

# San Antonio Daily Express

SAN ANTONIO, TEXAS, SATURDAY, MAY 11, 1912

NO. 110

**DE GOODS**  
Spring 1912  
**A. ALBERT WOLFF**  
Quick Sales & Small Profits  
BEST AND CHEAPEST STOCK  
Dry Goods  
Clothing  
Hats & Caps  
F. GROSS & CO.  
TH. SCHLEUNING  
SADDLER  
SANTANA

**GROCERIES**  
**FRENCH BAKERY**  
FINE LIQUORS  
**F. GROSS & CO.**  
WHOLESALE AND RETAIL  
**TH. SCHLEUNING**  
SANTANA

**GROCERIES**  
**Maverick & Kroger**  
GROCERS  
LUMBER  
BUILDING MATERIAL  
RHODIE & CO.

### Hydrogen as a Metal.

The following is a translation of the paper read before the Royal Society, London, on the 10th of May, 1912, by the late Professor Faraday, F.R.S., on the subject of "Hydrogen as a Metal."

When hydrogen burns in air, the substance which is formed is water. Hence the name of this remarkable substance, signifying "water-producer." But oxygen and hydrogen can also be made to combine and produce water when presented in such a manner as to cause them, at the moment of combination, to form other forms of combination. The importance of knowing this fact will be explained further on.

The beautiful researches of the late Professor Faraday have made us familiar with the fact that one of the gases known as chemically merely the vapors of extremely volatile liquids; for, on subjecting these gases to very great pressure and to intense cold, in many cases liquids are obtained, and even solids, when on removal of the pressure under which they were produced, round the gaseous condition at ordinary temperature. Hydrogen has been likewise subjected by the learned Dr. Andrews, of Britain, to enormous pressures, and to extremely low temperatures, but without exhibiting the slightest tendency to condensation. Hence it has generally been considered a permanent gas; but recent investigations, conducted by the master of the British ship, the learned and distinguished Professor Graham, tend strongly to show that hydrogen gas, as we have it with it under ordinary circumstances, is really the vapor of a highly volatile liquid.

It may be generally stated that when a solution containing a metal and a non-metallic body is decomposed by galvanic current, the metal is usually deposited on the negative pole, and the non-metallic body on the positive pole. If, for instance, a lake of metallic copper and sulphuric acid is decomposed by current, the copper is deposited on the negative pole, and the sulphuric acid on the positive pole. We have, then, in such a case, the metal deposited on the negative pole, and the non-metallic body on the positive pole. It is now we plunge the two poles into plain water, which we have already seen, is a compound of hydrogen and oxygen, and the hydrogen gas is evolved on the negative pole, and the oxygen gas on the positive pole. We have, then, in such a case, the metal deposited on the negative pole, and the non-metallic body on the positive pole.

Again, it is a well-known fact that metals are capable of uniting with each other so as to form compounds called alloys; thus, brass is an alloy of copper and zinc, and steel is an alloy of iron and carbon. But it is not always necessary that two metals should be united together in order to make an alloy. An alloy may be formed by the union of a metal with a non-metallic body, or of a metal with a gas. Thus, we have the alloy of iron and carbon, and the alloy of iron and hydrogen. The latter alloy is called "iron hydride," and it is a well-known fact that it is a very hard and brittle substance, and is capable of supporting a very heavy weight.

### Official Laws

**GENERAL ACTS**  
Approved, April 11, 1912

**GENERAL ACTS**  
Approved, April 11, 1912

**GENERAL ACTS**  
Approved, April 11, 1912

**INSURANCE**  
**MARSHALL & HERNDON**  
Fire, Life, & Marine Insurance  
WAGONS! WAGONS!!

**INSURANCE**  
**MARSHALL & HERNDON**  
Fire, Life, & Marine Insurance  
WAGONS! WAGONS!!

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Advertisement for 'The Scientific American' magazine, listing subscription rates and contact information for the publisher, John Wiley & Sons.

Advertisement for 'The Scientific American' magazine, featuring a large illustration of a steamship and text describing the magazine's content and subscription details.

Advertisement for 'The Scientific American' magazine, including a list of names and titles of individuals associated with the publication.

Advertisement for 'The Scientific American' magazine, providing information about the magazine's circulation and distribution network.

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Advertisement for 'The Scientific American' magazine, providing information about the magazine's circulation and distribution network.

Articles and advertisements in the top left section, including 'Policy of the Administration'.

Continuation of articles and advertisements in the top left section.

Continuation of articles and advertisements in the top left section.

Continuation of articles and advertisements in the top left section.

THE

Articles and advertisements in the top middle section.

Articles and advertisements in the top middle section.

Articles and advertisements in the top middle section.

Articles and advertisements in the top middle section.

Wanted Monthly

Advertisements in the middle left section.

Advertisements in the middle left section.

Advertisements in the middle left section.

Advertisements in the middle left section.

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Advertisements in the middle middle section.

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BOOK

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