containing an abundant growth of filamentous fungi. This solution contained about three and a half per cent of ordinary pure copper sulphate; and the fact that copper salts are usually considered inimical to living organisms makes this exhibit interesting.

The same gentleman also exhibited a remarkable leather-like deposit found in a dust flue of a sugar refinery. It was made up of layers of filamentous tissue, and was probably formed by the growth of fungi, which exude a kind of glue-like material that cements the various layers together. This material was quite tough, like thin leather, and of a nut-brown color. It often occurs covering a surface several feet in area, and has the appearance of a coat of paint.

Some black scale from the interior of the retorts used in making bone-black was also exhibited by Dr. Behr. This material appears to eat into, and, finally, through the retorts, making it necessary to replace them occasionally. It consists of some carbon, together with sulphide of iron, and appears to act by giving up its sulphur to the metallic iron of the retort, becoming reduced to a lower sulphide, which in turn acquires new sulphur from the sulphates in the bones burnt, and also from the albumen which they contain.

A filter-press of Wyelin & Hubner, to be used in laboratory experiments, was also exhibited by Dr. Behr. It consisted of a filter-press with Montejus' attachment; which latter is simply a large vessel to hold the liquid to be filtered. The liquid is forced from the bottom of this vessel by means of compressed air, from the pump attached, acting on its surface.

In answer to a question as to the kind of industries in which these presses were used, it was stated that they could be adapted to every conceivable want, and that they were now being used in the United States to filter beer.

Dr. Behr said that the advantage of this press with the Montejus' attachment was that the flow of liquid through the press was steady; while by using the simple pump press without Montejus' attachment the intermittent action of the pump often caused a turbidity in the filtrate.

A specimen of the new metal gallium made by the discoverer Lecoq de Boisbaudran was exhibited by Dr. C. T. Chandler. It was only a few millimeters square, but was interesting as the first specimen seen in this country. It is a hard white metal, melting at the heat of the hand.

Dr. Chandler also exhibited a specimen of naphthaline taken from the main leading from the retorts to the gasometer of the Municipal Gaslight Company. This company makes gas by passing steam over red-hot anthracite coal, and the resulting mixture of carbonic oxide and hydrogen is carbureted by passing it through petroleum naphtha, and then through red-hot retorts again. The naphthaline deposit exhibited shows the conversion of the hydrocarbons of the paraffin series into those of the aromatic series by heat.

Prof. A. R. Leeds, of the Stevens Institute, exhibited a beautiful piece of glass work by Prof. Richards, of the Massachusetts Institute of Technology. It consisted of a very ingenious regulator, to maintain a constant temperature in a hot-air oven for laboratories. It was made entirely of glass, and much admired for its fine finish. Dr. Leeds said that this apparatus worked very satisfactorily.

ARTHUR H. ELLIOTT,
Recording Secretary.

OYSTERS AT QUINNIPIAC.

The original purchasers of the territory of New Haven County, Conn., found a tribe of Indians on the ground called Quinnipiacs. In selling to the English they still retained their rights to fishing and hunting. The river Quinnipiac, which is the eastern boundary of the city of New Haven, had long since been a famous place for oysters. These bivalves were also abundant along the shores east and west of New Haven. The Indians had depended much upon them for food. The new settlers did the same also. The banks along the shore are lined, several feet deep, with shells left by many generations of oyster eaters.

The shore at Fair Haven, which is the eastern part of New Haven, was once a favorite resort for seals. To the excited imagination of the first white settlers these aquatic beasts seemed like "dragons," hence they named the locality "Dragon," a title it long held. The present name is explained in a letter written by Rev. John Davenport, first minister at New Haven, to Lady Mary Vere, in England, in 1639. "After ye ship came in, guided by God's own hand, ye sight of ye harbor did so please ye captain of ye ship and all ye passengers, that he called it the Fayre Haven."

For nearly two hundred years the dependence of the people seeking this shore of Long Island Sound with its bays and estuaries for oysters, was upon the natural supplies. These seemed inexhaustible, as the habits of use then were. The Indians who came from the interior at certain seasons and remained for weeks, living mainly upon shell and other fish, carried none away with them. The whites only visited the shores for an occasional "salting." No restraints were imposed by the towns until about one hundred years ago. Then, and for many years, the restraint was only upon certain very accessible localities and for certain months.

As most of the oysters gathered were taken from ground left bare at low water, or in very shallow water, no special ingenuity or skill was called out in obtaining them. It being found that these shallow water beds were unreliable, deeper water was sought after a while. Cold weather often killed the oysters left bare by winter tides. Storms covered them with sand. Moreover, increasing numbers of people seeking oysters soon cleaned the beds that were so easy of access. Then invention and mechanical skill were active in contriving rakes, boats, etc., to enable the oystermen to secure a supply. It would greatly interest the archæologis to visit one of these shores and note the specimens of contrivance and art to facilitate the taking of bivalves.

One of the results of an increasing love of oysters was the growth of a class who sought a livelihood by selling as well as catching these shell-fish. Hence a business began to be developed. But there were no private grounds. The various natural beds were open to all persons in the State who wished to take oysters therefrom. The only restriction put upon the people was the reserving of several months as "close" months each year, during which no oysters could be caught. These were the summer months, when the bivalves were known to be giving off their spawn.

The "law was off," as the expression was, about November 1st. In anticipation of that time great preparations were made in the towns along the shore, and even for twenty miles back from the seaside. Boats and rakes, and baskets and bags were put in order. The day before large numbers of wagons came toward the shore from the back country, bringing hundreds of men with their utensils. Among these were not unfrequently seen boats borne on the rigging of a hay cart, ready to be launched on the expected morning. It was a time of great excitement. So eager were men to be first on the ground that many could not wait till morning dawned. As soon as the clock tolled the midnight hour a great number of men rushed to the shore and into the boats and began operations. In a few hours the crowd was such, on some beds, that the boats were pressed close together. They were all compelled to move along as one, for none could resist the pressure of the multitude. The more thickly covered beds were quickly cleaned of their bivalves. The boats were full, the wagons were full, and many had secured what they called their "winter's stock" before the day was done. Those living on the shore usually secured the cream of the year's crop. They knew just where to go, they were better practiced in handling boats, rakes, etc.; they formed combinations to help one another.

That first day was the great day. It presented an exciting scene. Often crowds of spectators came to look on, as at a fair or Fourth of July parade. Sometimes in the pushing, crowding, and eagerness of getting there, would result wrangles, and even fights; but generally the men kept good-natured and made the best of all the discomforts and hardships of the day's crabble. The oysters were very poor then compared with what are now obtained. Such indiscriminating raking caught them before they were half grown Nor were there many to be caught after that first day. In a week or two later a bushel of oysters could not be bought for less than four dollars.

It was apparent to thoughtful minds that a new policy must be pursued if the people were to continue to have oysters. There were fitful gleams of hope as new beds were occasionally discovered. But the same process of speedy exhaustion followed. Some tried to preserve what they had obtained until they grew larger by laying them down again. But all oysters found in the water were treated as common property. Whoever found them felt free to help himself. Two young men having gathered a few hundred bushels, spread them on the flats near where they lived at West Haven. They tended them carefully, hoping to realize quite a sum as a reward. Just as they were bargaining to sell them a plot was carried out thus: Several parties came from ten miles in the country, by night, with rakes, baskets, and wagons, and carcried the oysters all away. When the owners sought their property in the morning it was far on the road to the cellars of certain persons in Woodbridge and North Orange.

For thirty years past efforts have been persistently made to enable men to own ground under water, that they might preserve and grow oysters. Considerable progress has been made through both legislative and town acts. But it has been a slow and difficult process. People have been very reluctant to grant to individuals what they felt should be reserved for all. The towns of New Haven County and the State of Connecticut are at present most forward in measures for encouraging oyster farms under their waters.

The Quinnipiac River, New Haven Harbor, and the waters adjacent have for some years been all assigned to private parties.

The first use made of such grounds was to lay down oysters brought from other waters, especially Southern bays. A very large trade grew up in Virginia and Maryland oysters, brought to Fair Haven to be opened and sold over the New England and other Northern States. For some late years as many as one million bushels have been brought annually to this place from the South. Such oysters are greatly improved by even a few weeks' feeding in the waters of our bays and river mouths.

Formerly these oysters were sent around to private houses to be opened. Different members of the family, men, women, and children engaged in this work. A large part of the rapidly growing population found remunerative employment in this way. In later years shops have been built along the shores, in which this work is done. Still later, many oysters are opened on the Southern shore before being brought North. These opened bivalves were first put up in small wooden kegs, holding from one to two gallons each. They were shipped to different parts by railroad or stage or private teams. Before the building of the New York and New Haven Railroad the dealers sent large teams, drawn by two and four horses, loaded with these little barrels of oysters, as far west and north as Albany, N. Y. Of course this could be done only in the colder months. While still using the same means of packing, other forms have been introduced. The most common receptacle now is a strongly made tub, with a lid which securely fastens. Each, containing a number of gallons, is furnished with handles, with which it can be easily lifted. In warm weather ice is put in with the oysters. Tin cans are used to a considerable extent. These are filled and soldered, then packed in wooden boxes with ice between. Thus, as with the tubs, oysters are carried long distances in good condition even in summer. Several ingenious contrivances have been patented that are in use to pack, fasten, carry, and preserve this widely popular article of food. An extensive tub, barrel, and pail making business is carried on in Fair Haven itself.

Perhaps the most important changes and improvements are now being made. Necessity has compelled the oyster-man to learn many things. As in nearly everything besides, it is found that natural sources of supply are not adequate to the increasing demand. Hence the great attention is directed to the duty of artificial production. The oyster is wonderfully prolific. Each mother sends out millions of her young every season. How to secure this increase from destruction, that it may grow to be useful, is now the study. This involves the necessity of having suitable ground on which the young will "set," can be protected from enemies in the water and out of it, and still be within reach of the cultivator. The old methods have mostly "had their day." The conclusion reached is: that cultivation must be the great resource; it needs deep water for assured success, and it must have the aid of steam power. All these results are being successfully worked out in the Fair Haven oyster industry. There are serious natural obstacles, and some artificial. Among the latter I would name injudicious, because hasty, legislation. This hinders instead of fostering enterprise. But as our citizens become more satisfied of the value of this means of food supply that obstacle will disappear.

Among the natural I would name, first, *the expense.* A deep water planter must have a large amount of land; he must employ steam power; he must have a number of helpers; he must have a large market; he will be especially exposed to the ravages of "five fingers," "drills," and other vermin which are liable to assail oyster beds; he must try some expensive experiments; he will be in danger of spending much upon ground that after all may prove unsuitable.

Formerly, when there were natural sources of supply, any man with a boat and rake could start a business. Many men beginning thus have attained a comfortable competence. Now, there is not this opportunity. One must first secure a piece of ground. He must then cover it with shells, and wait for a "set." It will then be three or four years before his oysters will have grown large enough for market. Shells that once could be had for the carting must now be bought.

Oyster spawn when thrown off by the mother soon seeks some clean shell or gravel on which to fasten or "set." This is why new ground needs to be covered with clean shells or stones. Oyster spawn will not "set" on mud or muddy, dirty, or greasy matter, even if on shells. Hence shells are much in demand for preparing new ground. Shell lime has become more costly, because shells have risen in price. Once they cost the lime makers nothing.

All shell-fish are improved by an infusion of fresh water. This explains the superiority of the shell-fish of the northern coast of Long Island Sound to those on the southern coast of the same water. Many fresh water streams flow in from the north; none flow in from the south.

Oysters brought from the South, or from the deep waters of the Sound are usually quite salt, and should spend a few days in fresher water to be in good condition. Cultivators now have "floats," which are rafts of timber, in which they place their oyster near or within the mouth of some river for a short time before using. One reason of the fine flavor of Fair Haven oysters is the flow of fresh water from the Quinnipiac, Mill, and West rivers.

Changing oysters from their place of "setting," in a year or two, benefits them. They have more room and take a better shape.

Cultivation has greatly increased the supply of good oysters. In New Haven, ten years ago, it was difficult to secure ten bushels at short notice. Now five hundred bushels can be obtained in a few hours.

Two causes are giving cultivation here a new inspiration: the recent laws in Virginia and Maryland, which are likely to greatly diminish the supplies from the South, and the great call for seed oysters to be taken to Europe.

Science is giving much assistance toward understanding the nature, habits, needs, and possibilities of the oyster as a means of food supply. It has also greatly facilitated the invention and construction of machinery for the prosecution of the oyster trade. Prof. Verrill, of the Peabody Institute in New Haven, has done good service to the cultivators in this vicinity as well as elsewhere. All feel that the business is only in its infancy as yet.

The Human Retina.

In a recent note to the Vienna Academy, Herr Salzer offers an estimate (based on numeration) of the probable number of optic nerve fibers and of retinal cones in a human eye. The number of the former he supposes to be about 438,000, that of the latter 3,360,000. This gives seven or eight cones for each nerve fiber, supposing all fibers of the optic nerves to be connected with cones, and equally distributed among them.