaper commencing on the 23rd and ending on the 27th June was for the enlargement of Brock Ave., Palmerston Ave., and Dovercourt Schools, also for the usual summer repairs, alterations and improvements at all the schools. The difference between the two tenders of the Fred Armstrong Co. of 1905 and 1906 was $1556, although the evidence shows that there was no difference in the wages of the men between July 1905 and July 1906 and that if anything the cost of materials was less in 1906 than in 1905. The report of Messrs. Doughty and Johnson showed that there was a shortage of radiation in connection with the installation of this plant.

While giving evidence as to the shortage by Fred Armstrong Co. in connection with the installation of the plant in Dewson St., Mr. Waste stated that he set off an allowance for erecting a chimney at Dufferin School against the shortage. Both Mr. Waste and Mr. Armstrong showed that there was no claim put in writing by Mr. Armstrong in connection with the chimney, there was no account ever forwarded, no entry in any of the books of Armstrong & Co. or among the papers of the School Board, no sum had ever been agreed upon with reference to the same; and in consequence of such evidence it was considered necessary to inquire as to the erection of the chimney. The plans submitted by Fred Armstrong Co. in connection with the installation of the heating and ventilating,

show that they provided for a larger flue than was shown on the plan prepared by the Board of Education.

The question of a larger flue was also mentioned in the specification submitted by the Armstrong Company's engineer in Chicago, produced among their papers, showing that the question of a larger flue or chimney was under consideration by them in the year 1905 and subsequently Mr. Bishop said:

"The chimney was necessary in connection with the new boilers; we had plans prepared for it but there was no contract let, and it was during the summer vacation when I visited the building with Mr. Armstrong and I discovered there was no contract let for the chimney, and Mr. Armstrong had masons on the premises building in the boilers and doing other work, mason work, and I asked if he could have the same man proceed at once, because we had to rip out the whole of the basement and change the whole heating system during the summer vacation, and the man on the job said he would turn his men on the work promptly, and I instructed that it should be done at once. That was 1906.

Q.—Did you arrange as to the price for the work?

A.—None whatever.

There was some evidence to show that a chimney had been erected previous to that time, but in my opinion there was no chimney erected as shown on the plans of the Board of Education. The evidence of Mr. Thompson supported by his foreman and workmen, shows that the chimney was the first part of the work constructed by him under agreement with Mr. Armstrong. Mr. Thompson stated that he believed that was spoken of on the first interview between him and Mr. Armstrong. The contract between Mr. Armstrong and Mr. Thompson was what might be termed a force contract, cost of labour and material plus 25 percent profit, so that it was difficult to ascertain the exact items of work to be done. His total account was $1535.15 which included brick work, iron beams and the doing of some of the work over inside a second time.

Mr. Waste upon being examined as to the chimney gave the following evidence:

Q.- Was the chimney there at the time?

A.—No, it was not there but our plan that was submitted to him showed that it was there.

Q.—What was he to do with it?

A. He was to do such and such making good as to get into it, I take it.

Q.—Where was he to get these dimensions?

A.—He was to get them from our plan.

Q.—It is not on your plan?

A.—It may not be on our plan but it shows there.

Q.—Was there a contract to do any brick work or building?

A.—The contractor was to do such cutting.

Q.—The contractor for heating and ventilating?

A.—Was to do such cutting and making good as was necessary to carry his apparatus into and around through the basement.

Q.—Was there any contract as to building of any brick work on that school outside of the heating and ventilating contract?

A.—Not that this contractor for heating and ventilating was to do.

Q.—So that at that time there was no chimney, there was to be a chimney, but you had let no contract for that chimney?

A.—That is right.

Q.—Then your plans do not show, so far as you were able to indicate, the size of that chimney?

A.—Yes, our plan shows there the same as it does any other part of the building.

Q.—What I wanted to get at is where does he (contractor) designate on the plan the size, the area and all of that chimney which does not appear anywhere else; these plans were drawn in Chicago?

A.—You want me to answer about that?

Q. Unless there was some conversation?

A.—I do not remember any conversation except that the chimney was in there, and we told the men to build it, they were doing this ventilating and heating contract, there would be some brick work.

Q. Then when you came to the plans that were filed by the contractors they showed different measurements?

A. There seemed to be an increase.

Q.—Where did he get the figures to make that 1080 inches or area 30 x 36?

A. I could not tell you.

Q. That is specified on his plan; does that indicate that he was to build that chimney?

A. No.

Q. And I am told it is 24 x 18; what size did you order it to be built, the size indicated on his plan or did you leave that to him?

A. I think that was left to his judgment and responsibility.

Q.—And this being the only addition required to be put on the building, was it put on in connection with heating and ventilating as an integral part of your heating and ventilating plant?

A.—My answer is no, that chimney was built, ordered by Mr. Bishop and built as an integral part of what the Board showed was on the plan that the contractor tendered for.

Q.—Is heating and ventilating possible without a chimney?

A.—No.

Q.—As part of the plan to get the school heating and ventilating you had to have a chimney, is that right?

A.—Yes.

Q.—And was not there at the time?

A.—We showed it was not there; the contractor was shown by our plan that it was there.

Q.—You did not require this contractor to amend the specifications he submitted as so to place upon you the burden of putting it there?

A.—No.

Q.—What you did say in your request for specifications or proposition was 'the contractor will be required to supply material and labor of every kind and in all trades for any cutting or alterations and making good to any part of the building where necessary for the carrying out of the alterations of steam heating or providing ventilation and to leave all of the apparatus in complete working order; that is what you said in your advertisement for tenders? 'Tenders will be received in the form of a proposition which the contractors may submit according to their own design and accompanying tender contractors must submit plans and specifications describing fully the method and construction of the proposed apparatus and plans including any alterations to the present building, location of ducts, gaps, etc., and all parts of the apparatus. Accompanying the plans, specifications, etc., prepared by the contractor, tender must be made out on form supplied by this Board with the usual deposit of 5 per cent. Then 'Promptly as the work progresses and at completion clean up and remove from the premises all rubbish or surplus material that may remain from any part of the work. "Contractors who desire to tender will be furnished with a set of blue prints, floor plans of the building and a copy of this specification. They are also referred to the building for further information which they may require as to the present construction of the building or other conditions'—is that all?

A.—Yes.

Q.—Having that request for propositions in your mind, did you at that time contemplate that you would have that chimney built as part of heating and ventilating, did you expect to have the specifications or porposition submitted, embody that in part of the work, did you expect that, did you look for that?

A. I do not think I can tell you.

Q.—Did you look for tenderers submitting propositions to have included in the proposition the building of the chimney?

A.—It would be impossible for us to expect that from our blue prints which we furnished.

Q.—The successful contractor did not include it?

A.—No—I would say no intelligent contractor, no intelligent surveyor of quantities could take it rom our plans that he was expected to build that chimney. We ways expected that that would have to be built there; there was an omission there in the manner of indicating what might have been in our knwoledge before that; we had not indicated it, and we had no right to expect the man would take it; we had to rest what he would expect absolutely on the blue prints as we handed them out.

Q.—In the contract that was made, the plans and specifications attached to the contract include an addendum in typewriting, 'Plans and specifications and lay out of work accompany this tender which includes brick work concrete floor, carpenter work and painting in connection with the installation of this heating system'—you did not understand that specification as including the chimney added?

A. No.

Q.—It did not occur to you as being part of the contract because of the added clause to the specifications?

A. No.

Q. What amount did you have in view of allowing him for that?

A. A fair amount, perhaps as I had in mind would be—something in the neighborhood of $500.

Q. And you knew of no item respecting that, and he made no claim for it?

A. No itemized claim.

Q. Is that a business like-way of doing business?

A. I do not think it was the most business-like way.

Mr. Brown: Q. In arriving at the amount of $500 as a fair

settlement for the amount of the chimney, upon what did you base it?

A.—I based it on the size of the flue and height of it and quantity of material and a fair estimate of the wages or price per thousand of brick.

The estimate for the work to be done in connection with the installation of this system, produced by Mr. Armstrong dated in July, 1906, showed that he had estimated the brick work at $1275; although at the bottom of such estimate he has set forth the different items of the brick work to the extent of $864 only. He claimed however, that he was entitled to be paid for building the chimney as an extra and put in an estimate of its cost made, at his request, by Mr. Thompson's son, amounting to $605

The fact that there were no extras charged for this chimney by Mr. Armstrong in connection with this work although it was his custom to enter extras in his books, that there was no memorandum in possession of the Board, that no authority given to Mr. Bishop or Mr. Waste by the Board or the Property Committee for such work, and that the tender was increased by $1556 from the previous year and that he estimated $1275 for brickwork while the details of such work amounted to only $864, and that the cost of the chimney was estimated by Mr. Waste at $500 and Mr. Thompson's son at $605; and also from the wording of the specifications and contract it might be well contended that the work so done was done under the contract entered into with the Board by Mr. Armstrong.

As to the shortages reported by Doughty and Johnson, Mr. Waste gave the following evidence:

Q.—Dufferin School; No. 10 instead of No. 13 gauge steel: you let that go?

A.—Yes, that was passed, I do not think I checked that in detail in that respect.

Q.—Foundation for engine to be made of hard burnt brick, capped with capstone and engine to be securely fastened to same. This capstone has not been installed; engine bolted to brick foundation—did you know that?

A.—Yes.

Q.—Did you pass that?

A.—Yes, we passed the apparatus there.

Q —Would there be any difference in the expense?

A.—There might be some difference in some items, a little one way or the other.

Q.—Capstone not installed would make a difference in the cost of the capstone?

A.—Yes.

Q.—Whose work is that?

A.—Armstrong's.

Q.—Foundation for blower to be made of same material, the lower foundation forming the scroll of blower. Blower housing set on brick with wood capping?

A.—Might I say that these questions of the itemized report which Mr. Doughty and Mr. Johnson made and Prof. Angus have all been accepted as correct, any statement of that kind we have gone over and accepted it as correct.

Q.—Were they allowed as extras?

A.—That is all part of the one contract which we have already referred to as having been adjusted.

Q.—Were they allowed as extras and paid for as such or were there deductions made?

A.—He has mentioned items in which there might have been some deductions made; I say they were all accepted.

Q.—You have no statement showing?

A.—As to the itemized difference on those things; they have all been accepted as part of the contract.

Q.—You say that the reports of Mr. Doughty and Mr. Johnson and Prof. Angus have been accepted by you in all these details.

A.—Yes.

Q.—All galvanized iron horizontal ducts in basement, also all machinery is to be painted and finished in accordance with the color selected by the architect, horizontal ducts in basement kalsomined—you let that go?

A.—Yes.

Q.—You accepted that?

A.—Yes.

Q.—Without any deduction?

A.—Yes, accept them in the manner in which we have.

Q.—Deduction for lack of painting?

A.—No deduction excepting on the basis of general settlement.

Q.—For the period covered by these reports you specified automatic water feeds?

A.—In a number of cases.

Q.—You did not ask to have them put in?

A.—No.

Q.—You find in all these specifications 'Cover all pipes where

necessary or where directed by the architect'—did you tell each contractor what he should cover?

A.—I think we told them where we wanted any in particular; I think in most cases the contractors would have covered some and we directed them where we considered it necessary.

A.—The question of pipe covering was all uncertain; it was a question we did not wish to decide before the work went on; it was somewhat of a chance as to what might be required or what not, but we thought it preferable to leave it as a development as the plant was in operation and the conditions in the building were noted.

Q.—Are all these schools fitted with this covering as you think is necessary?

A.—As we thought necessary at the time.

Q.—You are responsihle for all the covering, whatever it might be?

A.—Yes, whether it is there or not.

Q.—It specified mica, but in no case was mica put on, how is that?

A.—It was possibly considered that the other forms of covering were preferable.

Q.—Why did you not specify the other forms of covering?

A.—That we had not noticed particularly in the specifications; sometimes those are copied without notice.

Q.—You have not specified a cut-off valve so that the different loops can be worked independently?

A.—No, I do not think so; there are lots of attachments that we have not called for.

Q.—Pressure reducing valve has been fitted up without 6-inch valve on boiler side of reducing valve, also 12-inch valve on low pressure side of valve, with these two valves left off, reducing valve cannot be removed or repaired without shutting down heating system—is that right?

A.—I take that statement to be correct as to what might occur.

Q.—With your eyes open you have specified that way.

A.—We have omitted some things.

KENT SCHOOL CONTRACT.

Subsequent to the making of the report of Messrs. Doughty and Johnson showing a shortage of radiation and other material. Mr. Armstrong settled with the Department his account in connection with this school. His account was reduced for shortage

in radiation, but not to the full extent reported on by Messrs. Doughty and Johnson. After reducing his account for shortage in radiation, he charged several sums for extras which were allowed by Mr. Waste at the prices set forth by Mr. Armstrong. In the report of the experts the shortage of radiation was shown exactly and although apparently accepting the measurements of the experts, Mr. Waste and Mr. Armstrong did not follow them out in settling the account of the Armstrong Co. Mr. Armstrong was examined with reference to this work and gave the following evidence:

Q.—The total radiation to be not less than 4,600 sq. feet to be distributed as may be directed by the architect; cut-out valves and so on and pipe covering is the same clause we had in Queen Alexandra, and indirect heating, there is nothing further to be added.

Q.—You got that contract in 1907 and did not prepare a plan of the work?

Q.—No, the lay-out and details were just the same as the Alexandra.

A.—What was done was done in consultation with the Department.

Q.—Would you and the Department get together and make that lay-out?

A.—Yes, we generally sat down and went over the quantities; at least I believe that is the way it was done; my memory is not very good for six or seven years back, but I think that is the way it was done—I might not have gone into all those details, the quantity of radiation that would go to each room, the location of boiler and location of radiators and such details as might be necessary for us to prepare a plan for our men to work to.

Q.—Can you tell me this, because there was shortage in radiation in this school too as compared with the specifications?

A.—Yes.

Q —Will you tell me before you entered on your work and before you had definitely decided on your lay-out in 1907 the officials of the School Board were cognizant of the fact that you were going to put in less radiation?

A.—I do not know there was less, and I do not know how I would know or how you would know; since that time there has been several hundred feet of radiation taken out of that building and I should judge on general principles, assuming the quantity that was in the basement, and I have no definite knowledge of the actual quantity, that the rooms had less than had been employed

in some others, that is in 320 feet of radiation where we would only figure out 280.

Q.—You say that there was radiation short in Kent School, that on the basis of the arrangement you made in regard to Queen Alexandra School, that the school officials were perfectly aware you were going to be short in radiation?

A.—Yes; we put it on the understanding that it would be paid for, the amount paid for and deducted.

Q.—You came to the understanding on these two schools?

A.—That if anything was omitted it would be deducted.

Q.—And that they were aware there was less radiation than specified?

A —Yes.

Q.—And they arrange with you definitely to allow that alteration and charge you with it?

A.—Yes, whatever was done was done at the consultation with the Board.

Q.—Before the work was commenced?

A.—Yes

Q.—Was this shortage of radiation in Kent School, if there was a shortage, shortage which was contemplated from the beginning?

A.—Yes.

Q.—And that was after the execution of the contract?

A.—Yes.

Q.—The change was agreed to by the School Board officials and you put it in accordingly?

A.—Yes.

Referring to the above statement, Mr. Geary asked:

Q.—This settlement was made since the time Mr. Doughty and Mr. Johnson made their inspections and since it was produced to the Court; the total amount of shortage was shown by that as being in the first contract, 1907, 1720 feet; in the second contract, 1909, 3097 ¾ feet; that is you made your settlement and there was a substitution there of Vento radiation made by the arrangement with the officials?

A.—Yes.

Q.—You say that that cost including freight charges and handling about 30 cents a foot, or $1026 as against $942 for the square feet of pipe?

A.—I think those figures are correct; I have no invoice.

Q.—You paid for 3,420 sq. feet at 30 cents a foot, 27½ cents plus freight?

A.—Yes.

Q.—Which made $1026, and that you charged, although Mr. Doughty's estimate was 3080 sq. feet, because you say there was a different rating?

A.—Yes.

Q.—And the 5000 sq. feet of pipe that was specified would cost $942. Then when you settled you had Mr. Doughty's memorandum before you apparently; Mr. Johnson and Mr. Doughty had noticed a difference in the sort of boiler installed from that which was specified, you remember that?

A.—Yes.

Q.—You were charged then in the settlement for that difference in the cost $46?

A.—Yes. I believe we got that price of the difference from John Inglis.

Q.—John Inglis was the maker of the boiler?

A.—No, the first boiler was made by the Jenks Machine Co., and the second was made by Inglis, but the difference in the price in the size of the boilers I got from Inglis, rather a higher price.

Q.—That amount was accepted by the School Board?

A.—Yes.

Q.—The specification calls for Heeson or other approved grates. We fitted Herring grates and were under the impression that they were approved at the time, but if a deduction should be made the difference in cost is $57. You were charged with that?

A.—I do not think I should have been, but I was charged with it. My recollection was that the grates were approved when they went in; however, I was charged.

Q.—There was a difference of No. 12 gauge iron instead of No. 10. You set the difference in price to be $30 and that is an amount you approved of?

A.—Yes, I had a letter from Mr. Inglis which informs me that the breeching is made of No. 10 gauge steel.

Q.—There was a settlement on the shortage in radiation you claimed additional work of $1407 and deductions of $586.56, leaving a difference in your favour of $820.44, and then you claimed on that 20 percent profit, and you made that $984.44, adding 20 percent profit, $164?

A. Yes, those are the figures.

Q.—The additional indirect radiation was this, it was the

difference between 5000 sq. feet of pipe in the vento, $942, and $1026, or $82; it should have been $84 but it was $82 you put in; the engine $400 which was extra; temporary heating $350 which was an extra allowed; how was that allowed; was that in the contract?

A.—No—we provided temporary heating for I think it was two seasons there.

Q.—Outside your contract?

A.—Yes. Do we charge $350 for temporary heating?

Q.—Yes?

A.—We were two years providing temporary heating and altering mains during the construction of the building so that they could teach school in the north wing. There was a serious expense in moving the boiler and providing arrangements for heating the upper end of the school, and also in providing a system of mains for the part under construction.

Q.—And that was arranged between you?

A.—That I should charge for it, yes.

Q.—Connections to coils $200?

A.—Yes.

Q.—Those were not in the contract?

A.—No.

Q.—You were asked to do it on the job; the blow-off tank was not specified, did you install that?

A.—Yes.

Q.—That was arranged for, that price; will you tell me in arranging for the connections, temporary heating, the engine $400 and blow-off tank $200 that you just sent that statement in to the Board and as far as the amount or price goes, that is the information and the only information they had from you?

A.—That is all they had from me I believe—no, I think I sent some other information in connection with the cost of the coils and the engines and blower, I think I sent information of that; I think long before we did that work the information was in for that.

Q.—Will you say that the amount was settled before you did the work?

A.—No, I would not.

Q.—Would that be a verbal arrangement or giving of information by you?

A.—Yes; 90 percent of our work with every person is done verbally.

Q.—Before this statement was sent in you had told them what

the engine would cost and you had charged them something for installing it?

A.—I think the actual difference between that, what I thought at the time was the difference, I learned afterwards it was not the difference there specified.

Q.—How did you come to put in $400 as an extra on the engine, did they ask for a bigger engine or more expensive one?

A.—No, it was a different apparatus, and I believe at that time there was a saving in power effected by the installing of that apparatus.

Q.—You put in something that is different from what was specified?

A.—Yes, a different kind of apparatus that answered the same purpose.

Q.—And it was more expensive to the extent of $400 than what was specified?

A.—Yes, there was a saving of something like 5 horse power in the cost of operat[illegible] and I think there was a considerable saving in the installati[illegible]

Q.—The t[illegible] heating you just bill them with $350?

A.—Yes.

Q.—That is [illegible]y statement they ever got?

A.—Yes.

Q.—The connection to coils $200, you billed them with that—that was labour?

A.—Labour and piping. Nearly all of this work has established values irrespective of the details which may enter into the construction, perhaps that is the reason why it is a stated sum.

Q.—Temporary smoke pipe $85, was that arranged for too?

A.—Yes.

Q.—What became of the smoke pipe?

A.—That was carted back to Inglis and he wanted to charge me for carting it back—I was glad to get it off the premises. It has no value except scrap iron unless you could find some one who wanted to use 30-inch smoke pipe, but each time we had great difficulty in getting rid of it all.

Q.—You got no credit for it?

A.—No, they agreed to store it and make allowance if they were able to use it.

Q.—You allowed for $453.56 deductions on radiation?

A.—Yes.

Q.—That is your allowance for the amount of shortage which you claim is there, having Mr. Doughty's report before you?

A.—Taking Mr. Doughty's measurements.

Q.—You claimed that that was the allowance that should be made $453.56, and this amount of the settlement was proposed to be allowed for the shortage for the difference between the amount of radiation actually installed and what was set out in the contract?

A.—That was the difference in the value of the radiation installed and specified.

Q.—Mr. Doughty measured in the first contract 1720 feet short?

A.—Yes.

Q.—You claimed that 800 feet of that had been in but had been removed by you?

A.—There was practically, I am not sure of the amount, but there were all the indirect coils at the base of the flues in the basement.

Q.—You estimated 800 feet and the School Board took your estimate apparently?

A.—Yes.

Q.—That would reduce the 1720 feet missing in 1907 contract to 920?

A.—Yes.

Q.—In the 1909 contract Messrs. Doughty and Johnson found that there were 3098 feet short?

A.—Yes, that was their report.

Q.—Can you tell me how that came to be settled on the basis of 1518 feet?

A.—No. Did not we take his figures in the report?

Q.—3098 Mr. Doughty and Mr. Johnson found short, but you were settled with on the basis of 1518 being found short?

A.—That is all I sent in, I don't know.

Q.—In the first memorandum the radiation omitted in direct heating amounted to $490.80?

A.—I don't know why or how it is made up.

Q.—You claim that balance $984.44; and the result of all these figures we have been going over was that the School Board allowed you $915.84, the difference being made up principally on the item of radiation, which you say should be $453.56 which the School Board say should be $490.80, and which Mr. Doughty and Mr. Johnson say should be on the basis of 4,818 instead of 2,217 which would make twice that amount?

A.—I think you are counting indirect radiation in there; indirect radiation is settled by itself, this 5000 and this 3,420.

Q —That goes by itself?

A.—How do they make up that difference? This settlement of mine was taken off their report and I do not see how it could get into that shape; the specification calls for 15,800 and so on and there is a difference of 2217, that is the actual difference by Mr. Doughty's report.

Q.—2217?

A.—Yes, which we allowed for.

Q.—The School Board seems to have allowed 1518 only; you do not know how that was?

A.—No.

Q.—You say the covering was left off the pipes in that school by direction, they were left off?

A.—Yes.

Q.—By direction?

A.—Perhaps I could say by direction; I took it up with the Department; I think there was some correspondence in regard to the later schools; whatever we were directed to cover we covered.

Mr. Waste was examined as to the settlement as follows:

Q.—One question about the Kent settlement which we went through this morning; I observe in going over that that Mr. Armstrong submitted to you certain prices as being the proper allowances and you accepted them; tell me what steps you took to ascertain if those were correct?

A —Kent School adjustment was made in consultation with Mr. Doughty and I believe between us we arrived at that that these prices were fair as far as they were allowed us; some things I was more familiar with the conditions as the work went on; of course Mr. Doughty not being associated with it I was familiar with it, and other things he was more familiar with.

Q.—Did you check up the amount of $350 to provide heat during the erection of building?

A.—I did.

Q.—He put that in at $350 and you allowed it at $360.

A.—Being allowed at $360 it was not excessive.

Q.—It is $10 more than he claimed for?

A.—Yes.

Q.—Then there was a difference on additional radiation of $82, and there is put in the cost of vento rads over 1-inch pipe

radiation, $102; how did you come to do that, that is not in Mr. Doughty's writing?

A.—That copy is all in my writing, but I think Mr. Doughty got the prices on that vento radiation. All that difference is scheduled in Mr. Doughty's report.

Q.—Mr. Doughty approves of this subject to filling in the three items, and that is one of them?

A.—And then Mr. Doughty and I took up the items.

Q.—He asked you for $82 and you allowed him $102?

A.—That may be due to the quantity.

Q.—He made up the quantity here very specifically and he called it $82?

A.—I think the correct figure will work out at $102, I think that will be found correct on the basis Mr. Doughty and I worked.

Q.—Tell me this, how did you come to agree with Mr. Armstrong that 800 ft. in the old building was removed?

A.—Because it was there temporarily; the basement is all changed.

Q.—You accepted his estimate?

A.—I do not know that I accepted his estimate.

Q.—Did you measure it up any way?

A.—Mr. Doughty and I perhaps thought it was a fair estimate.

Q.—It could not be within Mr. Doughty's knowledge or your knowledge unless you measured it up; Mr. Armstrong estimated it at 800 feet?

A.—The radiation was changed in the alterations in the old building and new, and I know what the old building was, and I know that is a fair amount

Q.—Mr. Doughty had 3098 feet in the 1909 contract; you put in 1518?

Q.—I think Mr. Armstrong gave us some estimates and Mr. Doughty went into them to verify the question of whether it was a fair estimate.

Q.—Do you understand how that was taken off then; that is what you allowed anyway?

A.—Yes.

Q.—Where did you get that price of $16.85 per hundred?

A.—I don't know whether that is Mr. Armstrong's invoice or not.

Mr. Sparling of Bennett & Wright, being asked with reference to the boiler in Kent School that was installed, being smaller than the one specified, he was asked the difference in the cost of the two

boilers; he replied it might vary anywhere from $100 to $200 taking a rough estimate.

Q.—Do you think it would be less than $100?

A.—There is a possibility it might run $75 to $100.

Subsequently he stated that it might run between $50 and $75.

I find in this settlement carried out by Mr. Waste and Mr. Armstrong that while agreeing to the shortage mentioned in the Messrs. Doughty and Johnson report they did not carry that out in their settlement hut reduced the amount considerably. In the 1907 contract the shortage was 1720 sq. feet. From this both Mr. Waste and Mr. Armstrong deducted 800 sq. feet as being the radiation that he removed from the building when the new contract was being entered into and for which no allowance was made to the Board. This left 920 sq. feet shortage on the first contract. In the second contract (1909) the shortage reported was 3,097¾ sq. feet. In the settlement it was stated that in the direct stack 1-inch pipe of 5000 sq. feet was specified hut by arrangement vento radiation was installed. The 5000 sq. feet of pipe if it could be installed would cost about $942; the vento radiation including their charges of handling, cost about 30 cents a foot or $1026. Mr. Doughty's measurement of this radiation made the vento radiation 3080 sq. feet while Mr. Armstrong claimed that 3,420 sq. feet were paid for. In the settlement Mr. Waste allowed Mr. Armstrong to set off this amount of 3,420 sq. feet as against the 5000 sq. feet of indirect radiation called for in the specifications. Not only did he allow that, but he also allowed him $200 for extra labour in connection with this vento radiation and $102 for the difference in the cost between that and the piping specified, which Mr. Armstrong said would cost about 18.84 cents per foot, but when Mr. Armstrong was being charged with the shortage of the radiation, Mr. Waste instead of charging him at the same rate of $18.84 only deducted at the rate of $16.85, a difference of 2 cents a foot or $44.34 on the number of feet he allowed as shortage.

With reference to the deductions there was no account ever rendered; and in Mr. Armstrong's ledger he appears to have entered about the time of the settlement as extras "$900." Extras were allowed to him at $1357, less $586.56 deduction, and 20 percent profit, or $164 on the difference, and he was paid $934.44 in addition to the contract price. These extras were accepted by Mr. Waste at the amounts given to him by Mr. Armstrong as to the cost of the work covered by these sums.

The extras charged by Mr. Armstrong apparently covered his

profit on same while the deductions were less than the regular charge, yet he was allowed by Mr. Waste a further profit on the difference due him of $164.00 which in my opinion should not have been allowed.

JAMIESON AVENUE SCHOOL CONTRACT.

Mr. Waste was examined as follows:

Q.—In Jamieson Avenue. The smoke pipe of No. 10 gauge was not installed, but the smoke pipe of 14 gauge was installed, did you know that?

A.—I accept that statement as correct.

Q.—And did you make any charge for the difference?

A.—There was no deduction from that item specifically, probably not.

Q.—Then you were to have valves fitted so that all direct radiation could be cut off leaving the indirect coils and vent shaft coils working, and so the indirect coils or the coils in the vent shaft could be used independently of each other, that has not been installed?

A.—Whatever the statement is.

Q.—The direct radiators and indirect radiators are supplied from the one main. This means that the direct radiators cannot be cut off without leaving the indirect coils working?

A.—If that is the statement there I think that is correct.

Q.—Is that proper construction if you specify the other?

A.—That is like some of the other items you were speaking of a few minutes ago; I would consider it is proper with or without it; it is a matter of opinion as to how much they might be considered desirable or not.

Q.—You specified it with, Mr. Waste, and you allowed it to go without?

A.—That is true.

Q.—I am told by this report that in order to install it in accordance with the specifications, it would require a separate main leading to indirect coils with valves on supply and return; that would be some work?

A.—Some little additional work.

Q.—Some extra cost?

A.—Yes.

Q.—So that allowing them to be done without would necessitate an allowance on the contract?

A.—Yes.

Q.—Do you remember about making a deduction?

A.—I could not write you out from memory an itemized statement—I do not remember there were any deductions from that; the same thing; I remember in connection with the indirect heating chambers that they had a considerable amount of extra work that was not allowed anything for, and I would offset that against something where I thought they might possibly make a claim.

Q.—You think their itemized statement of extra claims was not complete, you think there were others that were not asked for?

A.—I think they might have made additional claims.

Q.—On the score of the possibility of their being able to make other claims you have allowed these matters?

A.—Yes.

Q.—There are a couple of valves and some more pipes?

A.—It might have been ten or fifteen.

Q.—How much are the valves worth each?

A.—I would not set a price on those without going into the detail.

Q.—We were told that some connections cost $90?

A.—Quite true.

Q.—Instead of Monarch automatic air valves, Jenkins valves were installed on the radiators, was that satisfactory to you?

A.—Yes.

Q.—Instead of a mica covering mineral wool in canvas was used?

A.—Yes, the same as in other cases.

Q.—In Kent School we have the same boiler difficulty which was covered by the letter read except for this point, that the boiler installed is 66 inches with 102 tubes 3 x 14, what you were called on to do was to install a 66-inch boiler with 104 tubes 3 x 16 feet; that would not be the same difficulty that Mr. Armstrong refers to; that would be a cheaper boiler I suppose because there would be two tubes less; there would be an allowance there?

A.—Yes.

Q.—You had that in mind?

A.—Yes.

Q.—In this, Kent School, in the first contract there was no cover on the pipes at all, that was to your satisfaction, was it, too?

A.—Yes.

Q. When you made the different changes you have told us—

you know the provision in the by-laws as to how changes are to be made, with the approval of the Property Committee, Mr. Bishop?

Mr. Bishop: Yes.

Mr. Geary: In practice was that carried out?

Mr. Bishop: Never.

Mr. Geary: In practice, although your contracts provide for that you do not get these alterations approved of by any committee or anybody but yourself?

Mr. Bishop: No.

Q.—Specification calls for steam mains and radiators to be fitted with valves, so that the radiators in class rooms may be cut off and the coils in the halls and ventilating shafts can be used separate from the other radiators. Mains have not been piped and valved so that class rooms can be shut off independant of halls and ventilating shafts. All radiators in class rooms, halls and ventilating shafts have been fed off one main—is that right?

A.—Yes.

Q.—You did not think it worth while to have the apparatus fitted so that they could cut off the load?

A.—No.

Q.—That would be a considerable saving?

A.—Yes.

Q.—Quite a considerable saving?

A.—I would not be able to say just what without going into it.

Q.—And that you allowed?

A.—Yes.

LANSDOWNE SCHOOL CONTRACT.

Mr. Waste was examined as to the contract as follows:

Q.—Lansdowne School, the report before us shows a considerable shortage from the School Board's plans?

A.—That was settled by the acceptance of the work as installed for the agreed contract.

Q.—And you accepted, did you, the radiation in quantities that actually appear?

A.—Yes.

Q.—You accepted what they put in?

A.—We accepted the installation.

Q.—Was there any competition in Lansdowne?

A.—I do not remember.

Q.—Bennett & Wright seem to have competed, and Purdy Mansell they tendered on your specifications did they?

A.—Yes.

Q.—They tendered on your specifications, Mr. Armstrong tendered on specifications of his own at a lower price and you accepted Mr. Armstrong's specifications and he got the contract?

A.—Yes.

Q.—You went over the building with Mr. Armstrong as to the two sets of plans, and you decided on his?

Mr. Bishop: Yes. One of the two propositions was carried out. He had prepared both, he had submitted two.

Q.—So that you abandoned your own and took one of his?

Mr. Bishop: Yes.

Q.—Then Armstrong did render an account for some extra work he had done?

A.—Mr. Waste: Yes, it was work that developed as a necessity in other connections.

Q.—$190 extra on contract you have pencilled here and '$120.86 in separate account charged to repairs'?

A.—My recollection was at fault in that; I had the impression that only one was allowed.

Q.—There is a school in 1908 where he did render an account for all these extras?

A.—Yes.

Q.—That was an exception to the general rule?

A.—Yes.

Q.—That was an account where there was no question of extras or short radiation, because he was doing it on his own plans?

A.—I believe so.

RYERSON SCHOOL CONTRACT, Shortages, etc.

Mr. Armstrong on being examined said:

"I think reference has been made to the pump. As a matter of fact the specifications for this school were written in Chicago, and it was customary there to specify an American pump and a Smithvale pump was specified. A Smithvale pump 6 x 4 x 8 is an ordinary simplex one stroke pump; we bought a duplex pump; it has 60 or 70 per cent more capacity in pounds of water it will pump; and it cost us $25 more— the catch basin itself was omitted. There were two boilers in the building and those two boilers discharge into the drain at a low pressure, and when it comes to the question

of installating drip pump it would have necessitated a good deal of work in connection with the drainage which would be quite outside of our contract. It was omitted quite intentionally, and I understood when they were taking it up they had deducted from me the amount to cover it, but in any case it was omitted intentionally. The matter of the matched flooring and the tin. those are small matters; there is no question that they are there.

Mr. Waste said

Q.—Ryerson School, how about the settlement in that?

A.—There was a slight deduction; that was done on his own plans and specifications, a slight deduction for some work improperly done.

WELLESLEY SCHOOL CONTRACT.

Mr. Waste was examined as to the report on this school.

Q.—Then the specifications in Wellesley School; these boilers are to have safety valves, automatic fittings and all attachments, to leave them in complete working order: did you intend these to be fitted up with automatic damper regulators and water feeds?

A.—The question of the automatic water feed was specified in cases where it was not installed and not asked for.

Q.—How about damper regulators?

A.—That is an item that might be considered by some desirable, and some otherwise.

Q.—They are not here and I suppose you have made an allowance for them in the same way?

A.—I have considered that that was an item that was not of any particular moment either way.

Q.—The same about automatic heat regulators in the teachers' lavatory for controlling the heat in the teachers' lavatory?

A.—Yes.

Q.—You left that off too?

A.—Yes.

Q.—There is a blow-off tank installed, although not specified, was this allowed for?

A.—No sir, that was offset and I believe in a number of cases the Board would have the best of it on the adjustments made.

Q.—In this he had a variation, the specification does not call for steam pipes to be covered, but they are all covered excepting branches from mains and main in armouries; that is a little different from the other cases.

Q.—And charged for as an extra?

A.—I do not remember that—it may have been charged and not paid and I really do not remember any account; there may have been pipes covered there independent of the contract, I do not remember. I understand him to say the specification calls for the pipes to be covered.

Mr. Armstrong: They were covered by us; the conditions were such in Wellesley School that I understand that Mr. Bishop wanted to have them covered, but I do not think there was any charge or any payment made for them. I have no recollection of such.

VENTILATION TEST AT OGDEN SCHOOL.

After Professor Angus's report as to the testing [illegible] the apparatus had been published, Mr. Waste instructed the contractors to make certain adjustments and repairs to the apparatus, and then made tests in reply to those of Professor Angus. Professor Angus had informed Mr. Waste before making his test of the time when he would make the test, and the apparatus could at that time have been put in proper repair if it were desired, but this was not done.

Tests were made by the Department on several schools. It was admitted there were no tests made [illegible] several years before the test [illegible] Professor Angus; and Mr. W[illegible] stated in evidence he did not question [illegible] a moment the correctness of Prof. Angus's report but that their basis for testing had always been the measurement of the air at the outlet in each class room and not at the inlet to the fa[illegible]

[illegible] the Department made a test of [illegible]e air entering int[illegible]s on the Ogden School and found it to [illegible] 48,000 cu[illegible] [illegible] Professor Angus's [illegible] showed only 15,000. Th[illegible]ing to Professor Angus having made [illegible] mi[illegible] in [illegible] the measurement of the area of the second [illegible], wh[illegible]arried out made it 30,000 cubic feet as against [illegible]8,000 me[illegible] the Department. I therefore ordered a test to be made by [illegible]or Angus with Mr. Bishop and Mr. Waste. The Department [illegible]ppointed Mr. M. F. Thomas to represent them in mak[illegible] is te[illegible] Tests were made on the 4th and [illegible]h October respectiv[illegible]

Professor Angus gave the following evidence as to same:

Q.—The specification calls for delivery [illegible] 55,000 cubic feet at 110 revolutions per minute?

A.—Yes.

Q.—[illegible] then a 155 or 162?

A.—It should have been more; but Mr. Armstrong and Mr Waste have both made an explanation that they put in a fan of a different size, so that it had to run at a higher speed, and so the 155 is the speed Mr. Armstrong has given in his evidence the correct speed of the fan. The mean speed of the fan when I was taking the air entering the window was 162 revolutions per minute, and on the test I got 30,500 cubic feet of air per minute. That is the result, [illegible] of a single test, and it is probably not quite as accurate as the [illegible] I did before.

Tell me then [illegible] passing all the air coming in that opening was measured?

A. Yes.

Q.—What air all driven into the class room?

A.—Yes.

Q. [illegible] that have been added to in transit?

A. No.

Q. Is [illegible] then accurate to say that a measurement at the point of entry would show the same result as a measurement at point of [illegible] into the class rooms?

A. I do not think it will, I do not think the measurement of the air into the class rooms will show the same result as you will get by taking the air coming in at the window, although the same quantity is present in both cases. The [illegible] way is to get the total amount of air coming in in measuring the class rooms, you have over 30 rooms and that takes several hours, and the velocity of air at the different registers varies a good deal from the bottom. In the bottom of the register in many cases [illegible] velocity at all practically, but in the top it was high. My own opinion is that you will always get a higher result at the window than you will at the entrance of the building, and I think this will come in due to the difference in velocity between the top and bottom of the registers.

Q.—If you had simultaneously a test being made at the window would that produce the same result as the test at the point of entry?

A.—I think it would probably give a little higher result in the rooms than at the entrance.

Q. That is on account of the velocity and of the unequal distribution of the air at the registers?

A.—That would be part of it—the anemometer is just at its windmill and it is simply held up in front of the register, and there are various methods of performing the operation; my method was

to move it horizontally over this space, bring it from the top of the register to the bottom, gradaully working it down—I first of all tried working the anemometer vertically and I did not think I could get as good a result that way, because in moving from the bottom to the top of the register I was going from a place where there was no velocity to a place where it was high, and going down again I was moving from the place of high velocity to a velocity of nothing.

Q.—Supposing there was a velocity in the higher place and none in the lower, does your windmill, having started going in the upper part, still keep going?

A.—Yes, I found my anemometer was running all the time.

Q.—And it might be measuring air where there was no air?

A.—Yes, it would lag going up, but my impression was it was measuring too high that way—the air I measured coming into the building on the 4th October, was 30,500 cubic feet per minute; that was the result of a single observation and was not checked, so that there may be a little inaccuracy in it—Mr. Thomas was there as the representative of the School Board and he made the measurements at the same time, obtaining 33,700 cubic feet per minute. His measurement was on a slightly different method from mine, but I would not quarrel very much with those two results—then we also measured the air coming into the rooms, and that showed 60,000 cubic feet per minute. However, that time the speed of the fan appeared to be 168 revolutions per minute, slightly higher than the previous case.

Q.—Would your measurement show 60,000 cubic feet coming in the register?

A.—Yes.

Q.—You agreed as to that measurement as well?

A.—Yes—I might say the 60,000 differed altogether too much from the 30,000 ,and I desired to have a rather more accurate test made than that, and in order to make a more accurate test this third one was where there were a lot of observers to see that we had uniform conditions during the entire time of the test. The third test was made on October 27th. When I first went up to the building I took the speed of the fan and found it 155, and I supposed it was to be left at that rate, but apparently it was changed, and during our test the speed was 180 revolutions per minute.

Q.—The fan was speeded up somewhat?

A.—Yes, that test gave 42,800 cubic feet per minute entering the building; and in the same time Mr. Thomas made a test on the

same windows, results of single observation in each case and my calculation of that is the result shows 44,300 entering the building. Those two measurements agree; they were done with different anemometers.

Q.—Then the test of the air entering the class rooms?

A.—I measured the air entering the class rooms and found 56,000 cubic feet per minute. Mr. Thomas made a calibration at the same time in a slightly different way to mine and I have not his results—56,000 at 180 revolutions per minute; I believe the 56,000 is still too high

Q.—The specifications require the fan to be of sufficient capacity to supply 55,000 cubic feet of air per minute at 110 revolutions supplied direct connected horizontal 35 horse power engine to operate the fan at a maximum pressure of 30 pounds?

A.—There is another clause in the specification that does not agree with that: it says there must be six changes of air per hour in each room.

Q —How that does that not agree?

A.—In giving one time 36,000 feet of air and the other 55,000.

Q.—36,000 would be six times an hour?

A.—Yes.

Q.—That is a different test applied; in the one case it is specified how much they should be, and in this other case it reads that it must change the air six times per hour?

A.—I think it is a somewhat different case possibly, I am not certain whether it is or not, but it seems to me it may be. These fans are sold by the manufacturers and supposed to give a certain quantity of air at a certain speed, and the claim made by Mr. Waste and Mr. Armstrong is that they put in a fan which according to the builders tables would do that; they said here that they did not expect to get 55,000 cubic feet of air per minute out of the fan at all, but only 36,000; I took the specification for what it was worth; it stated the fan had to give 55,000, and I interpreted that as meaning it would deliver 55,000 cubic feet of air per minute into the building, that does not agree with the other and I do not know how to reconcile them.

Mr. Melvern F. Thomas, who had 12 years experience in engineering work, having specialized in fan work for three years, and whose firm has charge of the heating of the C.P.R., building Toronto, tested the air with Prof. Angus and Mr. Waste on the 4th and 27th October. He reported that the fan had a diameter of 96 inches, and two inlet openings 68 inches in diameter, whereas

Prof. Angus' report stated the diameter as 62 inches. He also referred to the formulas of Prof. Carpenter leading experimental engineer of the United States and Nelson H. Thompson, in charge of the Federal Building of the United States, and stated that applying the formula of Prof. Carpenter he found that the fan should operate at 152 revolutions per minute to give one-half ounce pressure, and supply approximately 53,000 cubic feet of air per minute; also that the fan should operate at 170 revolutions per minute to give a pressure of $^{5}/_{8}$ ounce per sq. inch, and supply approximately 59,000 cubic feet of air per minute. By the formula of Mr. Thompson the fan should supply approximately 54,000 cubic feet of air per minute at 152 revolutions per minute, and approximately 60,000 cubic feet of air per minute at 170 revolutions per minute. Mr. Thomas stated the specifications under which the ventilation system in Ogden School was installed, state that the fan shall have a capacity to suply 55,000 cubic feet of air per minute at 110 revolutions per minute. This would require a standard fan having a wheel about 120 inches in diameter, but it would have been impossible to have installed this fan provided in the building, as the ceiling height in the fan room is only about ten feet. It was therefore necessary to select a special fan having a smaller diameter of wheel and a width greater than the standard in order to obtain the proper capacity and allow the apparatus to be placed in the space which was allowed; that since the speed of the fan having a smaller diameter wheel must be greater than that of a fan having a large wheel in order to obtain the same pressure, it is necessary to operate the fan which was installed in this building at a higher speed than 110 revolutions per minute. He stated that all recognized authorities show that this fan is the proper size to deliver the quantity of air required by the specifications. Also that the fan installed is better adapted to the building conditions than the standard fan would be.

Referring to the air changes, Mr. Thomas said:

The specifications state that the apparatus shall change the air in the class rooms six times per hour, and to determine this point the air entering several rooms was measured at the supply register faces, which is the proper place to make the measurement. An anemometer was furnished by Prof. Angus to make these measurements. The results show rather wide variations, but it is quite safe to state that the specifications are being fulfilled, that the quantity of air supplied to each class room is sufficient to give more than six changes per hour. The system of ventilation in Ogden

School compares favourably with that in use in the schools of the cities of Chicago and New York, and with other modern schools which have come under his observation.

He said he did not make measurements of the ducts at Ogden School, but applying the formula for the capacity, making an approximate measurement of the air, the duct system is evidently not large enough to take the 55,000 cubic feet at the pressure of one-half ounce.

Q.—If the ducts were increased what would be the effect of the capacity showing of the machine?

A.—The output would be increased or the capacity would be increased.

Q.—The air might go in at the inlet, but there might be some defective distribution?

A.—There might be too much go into some rooms and not enough into others, for that reason it would be necessary to measure at the outlet if we are going to test the ventilating system. The practice in testing the air change in the rooms is to measure at the outlet. The New York School Board and the New York State Board both measure it that way.

Q.—How could you explain the discrepancy between the measurements indicating some 42,000 cubic feet of air going in at the outside, at the exterior outlet, and the 59,000 at the register face?

A.—That would partly be due to the inaccurate way of measuring at the inlet, possibly some inaccuracy at the outlet; inaccuracy at the outlet because we had a very high velocity there, and we were standing in front of our instruments making the measurements.

Q.—Which of these tests do you think was the more accurate?

A.—I should say that the accuracy of the system probably was not exactly represented by either the capacity of the fan, the measurement of the air; the distribution system is probably more accurately represented by the measurement in the rooms. Professor Angus has stated that the measuring over a large number of areas is likely to give some error, that is true, due to the varying velocities; on the other hand the extension of time necessary to make those measurements will have a tendency to average the results of the variations in the fan speed. A small error in the measurement of the inlet at the fan would be more effective because of the higher velocity you are dealing with.

Mr. Thomas stated that their specifications always mentioned what pipes are to be covered and what are to remain uncovered.

Q.—What do your specifications specify; do they specify where pipes are to be covered?

A.—Yes, we would say all pipes in certain rooms, or we would specify the rooms by numbers, or we would specify the mains to be covered.

TO MR. GEARY

Q.—You did make measurements at the inlet to the building

A.—I did.

Q.—And those practically agreed with Professor Angus's measurements?

A.—Very nearly I understand.

Q.—Practically an agreement he said; the slight difference is one that is not unreasonable?

A.—Yes.

Q —So that you did measure as Mr. Angus measured, and each of you being an expert able to do that work and arrive at the same results you would say it was accurately measured?

A.—I have criticized that method and said they were not so accurate at the inlet due to the higher velocity, and we were standing In front of the inlet

Q.—That is the only criticism you have to make?

A —Yes.

Q —In regard to the measurement in the room, when we measure the room, the register face, tell me what you do with your anemometer?

A.—We attempt to move the anemometer over the working section of the face, that is over the open area in such a way as to have it the same length of time over each part of the register face, up and down.

Q.—Is it true there is a greater velocity in the top part of the register than in the bottom?

A.—Nearly always true.

Q.—Is it true there may be almost a stillness at the bottom?

A.—Yes.

Q.—And a great velocity at the top?

A.—Yes.

Q. —Does your windmill machine, having got that impetus, carry that impetus until in the natural process of time it stops?

A.—It carries it, but gradually due to its inertia stops and also

a lower velocity over the higher velocity there as you move upwards.

Q.—You come from the bottom down you have a high velocity to start with, you have some impetus to your machine, may that last over a comparatively still part of the bottom of the face of the register?

A.—It may, but that does not necessarily mean any error.

Q.—It may do that?

A.—Yes

Q.—If you move across and work your machine across your register face, are not you going to get more accurate results?

A.—I would not say so, for the reason you would not be able to get your time to divide accurately giving as accurate proportion to the velocity area and the non-velocity area.

Q.—You think you would get a better result going up and down from the swift velocity into the still and back than you would taking the velocity at the top horizontally and then getting into the still amount and getting that all uniform?

A.—I differ from him.

Q.—Are the variations as great between one part of the inlet opening and another as the variations are between the top of the register face and the bottom?

A. No.

Q.—You said your body standing in front interfered, did any part of your body interfere in the measurements at the register face?

A.—Not so much there.

Q.—Is there any part of your body interfering at the register face when you measure?

A.—The arm.

Q.—The arm was occupying the same position with regard to the small space that your body was with regard to the large space that your body was with regard to the large space below?

A.—No—you are standing in front of your large space, and you are standing to one side of the small space.

Q.—Do you say that as affording any basis of inaccuracy?

A.—I do.

Q.—It is possible that some currents of air or some checking up or something of that sort may occur to prevent proper distribution into the rooms?

A.—Yes.

Q.—You may get too much in one room and not enough in another?

A.—Yes.

Q.—So that there is not an equal distribution through the ducts all the time.

A.—There may not be, I did not find that there was not in this building.

Q.—There may be, and there may be some reason for inaccuracy in that measurement too?

A.—Yes, that would be an inaccuracy in the way of decrease in the output; it would be a decrease in the output of some rooms and possibly an increase of output in others; you never increase the volume.

Q.—You say the air was changed six times, do you mean in every room in this school?

A.—I mean on the average.

Q.—When you use average do you mean to say in some cases there are less than six changes?

A.—Yes.

Q.—You found it should operate at the 152 revolutions per minute to give one-half ounce pressure, and at 170 to give a pressure of ⅝ ounce per square inch, did you measure the pressure?

A.—No.

Q.—Is not that an essential part of that formula that the pressure should be known?

A.—It is.

Q.—And you did not measure it?

A.—I did not measure it. I might say that the calculation of the capacity had nothing to do with any test.

TO MR. BROWN

Q —Which is the better practice, measuring up and down, or across the face of the registers, what is the general practice?

A.—My practice is to measure it up and down for the reason I have given.

Q.—What is the general practice, are you familiar with that?

A.—I do not know whether there is one fixed general practice in respect to that.

In his evidence on this subject Mr. Armstrong stated that subsequent to the reception of Prof. Angus's report on the ventilation plants of the different schools he had been instructed by Mr.

Waste to adjust the apparatus and make such repairs as were necessary, and that he did adjust them and the proper quantity of air was delivered to the rooms; this was done before the Board made their tests.

Q.—Have all the schools been gone through since the Professor's report?

A.—No, I think there were three or four we had instructions to go through, Queen Alexandra, Kent, Ogden and Ryerson.

Q.—Did you put those in proper repair?

A.—Yes.

Q.—What did you do in order to do that?

A.—Adjusting the dampers and repairing the belts and attending to the engine and pump.

Q.—Cleaning up the whole thing?

A.—Yes, sir.

Q.—How much will that cost.

A.—I do not know, that is something that is very necessary to do each year, absolutely necessary. That is work that is required to be done constantly. Apparatus that works such as ventilating apparatus requires constant attention on the part of the operator, and if it is not looked after every day and every week, tightening of belts and adjusting of pumps, there comes a time when it will need more repairs later on.

Q.—At the time Professor Angus's report was put in the conditions were entirely different from the time when the School Board are reporting of?

A.—In this particular case the professor says the fan was operating at 126 revolutions, and if the fan were run at the correct speed of 126 revolutions it might give the specified volume, although this could not be predicted without a trial.' So that the whole of this report with the exception of the criticisms that are offered merely get down to the proof that the system was not in working order.

Q.—At that particular time?

A.—Yes.

Q.—So that his report would be perfectly correct then?

A.—Yes, I take no exception to it.

Q.—I suppose that would account for Mr. Brown's statement that the conditions are now entirely different from when Professor Angus made his report, that is the conditions have been altered by the Board?

A.—It would be to a large extent. Reading over the professor's

report I assume in the majority of cases he made anomometer tests at the air inlet. Where the air comes in under a large surface and in different directions it is a most difficult thing to get the right quantity there. Engineers generally make anemometer tests at the outlet of a room. In addition to that, as the professor states, air has to be corrected for temperature; if you have air in at zero its delivery will be increased perhaps 25 or 30 per cent; at any rate it would be increased by a very large volume at the point of delivery. You might take 25,000 at the inlet and 35,000 at the outlet.

Q.—The fact remains that Mr. Angus found that amount of air coming through. 'The area of the duct is 534 sq. inches and of the large door is 3,649 sq. inches, making a total of 4,183 sq. inches.' as compared with the required area of 5,600 sq. inches. Since that was reported it has been adjusted?

A.—The professor took his tests at the inlet we took our tests at the outlet, which is generally accepted as the place where the tests are made The fresh air inlet, to which the professor refers, is something done after our contract was completed. The plans and specifications give the number of sq. inches of free air area, 5,600, which is very nice. Very often engineers who do not live in the country make an ideal plan, and when a contractor gets the plan he must put the apparatus in to suit the building conditions, and while we woul be glad to get 5,600 sq. inches we must sometimes take smaller capacity.

Q. In that school the guarantee was 46,329 cubic feet per minute, and the actual amount entering the class rooms was 30,900 cubic feet in Prof. Angus's test; it seems to me to be rather a large discrepancy to occur just by reason of non-adjustment of apparatus.

A.—The fan at Annette School has a greater capacity, 56,600 sq. feet at 149 revolutions, that is the commercial size, the maker's size of the fan. It is not the size of the fan specified, because the fan that was specified with the size wheel and the width and the number of revolutions would not produce the air and the quantity of air it does produce would not be at sufficient pressure to drive it out at the outlets; but the fan has a capacity of 56,600.

Q.—You arranged for the fan you actually put in with the Department?

A.—Yes, we had to get the size; that is a matter of engineering; if it was merely a matter of buying the fan we would put in exactly the fan specified, but if some responsibility goes with the sale of the fan we have to consider that, and we have to see we are going to get the results. In Ogden School the fan is specified 55,000 feet of

air a minute at 110 revolutions; that is a commercial size of fan, a standard size. It would be over 220 inches in height. To accommodate a an of that description you would have to have a basement 21 feet in height. To get over a difficulty of that kind the makers designed a fan that is not so high and is wider; just as soon as the width increases the diameter of the wheel decreases; that is, the smaller the case the smaller the diameter of the wheel; the ratio continues, and the moment the diameter of the fan decreases the revolutions must increase.

Q.—Instead of making it wider could not you make a well in the basement for it?

A.—Quite so, yes. I was just coming to that. To make it quite clear, just as you decrease the diameter of the fan the revolutions increase, and that explains the variation in the number of revolutions that this fan is operating at in comparison with what was specified; this was 110 for a commercial size 220-inch fan, and it now operates at 155, which is the correct number of revolutions for it. About making the well it would be necessary for the Board of Education to provide a place or a room that would be 20 feet in depth—perhaps if we put in a three-quarter housed fan the depth might be a little less, but the scroll in any case would be under the sewer, and that would be filled with water. While the price would not vary it seems to me it would be extra expense to underpin and do all that work. The efficiency of the apparatus is equal to the one specified. It does the work with the same power, delivers the same quantity of air at the same temperature using the same horse power. That would explain why the fan is not running at the same number of revolutions as specified. I am under the impression when Prof. Angus made his tests on Ogden School there were only two fresh air windows open. That was another case where there was some difficulty, architectural, in getting the number of square inches of free air area, and we had to carry a branch duct some distance to the west. It is quite possible the caretaker may not have used the three windows, in any case, the three windows were not opened when Prof. Angus made his test, and they were open at the time we made out test. It is quite possible also in measuring at the inlet that the Professor would notice a marked difference in the quantity of air delivered, but the outlets delivered the quantity of air that is required, although that is not required by the specifications. While the specification calls for a fan having a capacity of 55,000 sq. feet it only calls for a delivery of air equal to six times per room. The regular size of the school room is 12,000

cubic feet so that we would require 1200 feet per minute, and taking 30 rooms we would require 36,000 cubic feet of air per minute to comply with the specifications. We guarantee the fan is of the capacity and size, and our specifications call for 36,000 cubic feet of air delivered into the rooms, and I believe we have close to 50,000. That comes from perhaps a more generous distribution of the air and designing of the ventilating system.

Subsequently Mr. Bishop wrote to the Canadian Domestic Engineering Co., of which George Huey, mechanical engineer, is the President, and to Sheldons Limited, who had supplied the fan in question. Mr. Bishop's letters were as follows:

November 12th, 1913.

Mr. Geo. Huey,
Heating & Ventilating Engineer,
47 King St., West, Toronto.

Dear Sir:

In connection with the recent investigation of the Board of Education contracts and more particularly the work of this Department, there were several tests made of the ventilation at Ogden School on Phoebe Street.

I considered it in the interest of the Board to engage the services of an expert to join the Court's expert in these tests and necessarily one who had been in no way associated with any other work for the Board.

Under these circumstances I was fortunate enough to secure the services of Mr. Thomas, the Toronto Manager for Mr. James McAlear.

While Mr. Thomas' services were highly satisfactory and his reports and evidence confirms the basis on which I have worked, there are some differences between these views and those of some other witnesses.

In order therefore to satisfy myself more fully and as a further guidance in future work, I beg to request you to furnish me at your earliest convenience your advice on the following points:

What is the usual practice in testing a ventilating apparatus in school house operation as to the amount of ventilation given, in other words the cubic feet of air supplied? Or the number of changes per hour is it by the anemometer test at the openings in class rooms or at the intake windows?

What do you consider the best method of taking the anemometer readings at the register openings? Is it by moving the instrument over the face of the register, up and down or crosswise, etc?

If anemometer reading is taken at inside of a large intake window, would the body of a man holding the instrument effect the flow of air and correctness of the reading?

Is the capacity of ventilating fans rated for purpose of specifying, on their commercial rating as published by recognized manufacturers, or are they measured by anemometer tests after installation.

Any information you can furnish me as to the practice in your own work or that of others in these respects will oblige.

Yours truly,
(Sgd.) C. H. B.
Supt. of Buildings.

November 17th, 1913.

Messrs. Sheldons Ltd.,
Kent Bldg.,
Yonge St., Toronto.

Dear Sirs:

In connection with the recent investigation of contracts with this Board, there have been some questions as to the proper manner of measuring or rating ventilating fans and testing ventilation apparatus generally.

In order to further supplement information already obtained, I beg to request you to favour me with your experience and opinion in regard to the following points, viz:

Are ventilating fans usually specified, supplied and accepted on the basis of their rating by recognized manufacturers?

Are such fans tested by anemometer readings at the intake windows after the installation, in order to determine the capacity of the fan?

Is it the usual practice to test the ventilation of rooms by anemometer readings at the register openings in the various rooms?

Any information you can give me on the lines indicated will be very much appreciated.

Yours truly,
(Sgd.) C. H. B.,
Supt. of Buildings.

Toronto, Nov. 14th, 1913.

Mr. C. H. Bishop,
Supt. of Buildings,
Board of Education,
Toronto, Ont.

Dear Sir:

Yours of the 12th duly received, and in replying permit me to answer the questions in the order in which they are asked.

"What is the usual practice?" etc. It has always been the writer's experience that the amount of ventilation to be given for occupied space depends upon the number of occupants for the room rather than the number of changes of air per hour.

Compulsory ventilation, in the states in which I have designed school buildings, requires that 30 cubic feet of air per minute is a minimum amount per occupant. This gives slightly more air per pupil than by the previous custom which was based on six changes per hour.

The test for the supply of air to each class room is made in each individual room, and the anemometer reading is taken at this point rather than the intake windows, the reason for this being that other rooms besides class rooms, such as play rooms, drill rooms corridors, etc., may be supplied by the same fan as class rooms.

"What do you consider the best method?" etc. The method of taking the anemometer readings varies somewhat by the different state inspectors who make final test of the apparatus, to see if it complies with the statutory requirements. New York State Inspectors make one reading with the anemometer placed on the center of the inlet to the room. Mass State Inspectors make five readings, one in the centre, and one in each corner, of the active area of the register, which gives the average velocity through the active portions of the register. This method I consider to be the most accurate and fairest test, and is the one which have used in my work for the last twenty years.

The anemometer in taking the measurement should be held stationary for a given period of one-half or one minute, and should not be moved as the movement of the instrument alone will cause it to register when no air is coming through the register. Again if the instrument is moved up and down over the area, the anemometer will run when it is being passed over the inactive space due to the velocity which it has obtained from the active portion, and

will give better reading than if it was passed crosswise over the same surface. This is owing to the fact that the interval in which the anemometer passes over the inactive space of the vertical reading is much less than it is on the crosswise reading, and does not afford an opportunity for the anemometer to slow down to the actual movement of the air. Therefore, two men taking readings, one moving his anemometer up and down over the entire surface of the register, and one moving it crosswise over the whole surface, will not get the same results.

"If anemometer reading is taken at the inside of a large intake window, would the body of a man holding the instrument affect the flow of air and correctness of the reading? This would depend greatly on the position of the man in relation to the free area of the opening. If he were below the direct path of the air I should be inclined to think that it would not affect the volume of air to any great extent, but if he were in any close proximity to the opening it would certainly have a detrimental effet, which would be in proportion to the the size of the man taking the readings. It is much better to keep the intake entirely free from obstructions of any kind, and it has always been my practice to take readings at some distance from outlet or inlet.

Capacity of fans, etc., in reply to this I would say that the commercial rating as published by the manufacturers in their catalogues is always for free air delivery, namely discharge of air from one side of a partition to the other with no obstructions such as radiators, ducts, or friction. I always allow for these items alone 33⅓ per cent.

I herewith enclose you a form for inspectors book which I worked out with the intention of having made into book form. This will perhaps give you a clearer idea of the conditions noted in the various rooms which are to be tested. On the other side of this form is a diagram of the room with inlet and outlet, and showing velocity of air. The dotted line across the bottom indicates the inactive space which was first measured and then the size of the register or outlet marked.

Trusting that this will fully reply to your enquiry, I beg to remain,

Yours respectfully,

(Sgd.) GEO. HUEY,

Heating Engineer.

Galt, Ont., November 29th, 1913.

C. H. Bishop, Esq.,
Supt. of Buildings,
The Board of Education,
Toronto, Ont.

Dear Sir

We beg to acknowledge receipt of your favour of Nov. 17th, and in reply to your several questions would advise as follows:

Ventilating fans are usually specified and sold on the manufacturers rating, and we guarantee that the capacities of the fans we manufacture will be in accordance with the ratings we publish, when these fans are used under normal conditions.

A fan having a rated capacity of 40,000 cubic feet of air per minute at a standard number of revolutions, could not deliver that quantity of air at the outlets unless the entire system were specially designed for that purpose, i.e., if a fan had a guaranteed capacity of 40,000 cubic feet of air per minute and the ducts, coils, outlets, etc., were designed for only 30,000 cubic feet of air per minute, it is very unlikely that the fan would deliver its full rated capacity. If 40,000 cubic feet of air per minute were required in any particular building, we would strongly recommend the use of a fan having a reasonable surplus capacity over and above the actual requirements.

As regards your second question, we would advise that anemometers are not the proper instrument for testing fans when installed and in operation. Our Chief Engineer does not approve of anemometer tests in the fresh air intakes, as this instrument is correct for only one velocity, and is subject to greater derangement at high velocities. Then again the results registered vary with the angle at which the air flows through the instrument, and these air currents can never be depended upon to move parallel with the axis of the anemometer.

Of course it must be understood that a proper test of any fan system would include, besides anemometer readings, Pitot tube readings with water gauges in order to determine the resistance offered to the flow of air through the ducts and flues, as well as to obtain the pressure against which the fan is working. A higher pressure will decrease the capacity of the fan and at a lower pressure hte fan will increase in capacity and these factors must be determined.

As regards your third question, we would advise that the

engineer with whom we have done business, and we think it is the general practice, test the ventilation of the rooms by anemometer readings at the registered openings in the various rooms, such has been the practice observed in every building with which we have had any connection, as for example, the Toronto General Hospital, Wellesley Hospital, Toronto Central Y. M. C. A., the engineers of which were Messrs. Williams & Cole, C. P. R. Building, Bank of Toronto Building, etc., etc., in which our apparatus has been used exclusively.

If there is any further information we can give you in connection with the above, we will be glad indeed to hear further from you.

We might add that we have supplied fans for scores of public schools throughout Canada, and a number of fans for Toronto Public Schools, and have a fair knowledge of the installations which have been made, and can say with every degree of confidence that in general the systems employed in Toronto are equal to any and superior to many of those which have come under our notice.

Yours very truly,
SHELDONS LIMITED,
(Sgd.) W. W. SHELDON,
President and General Manager.

These letters were submitted to Prof. Angus who replied as follows: (Take in letter Nov. 25th, 1913, Exhibit 214, from Prof. Angus to Judge Winchester).

Toronto, Canada, November, 25th 1913.

His Honour Judge Winchester,
City Hall, Toronto.

Dear Sir:

I have your letter enclosing letters from Mr. Bishop and also letters to Mr. Bishop from Mr. Huey and from Sheldon's Limited, and beg to reply as follows:

Referring first to Mr. Huey's letter I have no criticism to offer of the first three paragraphs, the specifications were definite as to the quantity of air required in the rooms so that this information is not of much help in connection with the present case.

Paragraph 4 states that the testing for ventilation the supply of air is to be measured in each individual room and not at the intake window the reason, so far as I can understand it, being that

the measurement at the windows would include the air passing through the class rooms and also the drill rooms, etc., the latter rooms not being distinguished as class rooms. It would appear that Mr. Huey simply means that the air measured at the entrance window would be greater than that measured at the individual class rooms, because the fan would be supplying other drill rooms, etc. The statements do not give much light on the point in issue.

Paragraph 1, page 2, seems to suggest that the active area of the register only is measured. In this way Mr. Huey appears to agree with my method of working.

In paragraph 2, page 2, Mr. Huey says that the instruments should not be moved sideways during the taking of the reading because the movement of the instrument alone will cause it to record when no air is going through the register. A simple trial of the instrument has convinced me that this statement is not correct. In this same paragraph Mr. Huey further states his belief that the instruments should not be moved over the inactive space.

In paragraph 1 page 3, I have no great criticism to offer, but only to state that in taking the readings I was in such a position that I do not believe that my body would cause any appreciable resistance to the passage of the air

In paragraph 2, page 3, Mr. Huey has made a statement which does not seem to be borne out by the catalogues. I send you herewith a catalogue of the Sturtevant Co., and would ask you to glance at pages 37, 38, etc. You will notice there that for the same size fan—for example No. 2, the capacity of the fan is given on the different pages at different static pressures or resistances and not for the free air delivery that Mr Huey suggests. This is further borne out by a set of tables which have been given to me by the Sheldon's of Galt.

Replying to the Sheldon letter, paragraph 3 agrees quite closely with the report which I made you sometime ago under the heading of "General Remarks," where at section 3, I have called attention to lack of information about the conditions, it shows carelessness in drawing up the specifications. While it would be desirable in any case to have a reasonable surplus capacity in the fan over that required in the class rooms, an excess capacity of 50 percent as the Ogden specifications called for, is beyond what should be expected, and would rather suggest that the fan of this capacity was selected for some other reason

In this connection I might point out to you that in a report

submitted by Mr. Thomas, certain calculations have been made on the capacity of the fan actually installed. These are based on the assumption that the fan worked against a certain definite pressure, if, however, the pressure is higher than he has estimated the discharge would be much less and the calculation would not be of much assistance.

In paragraph 4 of Sheldon's letter, statements are made which I think are really incorrect because the anemometer is used for measuring ventilation and can be so rated as to give correct results at any reasonable velocity. The statements at the end of the paragraph are in error because the very construction of the instrument forces it to measure only the velocities which are parallel with its axis.

In paragraph 1, page 2, suggestion is made that Pitot tube should be used as well as the anemometer, although in the previous paragraph the statement was made that the anemometer was not reliable. In reading the paragraph carefully it appears that an anemometer is meant, instead of a Pitot tube because they state that it is for the purpose of measuring the pressure on the fan and the resistance against which it works. Since the pressure is not specified, it is not necessary to measure it. In the last part of the paragraph is a statement of a well known fact.

Paragraph 2, page 2, states that the ventilation of the rooms in different buildings is measured at the register openings of the various rooms. The way in which it is measured depends upon the specifications. In the case of the Ogden School the specification stated that the fan should have a capacity of 55,000 cubic feet per minute – that measurement should have been made at the fan, not in the class room.

The whole matter simmers down entirely to the interpretation of the specifications, and it is a matter in which I would not care to make any suggestion.

Yours truly,
(Sgd.) ROBERT W. ANGUS.

From the evidence it appears that the only criticism that could be made as to the report of Prof. Angus, was with reference to his method of measuring the air. He measured it at the inlet to the fan, while the Board's expert measured the air at the inlets to each room, showing a difference in the quantities. There was no dispute as to the fan being different in size from the one specified; the only question was as to the interpretation of the specifications as to its

capacity to deliver the amount of air specified on the number of revolutions specified.

The loss in shortage referred to in Prof. Angus' different reports have not been added as he was not in a position to go into the cost of same.

In my opinion they amount to a very large sum.

THE CONTRACTS OF MR. J. R. SEAGER, PARKDALE SCHOOL.

J. R. Seager, in his examination, stated that Parkdale School was the first contract for heating and ventilating that he received from the School Board. This was in 1909; he said personally he had not ve y much to do with making up the tenders, that he had a man in his employ to do that, that they checked up other schools before we started on the work; we went around to see how they were installing those schools

Q.—What other schools?

A.—I did not go myself; that was the foreman; I cannot say which school; the foreman was Tom Dobie.

Q.—What ideas did you get?

A.—In reference to different clauses; take here a clause in connection with covering at the discretion of the Board; we would naturally take that up there that they were not insisting on the whole of the piping in the basement being covered.

Q.—Before you tendered at all on this particular school, did you not know that the Board was not insisting on that covering?

A.—We knew to a certain extent, I did not know myself.

Q.—Your man who was there making up your estimate and tenders knew that; that was known to your business before you made up your tenders that the Board was not insisting on this covering of pipe, that was mentioned in the specification?

A.—In a general way, yes.

Q.—What other points did you look up and did you make inquiries about?

A.—In fact that would apply to all cases.

Q.—That would apply to all matters, what else would it apply to apply to your piping or radiation in any way?

A.—Of course the piping is not covered by that at all, we have to use our own judgment. As I say, the radiation we took up on the basis of a clause in the specification which calls for heating the

schools to a certain temperature for certain degrees of weather outside, and we figured on that basis and made up our price on that basis. There are three different clauses; one which calls for the installing of so much radiation; the second one heating the rooms to a certain temperature; and the third, according to the satisfaction of the Superintendent of Buildings.

Q.—Did you get it from the readlng of that?

A.—No, I cannot say that I got it altogether; it was at the suggestion of Tom Dobie.

Q.—He was in your employ, and it was at his suggestion you went in for this tendering?

A.—He thought it would be a very good idea.

Q.—Did you tell anybody connected with the School Board before you made that installation what you were going to do?

A.—No.

Q.—So that you deliberately estimated a lower number of feet of radiation than was specified in the contract?

A.—Yes, we were working on the basis of living up to the guarantee.

Q.—But you deliberately estimated and always contemplated putting in a less amount?

A.—Yes.

Q.—Did you expect to get the full amount of your contract in putting a shortage of radiation the way you did?

A.—I do not know that we considered that altogether; naturally we expected to get the amount we figured here if we gave them the amount the radiation figured. We left ourselves open if we could not heat with that amount of radiation we figured on we would have to supply it

Q.—Did you check that building with any one, did any one say you could get away with that?

A.—Not in connection with the Board.

He admitted that there was a shortage of 2,954 sq. feet of radiation put in under the contract, he said:

A.—There has been additional radiation; there are rooms that have not been heating up to what the guarantee called for in the specification and we have added, since the work was completed, to what was installed originally.

Q.—In addition to what you had installed, you installed within 170 feet of the direct radiation specified?

A.—Originally.

Q.—And of the indirect radiation instead of installing 3400 feet you actually installed about 1650 feet?

A.—Yes.

Q.—How did you come to make that short installation?

He referred to his foreman Mr. Dobie as having been working on that class of work for Mr. Armstrong.

Q.—And it was on Tom Dobie's suggestion that you interpreted the contract in that way?

A.—It may have had something to do with it, yes—I left it to him to take care of that part and in reading over the clauses of it we took it that way.

Q.—Dobie you say had been engaged in similar work before and you intimated by reason of that he was able to give you some pointers, that is right?

A.—That is right.

Q.—And that was Dobie's pointer to you and so you deliberately then tendered calculating on putting in a less amount of radiation than was in?

A.—Yes sir, providing it would heat the building, or if not we would have to supply the additional radiation.

Q.—As far as your tender went; there was no mention of that, and that was your estimate; your estimate provided for the less amount?

A.—Yes.

Q.—You remember that radiation was to be the important thing perhaps?

A.—It and the covering.

Q.—Would a few hundred or a thousand or two thousand sq. yards of radiation left off enable you to cut your price considerably?

A.—Certainly, to be sure it would

Q.—And that was your object in allowing that, to get your price down, thinking that by so doing you could put in what you estimated on and you could get the full amount of your contract?

A.—Yes

Q.—When did you finish this installation?

A.—It was a matter of two years ago.

Q.—Before this investigation came up?

A.—Just about the time

Q.—Had you got any payments on account?

A.—We had payments on account.

Q.—Progress certificates?

A.—Yes

Q.—Checked up from time to time, do you remember how much you got?

A.—$3,350.

Q.—The contract is $3,625, the last credit on the contract is $400. You have extras in here $19.60 and those are carried down, have those been paid to you?

A.—No, there is no settlement; there is the last payment there, 1911. 7th January, 1911

Q.—During all that time you got payments from time to time and as you were getting progress certificates, did you have any conversation with inspectors or School Board officials of the Department in regard to your contract?

A.—Merely in relation to where certain things were to be placed or to certain pipes.

Q.—Did you ask for your final certificate?

A.—Yes, we have asked to have the thing taken up and adjusted.

Q.—Was there anything said to you at any time about shortage in radiation?

A.—Not up to that time—other than where one or two rooms were not heating properly and it was proabbly taken up with us.

Q —You were short in radiation in heating and you put it in?

A.—We did, but I will add it was not a question in every case of shortage of radiation but it was because of the room not heating properly—we made additions to some of the radiators in some of the rooms, not in all.

Q.—And then he (Mr. Waste) checked it up did he?

A.—Yes, it was checked up; the principal's office was checked up, it was not heating properly.

Q.—Was it found to be short of the specified amount?

A.—Yes

Q.—Until that time there was no checking up that you were advised of?

A.—No.

Q.—I suppose all the other contracts are in the same way?

A.—Practically the same.

Q —Did you do any covering of pipes in mica?

A —No, not to my knowledge.

Q.—You were not asked to cover any?

A.—Not in particular, no.

Q.—The specifications called for six cast iron manhole doors

and frames for access to large flues and one cast iron soot door 12" x 12"; you supplied only one?

A.—From memory I am pretty sure they were sent on the job but they were not installed; that was part of the bricklayers work to install them; they were never installed.

Q.—And that shortage exists according to Mr. Johnson and Mr. Doughty, and you agree with them?

A.—Yes

Mr. Thomas Dobie being examined stated that he had been employed with the Fred Armstrong Co. for about five years, and when he left there he was employed by J. R. Seager in connection with his plumbing, heating and ventilating business; that during the time he was with the Armstrong Co. he worked on quite a number of School Board contracts for that company, being in charge of the work on some of them. He said he simply took Mr. Armstrong's instructions; that the instructions given to him were that a certain amount of radiating surface was required for each room, that Mr. Armstrong would give a list of the radiation and they would go to work and lay out the heating system and install, sometimes under the foreman's instructions, and later under his own instructions.

Q.—You get a diagram, you got some idea or got an accurate calculation of how much radiating surface you were to put into a room?

A.—Yes.

Q.—And then you installed it according to those instructions?

A.—Yes—I never saw the contract.

After being with Mr. Seager for a time he spoke to him about tendering on the School Board contracts, he said, "I wanted Mr. Seager to figure on larger contracts; he was figuring on small house work and I was used to larger contracts and liked to work on those better than I did on smaller ones, and I got Mr. Seager to figure on—not specially school work, any large contract, it did not matter where it was.

Q.—You figured for him?

A.—Yes.

Q.—When you figured on the School Board contracts did you have before you the specifications?

A.—Yes.

Q.—And it has been shown in evidence here that in figuring on these contracts you figured on less radiation than was specified?

A.—Yes

Q.—What did you tell Mr. Seager?

A.—I pointed out to him that under the guarantee clause I figured up the amount of radiating surface I considered was sufficient to heat those rooms. There was a guarantee clause calling for 70 degrees inside when the outside temperature was zero or so much pressure on the boiler—on considerably less, if I remember rightly, under 240 feet, but Mr. Armstrong had been installing 240 feet, and I figured 240 feet on these contracts.

Q.—How did you get this idea?

A.—The reason I got this idea, in the specification I noticed I do not just remember what school it was, but I think it was the Kent School addition, I noticed there was 296 feet, if I remember rightly, they specified—I knew I had never to my knowledge put in more than 240 feet; so I immediately figured out the amount of radiating surface it would require to heat that room, and I found if I remember rightly, less radiation than 240 feet, would heat that room—that is on some good engineers authority, I do not know which one it was, but there are several of them—I told Mr. Seager, and naturally he would understand it would be considerably lower.

Q.—Did you refer at all to your previous experience?

A.—Only that I had put in less radiation.

Q.—Did you tell him that that had gone through all right?

A.—To my knowledge yes.

Q.—As far as you know that had gone through?

A.—Yes.

Q.—And you suggested to him that he figure on that basis?

A.—I did.

Q.—I asked you had you got that from previous experience, that is experience you had with whom?

A.—With Mr. Armstrong.

Q.—Is it fair to say this, that from the result of your experience with Armstrong you considered that the guarantee clause was what you should live up to, and you could put in less radiation than what was called for?

A.—Yes, I did; I considered the guarantee clause was the clause we would work under.

Q.—Mr. Seager has told us very frankly that he knew the specification called for more than he proposed to install?

A.—Exactly.

Q.—Which was the first contract?

A.—I think it was Kent School.

Q.—Did you get that?

A.—No.

Q.—Why?

A.—I don't know, we were several hundred dollars high I believe.

Q.—Did you figure on that in the way you have mentioned?

A.—Yes, we figured on less radiation if I remember rightly.

Q.—You were mentioning 296 feet to the room instead of 240?

A.—Yes, we figured on the lower amount of radiating surface, but even then we did not get it.

Q.—Did you have any discussion as to whether it was worth his while to make these tenders or not?

A.—Yes, I considered he would be able to make a fair profit on it.

Q.—Did you consider with him or discuss with him anything in regard to the contracts that you had had experience of before?

A.—The only thing that I had with him in connection with that was that I considered Mr. Armstrong had made a fair profit or he would not be tendering on the work—the reason I got Mr. Seager to figure on a less radiation was simply because the guarantee clause was inserted, and I considered that other contractors did not seem to be able to see that, and they had probably not figured under the guarantee.

Q.—Did you think Mr. Armstrong had figured under the guarantee clause?

A.—Yes.

Q.—Did you mention that to Mr. Seager?

A.—Yes, I probably did, I am not sure about that.

Mr. Waste in his evidence was asked:

Q.—The New Parkdale School was specified to have six cast iron manhole doors and frames for access to large flues and one cast iron soot door 12 x 12 inches. The only door supplied is one 2 feet by 14½ inches for smoke flue?

A.—I do not remember just the last work done there, but those will be remedied; there may be no necessity.

Q.—And will you now in making your settlement have the Items?

A.—Yes, we have these reports and will make the best use of them.

FRANKLAND SCHOOL CONTRACT.

Mr. Waste, on examination as to Frankland School Contract, said:

Q.—In Frankland School the drip pipes from 16 of the radiators are not extended to the basement as specified; would you look after that?

A —Sure.

Q.—There is no automatic water feed and that was again specified?

A.—Yes.

Q.—All this shortage of radiation at Frankland School, 1787 ⅓ sq. feet is present to your mind?

A.—Yes, it has already been taken up for adjustment.

Q.—It was arranged for?

A.—It was not arranged for at the time, but it has been taken up for adjustment?

Q.—That plumbing has not been arranged for at the time?

A.—It has been taken up for adjustment and is understood to be subject to adjustment before it is closed.

Q.—This Frankland School shortage was not arranged for in advance, but you had observed it and had it in mind, and it will be taken into account in making a settlement?

A.—Yes

Q.—Cut-out valves have not been placed on steam and return mains, so that direct radiation can be cut off independently of the indirect coils—was it specified that they should be?

A.—I could not tell you that without looking, I don't think it was.

Q.—That has not been done?

A.—That has not been adjusted.

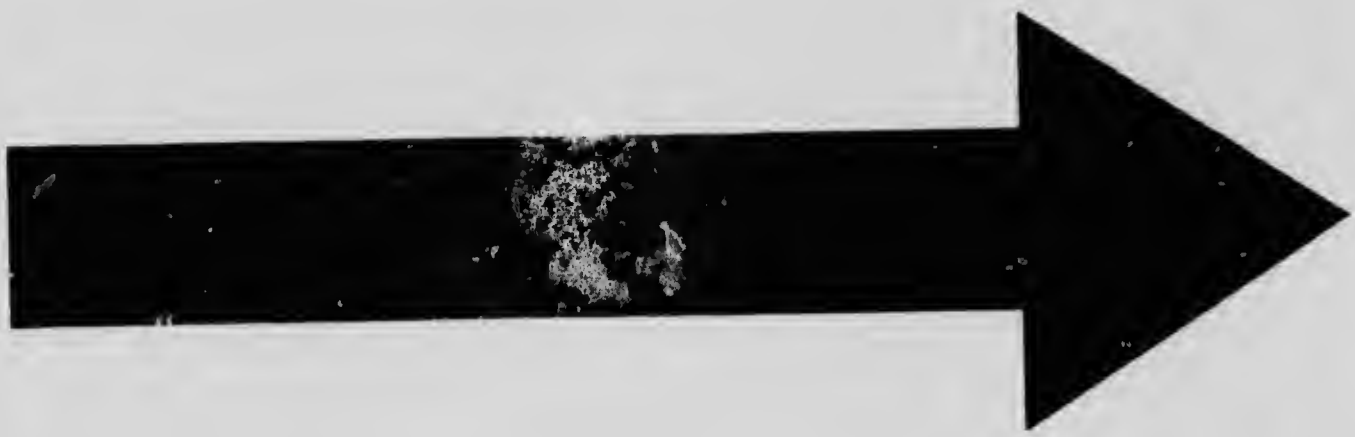
Q.—Branches to supply indirects are taken off direct mains in close proximity to indirect coils, if valves were placed where specified it would require separate mains and returns to be run from headers on boilers to indirect stacks, and exhaust shaft coils with cut-out valves in same?

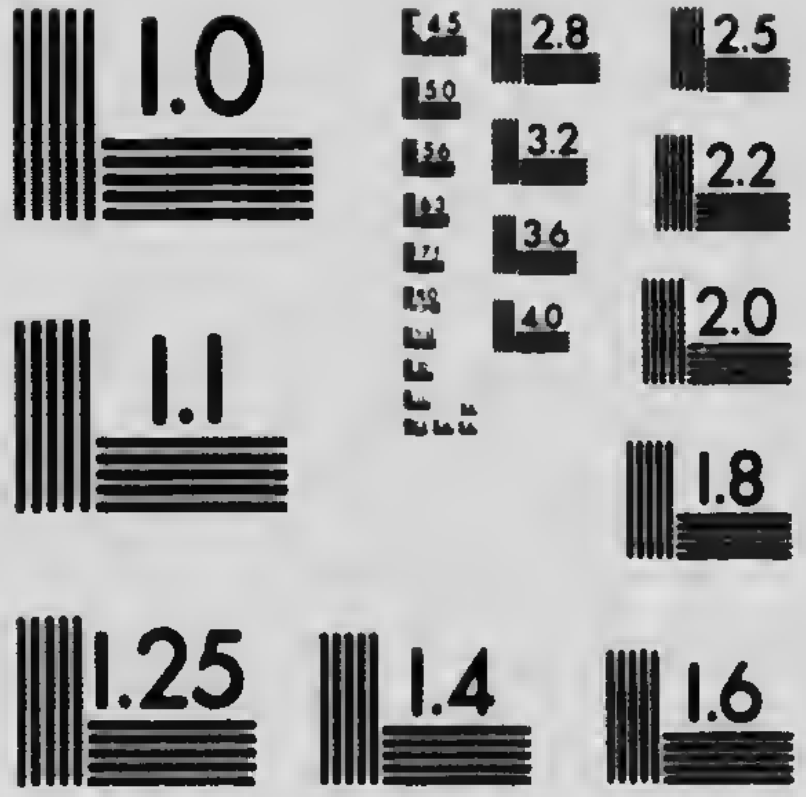
A.—Yes.

Q.—That would be required?

A.—Yes.

Q.—That means that your specifications possibly overlooked that little complication?





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)

A.—I think so.

Q.—And you remedied it by allowing them to leave the valves out?

A.—Yes.

BROWN SCHOOL CONTRACT.

Mr. J. R. Seager, being examined with reference to Brown School, said:

Q.—There is a shortage there according to Johnson and Doughty's report of 1601 sq. feet where 3800 sq. feet had been specified?

A.—Yes

Q.—How much would that be worth in money, do you know?

A.—Radiation at that time was worth about 19½ cents a foot.

Q.—It would be worth $300 would it, with the labour it would be worth that anyhow?

A.—Yes.

Q.—That contract was for $2100; you have not been paid the full amount?

A.—No.

Q.—But you have been paid $2050 or within $50 of the amount of the contract, Mr. Waste tells me that. The balance you claim there on that work, extras and all, is $506.61?

A.—$506.61.

Q.—When Brown School was again being built you took another contract?

A.—Yes.

Q.—The Brown addition had just been started when the report was made; did you figure on a shortage of radiation when you tendered there?

A.—Yes; I guess the same thing applies with that contract.

Q.—Was that sufficient in any case to have given you the contract or to have lost you the contract?

A.—It certainly would under those conditions.

THE CONTRACTS OF KEITH AND FITZSIMMONS.

YORK ST. SCHOOL CONTRACT.

The contractors for York St. School heating and ventilation were Messrs. Keith and Fitzsimmons.

Prior to their receiving this contract, their foreman Robert

Jordan, had been in the habit of making up the quantities from the specifications for the purpose of tendering. In 1910 apparently before the firm tendered on York St. School, Mr. R. B. McKinnon, a representative of a manufacturing firm, was told by Mr. Waste to add more radiation than he had specified, and which he considered was unnecessary; in conversation with Mr. Jordan this was mentioned when Jordan told him that he had checked up some schools and that there was less radiation put in than specified and that he knew how they (other contractors) were getting contracts.

Mr. Jordan gave the following evidence:

Q.—In York St. School the specified amount to be installed was 4,964 sq. feet; the total amount put in as measured is 3,968 feet, or a total shortage of 996 sq. feet; do you know anything about that?

A.—I know there was a shortage in most of the schools, and any shortage that was left out was spoken to Mr. Waste about before it was left out, and the firm knows all about it, they know how much radiation was put in each school.

Q.—Do you remember any circumstances as to that shortage of 996 feet on York St.?

A.—It was left out in the ventilating shaft.

Q.—Who told you to do that?

A.—Different schools; I spoke to Mr. Waste about the number of feet he had specified, and he said we could put in just what we thought was right and leave the other out; put in enough to heat it.

Q.—Did you decide then that you could leave out as many feet?

A.—Yes.

KIMBERLEY SCHOOL CONTRACT.

During the investigation of the accounts I discovered that Messrs. Keith & Fitzsimmons had rendered an account for extras amounting to $333.60 claimed by them from the Board on the ground that the specifications had been altered after their representative had received same and based his estimate for radiation on the quantity mentioned in them. The Department however refused to pay this amount and on taking the evidence of the foreman of the company I found that before the tender was put in by the company they were informed of the error in the specifications. Notwithstanding such information the tender was put in and accepted by the Board and carried out by this company. The com-

pany under these circumstances are not entitled to anything from the Board in connection with the sum claimed. I also discovered that the company had not put in all the radiation required by the specifications. There was a shortage of 846 feet. No account of this was taken by the Building Department. I sent the Board's inspector to measure it up and he reported to me the quantity short as above. He informed me that he had previously reported something about it but could find no memorandum. The Department had been making payments on the contract to the company without taking this shortage into account, apparently not knowing anything about it

TENDER GUARANTEEING SPECIFIED HEATING AND VENTILATING REFUSED, ALTHOUGH THE LOWEST TENDER.

The Dewson St. School tenders (1906) for heating and ventilation required in the enlargement of the school were produced, and showed that the Pease Foundry Company had tendered at $2850, while the Fred Armstrong tendered at $3200, the latter company being awarded the contract. The reason for accepting the higher tender was given by Mr. Bishop, and was that the boilers and the general information submitted by the Pease Company was not deemed satisfactory to the committee.

Q.—They gave the Armstrong Company the contract at $350 higher than the other tenderer because the Committee did not think the other tenderer had specified enough the details?

A.—Well, not that they had not specified particularly enough the details but that the details as specified did not meet with their approval as against the boilers and lay-out as submitted by the Fred Armstrong Co.

Mr. D. J. McKinnon, President of the Pease Foundry Co. stated that they had been trying to get their plan specified for the schools, but they were unsuccessful, that Mr. Bishop had been seen with reference to the same, and had offered to pay the expenses of the Property Committee and Mr. Bishop to go and see some schools in operation, but they did not accept his offer; that they tendered for schools and their tender was low; but they did not get the contract because their system was not included in the specifications, although they were prepared to guarantee the proper heating and ventilating of the school.

Q.—A different system from yours, and for that reason you, the lowest tender, was thrown out?

A.—Yes, although we were prepared to guarantee proper heating and ventilation, ventilation the same as was required in the specification.

Q.—That is if the clause in the contract providing the heating should be so much at a certain temperature outside was to be the governing clause you could qualify?

A.—Yes.

Q.—Have you got this system working in schools in other cities?

A.—We have a great many in London, they are gradually getting our system entirely. They have found that our system heats the schools at the rate of about twenty-seven dollars and something per room. They have found that all other systems put together in the city of London cost $54 and some cents—we saved in the cost of fuel; our system costs a little more in the most cases to install, although in particular cases we were lower.

Q.— Have you your system in any of the schools in Toronto?

A —We had it in Annette St. School, and I have brought with me a copy of the School Board report, page 88 of the Superintendent of Buildings report; steam heating average per room $43.86; Annette St. cost per room for fuel $21.60; it runs from that up to $65.17, Lansdowne School Now Annette St. was heated by our system and the fuel cost according to the Superintendent of Buildings report was less than half the average fuel cost of steam heating school houses I may say that a year or two after, I am not sure when, probably two years ago, it was thought well by the Board of Trustees to build a new school on the Annette St. site, and we were in high hopes that as we had so largely demontrated the economy of our system, they would add one or two heaters to the one we had there already and give us a fair chance in the city, but we have never had a chance to put our system in any school in the city except where it was put in before, New Toronto for example and the Junction, annexed to the City. After they were annexed we have never had a chance, although we have shown we can heat for a great deal less than any other system.

Q.—Except at a slightly increased first cost you practically heat for 50 per cent. less cost?

A —We do not claim that, that has been the result, but we do not claim more than one third, ventilation is exactly the same.

The only difference is in the heating of the air, we sent through as much air as any other system.

SPECIFICATIONS FOR HEATING AND VENTILATING WOULD HAVE BEEN COMPLIED WITH BY OTHER TENDERERS.

Evidence was given by heating and ventilating contractors with reference to tendering on specifications of the School Board; namely: Percy Mansell of Purdy Mansell Limited, Clifford Sparling of the Bennett & Wright Co., Andrew Ross of R. Ross & Co., Owen Neily, Secretary of the W. J. McGuire, Limited, Henry Hogarth of Fiddes and Hogarth, and Herbert Johnson of Maxwell & Johnson. These witnesses stated that they had tendered for heating and ventilating contracts and had made up their estimates from the specifications supplied by the School Board, and had covered everything according to specifications. They estimated the piping and radiation at the amount set forth in the specifications, and had no idea of any change being made in respect of same, and the tenders were put in on that basis. Mr. Mansell referring to his tender on the Earl Grey School stated:

Q.—Your estimate was $5,940, Seager, $4,850, Fred Armstrong, $4,900; you were $1000 to $1100 above them on that basis; could you have lowered your price had you been allowed for a shortage in radiation and a shortage in pipe covering?

A.—Why yes.

Q.—Where tenders are reasonably close together that might get you the contract or lose you the contract according to how you figured in that way?

A.—It would.

Q.—Did you tender for other schools than Logan Ave.?

A.—Yes, almost every one that was advertised I believe.

Q.—You tendered according to specifications right through?

A.—Yes.

Q.—Harbord St. Collegiate Institute, you were $5,645; you were next to the lowest tender there; the lowest tender was Armstrong $5,200; Purdy Mansell, $5,645, Bennett & Wright $5,744, and so on roughly speaking, Keith $5800, McGuire $5600, Bennett & Wright $5744, Purdy Mansell $5645; Armstrong $5200, Fiddes & Hogarth $6070; did you figure in Harbord St. Collegiate Institute strictly according to specifications?

A.—Yes.

Q.—Tendering to put the whole business in?

A.—Yes.

Q.—You have itemized all your pipes, all your radiation, priced it and estimated with regard to that cost?

A.—Yes.

Q.—You estimated $140 (or covering) in that school, the sworn report of Professor Angus is "The specifications require the covering of all pipes where necessary or directed by the architect, but no covering whatever has been put on, although it is necessary in many places'. You had estimated $140 for that?

A.—Yes.

(Memo: Harbord St. Collegiate Institute there were Monash air valves specified, and they were not put in; vent shafts, 400 sq. feet of coils and only 130 feet installed. Mr. Mansell's estimates show that he did estimate on everything in the specifications and Professor Angus' report shows how much has been put in by the contractor Fred Armstrong Co. and how much was specified.)

Q.—New Parkdale School, can you show me mica covering there?

A.—(Shows in his estimate).

Q.—That is your amount according to specifications—and in contracts you have had you put in the full amount of radiation specified?

A.—Yes.

Q.—You submitted no different plan and arranged for no difference at all with the office in regard to that?

A.—Not in my time

Q.—Covering steam pipes in basement, is it common not to cover all the pipes in the basement?

A.—I had plans and the plans would be marked, 'Leave this pipe uncovered' or something to that effect.

Bennett & Wright Co. tendered on Kent and Harbord Schools, Mr. Sparling, the representative of the company was asked:

Q.—In estimating in order to prepare a tender did you follow the specifications submitted by the Department?

A.— Yes.

Q.—And you allowed for the full amount of radiation, direct and indirect, specified?

A.—Yes, to the best of our ability.

Q.—Another item in connection with the covering you have

heard spoken of to-day, you follow the specifications in regard to that?

A.—That was our intention fully.

Q.—How much did you estimate for pipe covering in Harbord Collegiate?

A.—$110.

Q.—You estimated that according to the specifications and charged yourself with it in your estimate?

A.—Yes.

Q.—Forty Monash air vents $40; you intended to put them in?

A.—I did.

Q.—Automatic water feed?

A.—$5.

Q.—You have put in the amount of radiation specified in the specifications?

A.—There is 6544 sq. feet of radiators, and apparently 3600 feet of 1-inch pipe in the vent shafts, and then additional to that the blast coils; I have not the amount of the surface in those.

Mr. Sparling gave similar evidence as to the other schools tendered on by Bennett & Wright, Riverdale, Lansdowne, and Rosedale and stated that they intended to supply all that was specified.

Andrew Ross stated that he had tendered according to the specifications for heating and ventilating and was asked:

Q.—What do you mean by that in regard to radiation that you would put in everything that was named?

A.—Decidedly, I have to. I figured on what was on the specification right from end to end.

Q.—As to covering pipes?

A.—Yes, covering, radiation, boilers.

Q.—You did not know in some schools less radiation was put in than in others?

A.—No, I did not have the slightest idea about it.

Q.—And in estimating you had nothing praticularly to guide you as to the distribution system, as to the pipes below?

A.—Just simply the plan I would get from the Board of Education and the specifications. I have to make out a kind of sketch to get my measurements and one thing and another, so that I can put in a tender.

Q.—The essential point is you followed the specifications in making up your bid to the square feet?

A.—Yes.

Q.—Generally speaking you would cover pipes in the basement?

A.—Yes, decidedly.

Q.—And would figure on doing that?

A.—Yes.

Q.—You tendered on Riverdale, the successful tenderer was $3100 and yours was $3550, you were the next to that; would you have cut your price somewhat if you had cut down radiation and covering and so on?

A.—Why certainly I could have cut the price down.

Q.—That is it might some time have resulted in your getting a contract or not getting it according to how much radiation you figured on?

A.—Y[illegible], for instance 10,000 feet of radiation was specified. [illegible]ad to put in six or seven thousand, that would certainly [illegible]; but still when I figured it on the amount that was on th[illegible]ions that is what I would have installed provided I got the work.

Owen Neily, Secretary of W. J. McGuire Co., stated that they had tendered repeatedly on the School Board contracts but that they had not received any contract.

Q.—Will you say what is your practice with these specifications before you in writing out quantities and carrying them out?

A.—Quantities are taken off according to plans and specifications and handed to us in the office to figure it out.

Q.—You tell me that you take the number of sq. feet specified and figure on that, do you?

A.—Yes, that is the way we do.

Q.—Parkdale School, 1909, you tendered, your tender was $5,290, Keith & Fitzsimmons, $5,275; Armstrong, $4,500; and Seager, who got the contract, his tender was $3,625; Mr. Seager has told us that he left out certain radiation in his estimates?

A.—Yes.

Q.—In making up your tender you did not do any such thing as that?

A.—No, we did not.

Q.—In regard to mica covering or covering with asbestos or mineral wool of pipes, how would you follow the specifications the covering of mineral wool of pipes, you would follow the specifications as closely as you could?

A.—Yes.

Q.—Automatic wat[illegible] feed specified, would you charge yourself with that?

A.—Yes.

Q.—If you could anticipate putting in a considerable shortage in radiation you could tender lower?

A.—We would not anticipate it if it was not specified.

Q.—You have had no contracts?

A.—We have had no contracts.

Q.—And you have tendered and on that basis?

A.—Yes.

Henry Hogarth, of Fiddes and Hogarth upon examination stated that they had tendered on heating some of the schools.

Q.—Tell me the system adopted in your office as to adhering to figures in the specifications in making up your tenders?

A.—We would make them up according to the plans and specifications.

Q.—You do not anticipate cutting that down?

A.—No.

Q —You make up your tenders on that basis?

A —Yes.

Their tender on Harbord St. Collegiate Institute was produced.

Q.—You have an item here of 400 sq. feet or 1200 lineal feet, 1-inch pipe, etc., $144; cover all pipes mica covering $150?

A.—Yes, well, that is mica: I do not think it is possible to get mica covering at the present time

Q.—You estimated on doing the covering?

A.—Yes.

Q.—You put in the price of all that covering?

A.—Yes.

Q.—The same as you did with all the radiation?

A.—Yes.

Q.—In Norway School you tendered on the heating; did you make up your estimate in the same way?

A.—Yes.

Q.—Including all items and including every square foot of radiation specified?

A.—Yes

Herbert Johnson, of Maxwell & Johnson, stated that they had tendered for the heating and ventilation of certain schools. He was asked:

Q.—Did you adopt the practice of making an estimate first before you tendered?

A.—Yes.

Q.—Extending your quantities with prices and so on?

A.—Yes.

Q.—There is a specification as to the number of square feet of radiation, we will not quarrel about the terms; in estimating would you consider the quantities set out in the specifications?

A.—Yes, I would figure according to the quantities set out.

Q.—You would figure you had to put all that in?

A.—Yes.

Q.—You took the course of providing for putting in everything?

A.—Putting in everything as specified.

Q.—Generally speaking in a basement would you say it was advisable to have the pipes covered or to leave them bare?

A.—Have them covered.

Q.—When you encountered in the specifications a clause that pipes were to be covered where necessary or where directed by the architect, what would you do in the way of figuring then?

A.—We would inquire from the architect what was to be covered before we tendered. In this case I made no inquiries myself, but took into consideration the whole job would have to be covered when I figured.

Q.—That is what the architect told you?

A.—Yes sir.

Q.—That is in the Superintendent's office?

A.—Yes, my partner made that inquiry I believe and was told, 'you had better figure on all the mains."

VAGUENESS OF SPECIFICATIONS, ETC.

It was shown again and again during the Investigation by witnesses giving evidence on almost all the trades employed in the erection of the schools that the specifications were drawn in the most vague and careless manner, leaving room for serious differences of interpretation, and resulting in many accounts for extras charged which should have been covered by the specifications.

It was also shown that overlapping occurred in the specifications of different trades, that is to say two or more trades being required to do the same work.

The loss to the Board in consequence of these loose specifications is difficult to ascertain, but in my opinion it would amount to a large sum and was the result of gross carelessness on the part of those drawing same and the want of proper supervision.

GENERAL REMARKS.

SYSTEM IN THE DEPARTMENT.

I find from the evidence that Mr. Bishop the Superintendent of Buildings entirely depended on Mr. A. D. Waste the Architect of the Department and his subordinates for the proper drawing of the plans and specifications, superintendance of buildings and repairs and the keeping of all accounts in connection therewith, and that he permitted Mr. Waste to attend to the building and repair accounts of the department, that he was consulted from time to time in connection with various matters, but that he invariably left the whole matter in the hands of Mr. Waste. I find that Mr. Waste used no business methods in connection with his office, and that instead of having books and accounts to represent his transactions, he kept the greater portion of them in his head. There were very few inspections made by Mr. Waste or by inspectors in connection with the erection of buildings or alteration accounts, of which any note was taken; that in connection with the radiation I find there was no system followed in checking up the quantities, that in reality matters were allowed to drift and take care of themselves until settlements were pressed, when the evidence shows the contractor had very much his own way in settling matters. In my opinion the work was much greater than what either Mr. Bishop or Mr. Waste could properly attent to, and no business system was adopted in connection with same.

The Members of the Property Committee have been constantly ignored in connection with the changing of specifications, ordering of alterations, extras and settlements of accounts for same, which resulted in large sums being paid by the Board. The By-Law under which Mr. Bishop was appointed, with reference to such matters has become a dead letter.

From the evidence produced before me I find that Mr. Waste in asking for tenders for the heating and ventilation of the different schools did not treat all tenderers alike; while specifying a certain amount of radiation, pipe covering and other material as being required, certain contractors who tendered and obtained the contracts were not required to carry out these specifications. These contractors were limited at first to one firm only, namely the Fred Armstrong Co

Subsequently J. R. Seager, who had the assistance of an ex-employee of the Fr[illegible]rmstrong Co. also tendered knowing that

the amount of piping etc., specified would not be required to be installed, obtained some contracts. Afterwards Keith & Fitzsimmons also ascertained the fact through their foreman, Robert Jordan, that amount of radiation specified in the specifications would not be required, and the tenders were subsequently limited to these three firms. All other tenderers who tendered honestly in the belief that whatever was specified would be required to be put into the work had no opportunity of competing fairly with these other firms, in fact the asking for tenders was really a farce, the course pursued being such as to do away with honest competition and resulted in assisting certain contractors. This applies to the carpenter contracts also but not to the same extent as to the contracts for heating and ventilation.

The following memorandum of heating and ventilating tenders produced to me by Mr. Waste will show to what extent the method pursued gave contractors who tendered honestly believing that the specifications should be complied with, no chance of obtaining contracts for heating and ventilation in the different schools, until the matter was publicly brought to the attention of the Board by the "Telegram" newspaper in 1911.

MEMO OF HEATING AND VENTILATING TENDERS.

Date.	School.	Contractor.	Amount.	
1910	Annette St....	J. R. Seager.....	$ 9490 00	
		Keiths Ltd.....	8530 00	
		F. Armstrong Co...	8200 00	Rec.
1910	Humberside Col.	J. R. Seager	10300 00	
		Keiths Ltd.....	8990 00	
		F. Armstrong.....	8057 00	Rec.
1910	York Street....	F. Armstrong.....	3300 00	
		Keiths Ltd.....	3000 00	Rec.
1910	Brown.....	Keiths Ltd.....	6200 00	
		F. Armstrong Co...	6125 00	
		J. R. Seager.....	5850 00	Rec.
1910	Norway.....	Fiddes & Hogarth..	8609 00	
		Keiths Ltd.....	6500 00	
		F. Armstrong Co...	6498 00	Rec.

Date.	School.	Contractor.	Amount.	
1910	Roden	F. Armstrong Co.	6930 00	
		Keiths Ltd	5600 00	Rec.
1910	Hester How	F. Armstrong Co.	7200 00	
		Keiths Ltd	6000 00	Rec.
1909	Logan Ave.	Purdy Mansell Co.	5994 00	
		F. Armstrong Co.	4900 00	
		J. R. Seager	4850 00	Rec.
1909	Earl Grey	Bennett & Wright	8581 00	
		Keiths Ltd	8568 00	
		F. Armstrong Co.	8090 00	Rec.
1909	Parkdale	Fiddes & Hogarth	6485 00	
		Bennett & Wright	6100 00	
		Purdy Mansell	5838 00	
		W. J. McGuire	5290 00	
		Keiths Ltd	5275 00	
		F. Armstrong Co.	4500 00	
		J. R. Seager	3625 00	Rec.
1909	Harbord St. Col.	Fiddes & Hogarth	6070 00	
		Keiths Ltd	5800 00	
		W. J. McGuire	5800 00	
		Bennett & Wright	5744 00	
		Purdy Mansell	5645 00	
		F. Armstrong Co.	5200 00	
1909	Riverdale	J. R. Seager	6500 00	
		Keiths Ltd	5050 00	
		Bennett & Wright	4888 00	
		F. Armstrong Co.	4600 00	Rec.
1909	Kent	Keiths Ltd	12500 00	
		Bennett & Wright	12000 00	
		J. R. Seager	11700 00	
		F. Armstrong Co.	10500 00	Rec.
1908	Queen Alex.	A. Dawson	1480 00	
		F. Armstrong	1296 00	Rec.

Date.	School.	Contractor.	Amount.	
1907	King Edward..	Keiths Ltd.....	995 00	
		F. Armstrong Co...	940 00	Rec.
1907	Kent.....	F. Armstrong Co...	3500 00	Rec.
1907	Queen Alex....	F. Armstrong Co...	600 00	Rec.
1906	Riverdale.....	Bennett & Wright..	4541 00	
		Purdy Mansell.....	3972 00	
		R. Ross.....	3550 00	
		F. Armstrong Co...	3100 00	Rec.
		Pease Heating Co...	2950 00	(Laid over for consideration.)
		Jas. Sherlock.....	5348 00	Includes plumbing.
1906	Dufferin.....	F. Armstrong.....	9976 00	Rec.
1911	Earl Grey.....	Keiths Ltd.....	3470 00	
		F. Armstrong Co...	2800 00	Rec.
1911	Roden.....	Keiths Ltd.....	5630 00	Rec.
1911	Frankland.....	Keiths Ltd.....	995 00	
		F. Armstrong Co...	938 00	
		J. R. Seager.....	875 00	Rec.
1911	Annette St....	Keiths Ltd.....	2100 00	
		J. R. Seager.....	2070 00	
		F. Armstrong Co...	1998 00	Rec.
1906	Jamieson Ave..	F. Armstrong Co....	2770 00	
		Keiths Ltd.....	2475 00	Rec.
1906	Dewson St....	Pease Foundry Co..	2850 00	
		F. Armstrong Co...	3200 00	Rec.
1906	Ogden.....	F. Armstrong Co...	14696 00	Rec.

Date.	School.	Contractor.	Amount.	
1905	Ryerson.....	Maxwell & Johnson	11092 00	
		F. Armstrong Co...	8492 00	Rec.
1908	Lansdowne....	Purdy Mansell Co..	13840 00	
		Bennett & Wright..	13300 00	
		F. Armstrong Co...	12600 00	Rec.
1908	Wellesley.....	Bennett & Wright..	12200 00	
		Purdy Mansell.....	11980 00	
		F. Armstrong Co...	10800 00	Rec.
1907	Winchester St..	F. Armstrong Co...	3500 00	Rec.
1911	Ogden.....	F. Armstrong Co...	299 00	Rec.

The Fred Armstrong Co. and J. R. Seager now contend that they were not required to supply the radiation asked for so long as they guaranteed to supply the heat required. This was not in the contemplation of Mr. Bishop at the time the specifications were drawn up by him, as stated in his evidence; he purposely called for a larger amount of radiation than some people would consider necessary, because of the position in which he was placed with regard to the necessity for having the schools heated quickly.

I have set forth in my report the different amounts at which the shortages of radiation have been estimated. The evidence has shown that Mr. Fred Armstrong in many of the cases where his firm were the successful tenderers submitted plans differing from those on which tenders had been asked and on which the tenders were accepted, and these plans were accepted by Mr. Bishop and Mr. Waste as sufficient, and the full amount of the contract paid under them when a settlement was arrived at without any deduction for the shortages of the radiation or other shortages. It is contended by the contractors, the Fred Armstrong Co. that they gave value for the amount of money that they received for these contracts. That has been disputed; it is clear that they did not comply with the specifications tendered upon. In the case of the Queen Alexandra School when they tendered on an equal footing with other tenderers in 1904 they were higher than the other tenderers and it is fair to assume that had other tenderers the same inside knowledge that they had they could have tendered as low if not lower than

the Fred Armstrong Co. In the cases of Mr. Seager and Keith and Fitzsimmons their contracts have not been concluded owing to this investigation. It has been shown that the amount of radiation installed by them has resulted in their insufficiency for the purpose of heating the different rooms, and additional radiation has been required to be added to give the heat required, they however were merely following the methods they found had been adopted and carried out successfully by the Fred Armstrong Co.

In all these schools numerous complaints have been received from time to time that all the rooms in the schools were not properly heated and occasionally classes had to be dismissed by reason of the cold.

CHECKING REPAIRS.

The evidence showed the repairs were not superintended in a proper way, the number of hours charged for by different tradesmen were not checked up nor was the material used, checked; since the commencement of this investigation a new system has been adopted of reporting in writing but it has been shown that even under this system the repairs have not been watched or inspected as they should be. In my opinion a large amount has been lost by reason of the want of business management in connection with extras and repairs.

Contractors have complained again and again that settlements could not be had within a reasonable time with the Department and in consequence they suffered considerable loss.

RECOMMENDATIONS.

I would recommend that application be made to the Legislature to disqualify trustees from sitting on the Board of Education who receive benefits or advantage from any contractor in connection with his dealings or contracts with the Board of Education for the supply of materials, labor or otherwise.

I would recommend that an experienced business man who might be called "Commissioner of School Buildings" be at once placed in charge of the Building Department of the Board, that he be allowed to appoint his own architects, inspectors and officials under him, and made responsible for the proper carrying on of the work of that Department.

I recommend that proper books should be kept in which all matters relating to the carrying out of contracts in the department should be entered from day to day, setting forth the extras ordered, the amount of same, deductions, inspections, and everything that is necessary to give an accurate statement of the position in which each building account is; that reports in connection with the building, extras and repairs should be in writing signed by the inspector and dated.

I would recommend that in connection with repairs the caretakers of the respective schools should keep a book in which workmen and others should enter daily the number of hours employed on the work and amount of material used and initialed by the workmen and caretaker.

I also recommend that all officials and caretakers should be prohibited from receiving benefits of any kind from the contractors of school work.

Mr. Cowan on the 14th November, 1913 read a letter dated October 6th, 1913 (Ex. 208) offering to arbitrate with reference to the contracts in which the Fred Armstrong Company were interested with the Board o Education.

I forward same with my report for the information of the Board of Education.

I would recommend that the gentlemen appointed over the department should at once proceed with the settling up of all unsettled contracts, using in such settlement the evidence given in this investigation.

I have much pleasure in referring to the assistance given to me throughout the Inquiry, in the examination of witnesses and otherwise by Mr. G. R. Geary, K.C., Counsel for the City of Toronto, and to Mr. E. Nield, Stenographer, in taking down the evidence and extending same. He has taken down and extended 9400 folios in connection with the investigation.

I have the honour to forward herewith a copy of the evidence taken by me and the Exhibits produced and fyled herein.

I have the honour to be, sir,

Your obedient servant,

JOHN WINCHESTER.

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