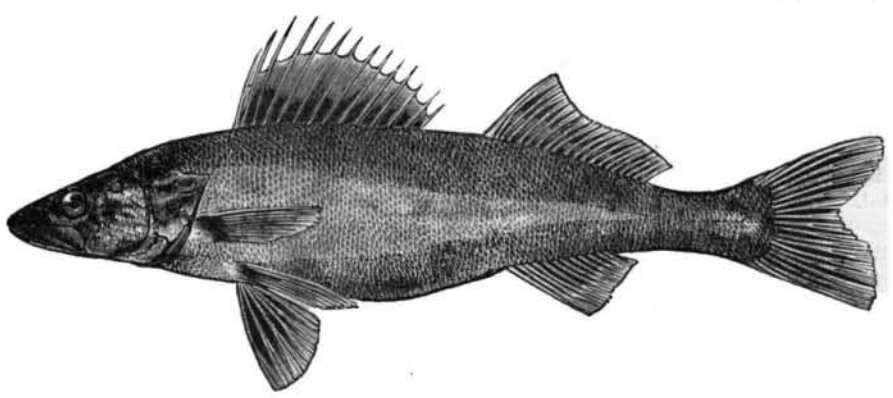
WHAT IS A PIKE?—WHAT IS A PICKEREL?

What is the difference between a pike and a pickerel? is a query that has bothered the majority of intelligent anglers who have not the inclination or the leisure to study the structural differentiation of these two fishes as given by the text books. We will try to help them without dealing too elaborately in technical description, and by giving an engraving of each of the representative fish indiscriminately called pike and pickerel. First, the wall-eyed pike, so called.

This fish is not a pike, but a perch. In the West it is commonly called the wall-eyed pike, the Ohio salmon, the glass eye. In the State of New York it is known by the former name, and also that of pike perch. In the Southwest as the jack or jack salmon. In Pennsylvania as the Susquehanna salmon; and its common name in Canada (we are open to correction) is the dory or yellow pike. It may be distinguished at a glance from the genus *Esox* or pike, by the position and shape of the fins, and by its compressed body, as compared with that of the pike. We do not care to give minute structural differences, as the engraving of the pike shown will enable any angler to identify either fish as soon as his eye rests upon it. The general color of the "wall-eye" is that of a dark olive, with fine brassy mottlings; and it may be known at once by a large black spot on the last rays of the spinous dorsal fin, which is otherwise nearly or quite unmarked. There is a variety of this fish (*S. salmoneum*) which is locally called the "blue pike" and "white salmon." It is bluer in coloration than the wall-eye, and the body is proportionately shorter and thicker, and has silvery instead of the brassy mottlings of the former fish. It seldom grows more than a foot in length, whereas the wall-eye has been caught ranging up to forty pounds.



THE WALL-EYED PIKE.—(*Stizostethium vitreum.*)

There is still another species of these pike perch—the sand pike (*Stizostethium canadense*). This fish also seldom attains a greater length than fifteen inches, and may be distinguished at sight from others of the same species by its beautiful markings, being of an olive gray, with pale orange on the sides, thickly mottled in black. The first or spinous dorsal fin (which, in a specimen presented to us by Charles Hallock, Esq., is marked by variegated translucent tints) has two or three rows of round black spots upon it, and there is also a large black blotch on the base of the pectoral fin. So much for the pike perches, or pirate perches.

Bear our engravings in your mind, and whenever you speak or write about these fish, call them perches, not pikes, or, better still, give us the scientific name *stizostethium*, a jaw-breaker to pronounce, but a pretty word to look at as the representative of a noble game fish.

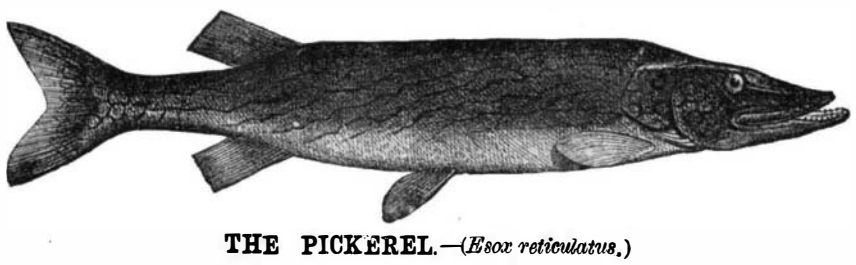
THE PIKE.—(*Esox lucius.*)

And now to try and solve the angler's conundrum—what is a pike? what is a pickerel? First, a letter from Professor Spencer F. Baird, in response to a query of "Old Izaak" which was prompted by a social chat and discussion when friend Morrell paid his last visit to our sanctum. Professor Baird wrote as follows:

DEAR SIR: In England the young of the pike (*Esox lucius*) is called "pickerel,"* there being only one species of the genus *Esox* in Western Europe. In this country, where we have several species of this genus, the use of names is somewhat different; but ordinarily the words "pike" and "pickerel" describe distinct species of fish. The pike of our great lakes, called pike almost everywhere that it is found in this country, is identical with that of Europe. The mascalonge (*Esox nobilior*) is another large species closely related. The name "pickerel" is commonly applied to the smaller species of the same genus, such as *Esox reticulatus* and *Esox salmoneus*. Our works on fishes and angling commonly limit the use of the names in the manner above stated. I have no doubt, however, that the majority of anglers, referring to these fish in a colloquial manner, would call any small representative of the genus a pickerel, and any large one a pike.

Yours, very respectfully,

SPENCER F. BAIRD, Commissioner of Fisheries.



THE PICKEREL.—(*Esox reticulatus.*)

We will give first an engraving of the pike proper—the *Esox lucius* of American waters and of those of Western Europe. It is also called the great northern pickerel, and we must charge to Wm. Henry Herbert (Frank Forester) this confusion of names. Forester knew but little of ichthyology, and less of angling. He was a charming bookmaker on outdoor sports, yet much of his work was done to order under the necessitous demands of irregular and vicious appetites; and, unfortunately, his books, for many years, were considered text authorities by the sportsmen of America; and in the case of the fish before us, his English nomenclature has been followed by Norris, Scott, and others; hence the established misnomer of pickerel for pike, and *vice versa*. Chas. Hallock was the first of modern angling authors to drop this misalliance of terms.

The second engraving shows the pike of American waters, and the cut below is that of the pickerel. Let us try and point out the prominent structural differences between these two fish, always bearing in mind that the coloration of fishes does not classify species, as it varies greatly in the same species in different waters.

First, as to general contour, which is almost identical in the two fishes. Next, as to scales, the books tell us that there are none on the lower half of the opercules or gill covers of the pike. Those of the pickerel are covered with scales. Each scale on the body of the pike has a shining V-shaped mark opening downward, which is absent on those of the pickerel.*

The other structural differences between the two fish, such as fin rays, number of scales on lateral line, etc., etc., would, if designated, rather confuse than make clear to the general reader the varietal line between the pike and the pickerel. Of the latter there are three other species, none of which grow to more than a pound in weight. They are called:

The humpbacked pickerel (*Esox cypho*).†

The banded pickerel—trout pickerel (*Esox americanus*).‡

The Western trout pickerel—little pickerel (*Esox salmoneus*).

The latter is the small pickerel referred to by our correspondent "V. O." as being tasteless and bony. To sum up: Most anglers have imbibed Webster's definition of a pickerel—"The diminutive of pike"—and look upon all fish so called as being poundlings or less; and the converse is also true: a pickerel of eight pounds is to them either a misnomer or the product of a fisherman's yarn. The facts are these: The pond pickerel (*Esox reticulatus*) grows to a weight of eight pounds, and it was these fish that friend Simpson sent us from Lake Hopatcong. Thad. Norris called them the pond pike, and acknowledged a growth for them up to five pounds. The same fish are found in Greenwood Lake, but their colors are not so clear and bright, nor are they so gamy as their congeners of Hopatcong.

Using the facts before us, it seems plain that it is the *Esox reticulatus*, with its possible weight of eight or nine pounds, that has led anglers to a confusion of identity of the pike and the pickerel. We trust that the marked differences as above noted between the *E. reticulatus* and the true pike will assist the intelligent rodster in the identification of these two fish. [The cuts we use are from the annual report of the Fish Commissioners of Pennsylvania, the ichthyological department of which was edited by Prof. E. D. Cope, the distinguished naturalist of Philadelphia.—EDITOR.]—*The American Angler.*

[* We have always been under the impression that the young pike, until it attained a weight of five pounds, was called in England a "jack."—EDITOR.]

* The common Eastern pickerel, or green pike, as it is occasionally called (the *Esox reticulatus*), is green in color, with a network of brown streaks on the sides, and is abundant in the ponds or lakes of the Atlantic States.

† The humpbacked pickerel (*Esox cypho*). This fish is a small species, and Professor Jordan says of it "that it may probably be known at once by the elevated back and broad wollen ante-dorsal region." It is found principally in the Western States.

‡ The banded pickerel, or trout pickerel (*Esox americanus*), is of a dark green color, having about twenty distinct blackish curved bars on its sides. It grows to hardly a foot in length, and is found in the Atlantic streams.

‖ The Western trout pickerel—little pickerel (*Esox salmoneus*)—is of an olive green color above and white below, with markings of network and curved streaks on the sides. There is a black streak in front of the eye and below it. This fish is found in quantities in the Western streams, particularly in the Ohio valley. It is also met with in some of the Atlantic streams, and has been caught in the Susquehanna River.

A New Explosive.

BY DR. CARL HIMLY AND HERR L. VON FRUTZSCHLER-FALKENSTEIN.

The new explosive is a mixture of saltpeter, chlorate of potash, and a solid hydrocarbon, and is suitable both for mining purposes and firearms, while, if ignited in the open air, the combustion takes place slowly and imperfectly, and therefore without danger. The incorporation of the ingredients is by preference effected as follows:

The saltpeter, chlorate of potash, and hydrocarbon (for which may be taken paraffin, asphaltum, pitch, caoutchouc, gutta-percha, etc.) are mixed together in pulverulent form by passing them through sieves or otherwise, and the mixture is then treated with a liquid volatile hydrocarbon, which acts as a solvent to the solid hydrocarbon. A plastic mass is thus produced, which is then formed into cakes or sheets by passing through rollers or otherwise, and is rendered hard by evaporating the liquid solvent used, the sheets or cakes so produced being then converted into grains or pieces of any desired size, in the same manner as ordinary gunpowder; or the cakes or sheets may be conveniently brought, while still in a plastic condition, under stamps having cutting edges arranged in polygonal form, so as to divide the mass into separate grains of corresponding polygonal shape, which are then rendered hard. By this mode of dissolving the hydrocarbon before or after admixture with the salts, the great advantage is obtained of providing the particles of the latter with a waterproof coating of varnish of the hydrocarbon, more particularly when caoutchouc or gutta-percha is used, thus protecting the compound from deterioration by moisture. The process is also simple and free from danger, as, if the pasty mass should catch fire, the volatile hydrocarbon will first burn away entirely, after which the powder will enter into slow combustion. In addition to the above mentioned advantages of freedom from danger in its manufacture and transport and from hygroscopic properties, as also the comparatively innocuous nature of the products of combustion, it may be mentioned that the compound leaves only a small solid residue, which is as innocuous as the gaseous products, and that the combustion in a confined space is complete, yielding very little smoke, which rapidly disappears. Furthermore, the new compound, which has about the same density as ordinary gunpowder and is very hard, possesses with equal volumes more than double the explosive force of the latter. The intensity of explosion can be regulated at will by varying the proportions of the ingredients and the size of the granules. These proportions should, generally speaking, be such that for each volume of the hydrocarbon, when converted into a gaseous state, there shall be present in the other ingredients three volumes of oxygen.

Pouring Oil on Troubled Waters.

At the instance of the Board of Trade, some experiments were made recently at Aberdeen Harbor entrance, with a view of testing the practicability of using oil as a means of reducing the danger to vessels entering in a gale. The occasion was most favorable. A stiff southeaster was blowing, the sea was running high, the waves dashed over the piers, and it was next to impossible for any vessel to cross the bar in safety. Captain Brice, representing the Board of Trade, and the leading harbor officials, were present. Some improvements had been made in the pumping apparatus since the last experiment, a larger hose being supplied, and seal oil being used instead of coarser oil. When the pumping commenced, the waves were dashing wildly against the piers. After twenty minutes, the London *Times* reports, the crests disappeared, the breakers assumed a rolling motion, and the entrance was rendered comparatively safe. Two hundred and eighty gallons of oil were used in the experiment. The result will be reported to the Board of Trade.

The Electric Railway in Ireland.

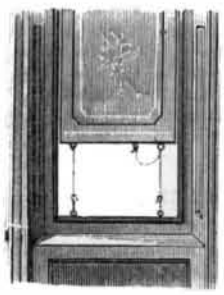
A private trial of the Giants' Causeway and Portrush Electric Railway took place on Nov. 21. The results were most encouraging. Several times a run of over a mile was made, and a speed of ten miles an hour was frequently attained. The motion was smooth and pleasant.

Improved Butter Worker.

The engraving shows a simple and efficient power butter worker intended to supersede the hand apparatus. A circular concave table is mounted on a vertical pivot set up on a support for an axis around which the table may revolve. A toothed bevel wheel is attached to the under side of the table for turning it by a driver shaft, to which the power is to be applied by a belt. On the upper side of the table is another toothed wheel for giving motion to the conical rollers, the rollers being mounted in adjustable outer journals that are capable of shifting up and down in slotted standards. The journals of the inner ends are capable of shifting up and down, and may be secured anywhere by a set screw. A cover incloses the pinions and wheel, and prevents the butter from working on to them. There are passages for allowing the buttermilk to escape through the table into a pan arranged on the bench under the table to receive it. One of the rollers is made plain on the surface for rolling the butter down smooth, and the roller is fluted for working it into ridges, so that it will be thoroughly worked under each roller. This invention has been patented by Mr. Elmer C. Rigby, of Dundee, Ill.

Novel Curtain Holder.

The invention shown in the annexed engraving is designed to confine the lower end of a window curtain, so that it will not flap when the window is open and the wind is blowing. The device consists of two pieces of chain, of suitable length, attached to the lower end of the curtain near opposite edges, and two hooks attached to the window sill by means of one or two links, and capable of engaging with the chains on the curtains. Two hooks are provided on the curtain stick for receiving the ends of the chains when not in use. The chains when looped up are rather ornamental than otherwise, and may take the place of tassels. The hook may be brought into engagement with any of the links of the chains, thus permitting of the adjustment of the curtain to any desired height. This invention has been patented by Mrs. Mary J. C. Throop, of 51 High Street, Portland, Me.



Cephalometer.

This is an improved instrument for taking measurements of the human head for phrenology, ethnology, anthropology, and sculpture. With it the actual measurements of all portions of the head with relation to the central point of the head corresponding with the head of the spinal column, (medulla oblongata) may be accurately taken. A graduated semicircular arc is fixed at its ends on axial pivots having hollow bulbous extensible sections, adapted to enter the openings of the cars, one of the pivots having a graduated scale, by which to register the traverse of the arc on the pivots. The bulbs have perforations to admit sounds to the ears. A scale traverses the upper arc radially, and is capable of sliding along it from end to end. An arched stay brace connects the pivots, and passes over the front of the face and carries a steady rest, which is placed on the nose. Another arched brace connecting the pivots passes under the chin. It will be seen that by the traverse of the upper arc forward and backward on the pivots, and the traverse of the radial scale along the upper arc, the relative positions of the different organs or other divisions of the head, and also the relative sizes or distances from axis, can be readily and accurately taken. Phrenologists ascribe different mental faculties to special organs or divisions of the brain, and judge of the power of a faculty by the development or size of its organ, which they determine by estimating the distance of that part of the skull where it lies from the medulla oblongata, which is situated very nearly on a line between the openings of the ears and midway between them. The instrument illustrated makes these estimates actual measurements, giving the absolute size of each part or organ—that is, the distance of its outside surface from the medulla oblongata. This invention has been patented by Mr. Clark Brown, of Mohawk, N. Y.

A FRENCH savant, M. Regnard, has been lately trying the effect of a "blood diet" on lambs. Three lambs, which for some unexplained cause had been abandoned by their mothers, were fed on "powdered blood" with the most gratifying results. The lambs increased in size in the most marvelous fashion, and attained unusual proportions for their age. The coats of wool also became double in thickness. Encouraged by his success with the lambs, M. Regnard is now feeding some calves on blood.

Electrical Fire Batteries.

Dr. Brard, of La Rochelle, the inventor of the electro-generative fuel which we recently described, has communicated a paper to the French Academy of Sciences on this new method of producing electricity. The origin of the fuel is to be found in the discovery of A. C. Becquerel, in 1855, that red hot gas carbon plunged into fused nitrate of potash gave a considerable current through a galvanometer. M. Jablochkoff afterward endeavored to devise a battery based upon the fact in question; but nothing practical appears to have come of his intentions. Dr. Brard has at least attained some practical results, and also some theoretical observations of value. He finds that if any carbon whatever be plunged red hot into a bath of liquid nitrate brought to a red heat, we get an energetic current flowing from the bath to the carbon in the external circuit. Hard carbon, like that used by Becquerel, and graphite, yield the current, which, however, soon falls off, owing to a dense crust of the salts forming on its surface. Softer carbons gives a longer current. Dr. Brard also finds that nitrates in fusion become very fluid, and acquire the property of moistening the body immersed in them, as an oil does. The capillary property of the nitrate allows of a current being got by heating the end of the carbon not immersed, provided the carbon is not too long. Moreover, it is not essential that the nitrate should be in contact with the carbon. It may be contained in a metal capsule placed upon the red hot carbon, and the current will flow as before. This is owing to a connection between the nitrate and carbon being set up by a film of nitrate stealing over the sides of the capsule. A useful battery is made by covering the capsule with asbestos cloth, then a coating of lamp black, and plates of metal over the black. The latter serve for the negative and the capsule of the positive pole of the element. Placed over a Bunsen burner a couple thus made gives, when the nitrate is in fusion, a constant current of from 6 to 7 milleamperes. It should be situated as near the point of flame as possible, where the hot smoke is given off. This soot takes the part of the hot carbon rod in Becquerel's experiment. The nitrates melt at 200 deg. C., but do not decompose except at 1,000 deg. C., or 1,200 deg. C. They appear to prevent oxidation of the metals or at least retard it considerably.

Proposed Triple Hulled Ocean Steamer.

Captain William Coffin, of London, who built the first large screw steamer which crossed the ocean, has designed a new style of steamer, models of which are exhibited at the office of Mr. James Alexander in the Mason building, Boston.

These models show a compound ship, composed of three ship hulls united as one vessel, the two outer hulls being longer than the central hull, and the whole being decked over. The outer hulls are of narrow beam and of equal length, and a hull much shorter is placed in the center space between the two longer vessels. The three hulls are rigidly connected by iron or steel bulkheads, box-girders, iron or steel decks or frames, in such a way as to form complete platforms or decks, and so as to leave considerable extra spaces between the ships. The center ship is to carry the engines, and is provided with a propeller at each end. All three hulls are tapered from the center, both vertically and longitudinally, and come to a rounded point at both ends, so as to enter the wave and reduce the pitching motion to a minimum, the rolling motion being done away with by the extent of water-spaces between the ships. The platforms or decks extend to about three-fifths (more or less) of the whole length of the outside ships in the center, and the remaining portion of the ends, forward and aft, are covered over for passing through the waves; but the space between is not decked over.

In ships of this construction for smooth water or river purposes the decks may be carried the entire length of the outside ships nearly horizontal, and in these cases the vessel may be propelled by either a screw or paddle wheels. Stability, safety, and speed are claimed for vessels so constructed.

The design has been approved by eminent naval men.

Captain Harrison Loring, of South Boston, has offered to build an experimental harbor excursion steamer for the net cost or workmanship and materials. The indications now are that the steamer will be built and put in service next summer.—*Boston Globe.*

Vermont Marble.

The marble industry of Vermont has been greatly extended during the past ten or twelve years. The aggregate product of the various quarries of the State during the year just ended was not far from 1,000,000 cubic feet, valued at $2,000,000. The number of men employed in the quarries and mills exceeds 2,300, and it required 10,000 cars to carry the marble away. Nearly $1,000,000 was paid for the labor of workingmen by the quarry owners.

A Large Excavator.

The Northern Pacific Railroad Company are using an excavator capable of handling from 100 to 1,500 cubic yards of earth a day. It is worked by two 40-horse power hoisting engines, two 20-horse-power swinging engines, and a double rotary engine for forcing the scoop into the bank. The excavator is self-propelling, and when in working condition is 50 feet long, 10 feet wide, and 19 feet high.

The Washington Monument.

The annual report of Lieut. Col. Thomas L. Casey, Corps of Engineers, United States Army, engineer in charge of the Washington Monument, submitted to Congress Dec. 23, shows that the height of the shaft is now 340 feet, an increase during the year of 90 feet.

Since the completion of the foundation in 1880, the total load added to the then existing structure has been 28,355 tons, and the settlement of the shaft due to this load has been on an average about 1¼ inches for the structure. The total pressure now borne by the bed of foundation is 74,871 tons, or about 92-100 of the total pressure to be finally placed upon it. The amount expended on the monument during the past year was $177,849.60, leaving a balance available of $33,417.37. An estimate of $250,000 is submitted for continuing the work of the monument for the year ending June 30, 1884, which it is expected will complete the shaft and pyramidion, and also the interior staircase and elevator. The report is accompanied by a letter from the Joint Commission recommending an appropriation by the present Congress of the amount estimated as necessary to complete the monument to its full height of 555 feet.

Railway Building in 1882.

The *Railway Age* of Dec. 28 contains a table showing that the number of miles of main track laid in the United States during the past year was 10,821, on 316 lines, in thirty-four States and Territories. It is thought that full returns will raise the total to 11,000 miles, which is 1,500 miles more than the total for 1881. The States showing the largest amount of railway construction are:

Iowa, 953; Texas, 817; New York, 752; Ohio, 555; Arkansas, 529; Indiana, 529; Colorado, 500; Dakota Territory, 480; Pennsylvania, 464; and Minnesota, 444. Of the 316 roads noted, 140 are still incompleted. The capital invested during the year is estimated at $270,000,000, exclusive of the amounts expended in the preparation of the roadbeds on which tracks are not yet laid.

The Largest Railroad.

The Pennsylvania system, of which Mr. G. B. Roberts is president, still leads the country, 6,438 miles—and of course the world—although it is composed of several subordinate systems, each with its general officers. The Missouri Pacific system, of which Mr. Jay Gould is president, is also composed of several distinct roads and corporations—the Missouri Pacific, St. Louis, Iron Mountain and Northern, International and Great Northern, Texas and Pacific, etc., though with one set of general officers. Coming down to a single corporate organization under one title, with one list of officers for the whole system, the Chicago, Milwaukee, and St. Paul takes the lead with its 4,500 miles, though several other companies are close behind.

How to Stop the Sulphuric Acid.

Knowledge says that Dr. Jule has been experimenting, with a view to counteracting the bad effects produced by the sulphuric acid, which the combustion of ordinary illuminating gas causes in sufficient quantities to destroy the binding of books and to tarnish the lettering on their backs, besides, of course, vitiating the atmosphere so much that the health of the person breathing it is injured. He suspended two plates of finely perforated zinc, one three and the other twelve inches above the burner. At the end of three months the lower plate showed an accumulation of the ordinary brownish-black deposit and a furring of sulphate of zinc, but the upper plate was only slightly affected. The inference from this examination is that a single plate of perforated zinc, about a foot square, placed over a gas jet is sufficient to retain most of the noxious emanations.

"Corn" Coal.

The smallest sized anthracite coal hitherto produced has been the "buckwheat" size, much used as an economical fuel for small establishments requiring but little steam. A still smaller size, "corn" coal, is now produced by the Ebervale colliery. The manner of its preparation is thus described by the Hazleton (Pa.) *Sentinel:*

Every particle of culm that formerly was dumped on the bank as worthless after the buckwheat coal had been screened is now run into a screen with meshes about one eighth of an inch square. This screen revolves rapidly, and a powerful stream of water is forced into it, which washes out the fine dust into the water troughs and allows the coal to drop into a chute. It is then dumped on a bank, where it remains in stock until sold. It brings from $1.25 to $1.50 per ton. The Ebervale Company by this method are able to prepare about 25 tons of corn coal in addition to the usual quantity of buckwheat and other sizes for every 500 tons of coal hoisted from the mines.

Increasing Use of Tin Plate.

The importation of tin plates into this country has increased in a remarkable degree within the last few years. The imports in 1870 were 1,507,000 boxes; in 1875, 1,920,000 boxes; in 1876, 1,800,000 boxes; 1877, 2,140,000 boxes; 1878, 2,160,000 boxes; 1879, 3,120,000 boxes; 1880, 3,380,000 boxes; and in 1881, 3,600,000 boxes. There are about 20 boxes of common tin plate to the ton. Two of the chief causes of the increased demand for tin in the United States are found in the enormous canning industry and the growth of the tin-roofing business.