THE VICTORIA COLONIST

pneumatic cylinder. When a block of ice is lelivered to the car it immediately drops by its own weight to within a few inches of the platform level below, when it is cushioned by block to either car or wagon, then the car re-

held in place by counter-balance within a quires but little attention after it is put into operation.

About 70,000 cubic feet of space is refrigerated to a temperature ranging from 10 to 40 degrees, the ordinary direct expansion system the piston counter-balance in the pneumatic cylinder and is dropped easily and dumps the in each room being in direct proportion to the temperature desired in the room, with the returns to its original position, automatically, frigerant temperature, or temperature within



Barrelled Fish in Cold Storage-Temperature 32 deg.

By the inlet and outlet counting a perfect and complete check is kept upon the amount of ice in storage, the amount harvested, and the amount delivered each day, a feature which is occur. readily appreciated by all ice dealers. A very simple arrangement is also provided for delivering ice to the tops of refrigerated cars, when standing alongside the building to be iced for the shipping of refrigerated or frozen goods, this being operated by gravity also, thus requiring no power whatever to handle the ice, no matter what disposition is desired.

Water Distilling System Water to be frozen is first thoroughly distilled and purified in the most careful manner before it is introduced into the freezing tank. It is first passed through the boilers as steam under high pressure, thence through the engine cylinder, where power is taken from it to drive the machinery, thence passing to a surface condenser, where it is changed from steam into water again, only to be taken through another evaporating process under lighter pressure, then chilled and filtered thoroughly before being accepted as ready for freezing. The entire distilling system is operated by gravity, thus eliminating the usual and very uneconomical system of pumps for the handling of distilled water, also the contamination of the water after distillation. The sys-

and registers the block of ice as it passed out. the pipe, remaining constant. The larger part of all piping is located on the ceiling of the rooms, with a small part on the side wall, at a point where the greatest heat ingress would

The freezing department occupies the major portion of the lower, or car loading, floor. In addition to the regular piping, as described above in refrigerated rooms, shelves made of piping bended into coils to form shelves and extending around the entire room is provided. The product to be frozen is placed upon these shelves and the refrigerant passed through first the pipes that form the shelf and then through the ceiling coils. The pipes forming the coils in this department are ontinuous, welded as before described in the ice-making department, and are made to specially fit the individual room in which they are used, and are erected in the most substantial manner. The temperatures maintained in these rooms reach as low as fifteen degrees below zero without any regard for outside temperature or atmospheric conditions.

Insulation The insulation used throughout all refrig-

erated spaces is of the most modern and improved kind. Both in the kind of material used and the assembly of it in the walls, particular care has been exercised to get the tem is simple and positive in its action, and re- greatest possible efficiency with the least

amount of space and cost. The work done in this department was under contract with the Union Fibre Co., of Minona, Minnesota, U. S. A., their "water-proof lith" being used.

The amount and method of application was in accordance with the temperature desired to be maintained in the several rooms insulated, the thickness ranging from three inches for 40 degree temperatures to six inches for 15 degrees or more below zero. All walls were thoroughly water-proofed outside and in, before the insulating material was applied. After insulating material was in place a finishing course of Portland cement plaster was then applied, thus making a hard, smooth finish to the walls as well as damp-proofing them.

A very great convenience, as well as economy, has been worked out in this plant in a system of control of the temperatures of the various individual rooms and of the icemaking plant. The ammonia supply which is used for this purpose is brought to a convenient point within the machine room, where the control of liquid supply to all rooms is

Switch Boards in Engine Room.

taken from a common source. This is located near the pressure guages so that the attendant in handling these control valves can instantly determine the amount necessary to open or close them to be the desired temper-ature and pressure in necking coils.

Removing frost from the coils is accom-plished in a very simple and ingenious man-ner, as follows: The discharge gases from the machine are reversed and lead back to the freezing coil at the entrance end, through a small connection provided on the discharge side of the system near the compressor. Hot gas is allowed to flow into the freezing coil for a few mniutes, which loosens up the frost from the soil, and it immediately drops off and is taken out of the room either through drains provided or by an attendant. This can

Prison Commissioners have pointed out, that lads of good character leave elementary schools with no industrial t

the machine upon any coil in the system except the one particularly desired.

The Machine

This is of the latest improved pattern, built by the York Manufacturing Co., of York, Pennsylvania, and supplied to this contract by the United Iron Works Co. of Seattle, Washington. It is a simple cylinder Corliss engine, direct connected to compressor crank shaft, horizontal engine and vertical compressors, 111/2 x 15 inches.

The condensing plant in connection with the whole power and refrigerating system is a very extraordinary one, unusually simple in its design. It has a great many special features embodied in it to add economy, reliability and convenience to the operation of the plant. The water for this purpose is pumped from the sea some 1,000 feet distant from the plant, through an eight-inch wood pipe specially laid by the company for this service. The pump is a single stage turbine type direct connected to a motor mounted on the same base. The starting and control of this motor is located in the machine room at a convenient point for the operating attendant. The quantity of water handled against a static head of eighty-four feet is 500 gallons per minute. The condensing systems, both ammonia and steam, are entirely of the inclosed type, and so located and arranged that when the flow of water is once started the syphoning effect of the return water to the sewer very greatly assists the pump by decreasing the head pumped against by the amount of the atmospheric pressure. In addition to this an- United Iron Works Co., of Seattle, Wash., other assistance of even greater amount is Northwestern agent for The York Manufac-

be done without disturbing the operations of all or part of the steam plant may be operated, condensing, under a vacuum of twentysix inches, thus reducing the amount of steam required by the engine cylinders to produce the necessary power for driving machinery.

Electrical Installation

The electrical installation consists of one Westinghouse generator, 25 K. W., directconnected to a Robb Armstrong high speed engine, and is used to light the building throughout, operate the elevators, the seawater pump mentioned above, and the brine agitator.

Boilers

The boiler plant consists of two units set on one battery, either unit being large enough to be capable of operating the entire plant at its full capacity at the present time. The boiler furnaces are arranged for burning either coal or wood, either of which may be of very low grade. The fuel being used at present is slab wood direct from the mill, which has a heating value of approximately 5000 B. T. U. per cord. The economical results obtained from ordinary running conditions show that eight and three-tenths tons of refrigeration (one ton refrigeration equals the melting of one ton of ice) is produced on one cord of this low grade wood, which is an economy not obtained elsewhere in any published report.

This plant was specially designed throughout to particularly serve the requirements of the B. Wilson Co., Ltd., by the J. C. Corbin Co., Engineers, of Seattle, Wash., specialists in refrigerating engineering. The contractors for the whole mechanical equipment were The



Icing Refrigerator Car.

given to the engines driving the machinery by the use of a barometric condenser, which is lo-McDowell being the erecting engineer in cated in the exhaust main and so arranged that charge.

Results of Borstal System

storage room is accomplish d 111 e, novel and practical way. The located immediately above the wagons and cars enter, make it andle the ice by gravity, which is in the following manner: A st large enough to hold one block ssed through an opening in the ice storage room at a point most ver the loading platform below. en not in use forms a door for opening through which the ice leaving the storage room, and is

rk in most ice-making tanks, in

novel and ingenious conveni-

en worked out for the handling

being harvested. The harvest-

n the regular way, a traveling

oisting method with shower

for releasing ice from the can

s frozen. The freezing tank is

second, or Herald street, floor

rectly over the wagon alley,

ing platform is provided to serve

ries and carload shipments. An oom is also located on the same

ice-making tank, but at a little

p passes by gravity to the stor-

ough an automatic door which

ounts it as it passes in. In this

the stock which is always on

mpt shipment and deliveries. It I to a temperature very much bezing point and, consequently, ice indefinitely without the slightest

The method of removing the

The block of ice leaving the

arvesting and Handling

lant

F

Very striking and encouraging is the conregarded only a few years ago and that in which it is now looked at by those most competent to speak. It is but yesterday since it was taken for granted that so many crimes more or less must be annually committed, and so many offenders must come up for punishment. A faint hope might be casually expressed that by education or some other vaguely indicated agency the number might one day be diminished. The real belief of most of those who uttered some words apparently intended to convey encouragement was that nothing could be done to suppress or reduce effectively an evil which lay as much beyond human control as the rainfall or the temperature. It is interesting to contrast with that spirit of resignation and depression the hopefulness of those who are now responsible for the work-ing of our penal system. "Up to a certain age every criminal who is not mentally defective is potentially a good citizen." That is the creed of the Preston Commissioners today; a creed which most of their predecessors would have scouted as much too optimistic, but one which, on the whole, seems justified by results. We are witnessing the application of this principle in ways never before tried, and with a degree of success which promises to reduce greatly ten or twenty years hence our prison population. Those who have hitherto been sceptical as to effective treatment of the criminal classes would do well to consult the report of 1909 of the Borstal Association. They can scarcely fail to admit that new and poweragencies for good are at work.

The experiment, which has been more successful than its authors anticipated, began in a small way at Bedford Prison, and has been gradually extended. At first it was applied to selected offenders in the metropolitan prison between the ages of sixteen and twenty-one who had been committed for six months. It was soon discovered that little good could be done with criminals under successive short sentences. This has been rectified; and the system can in future be worked with much more effect by reason of the Act of last year, which came into operation on the first of this month. It empowers Courts in the case of convictions for offences involving penal servi- for much. It is unfortunately the fact, as the spot already."

tude to pass a sentence of detention under pentrast between the manner in which crime was al discipline in a Borstal institution for a term of not less than one year or more than three if the person is between sixteen and twentyone, or if "by reason of his criminal habits or 'tendencies, or association with persons of bad character, it is expedient that he should be subject to detention for such term and under such instruction and discipline as appears most conducive to his reformation and the repression of crime." It is only right to say that the action of Parfiament would have been futile but for the formation of the Central Borstal Association and local committees, which have labored with admirable zeal to carry out a rational system of treatment. Speaking lately of the Borstal methods,

the Bishop of Wakefield said truly that the problem is how to combine in the treatment of young criminals "tenderness and strength," to "draw the line between sternness and sym-" In the past the tendency was to be pathy. punctiliously severe; not, indeed, to be downright cruel, but to make the prisoner, whether young or old, have a bad time of it. When his term of punishment was over he was often not very fit to do hard work, even if he was willing to turn to honest ways of livelihood. When he left the prison gates he made a sudden plunge, generally with disastrous results, from a life of immunity from responsibility into one of complete freedom. Today the tendency, the danger, is to forget that the prison is not a place of recreation; to dwell too much on the hardships of its inmates; to plead a little too much for their comforts; to ask and expect too much; to be unduly critical of prison authorities. The advocates of the Borstal system claim to have avoided these mistakes. "It is not," they say, "a namby-pamby system; only those who accept its strong incentive and reformative methods find it tol erable; those who do not, entreat for removal to other prisons where less development and improvement of their latent capacities are demanded." It seeks to inure to hard work the lads subject to its discipline; it would make them strong and fit to handle tools intelligently: it would turn them into healthy and well set-up-men. The fact that they may quit Borstal with some proficiency in a trade counts

casual employment and "idle and loafing habits-the breeding ground of criminal propensity." Some day or other the money now squandered in elementary schools upon showy, decorative superfluities will be applied to giving instruction in matters essential to the wellbeing of a large part of the youth of this coun-Until sound sense gets the upper hand try. in the education of the poor, those who work the Borstal system must do their best to supply instruction which ought to be given elsewhere. They are not laboring in vain; they can already point to excellent results. "Certainly sixty, and probably over seventy, per cent. of the boys discharged after Borstal treatment are doing well;" results of which the association may well be proud, considering the antecedents of most of the lads and the fact that they had become "a burden to their friends and a menace to the community." Hitherto one part of our social system has manufactured criminals, and another part of it has punished them. This vicious circle may not last for ever.-London Times.

SHE ENDORSED IT

"I want to get this cheque cashed," said the fair young matron, appearing at the window of the paying teller.

"Yes, madame. You must endorse it, though," explained the teller.

Why, my husband sent it to me. He is away on business," she said.

Yes, madame. Just endorse it-sign it on the back so we will know and your husband will know we paid it to you."

She went to the desk against the wall, and in a few moments presented the cheque triumphantly, having written on its back, 'Your loving wife, Edith."

A DIFFICULT CASE

A doctor who was spending a rare and somewhat dull night at his own fireside received the following message from three fellow doctors :---

"Please step over to the club and join us at a rubber of bridge."

"Jane, dear," he said to his wife, "I am called away again. It appear to be a difficult case-there are three other doctors on the

Battleship on Paper

It is commonly said that "a battleship must first be built on paper." There appears to be more truth than exaggeration in the expression. According to a well-known naval authority, when the government decided to build a warship of the battleship class, there must be drawn up over twelve hundred plans and specifications, to be approved by the government, before the actual construction of the vessel can begin. The cost of plans is no mean item in the general estimate; for instance, in one recent case they cost the builders some sixteen thousand pounds.

In the matter of the steel plates for the hull-taking a single item for the purpose of illustration-it is stated that as many as five hundred wholly distinct and separate plans are imperative. The eight hundred or nine hundred plans necessary to aid in the construction of the hull as a whole, range from a small sheet of paper about twelve inches square to an immense sheet eleven feet in length by some two feet and a fraction in width.

Furthermore, each plan must be duplicated in at least a dozen prints. Thus over eighteen thousand six hundred square feet of paper will be covered with drawings before the yard begins the construction of the hull. This calculation does not, of course, take into account the ten thousand five hundred square feet of paper that will be covered by the preparation of the schedules of materials by which the yard will order the numerous supplies necessary for the work of construction.

Then, too, the engine and electrical departments are in the meantime preparing 'their plans on a similar scale of detailed liberality.

A Definite Idea from the Start

But these hundreds of plans are not, as at first might be supposed, made one after another until a result is reached that meets with the government's approval and its word to proceed with the construction. On the contrary, the government has a most definite idea of what is going to be done in every detail long before the draftsman of the contracting shipbuilder begins his work.

The shipbuilder's work is, as a matter of fact, based upon still another set of prints, bearing all sorts of cabalistic marks, that come from the government. The first plans for

in the offices of the government before any of the big shipbuilding plants are invited to submit proposals for their construction. They are merely a statement of the type of vessel wanted, and are accompanied by a book of specifications, which may consist of some three hundred pages.

Nothing could be more exact than the specifications. As an instance, take the small item of a canvas gun-cover. When the government draws up its specifications, it is definitely stated how many stitches to an inch are to be taken in sewing the canvas; and there must be no "averaging" in this workthere must be so many stitches to the inch. no matter at what point the inspector may, choose to count them.

Every plate of steel, of which no two are exactly similar, has its individual position in the scheme of the ship, every rivet-hole has its individual place in the steel plate, and every plate must, therefore, have been carefully planned on paper before it becomes part of the ship's construction.

Still another series of delicately complicated plans are those that provide for the installation of tubes, wires and other means of connecting every part of the ship with every other part.

Finally, when the huge vessel has actually been built and slides from the ways, ready to receive her ordnance and go into commission, the government files a duplicate of every plan, not of the original draft, but of yet anothen set, costaining all the changes developed in the course of construction-from the smallest hammock hook to the biggest engine. Then, whatever may happen to the vessel, the government is prepared immediately to order the material necessary to repair the injury.

American (to driver of Morris' team of horses at Highland Society Show)-"Do you call these great horses in this country? In America we use horses regularly sixteen feet

Driver-"Sixteen hands, you mean." 'American-"Hands! Yes! Did I say feet ?. By gum, I'll stick to it, then."