

MAKING LIQUID AIR.

A SCIENTIST EXPLAINS HIS CHEMICAL DISCOVERIES.

Professor Dewar's Experiments May Prove to Be the Greatest Investigations of the Century—Powerful Gases Reduced to a Fluid State.

The Pall Mall Budget of London published an interview with Professor James Dewar on what is represented as being "a great scientific discovery," that of making liquid air. Inquisitory to the interview the article says that "the liquefactions of permanent gases and the use of vacuum to preserve great cold mark one of the most important chemical discoveries of the century." It is held by scientists that any gas may be liquefied if the pressure and cold may be obtained and a vessel of sufficient strength to withstand the great pressures.

Of the gases that may be liquefied carbonic acid gas has been found to be the cheapest and readiest made, and while it has been known for many years that it could be liquefied it has generally been so prepared only in small quantities for scientific uses. The use of compressed air as a motive power has presented many difficulties, the principal one being its bulkiness; hence large vessels must be used in order to get a sufficient amount of motive power, and it is hard to make these strong enough and at the same time light in weight.

As a motive power it is used at a pressure of from 600 to 900 pounds. But if Professor Dewar has discovered an economical and ready way of liquefying it, it will tend to solve a problem in carrying a motive power in storage bulk that will be of great benefit to the students in this line. In the talk with the representative of The Pall Mall Budget, he says:

"Well, I don't think there's very much to say, because I've told all I have to tell about the matter in my two lectures, but I do believe there's a great deal more to be learned about the subject. You see, at present we've got these gases down to 210 degrees below zero, and the lowest possible temperature is 273 degrees below. If we could get some 20 degrees lower down, we might liquefy hydrogen. Hydrogen has never been liquefied in a free state yet.

"Now, it's a strange thing, that air can be made into a homogeneous fluid. You would think, as oxygen can be liquefied at -182 degrees and nitrogen not until -192 degrees, that as you made the air colder and colder the oxygen would become liquid first and then the nitrogen. I saw that prediction made in a standard work only the other day. Now, I dare say, you will ask why the oxygen don't come down first."

Stepping quickly back to the desk Professor Dewar took up a pencil and began to draw with rapid strokes on the back of a letter. The diagram when it was finished looked more like the law of diminishing returns turned up on one side than anything else that I am acquainted with. While he drew he rapidly explained how the influence of atmospheric pressure on the different volumes of nitrogen and oxygen in air makes them boil almost exactly at the same temperature. As he made each point he frowned a little, drawing up the wrinkles between his eyes. "Now, that, in the old theological days, would have been taken as a providential dispensation. The strange thing is that when liquid air evaporates again they are under the same pressure, and the nitrogen goes off first, as you would expect.

"Ozone can be liquefied by acting on the vapor given off from liquid oxygen by electricity. It is a splendid dark blue color, almost as dark as indigo. Ozone has not the same molecule as oxygen, and the electricity breaks up three twos into two threes. That is the secret of it. The queer thing about liquid ozone is that when it goes back into gas again it explodes. You wouldn't think it, but it is stronger than dynamite as an explosive. It's simply because the ozone goes back into the molecular form of oxygen so fast. The force that comes from the electricity makes it explode without meeting with any outside body. It's a tremendous explosive.

"We have discovered that liquid oxygen acts as a lens. It is so transparent to heat, so to speak, that even at 182 degrees below zero you can focus heat on it from one side and light a piece of paper by it on the other. You know that's just what happens in the earth. The sun's heat gets focused on to the earth through the lens formed by the vacuum of space, which is so cold that it hasn't any temperature at all—absolutely zero."

Professor Dewar gave a lecture on "Liquid Air" at the Royal Institution in the presence of the Prince of Wales, the Duke of York, Lord Salisbury and other notable persons. He showed that by the withdrawal of heat the air is converted into a liquid with total loss of chemical properties, incapable of supporting combustion, or of entering into combination even with phosphorus and sodium, while certain physical properties remain. The conversion of oxygen into ozone was also described, and the retention by oxygen of its peculiar optical properties at the lowest temperature was demonstrated by the very dense and well defined bands of its spectrum. In ordinary conditions oxygen shows no unreasonable thermal absorption, but at low temperature its thermal absorptive power becomes manifest.

Thwarting an Enemy.
Sardanapalus, the luxurious oriental monarch, finding himself hard pressed by his enemies, gathered his guards, his wives, concubines and children together, with all his treasures, and set fire to the building, thus thwarting the hope his foes entertained of taking him alive.—St. Louis Globe-Democrat.

May Be Worse.
"What is more awful to contemplate," said a lecturer, glancing about him, "than the relentless power of the maelstrom?"
And a henpecked looking man in the rear of the building softly replied, "Femalstrom."—Exchange.

MEN WHOM WOMEN ADORE.

The Delicate and Refined Type of Actors and Singers Get the Smiles.

The excess of devotion that Paderewski receives from enthusiastic women calls attention to the fact that it is always the more delicate and refined type of manhood that inspires this sort of hysterical idolatry among the women. There never was a more superb example of handsome manliness than that of Edouard de Reszke, the French tenor, but he was here and is in his own country but vaguely admired by women, and with none of the mad, rapturous ecstasy and adoration of which Alvary, the German tenor, was the ungracious recipient. Alvary was small and slight in stature. His physique was almost painful. His devotion to his German fans and humorous olive branches hopelessly prone and unromantic. But the women stood about the stage door in groups for a glimpse of their divinity, and squandered their entire allowance on opera tickets when he sang.

Kyrle Bellew was in his day another victim of woman's devotion. They found out where the effeminate Marc Antony had his hair clipped, and bribed the barber into saving bits of the sacred fleeces for them to wear in lockets and watches. How that barber ever reconciled things with his own conscience how he will settle it with the recording angel is a mystery, for not even the Sutherland sisters could have supplied all the locks that were surreptitiously dealt out to the fair devotees for a time.

Pierre Loti, in France, now one of the Immortals, is another man of the marked feminine characteristics which appeal to the enthusiasm of women and claim their championship. It was on shipboard that this writer, whose real name is Jean Vaucl, got the name of Loti, which is Japanese for "violet," and it was as Violet that he was known among the graceless, but discriminating salubrious. Men call his writing feminine in diction and cloying in style, and say that he chooses his words like bouillons. But the strong and brilliant Mme. Adam and her followers, in their enthusiasm for Loti at the time of his election to the academy, opposed a man of distinguished largeness of thought and marked genius.

Dignity and elegance are both winning cards for gaining popularity with women. It is to the former that Walter Damrosch provisions to his marriage gained his following of fashionable women, and it is to the latter quality, as well as his dramatic talent, that Riddle is indebted for the admiration of the women who listen to his readings. Perhaps it is the unexpected strength and fire in the guise of an exquisite that charms. The old thing about it is that the very women who rave over these types of men are wedded to husbands of the practical round school; men with plenty of development in the aldermanic region; men whose wedding vests won't meet by several inches, and whose bald spots are fast growing glossy; men who could understand their roses any better than Amelie Rives' unfortunate hero, and who laugh at the little women and their ravings over long haired heroes, confident of their own charm and liking the women all the better for their pretty enthusiasms.—New York Sun.

Force of Imagination.
It was in Paris. A lot of high rollers were talking about tobacco. Howell Osborne was there, Wilkie, the retired dentist, and several other fellows who had hard work to spend their income. Wilkie, who didn't smoke, offered to bet a dinner that he could fool another member of the crowd on a cigar. Man swore he couldn't. He'd been cussing a blue streak because he couldn't get Perfectos on account of the government monopoly. So they blindfolded him, and Wilkie lighted cigar after cigar and handed them to him. "Pooh," he would say, "another Parisian failure."

By and by Wilkie lighted a cigar, which he had obtained with some mystery, extinguished the flame with a quick stroke of his penknife and handed it over. The cigar was still warm. The expert took several puffs and threw down the cigar, exclaiming, "French, and mighty bad!"
Then they set up a howl, for the cigar was a smuggled Perfecto.—Paris Letter.

Breaking a Wishbone.
The divining rod is a feature in all early mythology, especially so among the Hindus. As the forked branch of a tree it indicated in various parts of Europe, Asia and Africa where treasures were hidden or where water might be readily found. From the forked branch of a tree it was but a step to the forked clavicule of a bird, and this bone was soon invested with the power of securing the gratification of the wishes of those who in breaking it retained the forked part, for it was the fork that was possessed of magic power.—New York Telegram.

The Usual Practice.
A Detroit lawyer was in Washington recently and among the sights took in the supreme court of the United States. "What do you think of it?" asked a friend in the evening.
"Well, I sat there and listened awhile, and though I am ashamed to confess it I went to sleep."
"Oh, that's all right," said his friend encouragingly; "everybody does that."—Detroit Free Press.

When Washington Was Inaugurated.
On the occasion of Washington's second inaugural, many of the members of congress were desirous of waiting on him in testimony of respect as chief magistrate. A motion was made to adjourn for half an hour for the purpose, which, however, met with great opposition as a species of homage—"it was setting up an idol dangerous to liberty; it had a bias toward monarchy."—Philadelphia Ledger.

Some Satisfaction.
Stranger—Suppose a policeman exceeds his authority and assaults reputable citizens, what redress have you?
Mr. Gotham—Well, those of us who get killed have the privilege of swearing at him through a spiritual medium.—New York Weekly.

Drummers in King Henry's Time.
King Henry V had a band which discoursed sweet music during his expedition to Harfleur, each member being recompensed for his services with the sum of 12 pence per diem. When the citizens of London were mustered in the thirty-first year of the reign of Henry VIII, we hear that "before every standard was appointed one dromslade at the least." Each company of 100 men at this time possessed a couple of drummers.—All the Year Round.

A Curious Naval Law.
A curious discovery was some years ago made among the archives at Southampton of a box containing the original naval laws of that port as early as the fourteenth century. One of them was that if the majority of the sailors of a vessel on the point of sailing were of the opinion that the wind was unfavorable, and the vessel was wrecked afterward, the captain was responsible for the value of the goods lost.—St. Louis Republic.

An Expression From a Five-year-old.
Some of our present day children are starting occasionally. A little girl of 5 years recently used the expression "post-mortem judgment." Upon her brother's questioning her and insisting that she should define it, she said, "Well, if you do a thing and then afterward wish you had done another thing, that's post-mortem judgment."—New York Times.

A Well Filled Head.
"Chappie know anything? Bah! His head is empty and always has been."
"You wrong him. He had two eyes, a set of teeth and a cane handle in it last time I saw him."—Harper's Bazar.

It All Depends.
"How long," says a contemporary, "can one live without air?"
It depends on the air. Most people could live a long time without some of the airs which have been popular during the last twelvemonth.—Exchange.

No Reference to Allusions.
She—You are always sneering at women who talk too much. Are you hitting at me?
He—Not at all. There are lots of women besides you who talk too much.—Texas Sittings.

An Unsuccessful Persistent Suitor.
One of the most persistent suitors who ever proposed and was rejected was the eccentric Cruden, compiler of the concordance to the Bible. Miss Abney, who had inherited a large fortune, was the subject of his attentions. For months and months he pestered her with calls and letters. When she left home, he had papers printed, which he distributed in various places of worship, asking the congregation to pray for her safe return, and when she returned home he issued others asking the worshippers to return thanks. Miss Abney never became Mrs. Cruden.—Brandon Bucksaw.

Sweet Potato Flour.
A St. Louis woman has perfected a patent to cover the process of making "sweet potato flour." The processes are those peeling the potato and kiln drying the peel so that it will keep for any length of time as a food for live stock; of drying and grinding the potato into three distinct grades of flour, and also of slicing and drying it in the form of "Saratoga" chips.—New York Telegram.

For Scrofula

"After suffering for about twenty-five years from scrofulous sores on the legs and arms, trying various medical courses without benefit, I began to use Ayer's Sarsaparilla, and a wonderful cure was the result. Five bottles sufficed to restore me to health."—Bonitacia Lopez, 227 E. Commerce st., San Antonio, Texas.

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"My daughter was afflicted for nearly a year with catarrh. The physicians being unable to help her, my pastor recommended Ayer's Sarsaparilla. I followed his advice. Three months of regular treatment with Ayer's Sarsaparilla and Ayer's Pills completely restored my daughter's health."—Mrs. Louise Bielle, Little Canada, Ware, Mass.

Rheumatism

"For several years, I was troubled with inflammatory rheumatism, being so bad at times as to be entirely helpless. For the first two years, whenever I felt the effects of the disease, I began to take Ayer's Sarsaparilla, and have not had a spell for a long time."—E. T. Housbrough, Elk Run, Va.

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