

Solving The Smelter Smoke Problem

American Smelting & Refining Company's "Bag House" at Murray—4,200 Cotton Receptacles, 30 feet long and 18 inches in Diameter. Representing one and a half City Blocks of Salt Lake in Area of Cloth Utilized—Interesting Data Regarding Expenditure of \$150,000 For Protection of the Farmer.

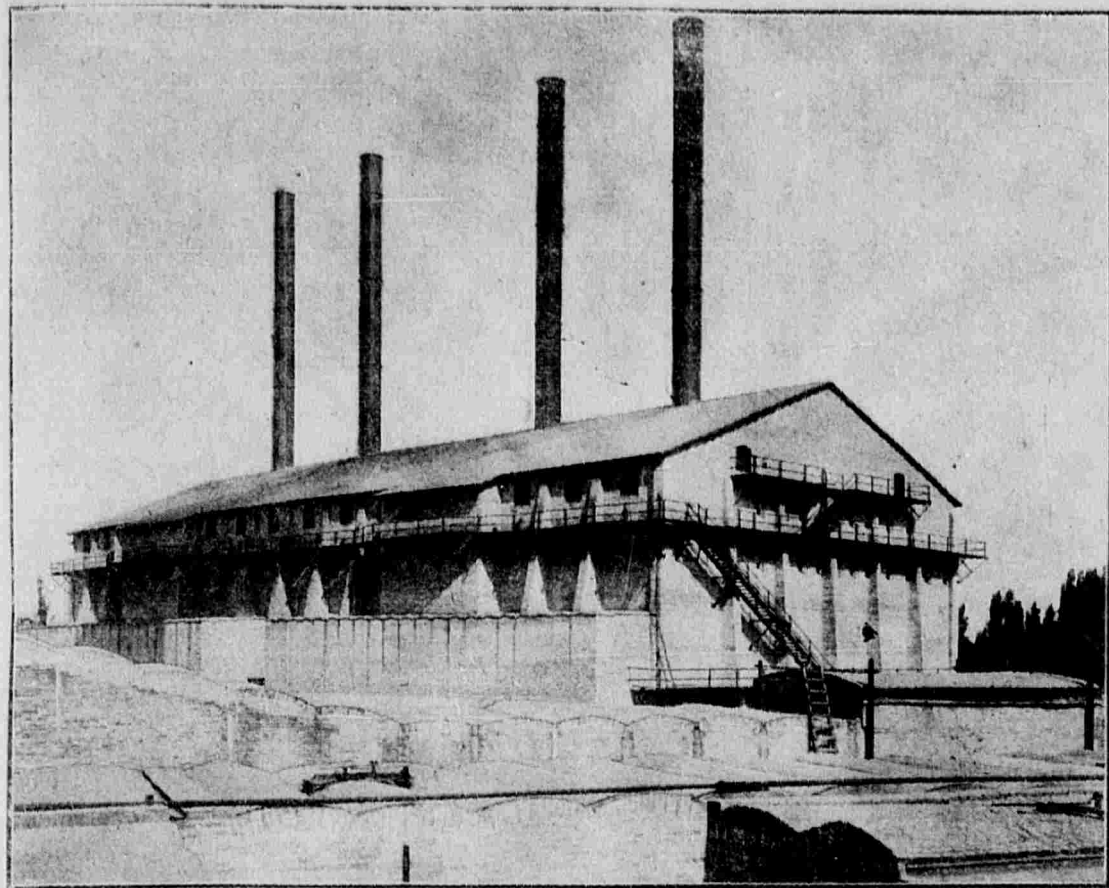


Photo by Shipley.

NEW BAG HOUSE OF A. S. & R. CO. AT MURRAY IN OPERATION WITH ITS SMOKELESS STACKS.

IT HAS cost the American Smelting & Refining company approximately \$150,000 to build a "smoke house" at its big Murray plant where the smoke and fumes originating in the blast furnaces are being placed under such regulation and control that hereafter there is little chance of damage being done to growing vegetation. In fact, the smelter management is confident of this and also that the farmers of the Salt Lake valley will never again have reason to complain or find just cause to worry for fear that their crops will be destroyed, their orchards ruined or their horses and cattle killed by coming in contact with the death dealing breath of poisonous arsenical fumes. Indeed, it has cost the American company a good deal more money than the sum stated to find a way to deal with the smoke question, which has been a most serious problem for solution, not only in this state, but in nearly every other state where the business of smelting ore is carried on.

ing which they have erected at Murray during the past year, a "bag house." Conceding that this is a proper name for it, it is not out of the way to say that it is a "smoke house" for really, that is what it is. To become thoroughly convinced of this, one needs only to take a look at the interior when it is not in operation. You will see dangling from the ceiling 4,200 cotton bags, 30 feet long and 18 inches in diameter, resembling in a marked degree huge link sausages with all but one link absent. One of the smelter officials told the writer the other day that if those bags were all one piece of cloth it would cover an area of about 15 acres, one whole city block in Salt Lake and half of another one. In the construction of the building, 2,400,000 brick and 350 tons of steel building material were used. The building itself is 100 feet wide and 216 feet long, and is divided up into numerous compartments, or chambers. The brick walls are 24 inches thick at the bottom and gradually taper towards the top. The plant is built big enough to take care of the gases coming from 18 blast furnaces while they are in full swing, or twice the number being operated by the company at the present time.

last Saturday night and during the afternoon, upon invitation of Manager F. W. Scofield, it was inspected by the members of the "smoke" committee appointed by the farmers of the valley several months ago. The negotiations which resulted in a settlement, or at least an understanding being arrived at, between the smelting company and the farmers, were conducted through the agency of this committee in behalf of the farmers and Mr. Scofield in behalf of the company. At the beginning of the negotiations the latter explained to the farmers the results of a long series of experiments conducted at great expense to the smelting company by some of the best chemists and metallurgists obtainable. He told them that the American Smelting & Refining company's officers were just that confident that the fumes could be controlled without damage to the surrounding country that they were willing to spend a good sized fortune to demonstrate it. He told them that the smelting company was willing to settle for any damage attributed to its plant in the past and gave assurance that it was his desire to treat land owners fairly in the future and that it was just as much to the interest of the company to solve the smoke difficulty as it was to the farmers. Judge Marshall of the fed-

eral court had already granted the injunction in the Godfrey case, which meant the ultimate abandonment of every smelter in the valley, unless something was done to get a modification of the court's decree. At one time it was a ten to one wager that the smelters would have to go. But about that time the chemists who had been working on the problem reported that it had been solved. This gave new hope. The farmers and the smelter managers got together and had a heart to heart talk.

FOR THE COMMON GOOD.

Their weapons were stacked and they decided to work together for the common good of the county and state. Mr. Scofield explained that it would take a number of months' time to get in shape to harness the dense volume of smoke, but declared: "If his company was given a little chance it would be done," and, he believed, the farmers would be very glad to have the American Smelting & Refining company's plant continue to smelt ore at its Murray plant. It was during some of these conferences that the company's plans regarding the building of a "bag house" were explained and the promise given that it would be ready for operation early in July. Mr. Scofield has fulfilled his promise and the big building at Murray now stands as a monument to the effect that he has kept his word. He wanted the members of the committee to see the plant before it went into commission, hence they were given the opportunity and while they were on the ground the operation of the plant was explained to them in detail. The members of the arbitration committee, which has the matter of settling up all claims for damages done in the past, were also present and expressed the opinion that all was being done by the company that could be done.

HOW IT OPERATES.

For the benefit of those readers of the "News" who are not as familiar with the operation of a "bag house" plant as the members of the committee are, it is probably well to state that the object of this "bag house" is to take care of the blast furnace gases and to eliminate the arsenical condensation and filtration, all metals which may have been volatilized in the furnace and more particularly, arsenic and lead.

The gases are drawn through suitable flues by a motor driven fan, 36x16 feet, (the largest one installed anywhere in the west) which forces them into a large funnel-shaped chamber. The size of these chambers are very much larger than the connecting flue and the gasses coming into the under pressure alone in the funnel, create a vacuum which draws the gases through the metal perforated with holes 18 inches in diameter with suitable flanges riveted around the holes to permit of the attaching of the connecting flues. The whole of the second story of the bag house, or all of that portion of the lower chambers, is filled with these bags of the character and dimensions referred to in the foregoing. These bags are

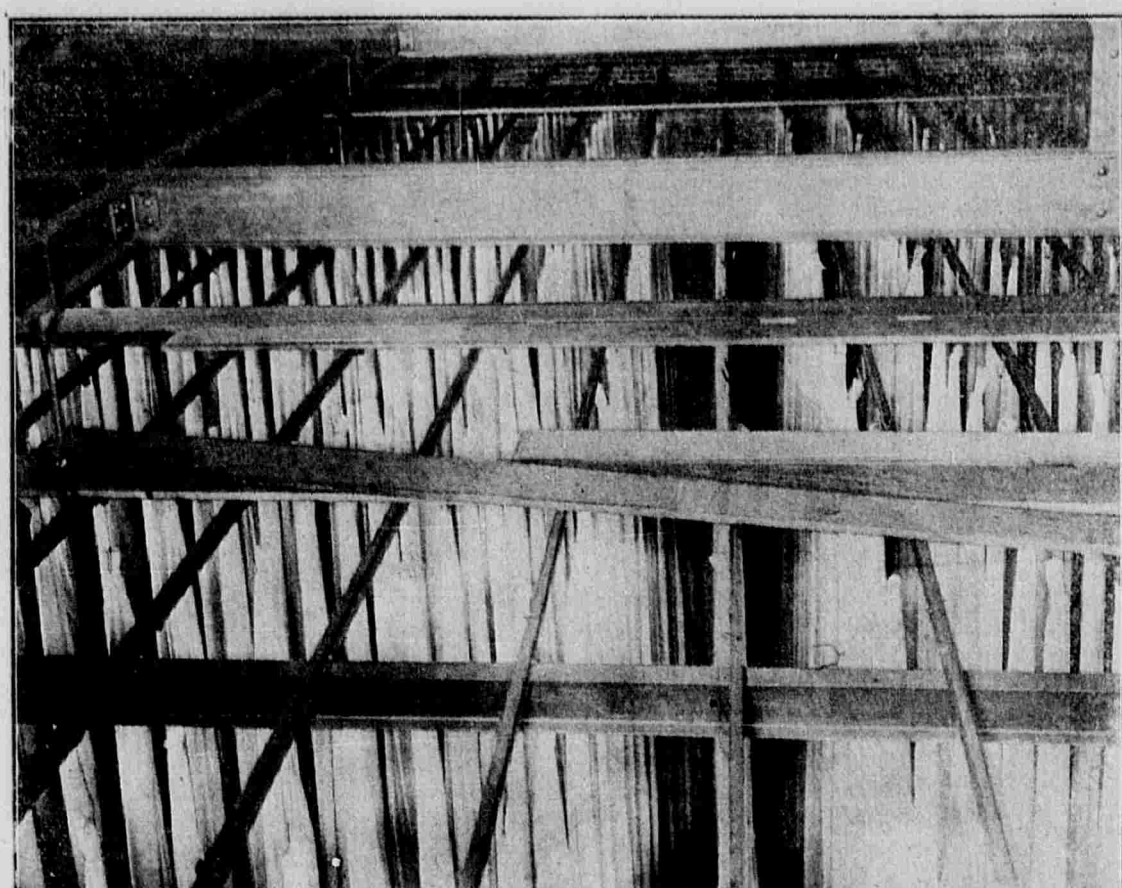


Photo by Shipley.

INTERIOR VIEW OF ONE CHAMBER BEFORE INFLATION OF BAGS BY GASES.

suspended from the roof or ceiling of the upper department and hang vertically, the lower end being stretched over the flange which is riveted around the circular opening in the floor; the upper end being closed tightly.

DEPOSIT OF FLUE DUST.

Due to the pressure of the gases in the lower compartments they ascend through the holes in the floor inside of the bags, where the same pressure derived from the fan, forces the gases through the meshes of the closely woven bag. All particles of the condensed metals, or what is more commonly known as flue dust, and which had not been precipitated by gravity into the lower chambers, are thus caught on the inside of the bag. The filtered gases, freed from all metallic particles and flue dust, pass through the meshes of the bag and is discharged into the atmosphere through four separate steel stacks, six feet in diameter, there being a stack for each of the four upper compartments of the bag house. The top of these stacks is at an elevation 150 feet above the ground.

For each of the compartments of the bag house there are four lower compartments, or chambers, and by means of valves connected with the flues the gases can be shut off from

any or all of these chambers. This arrangement is provided for the reason that from time to time for the purpose of cleaning.

SOME PRECAUTIONS.

In this work the greatest precaution is necessary owing to the deadly poisonous character of the arsenical dust. It is frequently necessary for some person to enter the chambers containing the bags for the purpose of giving them a good shaking so as to cause the accumulation of dust on the inside of the bags and through the openings in the floor where it drops into the lower chambers from which it is periodically collected for treatment for the recovery of the metals which it contains—particularly the arsenic.

DIVING SUITS WORN.

It may be interesting to know that the person employed to clean the bags and chambers from time to time does not undertake to enter the building without being clothed in an airtight submarine bathing suit on the back of which is attached a tank of compressed air from which the occupant's lungs are supplied.

Although the American Smelting & Refining company began the construction of this bag house about a year ago, the actual time on construction

so Mr. Scofield stated, has been approximately five months, the inability to get building material as wanted having caused many delays.

The Murray smelter was built for the treatment of lead-silver ore and the smoke question as far as it is concerned is settled absolutely. At the several copper smelters of the valley the problem has not been satisfactorily solved yet. However, progress is being made and chemists and metallurgists now at work confidently believe they will soon master the subject.

WAS IN POOR HEALTH FOR YEARS.

Ira W. Kelley, of Mansfield, Pa., writes: "I was in poor health for two years, suffering from kidney and bladder trouble, and spent considerable money consulting physicians without obtaining any marked benefit, but was cured by Foley's Kidney Cure, and I desire to add my testimony that it may be the cause of restoring the health of others." Refuse substitutes. For sale by F. J. Hill Drug Co., "The Never Substituted."

BATHING AT SALT AIR.

Glorious Suit Room, key 25c. The "Best" today. Vienna Walnut Bread. Vienna Bakery.

NEXT WEEK IN HISTORY.

- JULY 14.**
 - 1692—Cardinal Mazarin, French statesman, born; died 1681.
 - 1789—The populace of Paris stormed and captured the Bastille. The Bastille was the state prison and citadel of Paris. Many noted people were confined there, among them Richelieu, Voltaire, Lafayette and the Marquis de Lafayette.
 - 1828—Jervis McEntee, American landscape artist, born at Rondout, N. Y.; died there 1891.
 - 1853—The Crystal palace exhibition opened in New York city. The New York world's fair of 1853 brought together a fine display of American machinery and a variety of foreign products. The building represented a Greek cross. It was wholly of glass and iron; length 365 feet; width, 150 feet.
 - 1897—Gen. John P. Farnsworth, noted Federal veteran, died in Washington; born 1820.
 - 1904—Paul Kruger, South African statesman, president of the Transvaal republic and leader of the Boers in the war against England in 1899-1901, died at Clarens, Switzerland; born 1825.
- JULY 15.**
 - 1808—Henry Edward Manning, cardinal, famous convert to Roman Catholicism, born in Hertfordshire; died 1892.
 - 1815—Napoleon Bonaparte surrendered himself to Captain Maitland of the Bellerophon.
 - 1817—The Baroness de Stael, French woman of letters, died.
 - 1871—Thomas Lincoln (Tad), son of Abraham Lincoln, died at Chicago; born 1852.
 - 1883—Charles Hayward Stratton (Tom Thumb) died at Middleboro, Mass.; aged 45.
 - 1890—Gen. J. C. Kelton, U. S. A., retired, died in Wash.; born 1812.
 - 1897—Gen. Philip Regis de Trobriand, a

- veteran of the Federal army, died at Bayport, N. Y.
- 1903—Mrs. James G. Blaine, widow of the famous statesman, died; born 1827.
- JULY 16.**
 - 622—Flight of Mohammed from Mecca.
 - 1681—Pierre Lemoine, Sieur d'Iberville, founder of Louisiana, born in Montreal; died 1706.
 - 1850—Marchioness Margaret Fuller Ossoli, with her husband and child, drowned off Fire Island beach, New York; born 1810. Emerson wrote of Margaret Fuller: "She was an active, inspiring companion and correspondent, and all the art, the thought and nobleness of New England seemed at that moment related to her and she to it. She was everywhere a welcome guest. The houses of her friends in town and country were open to her and every hospitable attention eagerly offered. Her arrival was a holiday, and so was her abode, and all tasks that could be suspended were put aside to catch the favorable hour in walking, riding or boating to talk with this joyful guest, who brought wit, anecdotes, love stories, tragedies, oracles, with her."
 - 1830—Rear Admiral Earl English, U. S. A., retired, died in Washington; born 1828.
 - 1897—General Joseph Conrad, a noted Federal veteran of the army of the Cumberland, died at Atlantic City, N. J.; born 1830.
- JULY 17.**
 - 1744—Elbridge Gerry, "signer" and statesman, born at Marblehead, Mass.; died 1814.
 - 1746—Timothy Pickering, statesman, born in Salem, Mass.; died 1829.
 - 1740—Peter Gansvoort, soldier, born in Albany; died 1812. Gansvoort joined the Revolutionary forces as major of the Second New York

- soon after Lexington. His services were chiefly in central New York, where he contended against the Indians and British. One of his victories was the defense of Fort Stanwix, where he defeated St. Leger and prevented his co-operation with Burgoyne.
- 1886—Lewis Cass, veteran American statesman, died in Detroit; born 1782.
- 1898—End of the war in Cuba; General Toral, Spanish commander at Santiago and vicinity, surrendered the city.
- 1903—James Abbott MacNeill Whistler, American artist famous in England, died; born 1834.
- 1906—Beit, noted South African financier, died in London; born 1852.
- JULY 18.**
 - 1792—John Paul Jones, the naval hero, died in Paris; born 1747.
 - 1872—President Juarez of Mexico died; born 1806.
 - 1881—Arthur Penrhyn Stanley, D. D., LL.D., dean of Westminster, died in London; born 1815.
 - 1887—Robert Mercer Taliaferro Hunter, once a leading southern statesman, died in Essex county, Va.; born 1809.
 - 1892—Rose Terry Cooke, American authoress, died at Springfield, Mass.; born 1827.
 - 1895—Charles Emanuel Schenck, ex-president of Switzerland, died at Berne; born 1825.
 - 1899—Horatio G. Alger, famous as a writer of stories for boys, died at Natick, Mass.; born 1834.
 - 1906—Armistice declared between Honduras and Salvador and Guatemala.
- JULY 19.**
 - 1824—Augustine Iturbide, ex-emperor of Mexico, was executed; born 1783. Iturbide began his career as a most valiant and loyal soldier in the armies of the king of Spain and helped put down numerous insurrections by a vigorous hand. Finally he conceived a plan of independence, and did not stop until the yoke of Spain was cast off forever.
 - 1845—Great fire in New York city; loss, \$10,000,000.
 - 1887—Dorothea Lynde Dix, eminent

- philanthropist, died in Trenton; born in Worcester, Mass. 1805.
- 1888—Rev. Edward P. Ryan, Roman Catholic, popular American novelist, died at Cornwall-on-the-Hudson; born 1837.
- 1905—Zemstvo congress, forerunner of the Russian douma, opened in Moscow.
- JULY 20.**
 - 1588—Spanish armada attacked by Howland.
 - 1854—Caroline Anne Southey, poet and novelist, widow of the laureate, died; born 1757.
 - 1887—Sylvanus Cobb Jr., the novelist, died in Hyde Park, Mass.; born in Waterville, Me., 1823.
 - 1900—China against France, Japan and the United States to intercede with the powers. Rout of the Chinese on the Amur by the Russians.
 - 1901—Susanna Du Plessis Kruger, wife of the President of the Republic of the South African Republic, died at Pretoria; born 1836.
 - 1903—Pope Leo XIII died; born 1810.
 - 1906—Peace between Guatemala and the Salvador-Honduras alliance signed by commissioners of the belligerent powers on board the United States cruiser, Marblehead off the coast of Guatemala.
- An Excuse to do Good.**

A clergyman was talking with awe about J. Pierpont Morgan's determination to fund the production of "Salome" in New York, and his willingness to reimburse Mr. Conried to the extent of \$50,000 rather than allow the music drama to be seen at the Metropolitan opera house. "Doubtless," said the clergyman, thoughtfully, Mr. Morgan's \$50,000 could have done more good than stop a music drama that in I have been told, a great work of art. But, all the same, I admire the spirit of the man. He is a man who achieves what he wants, and I remember how, one Easter, a Methodist minister in the south wrote to Mr. Morgan and asked him to subscribe to the erection of a new church. "Since I am an Episcopalian," Mr. Morgan wrote back, "I can't conscientiously join this Easter subscription to the building of a Methodist church. Before erecting your new church, though, you are going, I understand, to tear the old church down. For that purpose I gladly enclose my check for \$250."

SALT AIR SUNDAY CONCERT

Port Douglas Military Band.

VIEW AND FANCY POST CARDS

An immense shipment just arrived from Germany. Salt Lake City and Utah views; Ranching, Indians, Animals, Scenes, Flowers, Actors, Comics, etc., etc.

Post Card Albums, all sizes and prices. Wholesale and Retail. DESERET NEWS BOOK STORE, The Leading Book Concern, 6 Main Street.

Can Now Fill Orders Promptly

CENTRAL COAL & COKE CO.

"At the Sign of the Pickaxe." Phones 2400. 38 S. Main.

The ENSIGN KNITTING Co.

Will take MONEY in EXCHANGE for any of their splendid Knit Goods.

The only place in Utah where they make LINEN MESH HEALTH UNDERWEAR—all others are imported.

They knit and manufacture the best GARMENTS, UNION SUITS, SHIRTS & DRAWERS, LADIES VESTS, and everything knitable in the state. Their MOUNTAIN LION BRAND HOSIERY is so nearly HOLE-PROOF that they GUARANTEE to replace FREE OF CHARGE 1 pair for every pair purchased, if you do not feel that you have had better service from them than any you have ever worn before at the same price. Every loyal Utah citizen has his private OPINION of Utah people who will neglect HOME made GOODS with such a splendid GUARANTEE. Remember the PLACE where they sell both WHOLESALE & RETAIL as well as by mail order.

32 RICHARDS STREET SALT LAKE CITY.

THE GREATEST ANTISEPTIC HEALING MEDICINE EVER OFFERED THE PUBLIC FOR SALE

NUNN'S BLACK OIL HEALING BALSAM

FOR MAN OR BEAST

Stable Use.—Keep your horse's teeth dressed once a year and give one ounce of Nunn's Black Oil three times a week. Every organ of his body will be healthy. Always ready for work. Ninety per cent that died can be saved. Give it with a syringe into mouth, best way.

FATHERS, MOTHERS AND CHILDREN

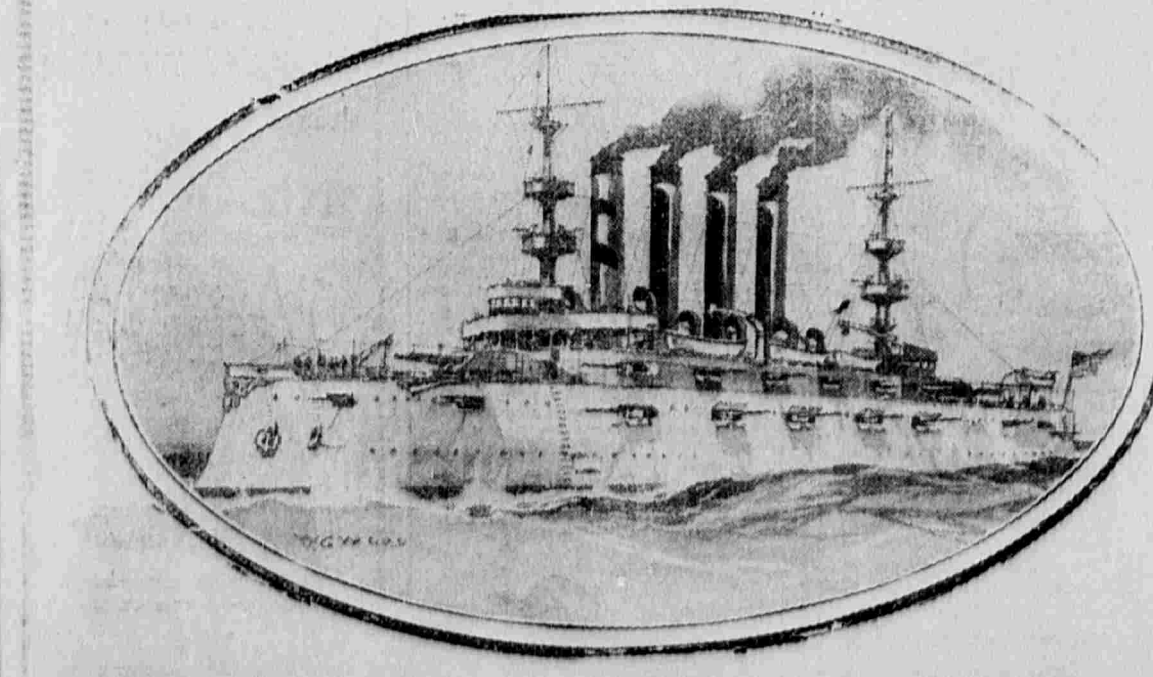
Take Nunn's Black Oil Balsam—BLUE CARTONS—three times a week. Keep well, be a young man at seventy, the great secret, keep the sewer clean and flushed, its the clog that creates sickness. Read the pamphlet inside every Carton. Never grow old. Sold everywhere, 50c and \$1.00 a bottle.

C. W. NUNN, V. S., Manufacturer and Sole Proprietor Salt Lake City, Utah.

Cures Biliousness, Sick Headache, Sour Stomach, Torpid Liver and Chronic Constipation. Pleasant to take

ORINO Laxative Fruit Syrup

Cleanses the system thoroughly and clears sallow complexions of pimples and blotches. It is guaranteed.



CRUISER WASHINGTON WILL PRECEDE ATLANTIC SQUADRON TO PACIFIC.

The armored cruiser Washington, which sailed from La Rochelle, France, a few days ago to join the North Atlantic squadron, will be one of the first of nineteen warships to be sent to the Pacific. After some target practice along the Atlantic coast, the Washington, together with the Tennessee, will be sent around the Horn to San Francisco.

It is expected that within fifteen months the whole Atlantic squadron under command of Admiral Evans, will