HEARINGS IN THE CASE of UPTON, SHAW, & Co. xxxx

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UPTON, SHAW, & CO.

UPON THE INTRODUCTION OF

INODOROUS

Rendering and Superphosphate Apparatus.

DECEMBER, 1871.

BOSTON:
PRINTED BY RAND, AVERY, & CO., 3 CORNHILL.
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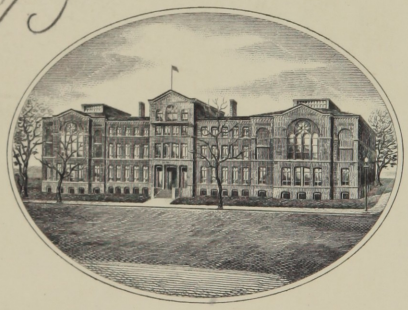

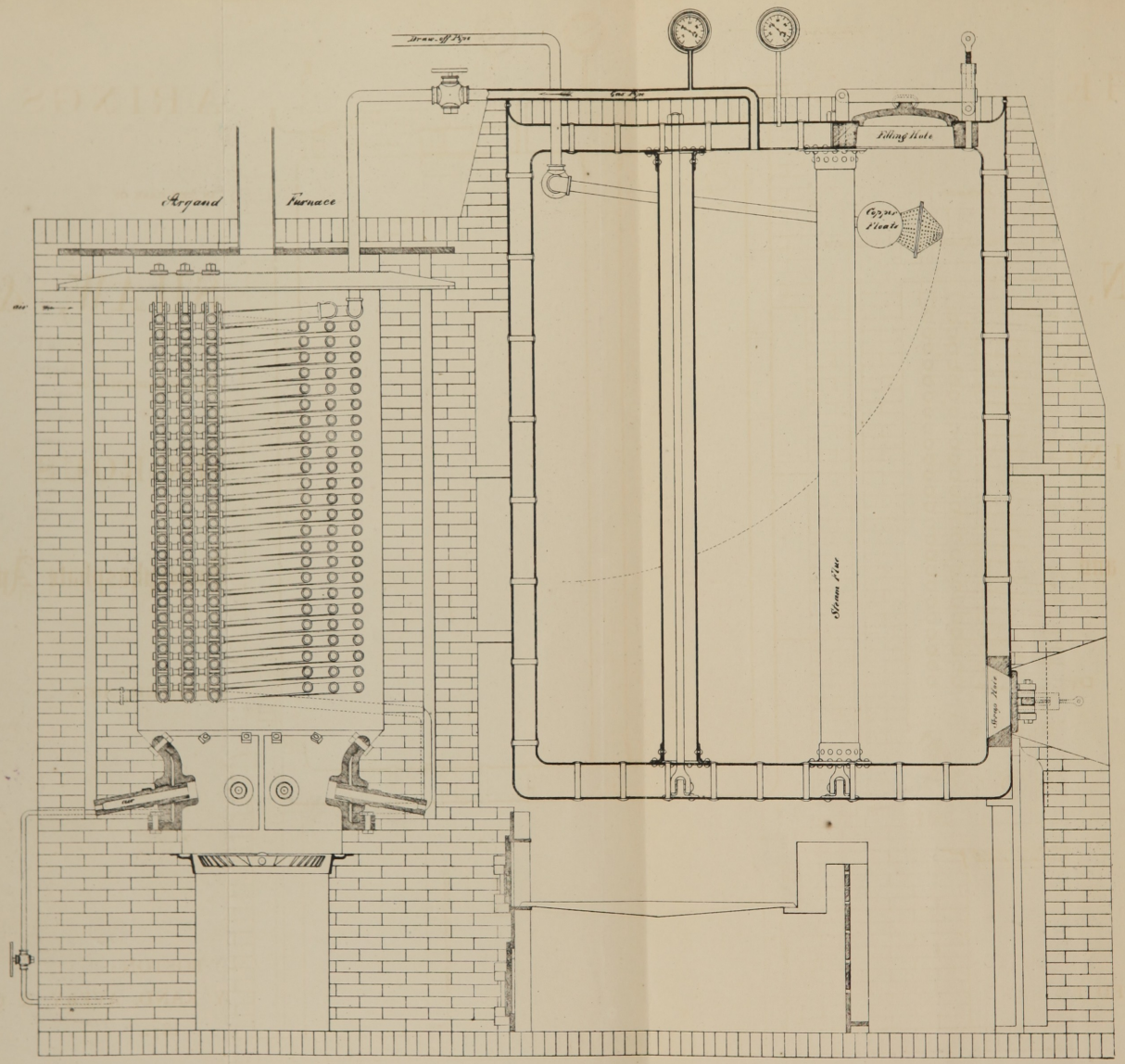

LOCKWOOD & EVERETT'S PATENT RENDERING APPARATUS.

New-York. 1868.

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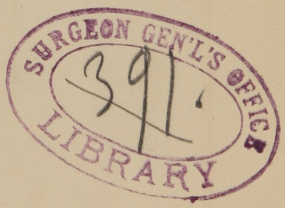

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PRINTED BY RAND, AVERY, & CO.
1872.

HEARING

BEFORE THE

SELECTMEN OF BRIGHTON.

DECEMBER 5, 1871.

INTRODUCTORY.

Boston, Dec. 12, 1871.

To the Public: —

The issue involved in the question raised by the undersigned is of greater moment than the meagre reports in the daily papers indicate. The question is, whether a Board of Health can prevent the abatement of a nuisance.

It will be conceded by all that laws which were enacted for the protection of the public welfare simply were intended to be enforced without needless destruction of private interests. The present case affords a remarkable instance of the perversion of law, and illustrates the danger in permitting private citizens to exercise judicial powers. Private citizens, having personal prejudices and interests in business, may make zeal in the administration of law a cloak for malice or aggrandizement; and they may use as instruments of oppression laws that were designed to be beneficent.

The action of the Selectmen of Brighton is not against our old factory, which has been a nuisance for many years, but against the enlargement necessary for the introduction of apparatus recommended as perfectly innoxious and inoffensive by the State Board of Health.

The Selectmen do not order us to abate the old nuisance, but to stop an effort that is sure to abate it. They express no doubt of our ability to put an end to it, but simply order us not to end it. To acknowledge a doubt, was to invite more convincing proof, or a critical trial of the new appliances, before final judgment. To say that we might go on, subject to an agreement to close our works whenever they should become offensive, as we proposed, would also insure the permanence of our estab

lishment. This they were determined to prevent. But, having no sufficient means upon the merits of the case, they rely upon the arbitrary power found in a special statute. The paternity of this statute is acknowledged by Mr. Warren, who confesses that he procured its passage in the interest of a few. The few it was designed to favor are, obviously, the owners of the Charter of the Butchers' Slaughtering and Melting Association, into whose control all the business of slaughtering and rendering was to be forced by means of it. This charter was procured by Mr. Warren. Two of the three corporators named in it are Mr. H. W. Jordan and Mr. B. F. Ricker. These gentlemen and Mr. Warren are announced as Directors of that Association, — Mr. Ricker as Treasurer, while Mr. Warren appears as counsel. The Selectmen of the town of Brighton are Mr. H. W. Jordan, Mr. B. F. Ricker, and Mr. Patrick Moley. Their counsel is Mr. Warren. The Board of Health of the Town of Brighton is constituted by Mr. H. W. Jordan, Mr. B. F. Ricker, and Mr. Patrick Moley. Their counsel is Mr. Warren. Messrs. Jordan, Ricker, and Warren (the latter sometimes as counsel and sometimes as principal, and sometimes both principal and counsel) appear as the central figures in every phase of this affair.

They procured the charter and the special laws in aid of it; they were named as corporators; they are directors of the Association; they are selectmen; they are the Board of Health. Virtually, therefore, the Butchers' Slaughtering and Melting Association sat in judgment on our petition. The only argument of their counsel was his entreaty for the protection of the Association against competition from us. And this was accompanied by the admission, that, if the Association had our apparatus, there would be no objection to its use!

We appeal confidently from the decision of this interested triumvirate to the good sense of the community. Our business is one of necessity. With any other than our new apparatus, it was an unavoidable offence to our neighbors. We are now enabled so to carry it on that it shall be no longer offensive, and to show, in doing so, that the business of boiling bones, meat soap, tallow, offal, blood, and other animal substances, and the manufacture of superphosphate, can be carried on by any one

in any community, in any part of the country, without affecting in the least the public health and comfort.

When this shall be done, that which has hitherto been tolerated as a necessary and unavoidable annoyance will be regarded as inexcusable. The public will then have the long-sought means of relief from effluvia and disease from putrescent animal matters that now fester in the piggeries of slaughter-houses, or lie in crawling heaps around packing establishments, as well as from the pollution of air and water by the sickening products of boiling.

Who will not say that in the present prevalence of contagious diseases, and the steady approach of Asiatic epidemics, every agent of purification should be made use of? What Board of Health, beside that of Brighton, will say that such agencies shall not be used?

It may be answered that the anomalous position of the Brighton Board of Health, in their action against us, can be explained upon the ground that they have in view a great public good, that shall more than compensate the private injury which we shall suffer. But their order is simply oppressive to us, and adverse to the public good. And against this answer, and to show what degree of sincerity shall attach to it, we oppose also the following facts:

The rights of the apparatuses were secured by Mr. Shaw in the interest of the butchers of Brighton, with the intention of rendering and utilizing the offal and blood from the slaughter-houses. A number of the butchers subscribed with alacrity for about one-fourth part of the capital stock, a large proportion of them being actuated by regard for the public comfort, rather than a desire for gain. Under the impetus of good motives, and a showing of profitable results, the enterprise promised early consummation. Its consummation was regarded as sure to compel either the introduction of inodorous processes into all other rendering establishments, or the abandonment of those that should be offensive. Mr. Upton had a large interest in the rendering business in the old way. He had determined to give up the business unless he could make satisfactory improvements. The time allowed to Mr. Shaw for concluding the purchase of the rights had almost expired. The butchers had subscribed for

only one-half the amount required to pay for the rights, which were on the point of falling into other hands. Messrs. Upton and Long volunteered to advance the whole amount, under an agreement with Mr. Shaw, that his arrangements with the butchers should remain unaltered. They furnished the money, and carried out their agreement with the most scrupulous good faith. The rights were held as subject to acceptance at cost by the butchers, and were formally offered to them with a large additional subscription. Mr. Upton had now determined to abandon his old establishment, and to merge his old business in the new. In this way he sought to protect his old investment, with advantage to the community and injustice to none. The subscribers were satisfied with this arrangement. Nearly all of them increased their subscriptions. Capital was still wanting, however, to insure the success of the business. The butchers were urged by personal solicitation, and by printed circulars, to increase their subscriptions, so that they would hold a majority of the stock and the control of the enterprise. They were repeatedly notified that others were ready to take what the butchers did not want. Notwithstanding these appeals, the butchers would not take the majority. We therefore arranged to take it. A committee of the butchers who had declined the majority of interest, then refused to go on if we were to hold it. Though rather late in the manifestation of it, the committee had an abstract right to choose their associates. We endeavored to make it easy for them to go on by themselves. We proposed to sell them our entire rights, at a sum which would repay the cost, and compensate for the loss on our old business, and our exclusion from the new. We offered to sell them apparatus for treating all the materials they should produce in the contemplated *abattoir;* or to erect rendering works wherever they would agree to erect an *abattoir*, and allow the butchers to take any number of shares less than the majority. This would have secured to them the entire control of their own slaughtering business, while giving them almost half the profits of the rendering business. Neither of these proposals was accepted. About four months had now been spent in the effort to concentrate the slaughtering and rendering business, without avail. We waited several weeks longer for some proposition upon which

all could agree; but no proposal came, except one for giving us forty-nine per cent of the stock in a company to be organized under the charter, but with only one-half the capital fixed in the charter. This reduced capital was manifestly inadequate. The charter contemplated both an *abattoir* and a rendering factory. To accept it, and yet refuse to furnish capital sufficient for the accomplishment of its object, was to prevent its use by capitalists of ample means, and to deceive and disappoint the public.

The only course left us was the introduction of the apparatus into our own establishment as speedily as possible, and the selling of rights to others. In doing this, we have encountered the opposition evidenced by the subjoined orders and report, which are, with this introduction, respectfully submitted to the candid consideration of the public.

UPTON, SHAW, & CO.

HEARING AT BRIGHTON.

BRIGHTON, Dec. 5, 1871.

Hearing before the Selectmen of Brighton on the petition of Upton, Shaw, & Co. for permission to enlarge and extend their buildings, so as to admit the introduction of INODOROUS RENDERING APPARATUS.

The meeting was called to order at half-past seven o'clock, by Mr. H. W. Jordan, Chairman of the Selectmen, and the business was opened by Mr. S. A. B. Abbott, one of the counsel for Upton, Shaw, & Co.

MR. ABBOTT. *Mr. Chairman and Gentlemen*, — I will read in the first place the notice which was given to Mr. Upton. It is as follows: —

To Messrs. George Upton, Benjamin F. Shaw, both of Peabody, in the County of Essex, and —— Long, all doing business in Brighton, in the County of Middlesex, under the firm of Upton, Shaw, & Co.

It having come to our knowledge, that you are about erecting on a parcel of land formerly occupied by Upton and Ames, on the southerly side of River Street, in said Brighton, a certain building for the purpose of carrying on therein a melting and rendering establishment, and for boiling bones of animals, and are about enlarging, and extending the buildings now on said land, and heretofore used for said purposes, and that said enlargement and extension are for the purpose of carrying on therein the business of melting and rendering offal and of boiling bones, without first obtaining the written consent and permission of the undersigned, we hereby notify you that such erection of said new buildings, and such enlargement and extension of the buildings now on said land, and the occupation and use of said new buildings, and of the enlargement and extension of the old buildings, for the purpose above mentioned, are not permitted or consented to by us, but are expressly forbidden and prohibited, and that we shall take all proper legal measures to prevent such erection, enlargement, extension, occupation, or use.

H. W. JORDAN,
B. F. RICKER,
P. MOLEY,
Selectmen of Brighton.

BRIGHTON, Nov. 22, 1871.

A true copy. Attest:

N. G. LYNCH, *Constable of Brighton.*

I will also read the answer to the notice of the Selectmen: —

To the Selectmen of the Town of Brighton:

Gentlemen, — We are in receipt of your notice of the 22d instant.

Whatever changes we contemplated making in our business had for their chief object and purpose the avoidance of any possible nuisance that might arise from the business we have been doing. We felt under a moral obligation to discontinue business, unless we could carry it on without being offensive to the community; and in taking measures to remedy defects in apparatus, we supposed we were doing that which you, as a Board of Health, would most earnestly desire, and, until your notice was served, the propriety of applying for your consent did not occur to us.

We have obtained, at great expense, patents for Boston and vicinity for apparatus approved by our State Board of Health, and by their advice, for the very purpose of answering all objections to the business. By means of this apparatus, we can treat animal matter in such a manner as to make the process entirely innoxious and inoffensive. All the odors and gases arising from the process of boiling or heating are utterly destroyed and consumed by fire, and every particle of the residues — all the boiled bone, meat, scrap, and liquids or soup, whether from putrid or fresh material — is converted into valuable fertiliznig elements and other products without any unpleasant smell from the process or the product after manufacture. Putrid and noisome animal matter can be transported in cars or boats provided with this apparatus without offence to the most fastidious person outside the vehicle. The escape of impure air from properly-constructed buildings in which slaughtering is done, or animal matterst ored or manufactured, can be entirely prevented by the same means. Blood and scrap can also be dried with it, economically and without offence.

The apparatus is the only one now known that destroys the gases, and thus prevents the possibility of their subsequent descent from the atmosphere, or ascent from the waters, into which they are discharged by every other apparatus; while it affords the only practicable mode for deodorizing and utilizing the soup or

liquors from the boiling tanks. Without this process, millions of gallons of soup, rich in nitrogen, must be thrown away, and whether poured upon the ground or discharged into the waters, this material will undergo decomposition and generate deleterious gases, some of which, especially sulphuretted hydrogen and carburetted hydrogen, are offensive in the highest degree. The efficiency of the apparatus may be inferred from the circumstance, that the use of it has been sustained by judicial decision in a neighboring State, where its introduction had been opposed by a local Board of Health.

We therefore respectfully pray, that we may be permitted to so enlarge and extend our buildings as to use therein the processes and apparatus above referred to, and thus abate any nuisance that may now exist, and prevent the possibility of any in the future. We also pray that we may be permitted to prove to you that the apparatus is as efficient as above stated; and that, if any citizens object to the granting of this prayer, we may meet them before you, in order that we may prove to the satisfaction of all that such alterations as we have desired to make will be for the public good.

Yours respectfully,

UPTON, SHAW, & CO.

Boston, Nov. 29, 1871.

And here is the published notice of this hearing, which I will also read: —

IN BOARD OF SELECTMEN.

Brighton, Dec. 2, 1871.

On the petition of UPTON, SHAW, & COMPANY, for permission to so enlarge and extend the buildings occupied by them on the southerly side of River Street in said town, and used as a bone-boiling, grinding, and rendering establishment, as to enable them to use therein certain new apparatus and machinery for rendering and consuming gases. Ordered, That a hearing be given to the petitioners and to all parties interested, at the Town Hall, on TUESDAY, December 5, at 7 o'clock in the evening, and that notice of said hearing be given by delivering a copy hereof to said Upton, Shaw, & Company, or leaving such copy at their place of business in Boston, and by publishing a copy hereof in the

"Boston Journal" and "Boston Herald," and by posting a copy hereof at the Post-Office in Allston.

H. W. JORDAN, } Selectmen
B. F. RICKER, } of
P. MOLEY, } Brighton.

A true copy. Attest:

N. G. LYNCH, Constable of Brighton.

We appear here for Messrs. Upton, Shaw, & Co., who petition for leave to erect a new building for the purpose of carrying on the rendering process in such a manner as will make it entirely innoxious and inoffensive. The manner in which it has been carried on in the past we do not defend, and do not propose to defend: possibly it cannot be defended if there is any better method by which animal matter can be treated. We shall try to show you that we have succeeded in providing means whereby we can render all this material so that it shall be perfectly innoxious, and shall not afford the least trouble or inconvenience to the people in whose neighborhood the factory is located. For that purpose we have assembled here several gentlemen. Messrs. Upton & Shaw will describe to you what sort of a building they propose to erect, and the scientific gentlemen who are present will explain the process, and show that it is innoxious and inoffensive.

Your first notice was served on Messrs. Upton & Ames: that firm has dissolved, and the present firm is Upton, Shaw, & Co. Since last July, they have been using all the means in their power to carry on their business in the way provided for by the State Board of Health, and in a way that will be satisfactory to you.

It is hardly necessary to state that this offal is a necessary evil in all large cities, as there must be slaughtering, and the animals cannot grow up without entrails and heads and feet: therefore there must be some way of getting rid of it. We propose to show you this evening that there is a method, which we propose to adopt in this new building, by which, as soon as the offal comes into our possession, it will be as thoroughly put out of the way, to all intents and purposes, so far as offensive odor is concerned, as if it was dumped into a hole in the earth, and buried up. The material is placed in a steam-tight tank, and the gases that escape from it are carried through long iron

pipes and discharged into a hot argand furnace. By that means they are all burned up, and not the slightest offensive odor is perceived even in the building where the rendering is carried on.

Then, after the rendering is completed, we propose to show that we take the scraps at once and dispose of them in such a manner that there is no odor at all escapes from them. By these improved methods the whole process, from beginning to end, from the time when we take the offal until it goes out ready for the market as a fertilizer, is entirely inoffensive.

We now propose to call Mr. Upton, and ask him to testify what sort of a building he proposes to put up.

TESTIMONY OF MR. GEORGE UPTON.

QUESTION. (By Mr. DEAN.) Will you please state how this business has been done before, your experience in it, what you propose to do, and the expense you have been at. Please explain to these gentlemen the pains you are taking, and are disposed to take, for the purpose of having this business carried on in the least offensive way.

ANSWER. When we first came up to the factory here, there were old square open wooden tanks, in which we boiled the material (heads and feet), and those tanks were always leaking more or less.

Q. Heads and feet that came from the slaughter-house?

A. Yes, sir. Loose steam was admitted into them, and there was always effluvia coming from them: it was impossible that it should be otherwise while they were boiling. We heard of the Perry Digester, and, being desirous of obviating this nuisance, we secured three large digesters of that kind. We put those to work, and found, that, if we plugged up the safety-valve tight, then the tallow was spoiled, or lost ten to fifteen per cent of its value; and if we allowed the least pin-hole of a leak in these safety-valves, I don't hesitate to assert that it could be smelled two miles. We always ran our soup liquors out, for we had no way of utilizing them; and I never wanted anybody to

tell me when our liquors were running off, they could be smelled so far; the people down in Cambridgeport even asserting that they could smell them there. Under the old style of boiling this could not be otherwise.

In regard to taking care of the material after it comes from the tanks, our method used to be to throw the scrap on to the ground, and then haul it over to Bradley's, or elsewhere; but the price we obtained for hauling it over there did not pay for the carting. Then we undertook to convert it into fertilizers, mixing other materials with it. First, we tried it with vitriol, — mixed it up and threw it up in large piles. You remember perhaps a year ago, when we had such an intolerable smell down there, when we threw it over from time to time in order to dry it.

Then I got a man who said he knew how to make superphosphates. That was about Thanksgiving time, a year ago. He mixed in bone-coal and sulphuric acid, and the stench was worse than ever. Then we undertook to mix in oyster-shell lime to dry it, and then we had to use plaster of Paris to save ammonia; and that was the least offensive method by which we had succeeded in taking care of it. All this time we had been wasting our material. Now, the gentlemen of this Board will remember my receiving a notice the evening before Thanksgiving. I got it at my house in Peabody about nine o'clock that evening, and the next morning, at seven o'clock, I called on you in Brighton to answer your summons. I have received another notice from you, and have given it the strictest attention. I think that you, gentlemen, can see we have used every method we knew of to obviate this nuisance. I had made up my mind, after the smell became so bad, and the neighbors were complaining, I should give up my business unless I could carry it on without its being offensive; and I think some parties here can testify I have said so. At about that time the question of using Lockwood and Everett's tanks came up, it being proposed by Mr. Shaw to put them into the Butchers' Association. I had nothing to do with it for the first six weeks or two months, while waiting for that organization to act.

Mr. Dean. What these Selectmen undoubtedly want to know, and what the town of Brighton wants to know, is, that

the process that you propose to use will accomplish the purpose that you are undertaking to accomplish. Now, then, for the purpose of doing this, what expenditures have you made?

A. We have first, at an expense of $35,000, obtained patents for Boston and vicinity for the apparatuses of Wilson, Lockwood, & Everett; next we have been at the expense of some $8,000 for tanks; and our other expenditures for making fertilizers would cover $2,500 more. We estimate that our investments in the factory to-day amount to $100,000, including the value of the material which we have on hand, at what would be a fair market price.

Q. (By the Chairman.) Is that $100,000 increase?

A. We consider that we show $100,000 investment in the manufactory to-day.

Q. (By Mr. Dean.) What is the actual increase for the accomplishment of this new work?

A. Our actual increased expenditure is between $48,000 and $50,000 for the purpose of getting rid of this nuisance, — money that has actually been paid out without any increased production, to say nothing of expenditures now going on. We are doing no more business there to-day than we have done.

Q. You recognize, as I understand, the fact, that, if you carry on this business in the vicinity of Boston you must use such means as will prevent its being a nuisance or an offensive business?

A. Yes, sir. I would say if we had a driveway by our store in Kilby Street, where we could drive a wagon in, we could carry on this business there without the people going by knowing what we were doing.

Cross-Examination.

Q. (By Mr. Warren.) Wasn't there a notice served on you previous to Thanksgiving, and you said that your business should be done thereafter so that there should be no complaint?

A. I told the Board I would use all the means I could to remedy it.

Q. Didn't you tell them substantially, as I said, that your

business should be carried on so that there should be no smell, or else it should be stopped, one of the two?

A. I probably told them I would take all the means in my power to obviate the nuisance. I explained to the gentlemen here what I was going to do, and how I was going to do it. I told them about putting in the Perry digesters, and that I was going to plug them up.

Q. Whether you didn't tell them that you would either render so that there would not be any offensive smell in that neighborhood, or you would stop the business; and on the strength of that statement didn't they allow you to go on?

A. I cannot say.

Q. You were present at that meeting?

A. I know every notice from the Selectmen I have paid careful attention to, and have explained to the Selectmen what I intended to do.

Q. Hasn't the offensiveness been greater this summer than it ever was before?

A. I would not deny it has been offensive this summer as it ever was. I will say we have expended fifty thousand dollars to remedy the evil, and if this don't show our intentions what will?

Q. (By Mr. DEAN.) I suppose, when you made those declarations, you followed them up by earnest efforts to accomplish the purpose desired?

A. We did all we could.

Q. And you found that you were not successful?

A. Since I have been in the business, when methods have been brought to my knowledge, I have spared no expense in endeavoring to obviate the nuisance.

Q. (By Mr. WARREN.) And, notwithstanding all your efforts, the nuisance has gone on increasing. How large is this building you propose to erect?

A. Forty by one hundred.

Q. How many tanks will that hold?

A. Four tanks.

Q. How much material can you render in those tanks a week?

A. We can render one hundred and eighty tons.

Q. How many tons are you now rendering a week?

A. (By Mr. SHAW.) We are rendering now perhaps thirty tons.

Q. And you propose to render one hundred and eighty?

A. We don't propose to render one hundred and eighty.

Q. You propose to render all you can, of course; as the more you render, the more profit there is, provided there is a market for the product. Is that so?

A. We put those tanks up, and we intend to use them if it will pay, if we can use them, and take care of the material without offence.

Q. What material do you propose to render?

A. We propose to keep on and do just as we are doing to-day.

Q. What kind of material do you propose to use in the business?

A. Such material as we may procure, and can handle with good effect.

Q. That is indefinite. You propose, if I understand you, to render offal from slaughter-houses?

A. I could not say.

Q. Suppose you could procure it?

A. If we find it expedient to procure the offal from slaughter-houses, and can take care of it without offence, we shall render it.

Q. You propose to render the heads and feet, and boil and grind the bones as you have done?

A. Not as we have done, by any means.

Q. I don't mean by the same method; but by your improved means you propose to use the same articles you have used before?

A. We propose to utilize the material which comes from these tanks.

Q. Where are you going to get your material?

A. We are going out into the market to buy it.

Q. You will have to cart it there?

A. We shall have to cart it there, or get it there in some way.

Q. From wherever you can procure it?

A. Yes, sir.

Q. Do you propose to carry on a business like that of Mr. Ward, taking it for granted that, with your Everett Patent, you can do all that you claim for it?

Mr. Dean. He says he proposes to do just the same as he is doing now. You know what that is.

Q. (By Mr. Warren.) Do you propose to take dead animals from any source, and render them; taking them from wherever you can get them in the market?

A. We propose to carry on a rendering business. We don't know whether it will be dead animals, or marrow-bones, or offal.

Q. You won't say you don't propose to take dead animals?

A. We will not say we don't propose to take any thing.

Q. Your building is large enough to contain four tanks, which are capable of rendering one hundred and eighty tons a week?

A. Exactly.

Q. Are you, Mr. Upton, yourself responsible for the statements in the letter that is addressed to the Board of Selectmen, which was read?

A. Mr. Shaw and I are responsible.

Q. (By Mr. Dean.) What is the patent you have got?

A. The Lockwood and Everett patent for rendering, and burning up the gases, and the Wilson patent for deodorizing the material as it comes from the tank. Then on the top of the building we propose to erect an argand furnace, of the Lockwood and Everett patent, so that, if there are any foul smells in the building, the building will be so constructed that they will rise to the top, and be taken through that argand furnace, and destroyed.

Q. (By Mr. Warren.) What are you going to do with the product after it is brought out, — your fertilizer?

A. We are going to sell it.

Q. How are you going to dry it?

A. It will dry by crystallization.

Q. (By Mr. Dean.) You do that by the Wilson process?

A. Yes, sir.

TESTIMONY OF CHARLES J. EVERETT.

Q. (By Mr. Dean.) What is your business?

A. One branch of our business, sir, is the construction of a rendering apparatus known as the Lockwood and Everett steam-rendering apparatus.

Q. You are familiar with it, of course?

A. Yes, sir.

Q. You are one of the patentees?

A. The inventor of the apparatus.

Q. Now will you please explain that to the gentlemen?

A. The apparatus is for rendering animal matter of any kind, — fresh fat, offal, dead animals, or any thing else you may put into it. It consists of a tank, or steam-tight digester, made of boiler-iron, which is capable of sustaining a steam pressure up to one hundred and fifty pounds. That is enclosed within another steam-tight digester, of the same strength, but larger, thus forming a steam and water space, or jacket, between these two tanks. The whole apparatus so constructed is set over a fire, heat is applied, and steam generated from the water filling the jacket, and from this the heat is conveyed to the material within. When the material is put in, and the tank closed up, there is no escape then for any fluids, or the gas and vapors from the tank, during the rendering process, except by one pipe at the top. Perhaps I had better refer to the blackboard to make that plain. This inner line represents the inner digester, in which the material is placed, and it is filled through this hole at the top. It may be filled clear up to the top if you choose. Then the heat is applied below here, and all the volatile matter is driven off through this pipe at the top, which, during the entire treatment, affords the only vent from tank. That pipe connects with a coil of pipe which is something over five hundred feet in length, enclosed in a brick work receptacle, and terminating in a cast-iron retort. This retort is also hollow, and forms a fire-box, the fire being put in here; and this whole thing is in a solid wall of brick work, twelve inches thick. Now the gases and vapors go through this coil, where they are superheated by the fire from the combustion of coal, and the products of the combus

tion go up through here. This coil terminates in a retort, and this retort has a hollow chamber all about it. It is just like putting a tub or a firkin into another larger one, and then cementing the top so that it is perfectly tight. The mingled steam and gases in that retort become highly heated — up to 800° Fahrenheit — by the combustion of the coal in this furnace, and thence it issues by a series of jets, which are so constructed that there is a current of heated air continually drawn up in the centre with them into the fire.

It is difficult to describe all this in a very brief demonstration, and I will not attempt to.

The fact is, that all the volatile products of the rendering process in this apparatus pass through this long coil of pipe, and thence into this retort, where they are heated up to seven or eight hundred degrees, and thence into the fire with heated air, and the result is there is perfect combustion of these volatile products. Those are the essential features of this apparatus so far as the nuisance question is concerned.

As to whether all the gases and vapors from this material in the tank are consumed, we have the testimony of various parties, some verbal here to-night, and some documentary. The Metropolitan Board of Health of New York have had this apparatus under their eye, running in the hands of various parties making tallow and lard, and rendering offal in the city of New York, ever since the Board first began, — in 1866, I think it was. The testimony of the Metropolitan Board of Health has been, and is to-day, that in this apparatus the material is rendered without any offence whatever. The evidence upon that point may be read here to-night, or you may call upon the Board directly. We have a company in New York which has been rendering for the last four years all the offal and dead animals, condemned meat and refuse, in the city of New York, amounting to some eighty tons per day, and they use entirely the apparatus I have described. Messrs. Upton, Shaw, & Co's apparatus has been constructed according to the drawings which were made for the New York company, and in precisely the same way. The New York Rendering Company takes care of about eighty tons per day, without offence.

Q. (By Mr. Dean.) From your own observation, Mr. Everett, whether or not you have noticed the operation of this method of rendering?

A. Yes, sir; I have used it in my factory: I have used all the various forms of rendering apparatus in our factory in New York.

Q. Whether or not this one is effective?

A. Yes, sir; it is perfectly effective: that I know of my own knowledge.

Q. That is, when you have put the offal into this digester, as you call it, and fastened down the man-hole, and set it at work, whether while this rendering is going on it emits any effluvium at all?

A. Not in the least, sir. If it did, it would be imperfect, and would have been condemned long ago. I know of my own knowledge it does not. I would say that it is in operation in our own factory in New York, and also in other factories. We have low chimneys, and, where new buildings have been erected especially for this apparatus, as they have been in some places, we have requested that the chimneys should be low, that the health authorities should be able to ascertain, from the chimneys leading from the consuming furnace, whether or not all these gases are consumed. And there is where the decisive examinations are made, — at the mouths of these chimneys. It is easily seen that the gases are consumed by looking at the fire.

Q. When this digester is shut, sealed up, it is so tight that nothing whatever can escape, except through this coil of pipe?

A. Yes, sir; because we run it at between seventy and eighty pounds' pressure.

Q. All that escapes is effectually consumed, and you say that is tested at the top of the chimney?

A. At the mouth of the chimney.

Q. So that, if there is any that is not consumed entirely, it can be detected there if anywhere?

A. Yes, sir.

Q. And what test has been applied?

A. Various tests have been applied by the health authorities wherever the apparatus is used in New York and elsewhere.

Among the tests applied by the Metropolitan Board of Health, has been to ascend to the top of the chimney during the rendering process, and cover the top of the chimney with folded blankets, and let them remain there several minutes. If any offensive odors are escaping they will impregnate the woollen material, and remain in it for a long while. There has never been a test within my knowledge, of that kind or any other, with this apparatus which was not perfectly satisfactory to myself and to the Board of Health, and they have been repeatedly made in my presence.

Q. As I understand it, these gases burn like ordinary gas?

A. Yes, sir; it burns in combination with the oxygen of the atmosphere.

Q. That is, the atmosphere is let in at the same time, so that it is consumed in combination with ordinary atmosphere, just exactly in the same way that gas is consumed here in the open air?

A. Yes, sir. I may say here, to explain a little more fully, that we arrived at this by successive steps. We had serious complaints about the factory in New York many years ago, and we endeavored to make it less offensive, knowing that, if we didn't, we should have to move. We tried first condensing the odors and vapors coming from the tank. The tanks we had would hold five tons of material, and we were running them in the old way. We used the Perry digesters and a large condenser, but we met with two difficulties: the first was, it was hard to get water enough (and we were obliged to pay an enormous water-tax, because it amounted to many hogsheads in an hour sometimes) to cool the products from the tanks, and to condense the watery vapors; and that is all we succeeded in doing. The gases produced during the rendering, of course were no more condensed than so much air would be. We could produce a partial absorption of them by the water, and that was all. Then we had a vast amount of most offensive smelling and appearing fluid, as the result accumulating on our hands. If we poured it into the sewers, we were annoyed by the complaints of people who smelled it through their traps. We put it into the river for a while, and then Dr. Sayer, who was health physician at the time, notified us to stop. Then we

didn't know what to do. First, we put a piece of pipe from the tank underneath the grate of the boiler, and let the gases escape there; but as soon as we put on a full head of gas, it put out the fire, and, if it was not let on, it would spoil the tallow, because the smell would be cooked into the tallow. Then we let the gas escape in small jets, in the hope of obviating the difficulty in that way, and it did obviate it in some measure. More careful observation showed us that that was not effectual, and we must find some other means. Then we superheated the gases, which is necessary to get them free from the watery vapors which are always mixed with them more or less, and which tended to prevent combustion. In that way we effected the desired object perfectly.

Q. In going through this five hundred feet of coiled pipe, the gases and vapors are subjected to intense heat?

A. Yes, sir; and they are then conducted to this cast-iron retort.

Q. By that means you get rid of the watery vapors which are mixed with the gases?

A. It really decomposes the gases that escape from the tank.

Q. So that they become combustible entirely in connection with atmospheric air?

A. Yes, sir.

Q. And the result is perfect?

A. The result is perfect and practical.

Q. Now if you have any particular thing in that book which will illustrate the usefulness and efficiency of the apparatus, you may read it.

A. I have here the printed report of the Metropolitan Board of Health.

Mr. Warren. I don't think it is of any use. So far as I am concerned, I don't propose to dispute the general facts which he has referred to.

Witness. I might say further that in this process of rendering — and I speak as one familiar with it — there are three products from the time the material enters the digester until it is disposed of. First, the volatile products which you want to get rid of,— the gases and vapors; then the grease, which is

not objectionable on sanitary ground, and is somewhat valuable as a merchantable commodity; and third, the refuse that is left on opening the tanks, termed scrap; that is, animal tissues, pieces of bone, gluten, &c.

Q. (By Mr. JORDAN.) Speaking about the tanks in New York, whose tanks are those that are on board the boats on the water?

A. I know of no others on board the boats except the Lockwood & Everett tanks.

Q. What do they do with the offal and bone, &c., that is left in the tank after the rendering process is completed?

A. We have made all sorts of disposition of it. We labor under certain difficulties there. The New York Rendering Company are the contractors with the city for the removal of refuse and dead animals from the streets.

Q. I understood you that it all worked perfectly, and the smell was all taken away from these materials?

A. Yes, sir, during the rendering process. We are the contractors — I say we, because I am a member of the company — for removing the refuse and dead animals in the city of New York, and we are obliged to remove them every day: otherwise we forfeit heavy bonds; and we are obliged to receive and collect that material at a dock specified by the city.

Q. That is not my question.

A. I am coming to the point as quickly as I can. We have only the room upon that dock, and we cannot get ground for the putting up of buildings; so we are obliged to put our tanks on boats, to get room to render on. We therefore cannot use any process whatsoever for utilizing this material that is left in the tanks; we cannot even store it, but have to put it in boats alongside to be carried away, so that we are entirely dependent upon sub-contractors for getting rid of it. We have repeatedly made a contract with other parties, some men in New Jersey generally, or on some island near Sandy Hook, and these persons very frequently find themselves interfered with by health boards elsewhere, and are consequently obliged to stop taking it. Then we are left with this on our hands, and it will be one or two weeks sometimes before we find any means of disposing of it, as we cannot lease land for the purpose, and

the Board of Health will not allow us to throw it overboard in the river. Sometimes we have to take it out to sea, and throw it overboard.

Mr. Jordan. That is an objection which I see. There is no provision made for that.

A. We have no provision for it at all. The rendering process is complete when the material leaves the tank: somebody else must dispose of the residues.

Q. (By Mr. Dean.) So far as the rendering is concerned, you mean to say that this apparatus will perfectly dispose of all offal that is brought to you without any offensive odor?

A. Precisely, sir. I would say that scrap, or any material, if cooked long enough, is perfectly inoffensive when it comes out of the tank; but let that be kept a few hours exposed to the air in ordinary weather, and it begins to decompose, and emits a very bad odor.

Q. You can put it into these tanks, and keep it there long enough to make it entirely inoffensive, if you have capacity in the tank to do it?

A. You could drive off all the offensive matter, so that the scrap would be entirely innoxious when it came from the tank?

Q. Then further disposition has to be made of it?

A. Yes, sir; but the New York Rendering Company do not utilize this scrap in any way.

Q. (By Mr. Warren.) That scrap, so far as your apparatus goes, is not acted upon further by your apparatus?

A. No, sir.

Q. It is provided for in some other way?

A. Yes, sir.

Q. If it stays where it is put, exposed to the air, in the course of a few hours it will smell badly?

A. Yes, sir.

Q. There are two other products, you say?

A. Yes, sir, — the volatile portions, which pass off through the pipe into the furnace; the grease, which is drawn off and sold; and the scrap: those are the three products. I speak of three products, because in the New York Rendering Company we throw a great deal of the water or soup off with the scrap: we don't make a distinction there.

Q. The fatty part that is drawn off is saved, but the soup is not?

A. No, sir.

Q. The fatty part is formed on top of the watery part?

A. We draw the grease off from the top of the water before we open the tank, and, if it is properly cooked, that grease should be as sweet as lard or butter. The soup is the watery fluid.

Q. What becomes of the soup?

A. For the same reasons we cannot treat the scrap, we cannot treat the soup, and have thrown it away.

Q. There must be other devices than your apparatus for taking care of the soup and scrap?

A. Yes, sir. I don't profess to have any means of treating the scrap or soup in this apparatus.

Q. Do you know of any device or invention for treating it?

A. I do know of a device or invention by which it can be treated.

Q. What is that?

A. The process of Wilson, of Providence.

Q. That is to be explained hereafter?

A. I will say that I have sent several tons of the New York Rendering Company's scrap to Providence to have it treated.

Q. Was the soup with it?

A. Yes, sir, the soup was with it. It was wet scrap; and, fermenting, it blew the heads of the hogsheads out before it got there. But the Metropolitan Board of Health said, "You had better not attempt to do any thing more on New York Island: you have got your hands full now. You can't handle your contract with any more." We can do it, and do do it now: we have kept adding to our capacity every year. We are rendering eighty tons a day, and it is as much as we can do to get all clear and the doors closed at six o'clock.

Q. How many horses do you render?

A. We render now about one hundred and twenty dead horses a week, and have been doing so since last April. So far as the rendering is concerned, the decision of the Metropolitan Board of Health is, that it is a perfect success. Every member that I have spoken with agrees to that. The evidence of it is, that we are rendering there at the dock now every day.

Q. How long has this process been carried on under your patent?

A. It was perfected, sir, in 1867, I think.

Q. So far as the process of rendering is concerned, this thing was known, and could have been used, years ago?

A. It could have been used, but I am the only person who has any thing to do with it now. My partner, Mr. Lockwood, resides in the far West, taking care of a mine; and I have been engaged in other business, and have not attempted to make it public. The thing has lain quiescent for many years.

Q. (By Mr. Dean.) State whether you had any conversation with Mr. Upton on the subject.

A. Yes, sir. Mr. Upton told me, when he first met me on the subject, that if he had known of these tanks a year before, he would have purchased them; that he never heard of them, or he would have purchased them before.

Q. (By Mr. Warren.) There is nothing practically in the tank, is there, different from any other tank?

A. Yes, sir.

Q. What is the difference? I don't mean the coil.

A. It differs inasmuch as it don't require what other tanks do, — a separate steam-boiler and an engineer to run it. It differs from others in that the heat is applied directly to the tank itself, which is not the case with other tanks, it being surrounded by a steam-jacket.

Q. But other tanks have a steam-jacket.

A. They take steam from boilers, which is not the case here.

Q. (By Mr. Dean.) You say you took some of your scraps to Providence; how long did it take to deodorize this soup and scrap which blew the heads of the hogsheads out?

A. Well, sir, there were two or three men shovelling from two hogsheads, which were so heavy that they could not be lifted up and emptied into the tank, and they had no machinery for hoisting them; and, when they got the last into the tank where the chemical treatment was going on, the smell ceased, just as soon as the scrap was fairly covered by the chemicals.

Q. So that, by Mr. Wilson's process, as you observed it, this scrap is immediately deodorized?

A. Yes, sir.

Q. That was scrap that had been carried from New York to Providence?

A. It was nine days old then.

Q. I understood you, that, after it has been thoroughly heated a sufficient length of time, this scrap from the tank comes out entirely free from smell?

A. Yes, sir. You may take offal and render it sufficiently long to drive off all that is offensive in a volatile form.

Q. Did you ever dry scrap?

A. Yes, sir.

Q. With what effect?

A. We made it as dry as a crust of bread, free from all water, in our tank.

Q. So that, if you have sufficient capacity, you can dry it in the tanks?

A. Yes, sir. By leaving it in there over-night, you can dry it, sir.

Q. So that a large capacity, compared with the amount of business you do, would enable you to do away with offence from this source?

A. Yes, sir; the scrap could all be dried in the tanks.

Q. What was the result of condensing at your factories on East River before you used this coil?

A. We cannot get rid of the gases. By running a long pipe into water, the effect is to condense the watery vapors which come from the tank; but it leaves the gases in the same condition to rise, with less specific gravity, and pass into the atmosphere; and the fact is, that, when the gases escape from the water, they are stronger and more offensive than they were before. Before, they were diluted with water, and now they come out perfectly dry.

Q. Is there any smell arising from clean grease — I don't mean decomposed offal, but clean suet or grease, as it comes from the slaughter-house — when you render it, if you render it in open tanks?

A. You cannot apply the heat necessary to liquefy fat, or fresh tallow, any quantity of it, without setting free a certain quantity of disagreeable gas. Sulphuretted hydrogen is very

evident in the gas that first comes from fresh tallow. The mere application of heat to fresh tallow, what butchers call rough tallow, will produce offensive gases, that you may smell when any fat is boiling.

Q. So that this process is valuable for that purpose?

A. That is essentially the use to which we supposed the apparatus would be put, — the melting of lard and tallow. The rendering of offal was a development that came afterwards. Our business was in tallow.

Q. (By Mr. WARREN.) Do you mean that you can dry scrap in the tanks so that it will never become offensive, so that it will not decompose?

A. So that it will not decompose until it gets damp again. If it was exposed to moisture, it would absorb moisture. We have dried scrap the whole summer by letting it stay in the tank over-night.

Q. So that it was ready to be sold as a fertilizer?

A. No, sir; that required treatment again to make a fertilizer of it. The object of doing this was to dry it so it would keep. There was a man in Newark who could not get rid of his scrap; could not sell it, and could not give it away, because it had no grease in it, so he dried it and put it away on the upper floor under my advice. He said he intended to sell it in the following spring, for poultry feed; but what he did with it I don't know.

Q. Has it any use left in that way as an article of merchandise?

A. I suppose it could be used to mix with fertilizers.

Q. It would have to be treated in some way?

A. I suppose so.

Q. (By Mr. DEAN.) It is deprived of all offensive odor?

A. Yes, sir.

Q. (By Mr. WARREN.) The profit of this business is in the products?

A. Yes, sir.

Q. And the obtaining of a fertilizer is the product out of which the greatest increase of profit is now looked for?

A. That I don't know of my own knowledge. No concern that I have put up tanks for makes fertilizers.

Q. Don t you understand that that is what they desire to do here?

A. Mr. Upton is a manufacturer of fertilizers. I understand he intends to make them.

Q. After this leaves your tank, the whole treatment that will be necessary to make it into a fertilizer must be gone through with?

A. The scrap in itself is no fertilizer as it comes out of the tank. It would do to put on land, but you could not transport it anywhere. If it was dried in the tank, as I spoke of, you could keep it six months, or any other time; but it is not a fertilizer in that form, as I understand it, since ammonia is its only fertilizing element.

Q. (By Mr. Dean.) There is nothing offensive in dried scrap, is there?

A. No, sir, not at all; no more than in dried beef.

Q. An establishment of this sort if it prevented the carrying of offal, or any thing offensive, through the streets, would, of course, make a diminution in the nuisance arising from the collecting of such things?

A. Yes, sir. On that point I will merely give one fact. When we were drying scrap, and trying to make another product of it, many years ago (I said I had never had any experience with fertilizers: we did in 1866 or 1867 dry scrap for a while with other animal matter), and we collected animal matter from the butchers in New York (I had forgotten that fact), we collected it in barrels prepared for the purpose, the covers of which fastened down in a peculiar way, — screwed down when the barrel was full. We had ten of those casks, and used to carry the products of a pork packing house through the streets of the city in that way, and had no trouble from it.

TESTIMONY OF GEORGE F. WILSON,

OF THE RUMFORD CHEMICAL WORKS, PROVIDENCE, R. I.

Q. (By Mr. Dean.) What is your business?

A. I am a manufacturing chemist.

Q. Whether or not you have invented any process for turning into fertilizers the soup and scrap from rendering establishments?

A. Yes, sir; I have invented and patented a process which will almost instantaneously deodorize scrap from offal, tallow, or any other substance, effectually.

Q. Will you explain that process to the Selectmen, — the *modus operandi?*

A. In connection with this apparatus? [Referring to the diagram of the rendering apparatus drawn on the blackboard by Mr. Everett.]

Q. If you please.

A. I suppose the Board fully understand that there is no steam enters this digester, and, when there is a little water, there is proportionately the same quantity of water to be driven out through that pipe. This [on the diagram] shows how the tallow is drawn off, there being a rosette here which plays up and down; and, without any opening into the tank, it is possible to remove all the grease from the tank as fast as it is made, the pressure of the steam above being sufficient to press the tallow out.

Q. It presses the tallow so that nothing but the tallow can go away?

A. Yes, sir.

Q. As fast as it is rendered, you say, it is carried away?

A. Just as fast as it is rendered, the tallow rises to the top, and passes through the holes in this rosette; and as the steam and gases escape, and the quantity of material in the tank lessens the rosette sinks down with it.

Q. And the tallow is driven through that tube as fast as it is made?

A. Yes, sir. Now take the vapors that arise from the boiling of decayed animal matter: there comes off a combination of sulphur and hydrogen, and sulphur and ammonia, which is very offensive, as anybody who ever smelled a rotten egg can tell. If you put those vapors into a chimney, no matter how high, or over a fire, as has been explained, they are not decomposed, but they go out of tall chimneys, are lifted away from the immediate neighborhood, but soon drop to the earth again. If you put them in water, they are not condensed, and there is no help for it in that direction: they are offensive. But if you pass them through a red-hot pipe, raised to a very high temperature, they are decomposed, and the sulphur and hydrogen go into the fire as elements, and are immediately consumed; and that is the end of them. The carbon sometimes remains and unites with the coil of pipe, and it is stated by Mr. Everett that he has found the pipes coated with a lining of carbon. There is a thorough decomposition of the gases, and they are literally burned up. That there is no smell from that apparatus, I know: there is no question about it at all. I have two of those tanks in my laboratory. It has been stated to you, that, by taking offal, however offensive, and treating it by this process, it comes out nearly sweet; and I have but to recall to your mind, that, when you have an offensive piece of meat, and put it into the kettle, while it is boiling, you smell the meat; but, after it is sufficiently boiled, it is nearly sweet, or quite so: that is the effect when it is cooked in water.

Now the question was, what to do with this material after the tallow is taken out, and after the offensive vapors have been driven off and burned up, how to utilize it. The ordinary process has been to have a tank and put a steam pipe into it, and drive these vapors out into the air, and then lay the scrap away to be treated for the purpose of conversion into superphosphate of lime.

Let this be a tank [illustrating on the blackboard], or box lined with lead, the size proportionate to the quantity of materials that are to come out of the rendering tank. That represents a coil of pipe which is placed in the tank. Now, those materials, the scrap and water from the digester, are run into this tank: they are hot and sweet, and more or less moist.

There we treat them with biphosphate of lime obtained from the decomposition of bone-coal by oil of vitriol. Every one knows the deodorizing power of charcoal, or bone-coal. As soon as this material is drawn in here, a quantity of bone-coal, prepared as I have stated, converted into phosphate of lime, together with phosphoric acid, is put in with it, and mixed up; and from that time on, there is no further smell about it.

Q. (By Mr. JORDAN.) How is it mixed in that tank?

A. It may be mixed by hand, or by having an apparatus large enough to do it with power.

Q. Is there any smell at the time of stirring it up?

A. No, sir; all the smell there was, was consumed, and all further smell is prevented from taking place by this mixture.

Q. Do you mean to say, that, when it comes out of the digester into the tank, there is no smell to it?

A. No offensive smell, — not as much so as you would smell in this town where they were getting a boiled dinner.

Q. I had seen it come out, and that is the reason I asked the question.

A. I have taken tons of this when it was so offensive that men could hardly be induced to stand over it to work, and in less than twenty minutes you would not have known it was there.

Q. I was only asking about the time when it first came out of the tank, and you began to stir it, — whether there was no offensive smell at that time?

A. None, sir; none, at all. I think you could do it, as has been stated by Mr. Upton, back of his warehouse in the city of Boston, and it would not be offensive to anybody. Now, I will undertake to show this to you, if you desire. I have this apparatus, and can start it up at any time, and will show you the entire process, free of any expense. We will send to New York for some of their most offensive soup and scrap, and bring it there and put it before you, and you will see that in twenty minutes, it will all be deodorized. The water that is left in the soup will be crystallized; and, if it remains in the tank over-night, it is so stiff and hard, that a person can shovel it like moist peat. In the course of two or three months, and in the course of two or three weeks even, in some conditions

of the atmosphere, it will be ready to be ground and put in bags to send away.

Q. How long will it take for you to get through with this process, so you can ship it?

A. Four weeks perhaps, — as soon as it can be handled.

Q. (By Mr. WARREN.) Something has to be done with it?

A. Yes, sir; it has to be ground.

Q. (By Mr. JORDAN). This is what you say runs from the tank?

A. Yes, sir; and treated according to this process. I have a thousand tons of it in one storehouse, and ten rods from it, yes, one hundred feet from it, and less, you would not know there was any thing in it.

Q. (By Mr. WARREN.) Where is it, — in Providence?

A. Yes, sir. Now, I undertake to say, that, by the use of this combined process, the rendering of offal, fat, lard, rough tallow, or dead animals of any kind, can be carried on anywhere without offence; and I can show you, gentlemen, that what I have stated, and what has been stated here to you by Mr. Everett, is strictly true, and I will do so with pleasure, if you will visit my laboratory in Providence.

Q. (By Mr. WARREN.) What do you use the coil for in the second tank?

A. The ordinary method of treating this is to put the steam-pipe into the tank, and letting the loose steam on. In my tank, if it is not sufficiently dry, turn the steam on, and it will very soon dry it; and, if it is too dry, and you simply want to warm it, turn on the steam and let the water which it contains run into the tank; or you can open that cock, and let it off. By means of this pipe you are enabled to dry all that to powder, if you desire.

Q. That is no part of the appliance for changing the character of the scrap?

A. No, sir. The pipe in this tank [referring to the rendering tank] is about five or six hundred feet long.

Q. (By Mr. DEAN.) Do you put this mixture of phosphate of lime on top?

A. We simply mix it with the material that comes from the tank.

Q. What is the commercial value of this scrap?

A. Do you mean the scrap, or the superphosphate of lime?

Q. (By Mr. JORDAN.) This preparation after it is mixed [superphosphate of lime].

A. Fifty dollars a ton.

Q. (By Mr. WARREN.) That is a specimen of the fertilizer you make? [Referring to the contents of a small bottle.]

A. Yes, sir.

Q. What is dried scrap worth, as a fertilizer?

A. Twenty dollars.

Q. Without any chemical change at all?

A. Well, I will pay that for it.

Q. (By Mr. DEAN.) I suppose this scrap that is sold at twenty dollars a ton is sold to make into fertilizers: it is not a fertilizer of itself?

A. No, sir; not a proper fertilizer.

Q. What would you think of throwing this soup into Charles River, and letting it run?

A. Let a small quantity be thrown in there, and there would be no objection; but a large quantity thrown in there would be deleterious. Besides, the soup is the most valuable portion of the material, because it contains nearly all the nitrogenous material.

Q. You use it all up?

A. Yes, sir; we use it all up. The water of the soup enters in by crystallization into the superphosphate of lime, the ammonia taking up its equivalent of water. An attempt has been made to treat this with oil of vitriol, but it only adds to the offensiveness; while to treat it with lime drives it off. After studying some ten or fifteen years on this subject, I know no *other* process, and can conceive of none which will effectually render this offal, and convert it into valuable material, without offence; and this will do it.

Q. (By Mr. WARREN.) What is the necessity for four weeks to elapse before it is available?

A. It takes some little time for the process of crystallization to take place: a hill of potatoes requires time to mature.

Q. How long does it have to stay in the tank?

A. Twenty-four hours; so short a time, that charging up

this rendering tank to-day and working it, it comes into this phosphate tank to-morrow, and is taken out; so that there is a continuous process.

Q. During the four weeks it may be spread on the ground, put into a room, or any thing else?

A. Yes, sir.

Q. Is there any chemical change during that time?

A. The process of crystallization is going on: it is growing harder and dryer; and, if it lies four months, it becomes so hard, that it requires a pickaxe to break it.

Q. (By Mr. DEAN.) Is there any smell during that time?

A. No, sir. Interested as you are here in slaughtering, in the great market of New England, you should be gratified to know that we have got just the apparatus we ought to use, in order to utilize the whole of the animals, and to do it without any offensive odor, or producing the least thing that could be called a nuisance. It is here, and about ready to be used. It is no new thing: it is done; it has been tried, and is just as well known to be true as it is that you can kill an ox to-morrow. There is no question about it.

Q. What do you call the final product?

A. Superphosphate of lime.

Q. Is that any different from other superphosphates that are sold?

A. I should think it was. Analysis would show that the product varies according to the material that comes from that tank, and varies according to the quantity of biphosphate of lime that is put into it. This material is thrown out into a pile, and, after it has crystallized, it is broken down, and ground into meal, like flour. There are different qualities and grades, but it is pretty nearly all alike, one thing.

Q. But, looking at the result that is reached in the product, is it different from that reached in other fertilizers sold in the market?

A. The superphosphate manufactured in this way is much more valuable than any other: I know that; as it ought to be, for the material of which it is made is better material.

Q. It makes a more concentrated fertilizer?

A. Yes, sir.

Q. Do you remember the analysis of the sample sent by Upton, Shaw, & Co.?

A. Pretty nearly. It was fourteen per cent of soluble phosphoric acid, four and one-half per cent of ammonia, thirty per cent of biphosphate of lime, and some sulphate of lime; a very rich product.

Q. Have you this apparatus working in New York?

A. No, sir; it is working in Providence.

Q. Is it set up anywhere except in Providence?

A. No, sir.

Mr. Dean. I will state, Mr. Chairman and gentlemen, that, if you desire to see it, we should be very glad indeed to have you go to Providence, and will see that you go without any expense to the town or yourselves, for the purpose of witnessing this operation, on any occasion when Mr. Wilson can be in a position to exhibit it to you. How soon could you do it, Mr. Wilson?

A. As soon as I can get the materials there.

Q. Some material could be carried down from Messrs. Upton & Shaw's, if you have not got any materials on your place.

A. We have some classes of materials, but the quicker, better, and surer way would be to send a cargo from New York.

Q. (By Mr. Jordan.) Don't you have slaughtering done there?

A. Yes, sir.

Q. Don't Mr. Comstock slaughter a good deal?

A. Yes, sir: all the butchers do, but their offal is contracted for until next March. I will be ready at any time.

Mr. Upton. I can show it from our own phosphate tanks, from which we are now running off about ten tons a day, if we could stop the Perry digesters. But, with those running, there would be a confusion of smells, so that it would be impossible to discriminate.

TESTIMONY OF PROF. E. N. HOSFORD,

OF HARVARD COLLEGE.

Q. (By Mr. DEAN.) You are acquainted with Mr. Wilson's process, which he has described?

A. Yes, sir.

Q. Will you be kind enough to give your opinion of it to the gentlemen, in your own way?

A. I have seen it in operation for many years. The large tank, which is represented in this diagram, is lined with lead, and has pipes on the side, and in some instances on the bottom. A mass of animal matter is thrown into it, and covered with bone-coal and sulphuric acid (making, by decomposition, biphosphate of lime), and steam, passing through this pipe, communicates heat to the whole, and the action of the heat effects a disintegration of the scrap and a combination of phosphoric acid and ammonia, and then a fresh application of the heat gradually cures it, till it becomes of such consistency that it is easily shovelled into a pile, or removed into a shed at some distance, where it is left for a considerable time. I have seen that in operation, and have noticed the entire absence of smell in this tank. I have also noticed the fineness of the product, and I have witnessed the valuable results from the use of the material.

Q. (By Mr. JORDAN.) I would ask, if you have been there when the material came from the main tank, what kind of smell is there there before you put in this preparation?

A. I have never witnessed the rendering process. I have seen the material taken in a very offensive state and put into the phosphate tank, and, as soon as it was covered and mixed with the biphosphate, the smell disappeared. As I understand, from the description made to me, and what I know of the treatment of animal matter, when it leaves the tank, it is quite free from smell. When it issues from the tank, it is deodorized. There would not be any smell from it for some time in a low temperature; and, in a rising temperature, the odor would not be perceived so soon, simply from the reason that odor is the product of fermentation; and, where the heat is sufficient, it coagulates the matter, which

would otherwise ferment. The solidification of the watery mass by this slow process of Mr. Wilson's is certainly quite a remarkable and interesting process. I don't know any thing but alum which takes up so much water in combination with ammonia. This efflorescence, or crystallization, seems to be quite hard throughout the whole mass. I may as well say, since I have been to the trouble of coming round here, that I have looked at this matter of rendering offal at Brighton, my residence being in Cambridge, as one of the most important problems that present themselves to a scientific man anxious to be useful in any industrial way. We are losing our phosphates fast enough, by their running away to the sea. The soil is being exhausted; and an enormous amount of this material is lost every twenty-four hours in New York and Boston, and in all the large cities of the country. The importance of saving the phosphates has been understood and acted upon in China and other countries in the East for a long while. A large portion of the East has become a desert from the neglect to care for this valuable element in the soil. Northern Africa and Syria are instances of this kind. Syria, which was once a land flowing with milk and honey, has become almost a desert from the gradual flow of phosphates into the sea. We know a great effort has been made in recent times, on the other side of the ocean, to save these materials. In London enormous expenditures have been made to secure the valuable matter contained in the sewerage. In this country hardly any attention is paid to this subject. In Brighton the question has presented itself to me a great many times in trying to co-operate in bringing about something like the French system of *abattoir* in connection with the preservation of this very valuable offal. It has ripened in New York, and I am exceedingly glad to know that a process has been devised that seems to promise every thing that could be asked. It is wicked to waste the offal; and I have no hesitation in saying that there is nothing so precious to any country as the preservation of its phosphates. We cannot grow a bone without them; we cannot produce brain without them, or muscles without them; without them nothing can be produced whatever. If this process does not offer every thing in the world at the outset, but is in advance of what has gone before, we should welcome it. It is gratifying to notice a pro-

cess that offers so much as this process presents, and it seems to me very largely entitled to consideration. In regard to the rendering process, I have not observed it; but so far as the odor from the tank is concerned, it is not offensive, and the material that is produced is exceedingly valuable.

Q. (By Mr. WARREN.) Is there any effervescence when the sulphuric acid is put on this material from the tank?

A. A little, not much.

Q. No odor to that?

A. No odor that is appreciable. Sometimes you get such an odor when the gas from a coal fire is blown into a room. Our cities are throwing out enormous quantities of it from their fires all the while.

Q. Now, your opinion is based upon the assumption that the scrap as it comes from the original tank is sweet: of course, if the material used there was much tainted, there would be a smell?

A. A little time would elapse before it could be brought under the influence of treatment.

Q. If it were carted for a long distance, it would smell while it was being carted; wouldn't it?

A. If it were exposed to the air, it would exhale an odor certainly.

Q. Would it make any difference in the sweetness of the scrap what the material was which was rendered; for instance, to take an extreme case, take the offal from an ox which has just been slaughtered and put it into one tank, and put into another tank a horse which has been dead three or four days; would there be any appreciable difference in the smell of the scrap from the two tanks?

A. I don't think there would be any at all. You cannot smell what does not escape.

Q. Would it make any difference whether the tanks were properly tended; that is, what length of time the process of rendering went on? Is there any such thing as an incomplete rendering?

A. I suppose the main object of rendering is to get tallow; and I suppose in some cases the tallow may require longer to become disengaged from the marrows of the bones, or certain

forms of meat and tendons. The time which it would require to obtain tallow from the entrails and from the bones would probably differ; but I don't see any difficulty in adjusting it.

Q. Can the tallow be sufficiently rendered, the grease be sufficiently taken off, by this process, without completely converting or deodorizing the other materials? Take Mr. Wilson's illustration: if you boil it long enough, it won't smell, and if it is not boiled enough, it will smell?

A. I suppose you would get rid of the smell before you would remove all the fat from the meat.

Q. What I wanted to get at was, whether a little neglect on the part of the persons in charge of it might not make the scrap smell?

A. I shouldn't think there was much chance for that. The offensive odors are very volatile: they go off very easily.

Q. As a matter of fact, we know that, at the New York Rendering Company's docks the material that comes from the tanks, at the time it comes from the tanks, is very offensive from some reason or other?

A. I have never been out in that locality.

Mr. Everett. Our practice there differs at different times. For instance, sometimes for months, included in the offal in the tanks are what are termed the paunches of the cattle, which contain a large quantity of partly or wholly digested food; in fact, manure. When those are put into the tanks, I have noticed myself that the scrap smelled offensive, decidedly so; but it is a very different smell from the smell of scrap; just what you would expect to get from boiling manure in water. The process, in regard to the length of time occupied, differs very much from time to time. Sometimes we finish a tankful in three hours; but when we get at it early in the morning, and have plenty of time, we take six hours. The question as to the difference in the time of rendering, and difference in the smell of the scrap, cannot be stated positively. For instance, if you rendered it just long enough to get the fat off, and threw the scrap immediately out, you would find there was considerable volatile matter coming off. But if you should carry on the process an hour longer, you might have no odor at

all. The two things — the driving off of all that is volatile from the animal tissue, and the mere melting of the fat — are not entirely coincident. It is not sufficient to melt the fat merely, it wants to cook a certain length of time to be cured, as it is termed. That an expert can only tell by his eye.

TESTIMONY OF DR. CHARLES T. JACKSON.

Q. (By Mr. Dean.) You are State Assayer?

A. Yes, sir; and State Consulting Chemist, and Doctor of Medicine.

Q. You have been such for how many years?

A. Forty years.

Q. Whether your attention has been called to this process?

A. It has, sir: I have examined the works where tallow is rendered, and where manures are made.

Q. Please give your opinions to the committee on each of these processes.

A. I examined the drawings of this apparatus some years since, and was struck very favorably with this invention of Mr. Everett as a method of removing the odors from offal and meat and for rendering sweet tallow, and getting at the same time the soup, fragments of bone, &c., in a state which is free from odor; and so much so that I recommended it to manufacturers and persons who were employed in this business. Since Mr. Everett's arrival here, I have also conversed with him about it, and find that it is doing all that I ever expected of it. The descriptions that have been given here by Mr. Everett and the other gentlemen have satisfied me entirely on every point, that this apparatus will answer the purpose of rendering the fat, the soup, and the scraps, so that they will be free from odor, and so that no nuisance can possibly arise from them.

Q. (By Mr. Jordan.) After the boiler and tank have been filled, as I have said before, and they have got all the tallow they can from it, and have drawn off the scrap into a tank, is there any smell to it?

A. Not after it is cooked a sufficient length of time. There is a slight odor, but no more than you would have from any other cooked meat, or soup: that is all there is if it has cooked long enough to evaporate and throw off the volatile matters. It would take some hours I should suppose before all the volatile matters would be driven off through that coil; and after being superheated there I don't see how there can be any thing to escape into the air.

Q. The material we want to get rid of most is offal. The gentleman last up says that in the tank he has noticed that there is an offensive smell when offal is put in. He says, if I understood him right, the stomach, or the paunch. I think it is the peck he means, I don't know. That has got to go into the tank.

A. He spoke of manure going in.

Q. There will be more or less manure, because, if I understand it, the ox, or other dead animal, goes in whole, with his inwards, manure, and all there is in him: all go into the tank. I want to know if you think there would be a smell of any thing but animal matter if there was any thing mixed with it but animal matter? Do you think there would be an offensive smell?

A. There would be from manure undoubtedly, until the preparation which Mr. Wilson has described was applied. Then, whether that smell came from manure or putrid animal matter, it would be entirely absorbed by the action of the superphosphate of lime introduced. That I know by my own experiments, and that this matter here is converted into nearly an inodorous substance by the use of the process described by Mr. Wilson, which is a very valuable invention. Crystallization effects a drying which the manufacturers could not afford to do by the action of fire. If he were to apply to soup and scrap heat to produce that amount of evaporation, the expense would be very great; and furthermore there would be a great deal of odor come off, being driven off by the heat: whereas, in drying by crystallization, no odor escapes. About 61 per cent, or 60.95 per cent of the water in the crystals is converted into solid dry matter: hence more than half the water is at once solidified by crystallization.

So far as I understand this process, it is perfect; and it has been so clearly explained that I think all of us understand that it must effect its purpose completely. I don't see how a particle of odor can escape from there: except, as has been remarked, a smell of manure might be perceived when it was drawn off, in case manure had been placed in the tank.

Q. (By Mr. WARREN.) You think the Wilson process would convert animal and vegetable matter into fertilizers effectually?

A. It would.

Q. It would convert the whole product into equally valuable fertilizers?

A. No, sir; not equally valuable. Vegetable matter is not equally valuable. Bone-black, animal carbon, has an enormous absorbing power: it will take up vegetable odors, and, if putrid water is merely filtered through bone-black, it is well known that it will come out sweet.

Q. (By Mr. WARREN.) How large a quantity of the bone-charcoal has to be used in the tank? What proportion does it bear to the rest of the material?

A. I don't know what they actually use; I suppose it depends on the degree of liquidity: the more liquid, the more they want of phosphoric acid to solidify the mass.

Q. I suppose the more vegetable matter, the less valuable the fertilizer?

A. Yes, sir.

Q. What they get from slaughter-houses would not be so valuable to make fertilizers of as dead animals; would it?

A. It would not, because there is more solid matter in a whole animal than there is in the stomach and intestines. The stomach and intestines are nearly nine-tenths water. A stomach weighing 2,000 before drying, weighs only 380 when dried.

Q. (By Mr. DEAN.) Whether the contents of the stomach, that stuff which goes as mere manure, would not be valuable, so that farmers would always carry it away?

A. It would be valuable to the farmer. I shouldn't think renderers would put that in their tanks, because it would certainly color their tallow.

Q. I don't understand we do put that in: they do in New

York sometimes in making offal grease, because they can't get rid of it.

Q. (By Mr. Jordan.) When you try offal, you can't clean it entirely. When they put in a hog, they put in intestines and bristles, and every thing there is in him, and after the rendering process, what is left of him they draw out. I have seen hogs tipped right in a common wooden tank. This material cannot be picked out, and it must be rendered in separate tanks, and the fat sold at reduced rates, as it injures the tallow or lard to put this material in.

Mr. Dean. After a hog had been put into one of those tanks, and the man-hole fastened down on him, he would be effectually out of sight and smell forever afterwards, except during the short time occupied in the transit from one tank to the other, in any event.

Mr. Jordan. I want to know if it smells when it comes out of the tank, until this preparation of Mr. Wilson's is put with it. One gentleman says it does smell. What I understand by offal is the part that comes out of the animal that now goes to the hogs. We don't call tallow offal, or lard, or heads and feet: we call what we butchers here in Brighton feed to the hogs. That offal is the material which is injuring our tallow, and, if there can be any process whereby it can be cleaned, — all the manure taken from it without more expense than the material is worth, — I should like to know it. I ask if there would be any smell from this offal after it came from the first tank. There is a sediment which is run out into another tank. Most of you say it don't smell; but some say, if the manure is in it, it does smell. Now, if the offal goes into the first tank, there must be manure in it.

A. I suppose it would smell like boiled horse-dung, or cow-dung, or whatever it was. The most of the odor would be destroyed.

Mr. Everett. We have no use for manure in the city of New York: it is a terrible drug, and many large livery stables pay men for taking it away, so it is very difficult for us to find a market for the small quantity we have in these stomachs. I could say safely, that one man, at two dollars a day, could remove all the manure from all the stomachs we have; and it is

being done by a boy to-day. We don't put any thing of that kind in now, unless we are obliged to. The city pays us rather a small amount for our services, and the profit is almost entirely made by the rendering process. There is no necessity for rendering the contents of those stomachs, any more than there is for buying fish to render; and I say one man could slit or open — a boy has done it — all the stomachs we receive in the city of New York in a single day: and we don't go behind at all.

Mr. Jordan. You haven't got two boys that can do it in all the town.

Mr. Everett. I state what has been done as a matter of fact. We never had more than five barrels of the contents of those paunches in any one day.

Mr. Jordan. You call the paunches what we call tripe.

Mr. Everett. It is a large distended membranous bag.

Mr. Jordan. This stomach can be easily opened; but there is a bag which will weigh from fifteen to sixty pounds, — I don't know what you call it, — and it has got a thousand apartments in it, and these apartments are all full of manure. I know two boys could not take that out clean, out of what I kill myself even.

Mr. Everett. There is a part of the animal which is a whitish substance that lays in leaves or folds.

Mr. Jordan. What I refer to is attached to the stomach inside the ox, and weighs from fifteen to sixty pounds. It is like honeycomb all through, and the apartments are filled with manure. It is a very tedious job to get it out, but the boys will do it: they will keep working at it till it all comes out. But the stomach, all you have to do is, put in your knife, cut it open, and the contents will come out. The stomach is something we eat in this town: we have it prepared at establishments for the purpose, and call it tripe. We have an agent now in New York, that collects a great deal of this material, and does a great business. I don't think, therefore, that you get that to put in your tanks, as it is very valuable; but the other part which I referred to you can't clean: it must go into the boiler; and, if it all goes in, that must go in too.

Q. (By Mr. Dean.) What should you think of throwing the soup into the river, sir?

A. Thirty tons a day? It would render the city of Boston a very unhealthy place, at least all along the borders of the river; for it would collect on the bottom and flats, and at low water would be very offensive.

Mr. Dean. This process is to end all that part of the business.

PROFESSOR HOSFORD RECALLED.

Q. (By Mr. Dean.) You spoke of the value of this process in an economical way. Now, in a sanitary point of view, sir, whether there is any thing objectionable about it?

A. I can't see how, in this rendering apparatus, there should be any thing deleterious to health. I can see some annoyance in transporting material to it; but, if perfectly close barrels or carts were used for that purpose, I don't see that the offence would be great. It seems to me that the moment it strikes the rendering apparatus, it is substantially through with the exhalation of offensive matter.

Q. From what you said before, I take it that your idea is that no town has any right to throw away this valuable material.

A. I think it is monstrous, sir. I have spent eighteen or twenty years of my life in the study of phosphoric acid, from a scientific point of view. The waste of this material we don't quite realize at this moment. We are a young country, and don't know how precious this phosphate of lime and ammonia are to us. They are finding it out in Ohio, where, with more than twice the land under cultivation, they don't raise more than they did formerly. They are exhausting the land in Illinois and in New York; and in New England it is in a great degree exhausted. All our breadstuffs come from the West, or nearly so. We cannot really estimate the full value of these precious phosphates; and I say no one has any right to waste any organized, animal matter. We should look, therefore, with great consideration upon any measure that contemplates the preservation of it in such a way as will prevent its becoming offensive and deleterious to health.

Q. What would be the effect of having it run into the river?

A. I think it would put an end to the slaughtering business in Brighton very soon, if that was the way in which it was carried on. I mean to say this: that, if the offal from the creatures that are slaughtered in Brighton was thrown into the Charles River, it would be impossible for you to escape the censure of the people who live along its borders.

Q. Take the soup: if that was thrown into the river instead of being treated by the Wilson process, would it not be offensive and deleterious to health?

MR. WARREN. We have no doubt about that.

MR. JORDAN. Do you know where this establishment is of Messrs. Upton & Shaw?

A. No, sir: I do not.

Q. You live in Cambridge?

A. Yes, sir.

Q. You think the carting of offal to the establishment would be offensive?

A. I am not pronouncing an opinion upon the exhalations from the carts: I am only speaking about the offensiveness of the process. In rendering, I don't think there could be any offence. I do know that carts go by with offal from Boston that offend me: but I know it must be moved somewhere if it is going to be saved, and it ought to be carried without giving offence. I don't believe that is thoroughly impracticable.

MR. UPTON RECALLED.

Q. (By Mr. DEAN.) How do you propose to carry on the carting to your establishment?

A. If we cart offal, we should get carts made that will be almost as tight as our tanks are, else we cannot carry it; and, if we cart dead horses, we must cart them so they will give no offence whatever: unless we can do that, we don't expect we shall be allowed to cart them.

Q. And the smell of this material, if any, as it comes from the tanks is removed immediately?

A. After the tanks are opened we must be ready with our apparatus to convert it at once.

Mr. Everett. In the construction of Mr. Upton's apparatus, I have had boiler-iron pipes made and riveted in the man-holes, three feet long, and those pipes may be joined to any receptacle that may be used for the scrap. My intention was, if any objection should be made to any slight odor that may arise from the scrap, to ask Mr. Wilson to cover his tank, introduce this iron pipe through the side of it, and then there would be no reason why the tank should be opened at all. It is not essential that the tank should be opened; and, if this is done, the material will not be exposed to the air from the time it enters the main tank until it leaves Mr. Wilson's apparatus.

Mr. Upton. Speaking of this offal smelling, I will say, that this building is to be constructed with an additional ventilator, which we secured from Mr. Everett, consisting of an argand burner to be placed on top of the roof, whereby all offensive gases which may arise within the building will be disposed of. I should like to ask the Board of Health what they think of that fertilizer, and I would ask Prof. Hosford if that is a fair sample of our fertilizers.

Prof. Hosford. That looks like the article that is made in Providence, and smells like it. [The Board of Health did not reply.]

Mr. Shaw. It has been stated that the capacity of the tanks we are going to introduce is a hundred and eighty tons a week. It is true that is their capacity, but it need not be inferred from that, and should not be inferred, that we expect to turn out that amount of material with these tanks. One tank we shall use for neat's-foot oil. We can use a large tank as well as a small one, and we thought it was well enough, when we were putting in the apparatus, to put in tanks of sufficient capacity to accommodate all the materials we should desire to put into them. Another we shall use for mutton-tallow, and another for heads and feet. Perhaps some days one or more of them will stand idle, but we expect to be at liberty to use them partially or to their full capacity, as we may be able to obtain the material to advantage.

ARGUMENT OF MR. W. W. WARREN.

Mr. Chairman and Gentlemen, — I appear here on behalf of citizensof the town, some of whom have taken an active interest in opposing this application, and I believe every one of them, man, woman, and child, has the same opinion in regard to this matter, — that this establishment ought not to be licensed. The question is not the question that has been discussed here this evening: it is not the question upon which evidence has been offered here. In this town, either among the butchers, or among those who have heretofore been opposed to them in regard to the necessity of a change in the mode in which the business was carried on, there is no question but that these products, which have heretofore been wasted, should be utilized. On the other hand, we all believe that we have arrived now at a state of things which will enable us within a short time to accomplish all that these eminent scientific gentlemen said ought to be accomplished, and that by the hands and assistance of the butchers themselves, and by their own operations. I believe that there is but one thing, — and I think we are unanimous in this town upon this subject, — there is but one thing that can be a permanent and effectual relief, and that is the construction of a united slaughtering establishment, where the whole business of slaughtering can be done ; and where not only the slaughtering can be done, but the rendering process, and ultimately the curing of hides, and the production of all the various products of the business, can be carried on under the control of the butchers themselves. And, as is well known to the Board, and to the public, the whole matter is well under way, the stock of the concern is subscribed for, the State Board of Health has passed upon it, the location has been selected, and certain formalities connected with the organization of the company have only to be gone though with, when operations will be commenced at once. The character of the men who have taken an interest in this, known to be substantial and reliable men, is proof, not only that the undertaking will be carried out, but of its success.

Now, the thing that is asked to be done here is, that your Board will license some out-of-town adventurers to come in here, and establish in another part of the town a nuisance of their own; for I pretend to say it will be a nuisance. In so saying, I admit to the fullest extent that the opinions of these gentlemen are probably correct. I am gratified at the testimony of Mr. Everett and Mr. Wilson, who evidently understand their business, and I believe that the inventions they have described here are useful inventions, and if they were in the hands of our own butchers, and were controlled by men on whom we could rely, I think there would be no question, but they would be a valuable thing to have in the town. And, in saying this, I might go a step further: we could not rely upon our own men even if the desire for profit was so great as to lead them to neglect to take the proper precautions in carrying on this business; and we have this security in the case of the slaughtering association, — that its whole business is to be carried on and managed under the direction of the State Board of Health. That fact alone causes all our citizens who are not butchers to fall in at once with the plan of the butchers, and to be satisfied with it. This establishment which is asked for, however, will be carried on under the supervision of no one. Once licensed, it has a right to be there. It may be questionable under the statute which was passed last winter, whether, after it is once licensed, there is any way under Heaven of getting rid of it. As it stands now, without any license, it stands like any other business; and if any of the neighbors are injured, the statute provides for its removal or for damages. But with your license it would be an established thing, a legal thing. It is, in fact, establishing this nuisance right in the very neighborhood of these people who are opposed to it. I say it is a nuisance; and I don't suppose that the matter of smell is the only offence that comes from this establishment.

Mr. Dean. You don't mean to say, Mr. Warren, that any license to this establishment would affect the right of anybody who was really injured from bringing action and getting damages?

Mr. Warren. I don't say it would: I say the effect of the statute passed last winter nobody can foresee. I don't remember that there is any *caveat* in it for private rights.

Mr. Dean. If there is not, the Selectmen by their license cannot injure me without an opportunity for redress.

Mr. Warren. The Selectmen do not do it. The law provides that certain things may be done on compliance with certain formalities, and those formalities being complied with, the effect becomes legal. The act passed last winter, therefore, for the benefit of certain parties, might turn out to be an injury. There may be a *caveat* in it saving private rights.

Mr. Dean. I don't think it would make any difference.

Mr. Warren. Be that as it may, the bite of the thing is right here, that this establishment is carried on by these people, and we have no security for the mode in which it will be carried on in the future, except their promises in advance. We know something of the value of their promises. I don't know but they mean to do well, so far as is consistent with their own profits; and they don't mean to make it any more objectionable than they are obliged to to their neighbors. They have promised us before, in years back, when they were enjoined by the Supreme Court,* that they would abate this nuisance; and no longer ago than last Saturday a hearing was given by the State Board of Health, in relation to this very establishment, at the request of its neighbors; and we all know that the testimony against it was stronger than the testimony against any other establishment that has been complained of in the State.

Mr. Upton. At the same time, they gave us no chance to appear to listen to the testimony, and present our case.

Mr. Warren. I understand the respondents did not appear, but the fact still remains that the testimony against it was stronger than that which has been offered against any other establishment in the State. If anybody has any doubt about it, I will refer him to anybody who was present. I understand that action has been taken, or soon will be, and order served on these parties to discontinue their business there. I only know these things from public report; but I know that hearing took place, and I am satisfied what the testimony actually was.

As I was saying, this establishment will be carried on without the authority of anybody to interfere, except upon application

* We were never enjoined.

to the Board, and upon a long hearing probably; and then these gentlemen will come and say, "We have expended so much money here, you ought not to interfere, with us now that we have got our establishment in operation." The time is now to refuse them their license. They ought to be made to understand, and I think the people of this town mean they shall understand, that this town is not to be selected as the place for everybody to come and establish a nuisance. The town is too valuable, and the land is wanted for other purposes. The people have as good a right to be free from this, as the people of South Boston had to be free from Mr. Ward's establishment, which is another thing of the same kind. I don't know whether he has the right to use these processes which have been described here or not, but he can easily procure them. That is the way the matter stands.

On the other hand, the butchers, being organized, and prepared to go on, having all the valuable sweet material there is, — fresh tallow, &c., — purpose to cure it themselves, and take care of it themselves. I have no doubt they will be glad to cure it by the processes we have heard about to-night. If this hearing has been an advertisement to the Butchers' Association, to show it where this apparatus ought to be purchased, I can see some purpose to be subserved by the evidence; but, so far as the question before us is concerned, it has nothing to do with it. It may be that the business can be carried on there as well as it can be carried on anywhere; but the materials have got to be carried there from wherever they can be picked up, and our streets will thus be made sewers for all the offal they collect, and carry to this establishment. The only thing they say to you in regard to that, is, that they have got to have wit enough to get tight wagons, and employ them for that purpose. Are you going to license these men because they make such a statement as that? It seems to me it will be leaving things in a much looser way than the facts of the case will justify you in leaving them. This establishment is in the eastern portion of the town, removed from the portion where the butchers intend to carry on their business in a great *abattoir;* and in no sense, it seems to me, is it a fit place for the purpose. It is situated on a marsh, not even upon dry land, and the flowage from this place

is directly into the river; and, if the people do not carry on their business properly, the soup must run into the river, as it has heretofore. If they use the apparatus as it may be used, perhaps they will save all that; but what guaranty do they give that they will use this apparatus any more faithfully than they have used others?

There is one question which addresses itself to your attention and discretion, as a Board of Selectmen, and that is, whether, when our own citizens are going into an enterprise which involves a very large outlay of money, and which requires them to sacrifice property invested in different parts of the town, and while you require them further to undertake a business which they are familiar with by new methods, — in fact, learn their business over again; whether you ought, as a Board of Selectmen, to encourage competition with them in that very part of their business which promises to pay them for the outlay they are about to make; whether it is fair dealing with your own citizens to give these men a right to go on, and a right to do business of the same kind, and monopolize their business. This, perhaps, is a matter which ought not to be considered alone, and I should not consider it if the question of license and non-license were balanced. But in this case I think your duty to refuse the license is so clear that I shall not be obliged to resort to that argument. Yet it is an important matter which weighs on some portions of our citizens, and it does not seem to be fair play. The gentlemen who are here, and others whom I represent, who are absent, have for a great number of years been carrying on a controversy with the butchers, to compel them to conduct their business in a better manner; and now that the butchers have consented to do that, and have come into an arrangement for that purpose, it would seem to be the grossest injustice to take away from them the chance of profit, which has been held out to them as one of the inducements for their combining I think, therefore, the question is one on which we have had no evidence, on one side or the other, which should influence you in your decision. So far as the mode of rendering, and the other process which has been described, are concerned, I have no doubt they are valuable; but I am quite confident that other equally good methods could be invented.

ARGUMENT OF BENJAMIN DEAN, ESQ.

Mr. Chairman and Gentlemen, — I don't know that I could possibly be more surprised by any thing that could have been said by any man in the world than I am by the remarks made by my brother Warren. I have known him for some years: he has commended himself to me by a long acquaintance, and it turns out now that he comes here in opposition to this establishment which has been here for many years: some twenty years or thereabouts it has been in existence; and he goes on and admits that the process is excellent; he does not deny its effectiveness, but he comes and opposes it on the miserable pretext of giving it to one set of men against another set of men: that is his argument. He comes here with an argument that in this country, where we undertake to encourage every one in every honest calling, where we don't have town lines to prohibit men from going from one place to another to carry on any honest business, — he comes here to say, that the thing is all well enough, the thing is all right enough, but that you, as Selectmen of the town of Brighton, should undertake to prohibit this business, to refuse this license, in favor of another class of men, — a proposition, gentlemen, that ought not to be made in any civilized community by any one, much less by a learned gentleman such as my brother Warren.

Mr. Warren. It has not been made.

Mr. Dean. The defence is made in favor of the butchers, that they should have the monopoly; that is exactly the proposition that he has made, and that is the only argument that he has made, because the business of rendering has got to be carried on; and, if you prohibit it here, other towns will prohibit it there; and here, where the stuff is made, where the material is manufactured that is to be rendered, is the place that all of you gentlemen will admit is the place for it to be rendered. He says, "We have got citizens of our own in whom we have confidence: give it to them;" that is his argument, and it is his only argument. It is the only argument that an ingenious counsel, coming here in behalf, as it turns out, of this Butchers'

Association, can urge. You must not encourage competition, he says. Why not? Did you ever hear of such a thing as not encouraging competition in this Yankee community? Never before. It cannot be that it will have any effect upon your minds as it is intended to have, such a bold and strange proposition. But it is the only one that is urged here, and it is the only one that can be urged: the fact that it is urged by the gentleman shows that it is the only one that can be urged here. He says you have confidence in butchers. One of you, gentlemen, I judge, is a butcher; and I trust, that, so far as that is concerned, you will be square enough and manly enough to admit that "fair competition is the life of trade." And when you come to the question, "Who has done more than these gentlemen?" You have got this business which is noxious unless carried on in the best way, and these gentlemen have expended more money, and are expending more money, to get the only process by which it can be carried on without offence, than any other parties; and when they come here, taking the old establishment, and asking for nothing else than to change what has been found to be a nuisance into something that is entirely inoffensive, admitted to be entirely inoffensive, proved to be entirely inoffensive, and proved to be useful to the community, and useful to the country, destroying every thing offensive in a business that must be carried on, and spending $50,000 for that simple purpose, and nothing else, he comes here and says, "Give it to the butchers: it is too good a thing for others; let the butchers have it." You are not here to pass between other men and the butchers; you are not a tribunal to take it from one class of men and give it to another. It is an argument addressed to the lowest and most sordid of passions, and I trust you will not be influenced by it. You have no right to be influenced by it, acting in the position you occupy.

Now, something is said about South Boston. I live in South Boston.

Mr. Warren. Which side were you on in that matter?

Mr. Dean. I was on the other side. I was acting in behalf of the citizens of South Boston in reference to a nuisance on Spectacle Island. If an establishment of this kind is carried on in the old way, distance is nothing. I live two miles from

the island; and other people two or three miles away from it testify that it is a nuisance. The proposition was, that the Board of Health should pass an order, and they did pass an order, that it should be done in the most approved manner. They asked me if I was content with that, and I told them I was certainly. Now I appear before this Board of Health in Brighton, and all we ask, — we cannot undertake to stop this business, and you have no right to undertake to stop the business, for it is a business that has got to be carried on, and ought to be carried on, — all we ask is, that it shall be done by the most approved method, as it ought to be; and it would be a disgrace to science if it could not be done without offence. Why, gentlemen, it is just like a gas establishment. If you should let out the gas that we burn into the room without lighting it, we could not live here. Coal is put into a proper crucible; it is confined there, and the gases which escape are carried all through your town, and all over the city of Boston: all you have to do is, to turn a faucet, touch a match to it, and there is nothing offensive about it. This stuff is equally concealed, equally consumed, and the product of it, on the testimony before you, is thoroughly and completely deodorized the very moment it leaves these tanks, and there is nothing offensive about it. As to collecting and carrying the material, that has got to be done under any circumstances.

Mr. Warren. We propose to kill in the same place.

Mr. Dean. Certain things have got to be done before the Butchers' Association can begin to operate. They can't establish themselves short of a year and a half, or two years; and here are gentlemen coming here, asking to make the most thorough test, and spending the requisite amount of money for the purpose. That is all they ask of you. As to the order of the city of Boston, that order or privilege for Ward to render on Spectacle Island was with a proviso, "providing that it shall be done according to the most approved method." You may pass just such an order; or you may pass an order that it shall be done in such a way as not to be offensive; or you may pass an order providing that it shall be under the control and direction of your Board. We don't want to have any thing except the most thorough test: we will do it in such a way, of

course, subject to your control; and the State Board of Health can order it abated at any time, and removed, if we do not succeed. You have got laws enough and tribunals enough for that. These people come here with this amount of money invested in the business, making this request, and endeavoring to adopt exactly the means that the State Board of Health has said are inoffensive; and in doing that we are asking permission to abate a nuisance: that is all. *Shall we have permission to abate a nuisance?* It could not be opposed, except in behalf of the butchers, or some other interested set of men. The question is, SHALL WE HAVE PERMISSION TO ABATE A NUISANCE? That is all the question there is.

Now I take it, that, if we did not carry this on in a proper manner, it could be abated by this Board of Health, because you have authority, or by the State Board of Health; and any individual who is injured can obtain his remedy. They must do, and they ought to do just exactly what I did in representing the other side, — simply insist that the business shall be done so as not to be a nuisance. They cannot come in and undertake to say that it shall not be done: you cannot say that it shall not be done; you have the power to decline granting the license, but you cannot do so strange and dishonorable and unfair an act as that. Here is my brother Warren urging this in behalf of the Association of Butchers; but if he were in your place he could no more refuse to give this license than he could fly. He would give the license.

MR. WARREN. I do not appear here for the Butchers' Association.

MR. DEAN. Your argument was in favor of the butchers. The people of the town have no right to say that this establishment should be put an end to, in behalf of another set of men; that you shall say that one set of men shall not abate a nuisance, shall not do this business in an old establishment which has existed here for years, in order that a certain amount of benefit should come to somebody else.

MR. WARREN. You persist in misunderstanding me; I trust nobody else does. My position is this: to do what we can to get rid of this whole nuisance, the whole injury to the town; and one way to get rid of it is, to concentrate the whole busi-

ness of butchery; and, if it is concentrated, it must be in a great degree under the care and charge of the butchers. We think to give these men a license, would be to interfere with that, which is one method of getting rid of this nuisance.

Mr. Dean. You admit that the apparatus described will obviate the nuisance.

Mr. Warren. I do not. I admit that the apparatus may be an effectual apparatus for certain purposes, but the nuisance may remain.

Mr. Dean. The evidence is that the nuisance is obviated by this apparatus. He did admit, — and he may take that back if he wants to now, — he did admit that the gas could be effectually consumed by that process, so that, from the very moment offal or other material was put into that tank, it ceased to be offensive. The evidence that this is so is in the case: it is overwhelming, and there is no doubt about it. The evidence admits of no doubt. The tank is hermetically sealed, and nothing can escape, except that which is consumed by the fire, until it is permitted to run into the other tank, where it is immediately deodorized, and turned into a valuable fertilizer, which neither town, nor any person has the moral right to throw away.

And when will your butchering establishment be created? It will take time to put it in operation; and this establishment may be under your control, as the State Board has that under its control. You may fix your order so as to make it subject to your control, and hereafter, if it should become a nuisance to the town, you have it in your power to abate it. But these persons who have come here for the purpose of asking leave to abate a nuisance have spent, and are spending, more money for that object than anybody else has expended for a similar purpose in this town. They only ask that you may pass such an order as you see fit to make, which will enable them to do all that is requisite to make their establishment entirely inoffensive to the community.

It is suggested, that, if this *abattoir* is established, and a rendering establishment in connection with it, there is no law requiring all the dead animals which may be rendered there to die there, and the same objection would be made to carrying them through the streets. If this license is granted, and the processes

which have been described carried on in it, by the time the *abattoir* is completed, the processes will have been fairly tried, you will know all about them, and what to do in relation to their use in the new building.

The CHAIRMAN. I am listening to this particular case. I am acquainted with this establishment, — what it has been, and what it proposes to be. What I have seen here to-night pleases me very much. I have seen and heard something of it before. We shall reserve our decision, and will notify the parties after we have come together at some future time, and held a consultation.

MR. DEAN. It is fair to say, although perhaps it appears sufficiently in the testimony, that the business of rendering is to some extent in its infancy, and, as it has become important, the question of making it inoffensive has attracted considerable attention. Mr. Upton did say he would do what he could to remedy the evil, and he has explained fairly what he did by other tanks, and did make an effort to make his establishment inoffensive; and now that they have expended fifty thousand dollars, thirty-five thousand of which are for patent rights, I think that is the best guaranty you can have of the intentions of the com pany to carry on their works in a proper manner. You have this immense amount of property under your control, and it is utterly impossible for them to give better bonds than they have done, and are now doing, for the faithful discharge of their duties. I don't object to their being under your control; I think it is reasonable and right that they should be, and that the work should be done by the most approved method, and to your satisfaction. I think you should hereafter have the control of it, if the law didn't give it to you, which it does.

MR. JORDAN. There is one thing about the Association of Butchers I would like to ask Mr. Shaw, as it has been brought in with this concern (I am not in the Association).* I should

* *From "The Transcript," Dec.* 9, 1871.

BRIGHTON.

BUTCHERS' SLAUGHTERING AND MELTING ASSOCIATION. — A meeting of this Association was held in the Town Hall, Friday evening [8th], when the following directors were chosen: Horace M. Jordan, B. F. Ricker, John N. Merriam, Jacob F. Taylor, W. W. Warren, N. Saunders, Nathaniel Jackson, J. Warren Hollis, John Zoller, John F. Merriam, Samuel Davis, Jr., and Samuel S. Learnard. B. F. Ricker was chosen treasurer. The directors subsequently met, and elected John N. Merriam as president.

like to ask the gentlemen if they didn't purchase that patent which they now have for the butchers when it was purchased? Whether it was not purchased in the butchers' interest?

Mr. Dean. I was only answering my brother Warren's argument when I referred to that.

Mr. Shaw. I will answer the question by stating that I procured the rights for the territory within a circuit of ten miles from the State House, for both of these apparatuses, for the butchers' interest, primarily in this community, in this district; that it was offered to them, and I expected for a long time they would take it. We had several meetings on the subject, and the butchers subscribed something like eighteen thousand dollars towards a capital of two hundred thousand dollars. As the time for which I secured this apparatus was running out, and it was likely to pass out of my hands, and out of the hands of the butchers, into the hands of other parties, and as the butchers had only subscribed one-half of the money required to pay for the patent rights, after a personal solicitation from me, on several occasions, and after application by means of printed circulars, in order that the rights should be secured to the butchers, as was at first intended, it was arranged that Mr. Upton, and his associate, Mr. Long, should buy them. They did buy them on an agreement with me that the apparatus should be offered to the butchers upon the same terms as I had in the first place offered them. We then found, as the butchers became better informed in regard to the business, instead of being satisfied, as they were in the first place with getting rid of their offal —

The Chairman. I merely asked whether the patent rights were not purchased in the interest of the butchers.

Mr. Shaw. Your question would seem to indicate that you impugn my motives in regard to the transaction: you asked if these rights were not bought for the benefit of the butchers; and every person understands that the rights do not now belong to the butchers, and that they have no interest in them.

Mr. Jordan. I would state that I was hearing this particular case; but, as the Butchers' Association was brought in by your counsel in reply to the argument of Mr. Warren, I thought I would ask the question.

Mr. Warren. And the butchers chose afterwards to refuse to take it.

Mr. Dean. If they refused to take it, then the argument in favor of the butchers is ended.

Mr. Jordan. I don't mean to say that Mr. Shaw did, or meant any wrong to the Butchers' Association. But I understood that it was bought in the interest of the butchers, and it was calculated that the butchers were to have it. If you were going to lay out an entirely new building, I don't think you would put it down where you have got that one, on the marsh. I think I heard you state that at a private meeting.

Mr. Upton. Primarily it was bought for the Butchers' Association, and I had no interest in it for six weeks. Mr. Shaw sent his circulars round to every butcher, soliciting subscriptions, and got only $17,000 subscribed. He had only two or three days before his bonds would run out; and said I, "Mr. Long and I will take it with you, and let your interest remain the same, and try to put it through." At the first meeting we had with the butchers they showed a disposition to take stock in the company, and most of the men expressed themselves as if they would be glad to let their material go for nothing, if their places were kept clean, and they could carry on their business. They said if they could get seven per cent for their investment in rendering, they would be perfectly satisfied with that. I think I said we would guarantee them ten per cent on the stock, and we of course could take the profit. But, as the butchers afterwards thought they saw more profit in the material than they were at first expecting, of course they wanted more of the stock. If we are not able to do better with their material in this apparatus, so as to pay them more than they can get out of it by any other apparatus, we don't expect to have it. The butcher, or any man, don't care, if he only gets the money in his pocket, and can do it in a fair way. If we can do better than by any other rendering process, and can afford to pay him better for his material than he can get elsewhere, he will be desirous we shall have it. At last fifty thousand dollars was subscribed, and then the proposition came to us that we should give up the control of our stock to them, and that they would go right ahead and put it through. Now, there is not a man in this room who would have been willing to have given up a majority of that stock if he had held it; but you would have done

precisely as we did if you had been in our places. What little I have got in my business, I must have managed properly. After letting this thing lie for three or four months, not knowing whether to build in Brighton or to go to some other place, we began work about a month ago to erect that building, since which time we have been ordered to stop building by you, and by the State Board to cease carrying on the business in the old way.

Mr. Warren. You knew all the time that there would be strong objection to your putting a building up down there.

Mr. Upton. We asked the butchers to appoint their committee on land, and we would consult with them. We never proposed to the butchers to put the thing through in that locality. We said, "Go and select your locality," but we said that they might build and control their own slaughter-house. We told them that when they got the slaughter-house built we would put the rendering establishment on with them.

Mr. Warren. Didn't you know that you could not put your building up there without meeting with opposition from the people in the neighborhood?

Mr. Upton. No, I have not believed it, because any sensible man who goes there can see that there should be no objection. If they object to hauling meat through the streets, then they may object to having a rendering establishment down there.

Mr. Warren. You knew that the neighbors had opposed it? There was a petition to this Board before they gave you notice the other day.

Mr. Upton. I didn't know there was any petition until I received that notice. I will tell you candidly that if I was going to use the Perry digesters, or open boilers, I should have come up and asked permission to build; but it didn't occur to me that to put up such an apparatus as we were going to put up would meet with any objection. I thought every one would be pleased to know we should soon be so conducting our business as to give no cause for complaint.

Mr. Dean. They won't order you to stop abating a nuisance, I am quite sure.

Adjourned.

To Messrs. Upton, Shaw, & Company:

After duly considering your application for permission to enlarge your buildings used for a rendering and melting establishment, and to build additional buildings for said purpose, the undersigned decline to give their written consent and permission to any enlargement of said buildings, or to the erection of new buildings, or to the use of any such enlargement, or of such new buildings, for the purpose of a melting or rendering establishment; the premises being the lands owned or occupied by you on the southerly side of River Street, in the town of Brighton. We further notify you that we shall take all legal and proper means to prevent any enlargement, new building, and use aforesaid.

H. W. Jordan, } *Selectmen*
B. F. Ricker, } *of*
P. Moley, } *Brighton.*

Brighton, Dec. 8, 1871.

COMMONWEALTH OF MASSACHUSETTS.

Middlesex, ss.

Office of the Clerk of the Supreme Judicial Court, for said County.

Dec. 20, A.D. 1871.

In the matter of the complaint of Horace W. Jordan, B. Francis Ricker, and Patrick Moley, Selectmen of the Town of Brighton, in said county, in equity, *vs.* George Upton and Benjamin F. Shaw, both of Peabody in the County of Essex, and Alanson Long,* of Boston, in the County of Suffolk, filed in said office, on the nineteenth day of December instant, wherein the said complainants, among other things, pray that a writ of injunction against the said respondents, their agents and servants, to enjoin and restrain the said respondents, and the persons before named, and each and every of them, from the further erection of certain new buildings, or either of them, and from the enlargement of any building heretofore standing on certain

* Mr. Long is not a member of our firm. — Upton, Shaw, & Co.

land mentioned in said bill, and also from occupying or using said new buildings, or either of them, or said enlargement, for the purpose of carrying on therein the business of a melting and rendering establishment.

It is ordered, that the complainants notify the respondents to appear before our said Court in Chambers, at the Court House in Boston, in the County of Suffolk, on Tuesday, the twenty-sixth day of December instant, at 10 o'clock, A.M., by causing an attested copy of this order to be served upon said respondents forthwith, that they may then and there show cause, if any there be, why such injunction should not be granted.

By the Hon. Seth Ames, a justice of said Court.

B. F. HAM, *Clerk.*

A true copy.

Attest: LUTHER L. PARKER, *Deputy Sheriff.*

HEARING

BEFORE THE

STATE BOARD OF HEALTH,

ON THE PETITION OF

UPTON, SHAW, & CO.

SATURDAY, DECEMBER 16, 1871.

INTRODUCTORY.

BOSTON, Dec. 26, 1871.

THE following correspondence, and the subjoined report of the hearing before the State Board of Health, Dec. 16, relate to the continuance of our business upon the old premises, but in a new building, with new and inodorous apparatus, recommended by the State Board.

We asked, substantially, that the Board would consider whether, in ordering us to quit business altogether on the old premises, — if that was the meaning of the order, — it had not exceeded its duty; and that, if the Board should so determine, or should, on consideration, think it not incompatible with public interests to have at least one rendering factory carried on with the best modern appliances, it would so amend the order as merely to compel us to put an end to the nuisance. Though ten days have now elapsed since the hearing, without any action in the matter upon the part of the Board, it is hardly to be supposed that the few remaining days of the notice will be allowed to expire without word signifying, at least, whether or not the order applies to both the old and the new works. Its enforcement against the new works would subject us to great hardship. It could not be justified. It would be adverse to the public good. Nor would any commendable end whatever be subserved by it.

The testimony to the efficiency of our apparatus was conclusive. It is scarcely possible that a doubt of the perfection of the processes can exist in the mind of any member who heard it. Apparently, the only doubt entertained by the secretary and Mr. Warren concerned the *patentability* of the inventions. The questions of the gentlemen upon this point were less relevant than symptomatic.

Respectfully,

UPTON, SHAW, & CO.

Boston, Dec. 2, 1871.

To the State Board of Health:

Gentlemen, — We respectfully ask for a hearing upon the application before you for the removal of our works in Brighton. We intended to be present this day in season to be heard if wanted, and are confident that there must have been some misunderstanding, or you would not have closed the hearing in our absence: we have been present several times to be heard, and our case was not reached. When it was last up, and when the hearing was adjourned to Dec. 2, we understood that Mr. Weitz's case would be heard, and possibly ours, if there was time. On each occasion before, we received notice, and consequently expected notice when the case was to be heard. The absence of the usual notice, and the uncertainty expressed, convinced us that we were not expected to be on hand to-day. Our Mr. Shaw, for the purpose of ascertaining when we should be needed, called at your room in the forenoon of this day, and to his astonishment learned that the case had been heard *ex parte* and closed. We can show you that our new place cannot possibly be a nuisance; that we are adopting the means pointed out by your Board, at great expense, to prevent any nuisance; and we have a very large property invested for that purpose. We therefore respectfully pray for a hearing before our case is passed upon.

UPTON, SHAW, & CO.

Boston, Dec. 9, 1871.

Messrs. Upton, Shaw, & Co.:

Gentlemen, — At a meeting of the State Board of Health, held this day, it was "voted that when this meeting adjourns, it be till Dec. 16, 1871, and that Messrs. Upton, Shaw, & Co be notified that any statements they may desire to make to the Board will be heard on that day at 10, A.M." The meeting will be at the Public Room, east wing of the State House.

Very respectfully yours,

GEORGE DERBY, *Secretary.*

HEARING BEFORE THE STATE BOARD OF HEALTH.

SATURDAY, Dec. 16, 1871.

THE Secretary, Dr. Derby, read the order passed by the Board, December 2, in relation to Messrs. Upton, Shaw, & Co.'s works, and then stated that the Board were ready to hear any statements in regard to the matter. The order was as follows: —

BOSTON, Dec. 2, 1871.

To George Upton and Amos L. Ames, of Brighton, in the County of Middlesex.

You are hereby notified, that at a meeting of the State Board of Health, held at Boston, in the county of Suffolk, on the second day of December, 1871, it was *ordered*, on the petition of Francis Standish and others, and after a hearing of the complainants, and other witnesses, that George Upton and Amos L. Ames be, and they hereby are, directed to discontinue the business of bone-boiling, meat-boiling, and the manufacture of phosphates, on the premises now occupied by them, on and after the first day of January, 1872; and it is adjudged and determined, by this Board, that the premises are noxious and offensive, and that the public health and the public comfort and convenience require that the said George Upton and Amos L. Ames be ordered, as aforesaid, to cease and desist from carrying on the said business on the said premises, on and after the first day of January, 1872.

And you are hereby directed to comply in all respects with the requirements of the said order under penalty of what may follow thereon.

By order of the State Board of Health,

GEORGE DERBY, *Secretary.*

A true copy.

Attest: HARRISON D. LITTLEFIELD,

Constable of the Commonwealth.

Mr. Abbott. I appear here in behalf of Messrs. Upton, Shaw, & Co. We do not come here to defend the method in which the business of rendering has been carried on in their establishment heretofore; we come before you because we do not think there is any better method than the one which they have adopted, and are about carrying into practice. Nor do we think that it is owing to any fault of Messrs. Upton, Shaw, & Co. that their business has been objectionable in the past to the people in the neighborhood of the place where it is carried on. They have done every thing in their power to carry on their business as well as they could by the use of improved apparatus, and have been unsuccessful. But now they think they have found a process whereby the rendering of animal matter can be carried on in a way that shall be entirely inodorous and inoffensive. Since they discovered that way they have taken means to secure the right to use that apparatus in Boston and vicinity; and they think, that if they have a process whereby they can render without offence, that they ought not only to have no obstacles thrown in their way, but ought to be helped by your Board.

Dr. Bowditch. We have heretofore — and, except in one or two cases, we have not stepped beyond that point — decided that we have no right under the law to regulate the trade of anybody; we have merely to say, is it a nuisance, or is it not? We cannot, therefore, go into details in regard to any satisfactory methods they may have, or may be disposed to have, hereafter. The only question is, whether they have them at present.

Mr. Abbott. The question is whether their establishment, as they intend to carry it on, is a nuisance.

Dr. Bowditch. The question is, is the establishment as it now is, or has been since the petition was made, a nuisance.

Mr. Abbott. As the order of the Board has put it, Messrs. Upton, Shaw, & Co. are prohibited from carrying on any establishment at all in the future. We don't deny that the establishment, as it has heretofore been carried on, is a nuisance, and we are perfectly willing to abate that; in fact, we have taken steps to remove buildings, and animal matter there which is objectionable, at great expense; and we come before you now to

ask that the Board shall simply order us to abate the nuisance, and to cease rendering in a manner offensive to the neighborhood. We don't ask you to regulate the means at all, but to simply say that we shall abate the nuisance; and I think under your act of incorporation, that would be perfectly competent.

[Dr. Derby reads the order of the Board prohibiting Messrs. Upton & Shaw from carrying on their business in Brighton.]

Mr. Abbott. That order, I should say, prohibited us from carrying on the business of rendering at all, even if we proved we carried it on in a manner that would not be detrimental to the public interest. All we claim, and all we ask, is, that you should order us to abate that nuisance perfectly. And you can pass upon the fact whether or not the method we propose to adopt is a nuisance. If it is not a nuisance, I think it is right that you should let us go on and render by that process. We admit that the old premises are a nuisance; and, as soon as we received the order of your Board, measures were taken at once to remove them in the best manner, — to remove buildings and all offensive matter at once. Now we come before you and ask to abate that nuisance at Brighton; and there is no other way in which it can be done except in the way I have mentioned.

Mr. Warren. Do I understand you have taken down all the old buildings?

Mr. Abbott. We are removing them; we propose to take them down and remove them entirely, and disinfect the premises so that there will not be a vestige of the old trade that was carried on there.

Mr. Bennett. Then you would have to erect new buildings.

Mr. Abbott. We propose to erect new buildings.

Mr. Warren. I should like to know if you have a license to erect a new building.

Mr. Abbott. We can go on and erect them, because they are being erected now.

Dr. Bowditch. The Board is ready to hear any statement you may make, and then we will decide eventually what we will do. I thought I would state what I did before, in order to prevent any extra evidence being brought in to occupy the time.

Mr. Abbott. I understand that the duty of the Board of

Health is to say whether matters that come before it are nuisances and detrimental to the public health. Further than that they have no right to pass. They have no right to aid or help any enterprise by any official act of theirs, however laudable that enterprise may be. If it is thought by any member of the Board that the rendering can be carried on better in one place than another, that is not to influence their decision. If they think that the rendering, as carried on by the establishment of Messrs. Upton, Shaw, & Co., is not detrimental to the public health, they have no right to say that the business shall not be carried on there. They cannot recognize the fact that property in the neighborhood is affected by having the establishment there; they have no power to abate a nuisance except it be detrimental to the public health. Messrs. Upton, Shaw, & Co. have taken all possible measures to abate the nuisance which has heretofore been on their premises; and they will continue to take all necessary steps for that purpose. We only ask you to modify your order so as to give us an opportunity to abate the nuisance. As it is now, we cannot abate it without disobeying the order. The method we intend to show you here to-day is a process of rendering which as effectually destroys all the animal matter which comes into the possession of the company as if it was dumped into a hole in the earth and covered up.

There are two processes which we intend to use: one is the Lockwood & Everett process for rendering all animal matter; and the second process is the process known as the Wilson process for converting the scrap that is left into a fertilizer. The Lockwood & Everett process consists simply in enclosing all refuse animal matter which comes into the factory in an air-tight receiver, — an air-tight tank, which is raised to a sufficiently high temperature to drive off all the gases. These gases go off through an escape-pipe in the top of the cylinder, or tank, and then pass through a long coil of pipe heated to a very high temperature, and then discharged through small orifices made on the principle of the argand burner, into a furnace where they are so entirely consumed that there is not the slightest particle of offensive odor to be detected, after it passes through this process. Then after the matter is thoroughly cooked, and the gases driven off, it is taken out and thrown into a large tank,

where it is covered with a preparation, which Mr. Wilson will describe to you, by which all offensive odor is totally and effectually destroyed forever. The slightest offensive odor cannot be detected in the premises where this business is carried on; and I think, that, unless the Board come to the conclusion that the rendering can be carried on by the Selectmen of the town of Brighton in a way which will be less offensive to the neighborhood than the way which Messrs. Upton, Shaw, & Co. have adopted, you are bound to let us go on and introduce our new method. Unless you think that the offal is better destroyed, and that it is better for the health of the State it should be destroyed, in the manner so eloquently described by the Chairman of the Selectmen of Brighton, "by giving it to the hogs to be manufactured into slaughter-house pork," I think you ought to allow us to go on and render in the new way. Even if you are not satisfied that it will destroy all offensive odor, still you ought to give us a chance to try it, especially at this season of the year, when, if the experiment is unsuccessful, it will be the least offensive of any part of the year, and will offend as few people as possible.

Dr. Bowditch. It is a favor on our part to go into detail; but, as it is a matter of special interest to the Board, we will hear what the process is.

Mr. Dean. You have now passed an order prohibiting bone-boiling, meat-boiling, and the manufacture of phosphate, after the first of January, on these premises. You say you do that because you find it a nuisance; and, when a hearing is had, you say they shall not commit that nuisance beyond such a time, — beyond the first of January. But what do you do? You pass an order that they shall not boil bones, nor meat, nor manufacture phosphates, after such a time. Now, then, when we do every thing to entirely abate that nuisance, acting under a patent issued by the United States Government entirely abating the nuisance, and having taken hold of this because of your reports approving the character of this method; still, although the entire thing is changed, your order continues good. So that, although you would not, and we can show you that you would not, pass such an order now, that would hold good after the first of January, if we can succeed in making the change

before the first of January; still you have passed an order which will overreach and lap over that time. Although these men have spent fifty thousand dollars in pursuing the suggestions that you yourselves have made for the purpose of having no nuisance at all, still your order holds perfectly good; and we propose to ask you now — content that you shall make an order that we shall not be a nuisance; content that you shall pass an order that we shall stop this business as it is now carried on — to modify your order to that extent. After that you will have just the same power over us, to pass upon the question of nuisance, that you have now. It seems to me impossible that the Board of Health, having power over any thing, should not have the power to modify its order so as to reach the present emergencies of the case.

Mr. Bennett. It seems to me that the gentleman misconstrues the order of the Board most wofully, and also the law. The petition as it stands, stands against Upton & Ames, citing at that time that a certain business carried on on certain premises was a nuisance against the public health and public comfort and convenience; and upon a hearing the Board so adjudged. The law is explicit that the Board have but one order to pass, and the order passed is strictly in accordance with that, using the language, almost, of the Statute, "to desist from carrying on that trade or business," is the language of the Statute. "Desist from carrying on the trade or business upon the premises." That is all the order cites; and that is according to the Statute. I don't see how the Board can amend or modify that order, and not travel outside of the Statute. I understood the counsel to say that he wanted a rehearing of the old case.

Mr. Abbott. No, sir.

Mr. Bennett. If that is not the case, so far as these petitioners are concerned, it seems to me that the hearing only had to do with the old premises. We prayed that the Board should pass an order abating the nuisance on their premises, which they admit was a nuisance, and which they promised a year ago in good faith to abate. They have always broken their faith, and it seems to me that we cannot take any future promises from them. If the Board desire to hear any method, they have to explain, how they may, at some time, carry on this business so

that it shall not be a nuisance: that is another matter, and it does not seem to me it can in any way affect the present order, or cause a modification of it, for it is now in the form which the Statute has provided.

Dr. Bowditch. I want to say that our official notice is one that was drawn up by the Attorney-General after mature thought, and we have acted strictly in accordance with it.

Mr. Abbott. So far as relates to the method by which the nuisance is to be abated, this I consider a rehearing; but we do not propose to go into the matter of the old establishment being a nuisance: that we are willing to admit. We think it is a rehearing so far as to admit the counsel for the petitioners to act or not, as he sees fit. We don't wish to take any technical grounds.

Mr. Bennett. The new building which the gentlemen intend to erect comes under another section that this Board have no control over. They must apply to the local Board for their license: they have already done so, and the local Board have refused it; and their remedy is before another tribunal, and not here. The Board here have jurisdiction under the second section; that is, to control, and pass orders upon nuisances already existing, and which they confess, in this case, did exist.

Mr. Abbott. I think the State Board of Health have the right to say that we shall cease carrying on business in an offensive manner; and I think that is all they have a right to do. The counsel refers to the fact that we had a hearing before the Selectmen in regard to the petition to erect a new building. I think he ought not to mention that fact here under the circumstances; when the Board who heard us was directly interested in a pecuniary way in the question under consideration. The Selectmen — and I don't know but all of them, certainly two of them — belonged to the Butchers' Association, whose interests they say were interfered with. They were upheld, too, by counsel, and no argument was made against the erection of the new building, except that they ought not to grant us the right to build a building because it would interfere with the Butchers' Association, although they admitted that it would not be offensive. We claim that that ought not to have influenced them, at least it should have no effect upon you.

Mr. Bennett. I didn't mention it to have any effect upon this Board at all, simply to show that the counsel asks this Board to locate them somewhere else. They say that place is a nuisance, and they admit that the order passed by the Board is a just one: they simply ask this Board to allow them to build a new building, which is a matter that comes before another tribunal.

Mr. Abbott. We do not ask for leave to build a new building: we simply ask them to modify their order so that we shall not be prevented from abating the nuisance. We want to abate it as well as we can, and we want them to pass some general order which will apply to anybody in the State as well as to us, saying that we shall abate this nuisance. They need not state the way in which we shall abate it; but, if we do not abate it, then they can take further action and stop us.

Mr. Dean. All we ask in the world is, that we shall not be placed in a position unnecessarily, where we shall be disobeying the order of this Board. As to the other Board and the fight between the butchers and ourselves, whatever it is, that must be taken care of somewhere else. You have got here a certain act, under which you have forbidden the carrying on of this trade. Now, I submit that if this business had been altered, as we propose to alter it, we propose to show you to-day, that you never in the world would have passed such an order, and that you never contemplated the stopping of that business. Now, it is said, that technically the order is not sufficient, because the order says Upton, Ames, & Co., whereas the firm is Upton, Shaw, & Co.; but we don't come here to quibble about trifles of that sort: we come to deal with substance; we come to ask you to so fix this order that it will not prevent the abatement of a nuisance, and will not prevent the carrying on of a trade which may be generally called, perhaps, rendering, but still is such a different trade, as it is to be carried on, so different in structure, in method, and in its results, as to be substantially another trade, and might properly be called another trade. Suppose it should not be, gentlemen, then we should ask you to hold on to any order, until you see distinctly whether it is going to end in being a nuisance. You would not, for instance, — and I am sure the active partisanship of the Selectmen of the town of Brighton would not

have the effrontery to come here and ask you to, — insist that we should abate a nuisance, pass an order that we should abate a nuisance to-day, when you know we can prove to you that the nuisance will be utterly and completely stopped to-morrow, — only one day. After we have spent fifty thousand dollars in getting machinery, and in buying patents, — which we have done for the purpose of putting an end to all nuisance, — and are ready to stop it to-morrow, or the next day, or next week, — in a very short period of time, would they come and say that you must pass an order under such circumstances; that you have no discretion? Why, the very nature of your tribunal gives you a discretion. It may possibly be that, as to the particular form of order, you may fancy yourselves somewhat embarrassed by some particular language of the statute; but there is no difficulty in taking care of that thing; no difficulty in passing an order that is just: not at all. And then there have been, so far as this particular process is concerned, legal reasons suggested, but I have not had time to consider them with sufficient care to be able to state distinctly what my opinion of that would be: for instance, orders may be passed so far as these inferior tribunals are concerned, that a certain trade shall not be carried on in one town, and another town may say that it shall not be carried on there, and the consequence is you get universal prohibition, because the other towns will not like to have the stuff manufactured in other places come there to be rendered. So Brighton ought to take care of the things which are manufactured there. Under such circumstances, we get a patent from the United States for the purpose of doing business, and then the local authorities prohibit entirely the use of the process, which is actually patented, and of which a monopoly is given by the Government of the United States. That, perhaps, is somewhat technical, a mere matter of right: but we come here, gentlemen, on simply the great and broad claim of right and justice. There is no difficulty in getting at it. If the language of the statute compels you to say that the business shall be stopped, if you find it cannot be carried on without its being a nuisance, then let your order be retained until it turns out whether it is going to result in a nuisance. You have the right to do that, and there is no pretence that you have not.

Now, then, what is our case? Our case is this: Here is a business that has got to be done; it is a very important business in this community; it is a business that has got to be done very near where the articles are manufactured; it is a business that has got to be done in the immediate vicinity of great cities: it is utterly impossible to avoid it. They were carrying on that business, which, as it was then conducted, the Legislature deemed a nuisance, — perhaps properly so: we will not quarrel about that. But as years go on, and as a business becomes important, and must be done in a civilized community, it turns out that there is a way; that science will find a way by which that nuisance can be made to cease. You have approved certain things in your reports: we have read those reports, and what do we do? Here is a business which must be done, and we have got some premises in which we are carrying it on. We go and pay thirty-five thousand dollars for patent rights, for the very purpose of stopping that nuisance; and then we expend more money in preparation, until we shall have spent in all fifty thousand dollars. Now, then, all we ask in the world is that you shall either delay your order, if you cannot pass a modified order. If you can, we desire that you should pass a modified order; otherwise, delay your order until this great experiment, which must be tried with reference to this business, is tried; until it settles the question whether it can be carried on without being a nuisance. You, of course, do not desire to do any private injury, if it is consistent with the public health. How can you prevent doing private injury? If we can stop the nuisance, then it is done, and no private interest suffers. Then, as I was saying, the great and broad public interest is to be subserved by the encouragement by this Board of just the thing that we are doing. What a strange picture it would present, Mr. Chairman, and gentlemen! here in the Commonwealth of Massachusetts is the Board of Health, established to take care of rendering establishments, to take care of noxious trades; and here is the manufactory of an immense quantity of material that must be used, — dead horses, that must be taken care of somehow; that should not be thrown away; that we may not set afloat in the harbor, because the tide will bring them back on to our shores; that cannot be buried in the earth; that have got to be rendered, and

have got to be rendered in very near proximity to great cities; and when we have spent fifty thousand dollars for the purpose of doing it, and are within a month of the time of doing it, and when we come before this Board, we simply say, "Gentlemen of the Board of Health, let us try this great experiment;" and they turn round to the people, who pretend to be interested in the health of the town of Brighton, but who are really here to fight us in behalf of another concern, and say to us, "You shall not put a stop to this nuisance in the town where the material is made." You shall not do this business, which is a great and important and useful branch of business; and if we can only be successful in doing this thing, it is one of the greatest public blessings that ever any one man had the privilege of inventing for the good of the community. Now, then, what do we propose to do, having spent this amount of money? We propose to show you, gentlemen, two processes. In one of these processes, a large tank is used, with a man-hole at the top, into which the material is put, and another at the bottom, where it is taken out, after the stuff is put in the tank is hermetically sealed, and there is no escape, except through a pipe which passes over a fire, and is superheated, so that every particle of smell that escapes is turned into gas, and that gas is consumed by fire, so that there is no smell comes from the chimney. This has been proved by placing blankets over the top of the chimney while the operation is going on, and, when removed, no offensive smell is found to have escaped. It has been as effectually consumed as the gas which comes from the gas works into this room is consumed when you apply a match to the burner; instead of being set free in the atmosphere, as has been the case heretofore.

As to the refuse stuff, it immediately goes almost without any smell into a vat; and we propose to show you a process whereby the whole material is immediately, almost instantly, as if by magic, deodorized, or deprived of any offensive odor; so that the moment any thing offensive reaches that tank its offensiveness is as effectually blotted out as if there was a tunnel down to China and it was sent there. We propose to show you that, and then we ask you, if that can be done, whether you will insist on your order that all the business of bone-boiling, meat-

boiling, and the manufacture of phosphates, shall forever cease on these premises where we intend to carry on the processes which I have endeavored to describe. We propose to show you that our expenditures have been made in perfectly good faith to meet this emergency, and we propose to satisfy you as to the entire efficiency of these processes.

MR. WARREN. I will say, in order to avoid any misapprehension, that the statements made in regard to what has taken place in another place are not in conformity with what actually did take place. Either my learned friend entirely misunderstood, or is unable to state with accuracy what was said at that time.

WITNESSES SWORN.

MR. WARREN. I appear here in behalf of the authorities of the town of Brighton.

TESTIMONY OF GEORGE UPTON.

Q. (By Mr. DEAN.) You are one of the persons who are interested in this establishment?

A. Yes, sir.

Q. (By Mr. ABBOTT.) Won't you state what sort of buildings you intend to build, and what sort of measures you intend to adopt to carry on your business and abate the nuisance at your establishment at Brighton?

A. We propose to erect a structure about forty feet by one hundred feet, to have the capacity for holding four tanks; and those tanks have a capacity of seven tons and a half each, which can be rendered entirely every twenty-four hours. The fertilizing process will be connected with the tanks in the same building; and a tight shed will be connected, where wagons will be driven in while they are unloading. There will be an argand burner on the top of the building, and there will be no outlet for air from the building except through the ventilator, where the gases will be consumed in the argand burner. Cold air will be admitted at the bottom. The least foul air that might escape in unloading the carts or in transferring the scrap to the

tank where it is to be made into a fertilizer would be consumed entirely.

Dr. Derby. Do you mean that you would put an argand burner on top of the chimney?

Mr. Upton. An argand burner will be placed on the top of the building, so that no foul vapors can escape from the building, but will be entirely consumed.

Mr. Abbott. He is merely describing the means by which any vapors which may get into the building from the materials which are used before being placed in the tank, or while passing from one tank to the other, will be destroyed, for their only means of escape will be through the argand burner at the top of the structure.

Dr. Derby. I wished to know whether a current of air was produced which diffused these vapors over the surrounding country, or whether they were destroyed.

Mr. Upton. If any escape in the building, they will be entirely destroyed before passing into the air outside.

Dr. Derby. Every member of the Board understands the plan of rendering by the Lockwood & Everett apparatus.

Mr. Dean. I will ask you whether you have a right to use the patent Wilson process?

Mr. Upton. We have. There is a plan of the building we propose to erect to contain this apparatus. [Plan exhibited.]

Mr. Dean. Tell the Board whether, in consequence of their approval of this plan, you have been purchasing patents, and expending money with reference to putting an end to any nuisance connected with your business.

Mr. Upton. That was our whole intention, to carry on our business so that it should not be offensive.

Q. How long has the business been carried on there?

A. I think the business has been carried on there ten or eleven years.

Q. It is an old business in that locality?

A. Yes, sir.

Q. And it is down on the marshes?

A. Yes, sir: I should think a quarter of a mile away from any party that would be likely to complain of it.

Q. And how much money have your expenditures amounted to?

A. The amount of our investment in Brighton to-day would be $100,000.

Q. How much for the purpose of abating the nuisance; that is, carrying on the business in an inoffensive way?

A. The patents cost thirty-five thousand dollars; the tanks which we have contracted for would be about eight thousand dollars more.

Q. How many tanks have you now?

A. We have two on the spot, and two will be there probably next week. They are done. Our building which we are erecting may cost us between five and six thousand dollars more. Perhaps more than that.

Q. (By Mr. Abbott.) What expense have you been at in order to abate the nuisance as it is now, removing the buildings, and removing the offensive stuff in the neighborhood?

A. We have offered the article at a very low price in order to induce parties to take it, for much less than we could secure for it if we could keep it for two months longer.

Mr. Dean. So that in round numbers it is an expenditure for the purpose of preventing this business from being noisome of fifty thousand dollars.

Mr. Bennett. I understand that none of this which has been expended has been expended in the old buildings.

Mr. Upton. Except in the fertilizing process. We have spent perhaps two thousand dollars for tanks for carrying on the fertilizing business so that it would give no offence, and we have piled up of this material which is entirely inoffensive five hundred tons.

Mr. Bennett. You spoke of expending one hundred thousand dollars.

Mr. Upton. I mean the whole expenditure in Brighton is one hundred thousand dollars.

Mr. Davis. You include the cost of the real estate?

Mr. Upton. Every thing.

Mr. Frothingham. I understand that you have not erected this new building.

Mr. Upton. We are in the process of erecting a building for the purpose of putting in the Lockwood & Everett tanks, and taking care of the material that comes from them by making it into fertilizers by the Wilson process.

Q. This, then, is not on the foundation of the old building?

A. No, sir.

Q. A new foundation?

A. Yes, sir.

Q. Then it would be a new business in a new place?

A. I should say it would essentially.

Mr. Dean. It is really and practically in the same place for the same purpose.

A. It is a new process for carrying on the same business.

Mr. Frothingham. The building is in a new location.

A. Certainly, sir: on a foundation that has never been covered by a building that we know of.

Mr. Dean. It is within the yard. I don't think we would be doing justice to your order, if, for example, we were to put up a building a dozen feet off, and then proceeded to make a nuisance as big as before. I don't think we could say that your order didn't cover us, and that we would escape the penalty by so doing.

Dr. Bowditch. How long will it be before you have the apparatus necessary for you to go on with your business without a nuisance?

Mr. Upton. I shall have to consult with Mr. Shaw.

Mr. Dean. How long will it be, in your judgment, before you can succeed in having your premises so as to fairly render according to this new process?

Mr. Shaw. We expect to have them ready, sir, by the first of February.

Dr. Bowditch. And it will be entirely without nuisance at that time?

Mr. Shaw. I should say so, sir.

Mr. Upton. Except from the old material we have there; in removing that.

Mr. Shaw. That we are in the process of removing now. We have sent off several carloads, and are making arrangements to ship the rest. We intend to remove that and tear down one or two of the old buildings which are offensive, and which are mere wrecks. We don't intend to destroy any of the good buildings, but we are going to clear up the premises.

Mr. Warren. When did you begin this new building?

Mr. Shaw. In November.

Mr. Warren. In November?

Mr. Upton. In October or November.

Q. You made application for a license to erect this building on the 29th of November; didn't you? And you had a hearing upon that application the 5th of December; didn't you?

A. I presume so, I don't remember the dates.

Q. And you had the unanimous decision of the local Board on the 9th on that matter, or thereabouts?

A. I could not tell you in regard to dates.

Q. It was somewhere about that time. Now, I want to ask you whether, pending your application, between the time you made your application and the time of the hearing and the time of the decision, you stopped work on that building, or whether you went on with the same force, or equal force, as before.

Mr. Dean. Just as before, by the advice of counsel.

Mr. Abbott. The object of the counsel is apparently to get evidence for another hearing.

Mr. Warren. I want to see how much reliance is to be put upon the promises of these parties. I place no reliance upon their promises, and I propose to show the Board that they cannot.

Mr. Abbott. I think the apparent object of the gentleman is to get the admission of Mr. Upton, so that it can be used in another tribunal.

Mr. Warren. There is no difficulty in proving the facts by forty witnesses, if necessary. I want him to state whether all the time this matter was pending he continued to work upon the new building?

Mr. Dean. We admit that we did, sir. And, what is more, I have advised these gentlemen, that, so far as the erection of the building is concerned, they have a right to go on and erect the building. What they have done has been done under the advice of counsel. Though the Selectmen have refused to give their consent, I have advised them to go on erecting the building, and we will take care of that when the time comes. What we are here for is to avoid this penalty.

Mr. Warren. I beg you won't interrupt me.

Mr. Dean. You are trying another case.

Mr. Warren. You say it has been there eleven years; during the whole of that eleven years, have there not been constant complaints made by the neighbors?

Mr. Upton. I haven't carried on the business but five years. I am satisfied that people with good smelling organs ought to have complained of it. We admit that.

Mr. Warren. It has been enjoined by the Supreme Court on application of the local Board?

Mr. Upton. Never since I have been connected with it do I know that it has been enjoined by the Supreme Court.

Q. Now, you commenced this building in November last. Do I understand you to say that you commenced this building in consequence of the recommendations of this Board?

A. Can I answer the question as I like?

Q. I should like to have you answer the question that I asked you.

A. Of course that was an assistance to us. We built not wholly because the Board advised it.

Q. Did you make this expenditure of $35,000 for the purchase of patents, simply and solely because the State Board of Health had approved of this process?

A. We made that purchase, feeling that the guaranty from the State Board of Health would protect us.

Q. Whether you made that purchase simply and solely on account of the approval of the State Board of Health of this process?

A. Well, sir; there are a great many reasons which induced us to make it.

Q. That wasn't the sole reason?

A. It was one of the sound reasons why we were induced to purchase.

Q. Why couldn't you say it was not the sole reason?

A. I said we had several reasons.

Q. In the investment of $100,000, how much do you call the value of the real estate there on your land?

A. I think our real estate —

Q. Take the land.

A. I can't divide it up.

Q. How much land have you?

A. Four and three-quarters acres.

Q. Worth $1,000 and over?

A. Not by any means, sir.

Q. $500.

A. Possibly, sir.

Q. The buildings that have heretofore been on the place are old buildings, tumble-down buildings?

A. They are in a dilapidated condition, a great many of them.

Q. Would the old buildings on that land sell for a thousand dollars?

A. The old buildings, yes, sir.

Q. I mean the old ones?

A. Yes, sir, I should think they would.

Q. How much over a thousand dollars?

A. I don't know.

Q. Would they sell for $1,500?

A. I should think so.

Q. For fuel or what purpose?

A. Some of them might be fit to move off. There is a house there, — two houses.

Q. Worth a thousand dollars apiece?

A. When you are asking me to put a value on real estate, I am no judge.

Q. Every sensible man knows what the value of real estate is; I don't want a carpenter's estimate on the house.

A. One is a large one, and one is a small one.

Q. Occupied by people who work in the building?

A. Yes, sir.

Q. In future you will use the apparatus you propose to put in, I take it, and the old apparatus will be removed?

A. Not all, no.

Q. What will remain?

A. We have got engines, pumps, boiler, mill, shafting.

Q. Take the engines, what use do you wish to put the engines to with the Lockwood and Everett tanks?

A. We have got to grind with our mill.

Q. When has that to be done, — after the material comes from the Wilson operation?

A. Certainly.

Q. Will you use those engines to grind that by steam?

A. We will be likely to use them.

Q. Will you keep them there for that purpose?

A. We don't say we will keep them there for that purpose.

Q. Is there any reason why all this old apparatus will not be removed?

A. There is a great reason. The steam-boilers can be just as well used where they are.

Q. What will you use the steam-boilers for if you are going to use the Lockwood and Everett tanks?

A. We will use steam in the new building for making fertilizer.

Q. You use steam for that?

A. We do.

Q. You use steam from a boiler generated by a steam-engine, do you?

A. We may use steam generated in a boiler.

Q. I mean your engine.

A. Our engine will have to be moved into the other building, and used to carry our mill, unless we choose to grind the meal up where it is.

Q. You won't have occasion for any other boiler with the Lockwood and Everett patent?

A. No, not for that.

Q. I don't see where your value comes from?

A. Do you want to know where our value is in the business to-day?

Q. Yes, sir.

A. It is in stock, a large part of it.

Q. What do you mean, — manufactured stock?

A. Yes, sir: a large part of it is in stock in process of manufacture.

Q. Do you mean to urge it, as a reason for granting your request, that you have got fifty thousand dollars' worth of stock manufactured?

A. I didn't say we had fifty thousand dollars in stock.

Q. I mean to ask if you think the value of your stock is of

any consequence in forming an estimate of your claim for consideration here?

A. I certainly do think that if I have got an investment in an immense pile of fertilizer, and have spent a good deal of money in advertising it, and have got up a trade for it, and my expenses are great to dispose of it, I think that is to be considered.

Q. Didn't you mean that this Board should understand that you had one hundred thousand dollars invested in the premises, in buildings and fixtures?

A. No: I meant just what I said, that I had one hundred thousand dollars invested in the business there.

Q. You didn't say that.

A. I said that I had got one hundred thousand dollars invested in the business.

Q. What part of that one hundred thousand dollars was in stock?

A. Well, we must have, I should think, perhaps thirty thousand dollars.

Q. Thirty thousand dollars of that one hundred thousand dollars is in stock. Now, whether or not a year ago you were before the Board of Health on a complaint against this very establishment, and didn't then promise, just as you do now, that you would either give up the business, or conduct it so that it should be harmless?

A. Well, you asked me that question in Brighton. I will tell you how it is. I explained to the gentlemen present what I was going to do: I told them how we were a going to put in the new Perry Tanks which we were going to buy, and I explained to them that I had no doubt the nuisance might be abated by doing as I proposed to do with these tanks. I immediately went to work, got the tanks, and put them into operation.

Mr. Dean. That was a new process?

A. That was at that time a new process to me.

Q. That disappointed you?

A. Yes, sir.

Mr. Warren. Didn't you say then that unless that business

proved satisfactory, and prevented the nuisance, you felt bound to discontinue the business, and would discontinue it?

A. I might have said it on the strength of the representations made to me; and I explained the thing so plainly to you that you could see the thing, and how it would occur, just as well as I could.

Q. I want to know if you didn't promise the local Board of Health that, unless that prevented the nuisance, you would discontinue the business?

A. I probably promised unless I could do it. I probably did. I don't doubt that I did, unless I could stop the nuisance.

Q. As a matter of fact, has not the nuisance this summer been worse than it ever was before?

A. I think it might have been as bad, not worse.

Q. Have you this summer taken the first steps towards abating the nuisance, even after application was made to the Board to prohibit you from carrying on the business further?

A. We took all the measures we could to obviate the nuisance as soon as we could. We said to the butchers, This will be a nuisance if you throw this material on to our hands, and they said it would be as great a nuisance if we stopped taking it.

Q. I ask you what means you took?

A. We secured the Lockwood and Everett patent.

Q. When you secured them, had you any idea of putting those tanks on your premises?

A. I had an idea they would be of use wherever they were, or I should not have invested in them.

Q. Had you any idea of putting them on your premises?

A. I had an idea of putting up one or two tanks, — not when I first purchased them.

Q. When you first purchased those patents, you had no idea of using them on these premises?

A. I had an idea, if our arrangement went through with the butchers, as we proposed to them, that my place would eventually be abandoned.

Q. I ask you if, when you bought the Lockwood and Everett patent, you had any idea of using it on your premises?

Mr. Abbott. He has got to explain it.

Mr. Warren. I am cross-examining him on something you brought out, and I want a definite answer to my question.

Mr. Upton. If you will allow me to tell my story.

Mr. Warren. I ask you if, when you bought the Lockwood and Everett patent, you had any idea of using it on your premises?

A. When I bought the Lockwood and Everett patent, and went in, it was in a measure to protect my old business.

Q. Did you have any idea when you bought the Lockwood and Everett patent of using it on your own premises?

A. I had an idea that if we didn't put the arrangements through with the butchers, — I thought it would be put through, but if we didn't put through the arrangement which we had proposed to the butchers, — I thought the business had got to be carried on by somebody.

Q. I am not going into your business arrangements: I simply want to know whether you bought these patents for the purpose of using them on these premises?

A. I bought them for the purpose of protecting the business I was interested in.

Q. Did you buy them for the purpose of using them on these premises?

A. If it was policy for us to use them, then I bought them for that purpose.

Q. Did you have in your mind at the time you bought them the purpose of using them on your premises?

A. You ask me a question that it is utterly impossible for me to answer. I have answered the question as directly as I can. I bought those patents and went into this for the purpose of protecting a business I was already engaged in.

Q. I ask you whether you bought these patents for the purpose of using them on these premises?

A. Not for using them wholly on these premises.

Q. At all on these premises?

A. I think I said that when I have been talking with these parties —

Q. I don't care what you said. You didn't give $35,000 for the purpose of putting those tanks in those old buildings?

A. No, sir; of course we didn't *wholly* for that purpose.

Mr. Dean. I understood you, Mr. Upton, that you have been aware of the fact that your buildings were a nuisance?

A. Most essentially so.

Q. When this other process, this process which you bought about a year ago, was bought, you had some talk, and you said, when they wanted you to discontinue the business, that you had great expectations that this process would obviate the nuisance.

A. Yes, sir.

Q. That is, the process of boiling in tight tanks. Did you proceed in good faith, and faithfully try that experiment?

A. Yes, sir, I did, with the Perry Digester.

Mr. Abbott. Didn't they admit to you that you had acted in perfect good faith?

A. The town Board of Health said that I had taken due heed of all the notices they had served on me, and they were pleased with the attention I had paid to them; they thought we intended to do all we could to obviate the nuisance.

Mr. Dean. Whether or not you did intend, in good faith, to do every thing you could to prevent the place from being a nuisance?

A. We did, sir, in every way.

Q. And whether now in the use of the new process, if it turns out to be effectual, you intend to do every thing you can, to try the new process faithfully for the purpose of preventing any possible nuisance?

A. I certainly do.

Mr. Bennett. Is the mere process of rendering the only nuisance round your establishment?

A. No, sir; I have a pile of meat there which was made by the old process, manufactured fertilizer.

Q. That won't be obviated in any way by the tanks you put in there?

A. That would not be obviated. I immediately altered my means of rendering and means of making fertilizers after that meeting of the town Board of Health.

Q. A year ago?

A. Yes, sir.

TESTIMONY OF GEORGE F. WILSON.

Q. (By Mr. DEAN.) Where is your place of business, Mr. Wilson?

A. Providence, R. I., and East Providence, R.I.

Q. Whether or not you have invented any process for making a fertilizer of the soup or refuse scrap from the process of rendering?

A. Yes, sir: I have.

Q. Will you be kind enough to explain fully to the committee your process, and how effectual it is.

DR. BOWDITCH. What is the name of it?

A. "Improved process for treating offal gelatine and scrap," that is one of them; the other is for an improvement in the tank.

When the scrap or gelatine is heated by either of these processes, if the vapors in the tank have a free opportunity to escape, the soup and meat, or the scrap, may be said to be in a sweet condition. They have an odor, but not an offensive one. If, as before the date of my invention, they are treated with acid, oil of vitriol, nitric acid, muriatic acid, their offensiveness is immediately increased. The materials were to a certain extent carbonized, and a sulphuret of ammonia, or sulphate of hydrogen, what was generally known as an offensive sulphur compound, was formed; and all attempts within my knowledge to treat this material in that way have ended in failure. It could not be done, for the material in that process is even more offensive than in the rendering process.

MR. DEAN. That is, it becomes offensive in a short time?

MR. WILSON. Yes, sir: any one familiar with chemistry knows at once that the treatment of gelatine with nitric acid, or muriatic acid, at once carbonizes a portion of the material, and forms a very offensive compound. It is not necessary, perhaps, to say any thing about the nature of bone-coal; it is very well known to anybody who should know any thing about this process at all, that it is one of the most perfect deodorizers we have. I found that by taking bone-coal, and treating it with oil

of vitriol and water, that the deodorizing properties of the bone-coal were, if any thing, increased; and we have free phosphoric acid and an acid phosphate present to seize any ammonia compound which may be brought in contact with it. I therefore take this scrap, or soup, or gelatine, as it runs from these tanks, or any other tanks, and immediately treat it with this preparation of acid phosphate of lime, obtained by the treatment of bone-coal with oil of vitriol. There is then present the phosphoric acid to seize upon the ammonia, and the oil of vitriol as combined with the lime; and the charcoal or carbon of the bone is also present to deodorize it. I tried that experiment a good many years ago, and found that the result was perfect, and really astonishing to me and those who witnessed it. The instant these rendering tanks were brought to my notice, I took out papers for the combination of them with this method of treatment. Now these tanks, it is well known to the Board, are capable of rendering that gelatine and scrap, in a concentrated condition, nearly dry; so much so, that it may be necessary to put water into the tank in order that the process may be complete. The phosphoric acid seizes upon twenty-four equivalents of water; and, say to-night, having treated a quantity, great or small, of this offal gelatine, or scrap, with this preparation, with a sufficient quantity of water, to-morrow morning it would be crystallized so that it may be taken out with a shovel. I have not found it necessary to cover these tanks of mine at all: the deodorizing of the material prevents any offensive smell. There is little odor from the scrap as it comes from the rendering tanks, but it is effectually destroyed by this preparation, and it is not necessary to cover the tank in which the mixture is made. This material is then taken and stored; and in the course of a few weeks it becomes so hard, that, in order to work it, it has to be broken down with a pick or some sharp instrument, such as would be necessary in breaking up hard pan; and there is absolutely no offensive smell comes from it at all. You, gentlemen, might pass by my shed, where there are a thousand tons of this material stored, and you would not know there was any thing in it.

Mr. Abbott. State whether there is any offensive odor at all from the time it goes into your tank until the time it comes out.

Mr. Wilson. No, sir; in order to test this matter thoroughly, I had sent to Providence, at two or three different times, several tons of this material in a highly-offensive condition; so much so, that it was almost impossible to stand near it. This was gelatine and scrap, which we procured from the New York Rendering Company; it was in a state of decomposition, and was the most offensive thing I ever saw.

Mr. Dean. How much did you have?

Mr. Wilson. I had seven or eight tons at a time. I put this into the tank in the presence of a graduate of Columbia College, then my Assistant Superintendent of the works, now in an office in New York, a pupil of Mr. Chandler. He and several other gentlemen were present. I think Mr. Everett was there, and I took them down to witness the operation. The material was so offensive that it drove me, and everybody else but the workmen, out of the building; but within twenty minutes after it was put into the tank its offensiveness had ceased. And now I have to say in reference to this, I may be pardoned perhaps for doing it, because I am interested of course in this apparatus, that I do not hesitate to say that the process of rendering and manufacturing fertilizers can be carried on on Boston Common without any offence to the people living around it. Unless they went to it, they would not know what was going on. This is not based upon theory, but upon practice, absolute knowledge. There is no question about it.

Mr. Dean. You have some of those tanks?

Mr. Wilson. I have two of them.

Q. You have used them?

A. I have not used them. I have used material from other tanks like them.

Q. So far as taking care of the gelatine and scrap (the product that comes from those tanks) is concerned, you know the process to be perfect?

A. Yes, sir; I have expended a great deal of money in this invention, and in procuring these patents, and the United States has granted to me the exclusive authority to operate these patents in any city, town, or village in the United States of America, or in the territories; I have sold these patents to these gentlemen for a great deal of money, and if they are not

to be operated in Brighton, can you tell me where I shall operate them?

MR. WARREN. You can operate them in any town of less than four thousand inhabitants.

MR. ABBOTT. I claim that under these patents we have the right to operate these inventions, and I am interested in the decision which shall be made by this Board.

MR. DEAN. You have noticed the operation of these rendering tanks?

A. Yes, sir. I have seen them, and I know that no offensive odor escapes from them.

Q. That is, the moment the material comes into an establishment with these tanks and your process, there is no need from that time of any offensive odor coming from the material that is rendered?

A. Not at all, sir.

DR. DERBY. In the process of rendering, what proportion of fluid and what proportion of solid is left in the tank.

A. Just that proportion which is necessary from the nature of the material.

Q. Where offal and dead horses are used. It is an economical question to a certain extent. You have got to limit the use of fuel somewhat. Of course you can drive off all this water, but it is not customary to do so, from economical reasons; but it is customary to leave in the tanks a large proportion of fluids as well as solids: is that not so, sir?

A. Yes, sir.

Q. What proportion of fluids and solids is usually left?

A. You can answer that question for yourself just as well as I can. Phosphoric acid crystallizes out with twenty-four equivalents of water; and the object is to leave sufficient water in the material for the phosphoric acid to crystallize out; that differs with the amount of ammonia there is in it; with different materials we do differently.

Q. I wasn't asking a theoretical question, but a practical question: How much fluid and solid is ordinarily left?

A. About half and half, I should think. I have sometimes found it necessary to put in more water, and I have a steam-

pipe around the tank with which I drive off some of the water if it is necessary.

Q. Suppose you have half fluid and half solid as it leaves the tank, you render that dry by the addition of bone-coal and acid?

A. Yes, sir; by the process of crystallization.

Q. How much of that water do you suppose is taken up by the crystals, and how much by the simple matter of the absorption of the fluid by the solids.

A. In an analysis which we have made of the material, there is found to be about eight per cent of it as water driven out at a temperature of 212 degrees.

Q. If you had equal parts of solid and fluid in the tanks, could you expect to take up that amount of water as crystals?

A. No, sir; I don't think I could.

Q. What proportion could you take up?

A. I could not tell without knowing precisely the amount of ammonia and phosphoric acid.

Q. Wouldn't it be a very small proportion indeed?

A. No, sir; quite a large proportion.

Q. The balance of this water has got to be got rid of in some way or other?

A. Yes, sir; I just stated, we have a coil of pipe around the sides and bottom, by which the process of concentration is carried on to just the point which the knowledge of the workman requires.

Q. As that passes off, it is offensive?

A. No, sir; not at all.

Q. What is to prevent it?

A. The bone-coal and phosphoric acid. It is not decomposition, it is simply a drying process; it is pure water that goes off.

Q. (By Mr. Frothingham.) Is your process in operation except in Rhode Island?

A. No, sir; not that I know of.

Q. This would be the first place in the United States?

A. Yes, sir.

Mr. Warren. Has anybody the right to use your tank here? Haven't Bradley and Ward the right to use your tank?

A. No, sir.

Q. Nor your process?

A. No, sir.

Q. Is there not a tank known as the Wilson tank used?

A. That has no relation to mine. That is one like the one undertaken to be described here [Perry], a tight tank, into which the steam is forced. There is a difference which my friend Everett can explain: he is more familiar with it than I am.

Dr. Derby. Is this process in use on a large scale at Providence at the present time?

A. Yes, sir.

Q. Can I see it by going down there?

A. Yes sir; if you will only give me two or three days' notice, I will have it ready; the offal in Providence is all contracted for until the first of March, but we can have some sent down from Brighton, or some other place, or we can get enough there, perhaps.

Q. It is not in operation now, every day?

A. Yes, sir; it is in operation without the rendering tanks.

Q. I mean the process of converting the soup and scraps into fertilizer?

A. Yes, sir.

Q. I have seen the other process, and am satisfied about that.

A. The rendering tanks I have in readiness, and can be operated when we get some offal there.

Mr. Dean. His inquiry is more as to your own process of treating scrap.

A. My own invention is in operation at the chemical works, the other is in operation in New York, we can bring the two together at any time you wish to see them.

TESTIMONY OF PROF. HOSFORD.

Mr. Warren. If it will save any time, I will state that I do not propose, so far as I appear for the authorities of the town of Brighton, to contest the validity of the patents: I believe they are very good things in their way; and I shall admit here, as I admitted in Brighton, that probably the process of rendering, from beginning to end, could be very well carried on by these improvements. But I don't see that this admission affects the question. If this is all they desire to prove, it seems to me to be entirely one side of the question before the Board.

Mr. Abbott. Prof. Hosford, will you please state whether you are acquainted with the process of treating scrap which has been described, and state your opinion of the merits of that process?

Mr. Hosford. I am familiar with the process invented by Mr. Wilson, having seen it in practical operation for quite a number of years; and I can indorse, without any hesitation, all that Mr. Wilson has said with regard to the success of the operation, the perfection with which the material is deodorized, and the general great superiority of the product.

It is possible the medical gentlemen of the Board might like to know my view of the reason the phosphoric acid acts so efficiently as it does, I have spent so much time in the study of phosphoric acid. The process of Mr. Wilson, so far as I understand it, is as follows: The tank is supplied with pipes on the sides and bottom, through which the steam is circulated. Into this tank a mass of organic matter is received, termed scrap, or what is known as soup, which is the result of boiling with a view to disengage the fat. That is received into the tank, and it is there mixed with acid phosphate of lime, as a liquor, and mixed with bone-coal, the bone-coal being placed on the top. The function of a body so exceedingly porous as bone-coal is well known; its capacity to absorb odors and take up tastes is familiar to all. When the bones are burned, the process of ignition to which they are subjected converts the phosphoric acid in combination with the three elements of base in ordinary bone

in a measure into metaphosphoric acid, notwithstanding the fact that there are three elements of base present. This proposition is apparently contradictory; but it has grown out of the result of a great deal of litigation in Germany between the manufacturers of superphosphates, and the purchasers of superphosphates, who found that the phosphoric acid of their manures went back, as they said, — lost its strength. It is not an unfamiliar fact in this country that manufacturers of phosphates have been charged with diluting their manures because they were found to contain less phosphoric acid than the original samples in view of which purchases were made contained. This was observed in England and in Germany, in some very large transactions; and it resulted in the appointment of a commission which included Fresenius, who is the greatest authority in analytical chemistry living. This Board made a report recognizing the fact that phosphoric acid from bone-coal, not only in combination with lime, but after it is separated by sulphuric acid, has lost a measure of its capacity to combine with bases. Now, it recovers that capacity upon the application of heat when in solution. This apparatus of Mr. Wilson takes advantage of that fact, that metaphosphoric acid in solution in water subjected to heat is converted into a tribasic modification; combines with three atoms of base, while phosphoric acid combines with only one atom of base. Phosphoric acid separated into its original elements by decomposition, by which this result is produced, is in a condition allied to that of metaphosphoric acid, and when subjected to heat for any length of time, is converted into a tribasic modification. In that condition it possesses its full efficiency, and its capacity to combine with three atoms of base.

That is the first point that I thought might be interesting to you to take into account. I may say that I have bestowed during the last three years a very large amount of attention upon this very point, to demonstrate the capacity of phosphoric acid to lose its strength, and to determine the condition in which it may be restored or returned.

The other point is this: we are familiar with the fact that gastric juice has for one ingredient phosphoric acid. We are familiar with the fact that the addition of phosphoric acid to organic matter facilitates its liquefaction, and assists digestion. Now

that liquefaction will take place in a crucible in a laboratory almost precisely the same as it takes place in the stomach, and this liquefaction of the animal matter which Mr. Wilson's process accomplishes is in that respect like the process of digestion; it brings to bear this tribasic modification upon the disintegration of the animal tissues. Now, ordinarily the only effect of the process of digestion is, the disengagement of the volatile acids, and under certain circumstances the acid odors may be perceived; but beyond that there is nothing objectionable that escapes in the ordinary process of digestion. Whatever escapes in a volatile way in the process of Mr. Wilson is caught by the bone-coal. Phosphoric acid has the highest state of efficiency as an agent, capable of liquefying all animal matter, and taking its ammonia. It is a very extraordinary feature of the process, this perfection of its work, and the rapidity with which it solidifies after it is completed.

Mr. Dean. It first liquefies and then solidifies?

Mr. Hosford. Yes, sir: first liquefies, and then solidifies as a crystallized mass. A great mass of crystals are formed in the material, and I think it would interest you very much, gentlemen, to witness the operation as it is carried on and the results of it. There is a little smell to the article that is produced, but it is not offensive; it is the smell that accompanies the production of lime sugar.

Dr. Derby. How long does it take to get into that solid form?

A. The drying takes quite a number of days. I think twenty-four hours is the full length of time it is in the tank. Mr. Wilson could tell you exactly about that.

Q. When it comes out of the tank it is wet?

A. No, it is not properly wet at all. It is not like mortar, it is not plastic in the proper sense of the term; it can be handled perfectly easy with a shovel. Now that seems a little speculative. It seems extraordinary that phosphoric acid should accomplish such a thing; but I give you the result of my thinking about it, in connection with these recent investigations in Europe, of the effect produced upon bones by igniting them; although a base is present, still it loses its acid strength, and that acid strength is restored by treatment with heat.

Dr. Derby. Is not the chief thing about it the application of heat?

A. And the bone-coal on top. The application of heat, in short, amounts to the whole of it. Ordinarily the quantity of water used in making superphosphates is a great deal smaller, so small that the mass of the material is not liquefied at all.

Dr. Bowditch. Practically should you like to have a large establishment like this right next to your own house? Is it so entirely free from odor that you would consider it consistent with comfort and convenience to have it next to your own house?

A. I think not. I don't think that you could establish any manufactory the next door to my house, that would meet with my approbation. But I look upon the question as one of enormous importance, — the preservation of the phosphates. There is not any thing that attaches to the industrial interests of our country, it seems to me, of more importance than taking care of the phosphates. Now, the only annoyance that I think of as attaching to such an establishment as this is the bringing of the material to it. I don't see why there should be any sort of offence about the establishment; there certainly is not at Providence. If you visit it, you will find a great many hundred tons of material made, and material that is in the process of being manufactured, without any annoyance. You cannot have a great amount of material that comes from slaughter-houses carried through the streets without its being offensive; but after it reaches the establishment I don't see why there should be any offence at all.

Mr. Derby. Do I understand you to say that the application of heat is an original thing in the Wilson process; that is to say, the application of bone-coal and acid is old?

A. That is old.

Q. The application of heat in a certain way is the peculiar thing in the Wilson process?

A. I think I regard that as the most important feature of it. The layer of bone-coal on top is a pretty important feature.

Q. Is application of heat a thing that could be patented?

A. Yes, sir: I regard it as one of the most important effects that have been brought to light, — this fact that you can confer

increased effect upon the acid by heating it with sulphuric acid.

Q. Why couldn't they use that process around town: would he have a right under the patent law to prevent it?

A. Yes, sir: I don't think Mr. Wilson had any idea of the philosophy which really explains the superiority of the operation. He had found that heat accomplished this end.

Mr. Warren. Have you examined Mr. Wilson's patent to see whether he makes any claim of that kind?

A. No, sir; I have not.

Mr. Dean. You spoke of the value of this product.

A. I don't think the Board need to be informed on the value of preserving the phosphates of a country. The amount of territory which has been converted in other countries into deserts by the absence of phosphates is well known. But we have felt it here. It is a significant fact, that in Ohio, with twice the amount of land under cultivation, they only produce the same amount of wheat they did twenty years ago: and, for a long period in Western New York, they were obliged to give up the culture of wheat from the absence of phosphates. We have no right to permit this material to be wasted. I assume that it is as absolutely necessary that this process should be carried on as it is necessary that we should have gas.

Mr. Warren. I think, Professor Hosford, that you have expressed an opinion, that, if the offal could be rendered fresh at the place of production, it would be a great benefit to the community.

A. It seems very desirable that it should not get old.

Q. Does not the freshness of the material in the rendering process confer a great benefit, as an offset to the carelessness or negligence on the part of the persons who manage the apparatus? For instance, I think we understood, from the examination of this Board, and other gentlemen, that at the New York Rendering Docks there is great offence, where they use the Lockwood and Everett apparatus, from the material that is taken from the tanks. I believe that is said to be unnecessary, but owing to the carelessness of the management. Don't you think the freshness of the material to be used would obviate any possible difficulty from the neglect of the operators?

A. That is connected with the transportation of the material.

Q. At the time of its removal from the Lockwood and Everett tanks, and before it was subjected to the Wilson process, the material might be offensive?

A. The two had better be carried on together.

Q. But, if the material put into the tank was fresh, then the imperfect or careless use of the Everett apparatus, if the gases were not completely driven off, and the Wilson process was not at hand, — if the material was fresh, — there would be no trouble from it; but, if it was foul when it was put into the Lockwood and Everett tank, then it would be offensive?

A. The transfer takes but a moment: it comes out of one and goes into the other, and that is the end of it.

Q. You assume that the moment it comes from the tank it is subjected to the Wilson process; but suppose it is left?

A. Precisely how long a time would elapse before it would begin to be offensive I do not know. It would be twenty-four hours, I think. When it comes out, it is very much like soup, and no more offensive than that would be.

Q. If it were in your power to have the rendering done where the offal was produced, would you not do so?

A. I think it would be better to have no transportation about it. It strikes me that would be a very great benefit.

Mr. Abbott. Do you know of any place where that could be accomplished now, or for two years to come?

A. I really am not familiar with the localities in Brighton. I know I have bestowed my benediction on them in crossing the grounds a great many times. I think we ought to have a protection from the effluvia they have there.

Mr. Dean. As to the freshness of the material used, in the ordinary way of rendering by boiling, whether fresh material would still be offensive?

A. The material before it goes into either apparatus?

Q. Yes, sir.

A Certainly all offal is more or less offensive, and the odor increases as it grows older.

Q. Fresh suet or fresh fat, for instance?

A. That has another smell. In the treatment of fat, what

we call the burnt smell comes from a little of the fat getting a very much higher temperature than the rest. In that respect I think the Everett process is very much superior, as the temperature is communicated through water.

TESTIMONY OF MR. EVERETT.

Q. (By Mr. Dean.) You are Mr. Everett, of the firm of Lockwood and Everett of New York?

A. Yes, sir.

Q. And you are also connected with the New York Rendering Company?

A. Yes, sir.

Mr. Abbott. Will you please describe your whole process of rendering to the Board?

A. It may be well known to the Board that all the rendering of animal matter, fat, tallow, lard, mutton-tallow, &c., is done in one of three ways. First, by the application of dry heat to the under surface of an open kettle, in which the fat is placed. The sanitary objection to that process is the escape of vapors into the open air. The first improvement on that was putting the material in an air-tight vessel, closing the vessel, and applying the steam directly to the material to be heated, jetting it in from a pipe leading from a steam boiler, at a high temperature. In that process the same offensive vapors and gases were generated from the animal matter, whether tallow or other material; and if the vessel was kept tight during the rendering process the grease product was spoiled for the market, or deteriorated in value so that it would not bring the ordinary market price, as it was rendered very offensive to the smell. It was therefore necessary to allow these offensive vapors to escape from this boiler, and a pipe was opened into the atmosphere. Strong objections have been raised against that apparatus because the odors get into the atmosphere. There are technical objections also, and economical ones, which I don't suppose you care about hearing. The next improvement upon that was, I believe, our own process, in which the material is contained in a

steam-tight vessel, and the vapors and gases are confined within the apparatus, none being allowed to escape into the atmosphere. We have, among the various methods of getting rid of them, used large surface condensers, discharging all the volatile products from the tanks into a vessel surrounded by a running stream of cold water, thus lowering the temperature of the contents, and condensing the watery vapors which had escaped from the tanks; and this water would take up in solution the gaseous products, which were not of course liquefied by this low temperature. Our objection to that was, we found ourselves with a large quantity of very offensive product, and we found it a very difficult thing to get rid of. If we threw it into the sewer, it was smelled wherever there was a trap, and was objected to by Dr. Sayers, who was then one of the health authorities of New York, and we had to throw it into the dock. That was the principal objection to that form of getting rid of the gases. Then we had a pipe lead from the tank under the fire, and the gases, after passing through a long coil where they were superheated, were allowed to escape in jets, through small pin-holes into the fire; but that plan was not entirely successful. We then carried that method a little further; superheated the volatile products of the tank, combined them with heated air, and allowed the mixture to float over a bed of burning coals, and practically we found that this did disorganize, consume, and destroy all the volatile products from the tank. One of the principal reasons we could not burn them in the more simple manner was, that the gases arising from treating animal matter with heat are always mixed with more or less water, even though no water is put into the tank, there being a certain amount of water in the materials generally used, varying from fifteen to twenty per cent, and it is so mixed with the gases that they will not burn by simply passing them over a fire-bed.

Another improvement in this apparatus is that we are able to draw off the product, the grease, tallow, or lard, during the process without the escape of the gases or vapors into the air. If the grease product is confined in the tank until the whole operation is completed, and then extracted, some parts of it will be overcooked, and that is an objection. The old method

used to be to open the tank when the operation was almost over, or was say two thirds concluded, and ladle out the grease. In the old Wilson tank they drew it out by a series of cocks on the side. Sometimes they would draw grease, sometimes water, and sometimes gas. [Plan exhibited.]

Mr. Warren. That contains all your patents?

A. That combines all the latest improvements in the patents, I believe.

Mr. Dean. The fat comes out of itself while the process of rendering is going on?

A. The fat is thrown out by pressure within the tank. The end of the pipe through which the fat runs out is below the fat within the tank. The products from rendering in this way, or in any other, would be three, to the final ending of the process. There would be, first, the steam and gases, the volatile products, then the grease, then the liquid portions, which would consist of water, gelatine, and other products mixed together in a liquid form, and, if that is all driven off, the scrap, which is more or less dry, according to whether the process is longer or shorter.

Q. So that this business can be done so as to be inoffensive?

A. It is so done, sir.

Q. Where is your place of business in New York?

A. 51 Murray Street.

Q. Where is your rendering establishment?

A. At the foot of 38th Street, New York.

Q. How many horses do you render a day?

A. We have about six thousand a year now.

Mr. Derby. We have been all through this establishment in New York. In one of our reports this was explained; and the operations of the New York Rendering Company described.

Mr. Dean. How as to the burning of whatever effluvia there may be in the building?

A. It was thought by my partner and myself in consultation that there might be offensive trades other than this, and perhaps some branches of this connected with slaughtering, where gaseous products would escape, and could not be controlled in this way; therefore we devised a project for preventing the escape of these products into the air, and our crude idea

has been developed in a patent, which is shown there. It has not been carried out in practice, and it is somewhat theoretical yet. It is to control the admission of air into the building, and the escape of all volatile matter from the building into the atmosphere. Nothing is allowed to escape from that building except through certain passages which are to end in a superheated and burning apparatus, which is here shown.

Q. Are you under contract with Upton, Shaw, & Co.?

A. We have a contract by which we are to put up a new establishment for him and finish it as soon as possible.

Q. Whether, when Mr. Upton learned of this process of yours, he then told you that he should have bought it earlier if he had known of it?

A. At the first interview he said, if he had known of it a year before, he should have purchased it from me.

Mr. Warren. That was in 1866; wasn't it?

A. I don't remember the dates at all, sir. This patent covered all the essential features of the New York patent, which wasn't taken until a year after I got this.

Dr. Derby. At what date does your contract require you to complete this building?

A. I am to put it up as rapidly as circumstances will permit; there is no date specified: I have constructed most of the machinery.

Dr. Bowditch. Your intention is to go on and put it right up?

A. As rapidly as circumstances will permit.

Q. What is the capacity of your establishment?

A. We have a capacity for about eighty tons a day.

Q. What is your capital invested in New York?

A. The nominal capital is $150,000.

Q. What are your expenses?

A. I could not tell you, sir.

Q. About?

A. The operation is profitable.

Q. These buildings are calculated for about 180 tons per week?

A. There are to be four tanks; yes, sir, about 180 tons can be run through in six days.

Mr. Dean. This business has to be done near a large city?

A. In warm weather especially; the material will keep but a few hours, and, unless it is rapidly treated, it will spoil.

Dr. Derby. You spoke about your nominal capital: is that above or below your actual capital?

A. I don't know as there is any thing private about it: we had but $50,000 in money in the establishment when we commenced, and never have paid any more since. We have added machinery since then; that has been paid for by the profits of the business.

Mr. Warren. The original cost of the number of tanks you are going to put up at Brighton would be how much?

A. Really I have not figured it up, sir: I should think the amount would be at least $8,000.

Q. You don't claim any patent, I suppose, on superheating or on the decomposition of the watery vapors, but only the process by which it is done?

Q. Yes, sir; I claim the original process of superheating the gases.

Q. Do you claim that is patentable, — heat?

A. I claim that it is patented, and passed upon by good authority.

Q. At your rendering docks in New York there is, after the material comes from your tanks, a great deal of offensive smell.

A. From what, sir?

Q. From the material that is taken from your tanks after going through the process of rendering.

A. I shall have to explain that.

Q. I only ask you whether there is not, or has not been, as a matter of fact?

A. Yes, sir; we have had boat-loads of scrap there decomposing a week at a time.

Q. Is it not offensive as it comes from the tank?

A. It has been, sir, at times; the reason was the product had not been cooked long enough in the tank to drive off the volatile matter. Every particle may be driven off in that apparatus if you continue the process long enough; but we have been so driven there, not being allowed to have a fire after six o'clock, that sometimes it has been taken out partially cooked.

Q. Unless the apparatus is properly conducted, there will be just as much trouble as from the other methods?

A. No, there will not: that I cannot admit. But if they don't use the machinery according to directions, I can't guarantee inoffensiveness.

Q. Whether the working of this burning apparatus don't depend upon the degree of heat in the fire and in this coil?

A. Yes, sir, most certainly if there was no fire there, the gases would not be destroyed.

Q. Suppose the fire was neglected or kept low?

A. I have provided against that, inasmuch as the fire is in a cast-iron retort an inch and a half thick, and, once heated up, it remains so a long while, and the orders are to heat that before commencing to fill the tank. It would remain heated an hour after the fire had gone out: an important part of the process occurs there, and, therefore, it is not probable the fire would be allowed to go out unless you were not using the apparatus. The retort would not get cold for at least one hour; would not get below the temperature that is necessary to decompose the gases.

Mr. Dean. The gases themselves burn?

A. They burn in the form in which they issue into the retort when the flame is applied to them.

Mr. Bennett. In putting up this establishment, do you use any part of the old buildings?

A. I have nothing to do with the buildings at all.

Q. Your buildings are entirely separated.

A. I have nothing to do with the buildings: I am simply to put the machinery there on the foundations he provides for me.

Q. I understood you to say you had a contract to put up the buildings?

A. To build the apparatus merely.

ARGUMENT OF MR. DEAN.

Mr. Chairman and Gentlemen, — I suppose that so far as this case is concerned, with the evidence and the admission here, there is no question but this process will make this place inoffensive. I don't understand that if it is a place where, the business itself being inoffensive, free from odor, that it is a place of such select character (being down on the marsh, and as it is claimed that $500 is all the land is worth), that it is an unsuitable place for the carrying on of this business, except in a way to be extremely offensive, as it has been in time past. But it is not denied that this business may be carried on anywhere in such a way as to be inoffensive. Now, then, your order prohibits the carrying on of the business there; and, if we disobey your order, there is a penalty imposed by the statute of $200 per month I believe, — a large penalty is imposed. I don't suppose the order speaks of the business as a rendering business. It is to use the language of the order, a business of bone-boiling, meat-boiling, and manufacture of phosphates. But I suppose, that, if we erected a new building close by the old, that the order would cover it. We could not dodge by so narrow a squeak as that, and you would not say under the circumstances, that we should be put to the risk of being obliged to discontinue the new process by trying such an experiment as that. In other words, this question is something which the Board is called to pass upon fairly. Now, then, we will suppose that this business can be done in an inoffensive way, if at all, by the first of February. It is claimed here that you have no authority, except to order persons to desist and cease from carrying on such trades and occupying such buildings or premises. I don't know whether your order says simply buildings or premises: if it speaks of premises, it would clearly cover the whole place. [Reads extract from statute.]

I can only say that my opinion is very clear that the order, if it speaks of premises, certainly would clearly cover any new building, and that it would be utterly impossible for us, and the court would not be worth much that would permit us, or any

party, by shifting his buildings and putting up a temporary concern in different portions of his lot, to dodge the order of this tribunal; and, so far as an application for an injunction is concerned, they would say, "You are ordered to desist from carrying on the business on these premises, we cannot permit you to escape by any such means." That is a matter of opinion I think: I should not have any question about it myself; and that must be passed upon, perhaps, elsewhere. Suppose an indictment is brought against us, we run the risk of suffering this very large penalty: all we ask is, that this Board should now either retain this order, — recall this order and retain a supervision over us; and if we don't cease to be a nuisance, if we cannot cease to be a nuisance, it is fair in the end that our property should be destroyed, and we driven away. You have got it in your power. But taking this case as it stands now, taking the improvements in the means of manufacturing, and the fact that the factory has been in existence for a dozen years; taking the fact that these young men are expending this amount of money for the purpose of fairly testing this thing, an important branch of manufacture, we ask that you should either recall and retain this order, or that you should modify it. The language of the statute is a little peculiar, and I should ask you to consider whether you could not require them to cease the carrying on of the business *as heretofore done*, or in some way modifying it, *so that we can at least be permitted to carry it on in an inoffensive way.*

Mr. Davis. Do I understand that the persons engaged in this enterprise are the persons who were engaged in the enterprise last summer?

Mr. Dean. I don't know when Mr. Shaw came into it.

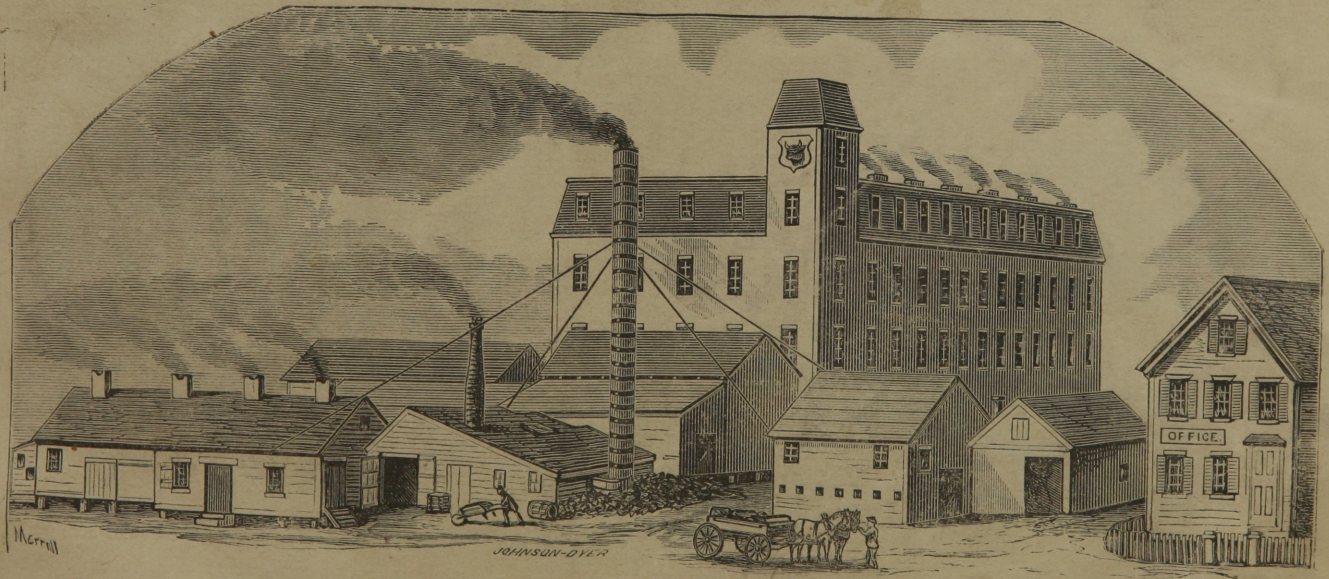
Mr. Shaw. Since the first of July.

Mr. Dean. We should not undertake to raise any question as to the parties. We don't come here to take your time with matters of that sort, but simply to deal with the great question.

Mr. Warren. That being so I think it would be well to change the order so as to include Mr. Shaw, as he was a party in the business at the time.

I think I do justice to my friends on the other side when I say that a summary of their argument is this: that the business

must be done somewhere; that these parties are prepared to do it; have expended large sums of money for the purpose, and should be allowed to go on, having secured the proper apparatus to do it with. That is stating all in brief that they can possibly claim. The law contemplates that this business should be done somewhere; the rendering process must be done in the interest of the community somewhere and somehow. But the law also contemplates, that, wherever it is done, and by whomsoever done, it will be done by the best way, by means of the best apparatus, so as not to become a nuisance to anybody; and, for the purpose of carrying out the policy of the law, certain statutes have been framed, the opinion of the Legislature has been expressed upon the matter, how and where this business should be done. The Legislature has said, in substance, that it is expedient that all the business which tends to produce offal should be done in one place, under one supervision; and it is expedient, in the second place, that no establishment should be allowed to exist where this business is to be carried on, except by the approbation of certain parties named. They say, in the first place, that where no establishment exists at present, none shall exist, unless the license of the local Board is first obtained; and that where an establishment already exists, it shall cease to exist upon the order of the State Board of Health. The jurisdiction of new establishments of this kind is vested in the local Board of Health, except in towns of not more than four thousand inhabitants; and the right to stop one already existing is in you. That being so, Francis Standish and others petitioned to have the establishment of Upton, Shaw, & Co., in Brighton, stopped. It was proved by witnesses that it was a nuisance in violation of the statute, and you issued an order to stop it. That is the end of it.



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