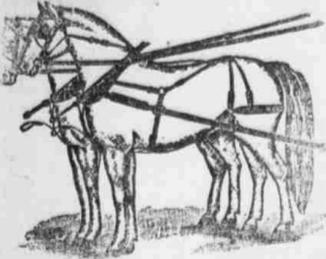


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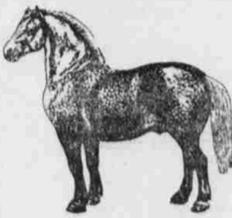
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Sioux City, Iowa

Pure Bred

Percheron

Stallions



JALLANS, 88396. Imported by W. L. DeClow, of Cedar Rapids, Iowa, foaled March 24, 1909, black in color.
CAPTAIN, 90975. Bred by J. P. Anderson, of Agenda, Kansas. Foaled May 1, 1912. Color black.
Each of these handsome stallions weigh between 1800 and 1900 lbs.

Both these Stallions will stand for service at my barn in Hubbard, and anyone interested in Thoroughbred Percherons should call and inspect them.

Terms: \$15 to insure mare in foal. \$20 to insure colt nine days old. If mare is sold or removed from the county service fee becomes due at once. Due care will be taken to prevent accidents, but at risk of owner of mare if she sustains any.

LOUIS BOGG

Owner and Attendant.

HUBBARD, NEBR.

Abstracts of Title

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Successor to the DAKOTA COUNTY ABSTRACT CO.

The DISCOVERY of VANADIUM



WORKS AT OPENING OF MINE SHAFT



THE credit for discovering the metallic element vanadium, almost, but not quite, belongs to Andres Manuel Del Rio, professor of mineralogy in the Royal School of Mines of the City of Mexico. The honor would be wholly his had he not himself repudiated his own discovery.

Del Rio was born in Madrid, November 10, 1764, and graduated from the University of Alcalá de Henares in 1780. On account of his extraordinary aptitude in the natural sciences, and particularly in chemistry, he was pensioned and sent by the government to study in Germany, France, and England. He spent about twelve years in those countries, principally in the study of mineralogy and geology, and was associated with the leading scientists, among others Lavoisier. After his return to Spain he was named, in 1794, by royal order as one of the group of professors to establish the Royal School of Mines in Mexico City. The royal order named Del Rio as professor of chemistry, but on his request this was changed to mineralogy. The school was opened in April, 1795. In 1829 Del Rio was sent as deputy to the Spanish Cortes, where he championed the cause of Mexican independence. He returned to Mexico in 1824, but in 1829 on the expulsion of the Spaniards he went to the United States. He afterwards returned, and died in the City of Mexico on May 23, 1849. The district of Andres Del Rio, in the state of Chihuahua, where the city of Batopilas and the mines of the same name are located, is called after the distinguished scientist.

In 1801 Prof. Del Rio in examining some brown lead ores from the mines of Zimapan, in what is now the state of Hidalgo, believed that he had discovered a new element different from chromium and uranium and this he named erithronium. It was in reality what we now know as vanadium. The discovery was a genuine one, and had the matter rested there the name that Del Rio gave the new element would have been its name now, and he would have been the undisputed discoverer thereof. But unfortunately the Mexican professor was a little too much under the glamour of the French school, and so when Collet Descostille published an article in which he stated that Del Rio's erithronium was nothing more than impure chromium Del Rio accepted the French professor's judgment and in the *Anales de Ciencias Naturales* of Madrid in 1804 disavowed his former claim of discovery and stated that the substance was a lead chromate. Del Rio had been right and the French school wrong, for the element does not even belong in the chromium group. So the matter rested until in 1830 the Swedish scientist, N. G. Sefstrom, rediscovered the element among the slags of the Taberg iron ores and named it vanadium, which name it still bears. It is sometimes stated that the name chosen by Sefstrom was in honor of the Scandinavian goddess Vanadis. This is not strictly correct. In the Norse mythology the gods were divided into two stocks, Aesir and Vanir, or Aes and Vana. Njord, Frey and Freyja were of the stock Vanir, hence Vanadis. The word may be taken as the surname of a number of gods and goddesses, although perhaps most often used in connection with Freyja, the Norse Venus.

Neither Del Rio nor Sefstrom, nor later Berzelius, obtained the pure element, although Berzelius published what he thought to be its atomic weight, 137 and the formulae for its oxides. The English chemist, Sir Henry E. Roscoe, in 1868 demonstrated that Berzelius was incorrect; that he and other prior investigators had dealt with nitrides or oxides of the element; and that instead of belonging to the chromium group of elements vanadium should be placed in the group with arsenic and phosphorus.

Vanadium is a silver-white metal and readily oxidized. It has an atomic weight of 51.2, is nonmagnetic, has a very high electrical resistivity, and melts at about 1,680 degrees C. It is one of the most difficultly reduced and hardest of the metallic elements. Fortunately for its use in the arts, it is not necessary to reduce the metal to its pure state. Such a reduction would be too costly. It can be reduced, however, quite easily as an alloy, particularly as an alloy of iron, ferrovanadium, containing approximately one part of vanadium and two parts of iron. As a result, this alloy has a melting point 1,300 degrees C. to 1,340 degrees C., sufficiently low to further alloy with molten steel, which would be difficult in the pure vanadium having a melting point over 300 degrees C. higher.

Vanadium is one of the most widely disseminated of all the elements, although commercially available deposits are comparatively rare. It is found in most of the rocks, in clays and shales, and in the ashes of plants. In addition to Mexico, where it was first discovered, vanadium has been found in Colorado, Utah, Oklahoma, Nevada, New Mexico, and other parts of the United States; in Peru, Sweden, Australia, Spain, England, Turkestan, Chili and Argentina.

The chief ores from which vanadium is or may be derived are patronite, carnotite, roscolite, vanadite and asphaltite. Coal is a source of vanadium. Ash from the Rockvale Colorado coal, gave 27 per cent vanadium oxide. Coal from the Mendoza district in Argentina contains about five pounds of vanadic acid per ton. It is



SIDE RODS BENT 180 DEGREES WITHOUT FRACTURE

A LOCOMOTIVE AXLE BENT 180 DEGREES WITHOUT FRACTURE



TUNNEL OPENING ON THE MAIN VEIN



PACKING ORE FOR TRANSPORT TO THE RAILWAY



AT THE FOOT OF THE MAIN ANDERSON RANGE, LOOKING BACK OVER THE FAULTS

called rafaellite. At Talcuna, in the province of Coquimbo in Chili, vanadium is found as a yellow earth in connection with copper ore.

The principal and almost the only commercial source of supply of vanadium at present is from Peru.

There are numbers of asphaltite deposits in Peru, among the best known of which are those of Yauli. When burned, the ash from these deposits yields 24 to 40 per cent vanadium oxide. Other mines are located at Matucan and Casapalca, on the Central railroad of Peru near Callao, at Huari, and at Huancayo, but the greatest of all deposits, as now known and worked, are at Minas Ragra.

The Ragra mines are about fifty miles from the celebrated Cerro de Pasco copper mines and are in the same mining district. Minas Ragra had been frequently denounced and abandoned as coal mines. The fuel was of so poor a quality as to be hardly worth the mining. Some years ago on the abandonment by C. Weiss & Co. of Lima, Senor Eulogio E. Fernandini, who was engaged in mining at Cerro de Pasco and who owned the Quisque hacienda, about six miles from Minas Ragra, denounced the mines anew. Senor Fernandini had a new process for making coke in which he proposed to use the output of Minas Ragra. Senor Antenor Rizo Patron was the technical director of the Fernandini works, and on his attention being directed to a mass of black mineral which accompanied the coal he became interested and made a chemical analysis. He thereby discovered that it contained vanadium in a greater proportion than any of the theretofore known ores of this metal. The material looks like a slaty coal, is very hard, with 30 per cent or more free sulphur, 14 per cent silica, 4 per cent iron sulphide, and about 1 1/2 per cent each nickel and molybdenum sulphides, and about 40 per cent vanadium sulphide. After burning out the free sulphur the ore contains about 52 per cent vanadium oxide.

The distinguished Peruvian scientist, Senor Jose J. Bravo, made a very thorough examination of the locality and published the results in a bulletin of the Society of Engineers. The sulphide of vanadium, not having been theretofore known as a natural product, was named rizo-patronite by Senor Bravo in honor of the original discoverer of the mineral. This name it still bears, although ordinarily shortened to patronite. Rizo-patronite, according to Senor Bravo, appears in the form of a compact mass, dark in color and some two meters thick (about 6 feet 6 inches), and in his opinion is disseminated over a large extent of country around Minas Ragra. The earth surrounding the rizo-patronite veins is highly impregnated with vanadium solutions, and in small catch basins this impregnated earth is being extensively worked.

Until the recent development of vanadium in the steel industry its commercial use was more or less confined to ink making and coloring fabrics and leather. The ink is made of a mixture of neutral solution of ammonium vanadate, gum water, and a solution of gallic acid. This ink is not destroyed by acids or alkalis, nor can it be bleached out with chloride. The ink, however, is not very permanent. It dyeing fabrics vanadium chlorides combined with aniline hydrochloride form a brilliant and permanent black. In coloring leather a 1 per cent solution of neutral ammonium vanadate is used with leather which has been tanned with nutgall.

The first recorded use of vanadium in steel was in 1896, in France, in the production of armor plates. Tests of these showed that they were much tougher and more highly resistant

than like plates made without the use of vanadium. No immediate results, however, followed the French tests, owing perhaps to the fact that at this time no adequate supply of vanadium was in sight. About four years later Prof. J. O. Arnold of Sheffield in an address before the British Iron and Steel Institute declared that vanadium was the master weapon of the steel metallurgist. At this time prices of vanadium alloy were very high and the supply uncertain. The greatest advances, however, made in the use of vanadium in the steel industry have followed the experiments and practical applications of J. Kent Smith of Liverpool. Mr. Smith's work has been principally in the production of the various grades of vanadium alloys, and he has supervised personally the initial use of vanadium in most of the leading steel mills of England and the continent and some in the United States.

About 1905 the supply of vanadium began to increase to a large degree, due to the purchase of the Minas Ragra deposits in Peru by the American Vanadium company, also to the development of mines in other parts of Peru, Spain and elsewhere. From having been a rare metal, owing to the large output, it became available in quantities claimed to be unlimited, as a steel-making element. The claims made by its users are that it has accomplished wonders in crucible steel and in open-hearth steel, that it gives cast iron greater strength and endurance, and that copper and aluminum are remarkably improved for certain purposes by its addition. It is used in steel for engine axles and frames. It is used in piston rods, hydraulic cylinders, tires, tools, boiler plates, bolts, gun shields, projectiles, armor plates, gun barrels, watch springs, and in castings and forgings generally.

The claim is made that in steel making it unites with the nitrides and oxides, and carries them into the slag. The quantity of vanadium that will remain in the slag is in proportion to the amount of scavenging thus done by it. In well-deoxidized steel it is said that the scavenging will consume about one-fifth of the vanadium.

The alloy, ferrovanadium, is introduced into the steel by a very simple process. In the crucible process the alloys are broken into small bits and put into the charge with the second addition of the manganese. In the acid open-hearth process the alloy in larger pieces is dropped into the bath when the flame has been blanketed. In the basic open-hearth practice the alloy, broken small, is run through a spout that empties into the ladle in which the molten steel is being poured. A similar method is followed in the Bessemer and Tropena practice and also in the cupola process for cast iron. In the latter, the alloy is crushed quite fine.

It is claimed that vanadium increases largely the resistance of metals to vibratory disintegration, that the steel is stronger and tougher and tempers more uniformly and to a greater depth than steel without vanadium. One of the principal advantages in the use of vanadium steel in the future will no doubt be that it will enable the steel man to reduce weight in such constructions as locomotives, cars, machinery, etc., through the use of a smaller amount of the stronger and tougher steel. The question of weight has become serious not only in locomotives but in other forms of machinery. Another great economy claimed for vanadium steel is its greater durability. If this can be established, it would of itself more than justify its more extensive use.

PAW'S EXPERIENCE.

Little Lemuel—Say, paw, does every man have a bump of wisdom?
Paw—He does before he gets married, son. After that the bump becomes a dent.

THE REVERSE.

"A doctor reverses the usual order."
"How?"
"He must exercise resignation when he lacks patients."

CAUSE AND EFFECT.

Hyker—Old Swiggs has stopped drinking.
Pyker—Well, that is certainly to his credit.
Hyker—Don't you believe it. It's due to his lack of credit.

A SURE CURE.

"Physicians have demonstrated that rattlesnake venom does not cure epilepsy."
"It will cure it all right if the physicians will permit the rattlesnake to administer it."

INDIAN GOES TO WEST POINT

Sylvester Long-Lance, Cherokee, appointed to Coveted Position by the President.

Sylvester Long-Lance, the first full-blooded Indian to receive an appointment to the military academy at West Point, is a member of the class which was graduated this year from St. John's school at Manlius, N. Y. Long-Lance has been a student at the school for three years and stood high in his

work, and was also active in athletics. He is a graduate of the Carlisle Indian school, which he entered when he was twelve years old. Some time ago he determined to become an army officer. President Wilson became interested in him, and several weeks ago Long-Lance received notification that he had been selected as one of the president's appointees to the military academy.

The first Indian to receive an appointment to West Point was David Monlag, a Creek, the New York Sun

remarks. He was born in Alabama, and was a cadet of the military academy from September 18, 1817, until July 1, 1822, when he was graduated and appointed a brevet second Lieutenant in the Sixth Infantry.

On the expiration of his graduation leave on December 31, 1822, he resigned from the army to become a cotton planter in his native state. During the war in Florida in 1835, against the Seminoles, Monlag became captain in a regiment of mounted Creek volunteers and became a major in

that regiment. November 15, 1836, he was killed in the battle of Wahoo swamp.

Housekeeper's Paradise.

A housekeeper's idea of paradise is a place where hashed-brown potatoes will grow in the garden; where cherries will grow on cherry trees; and where the woman at the head of the table may wave a wand and say: "To the infernal regions with the unwashed dishes."—Louisville Courier-Journal.

CONDENSED NEWS OF INTEREST TO ALL.

The Burlington will build a new depot at David City.

Bayard will soon have a new picture theater.

Plattsburgh is to have a new city hall, to cost \$12,500.

The Stanton county fair will be held September 1 to 3.

A water works system will soon be established in Milligan.

The Farmers' State bank of Valley has been granted a charter.

Plans are nearly ready for Weeping Water's new bank building.

The contract for putting in Bridgeport's sewer system has been let.

Fire caused \$18,000 loss to the Eagle's hall in Florence, a suburb of Omaha.

A Chicago man is planning to build a \$65,000 moving picture theater in Fairbury.

Otto Glick, shoe merchant, of Omaha, was killed in an automobile accident in that city.

The annual pow-wow of the Omaha Indians will be held at Wall-hill August 11 to 22.

J. S. Swan reports a loss of more than 10,000 bushels of apples from scab in his orchard near Auburn.

The body of A. Bauman, Jr., former sheriff of Dodge county, who drowned himself in the Platte river, was found.

The three-year-old son of Thomas Gliva was drowned in a milk can on the Gliva farm west of Platte Center.

A picture film company has been organized in Chadron with A. L. Andrews as president, capitalized at \$9,600.

Farmers with pitchforks harvested, a big crop of fish stranded in receding tide water from the Blue river at Hastings.

Ex-Governor Aldrich has purchased the Bell line of six elevators along the Northwestern in Butler and adjoining counties.

Tentative plans for laying the cornerstone of the new Masonic orphans' home on the Masonic grounds north of Fremont on August 16, have been laid.

Thirty-five new bridges will be built in Cedar county to replace old ones washed out by floods this summer.

Genevieve Hughes, a 6-year-old girl while picking flowers, stepped in front of a hay mower near Albion, and had her right foot completely severed.

Mrs. Daniel Sullivan of Lincoln was killed and M. H. Quinn of Denton was seriously injured when an automobile in which they were riding, turned turtle near Denton.

H. C. Probasco, assistant cashier of the Nebraska State bank at Lincoln, is dead. He formerly lived in Rock Cloud and was one of the best known church workers in the state.

There are in Nebraska 65,221 farmers who till their own land against 38,747 who are tenants. Almost a quarter million people over twenty-one are employed on farms.

Charles Benson, instructor in the department of education at Kearney normal has resigned to accept a position in the Missouri State Teachers' college at Cape Girardeau.

The little 5-year-old son of Mr. and Mrs. Lou Warner of near North Bend, lies in a critical condition, suffering from concussion of the brain, as a result of being kicked by a mule.

A session of the Holdrege Chautauque was broken up Saturday evening by rain and heavy wind, which finally blew down the tent. Two thousand people were drenched before reaching shelter.

Henry Turner of Hugo, Colo., was thrown into a wire fence near Pawnee City and instantly killed, his head being nearly severed from his body, when a horse he was driving became frightened by a train.

O. F. Dornblaser of Texas, national organizer of the Farmers' Educational and Co-operative union of America, will lecture on the Chautauque grounds at St. Edward, Monday afternoon, August 16.

Nineteen pieces of skin, each an inch and a half square, were grafted onto the burned body of little Emma Kerbel of Havelock at a Lincoln hospital. The skin was contributed by two brothers, a sister and seven cousins.

Perfect trust can be reposed in President Wilson by the people of the country, and he will save them from war, if that is humanely possible. So said Vice President Thomas Marshall of Indiana in a Chautauque address at Lincoln.

J. F. Kramer, one of the oldest citizens of Syracuse, met with a serious accident. He had just returned from town and was driving his team and standing up in the rear of the wagon when the team suddenly jerked, while crossing a rough place, throwing him backward out of the wagon, breaking his back.

The twenty-seventh annual old settlers' reunion of Cass and Otoe counties will be held at Union, Cass county, August 13 and 14.

John Bly, block signal maintainer for the Union Pacific, stationed at Elkhorn, was struck by a passenger train and instantly killed.

The most effective test of endurance ever tried by any manufacturer of farm tractor engines was completed when the Wallis "Cub" tractor, handled by the J. J. Case Power works, finished its 1,000-mile durability run, from Cleveland, O., to Fremont.

A deficit of \$41,218.09 in the Omaha school funds was shown by the board's financial report for the six months ending June 30 this year.

Dawes county, notwithstanding the recent heavy rains and hail, has yet the largest stand of grain known in the history of the county.

One of the largest, if not the largest wool sales made in Wyoming this year, was concluded when W. R. Adams of Fremont purchased the Swan Land and Cattle company's clip of 600,000 pounds for 22 cents a pound. The purchase price is \$132,000.