As the result of preliminary research we feel we can state that the early scientific development of liquefied petroleum gas can be credited to Dr. Walter O. Snelling of Allentown, Pa.

Dr. Snelling joined the Technologic Branch of the United States Geological Survey (which later became the U. S, Bureau of Mines) on July 1, 1907. He was Chemist-in-Charge of the Explosives Chemical Laboratory, both before and after the Technologic Branch had become the Bureau of Mines.

Although his work was primarily with explosives, his laboratory was asked to make studies and analyses of natural gas, and he became acquainted with some of the problems facing the early natural gasoline industry. The handling of this gasoline was made extremely difficult because of the presence in it of highly volatile components which constantly tended to evaporate, and which showed much higher vapor pressure than the remaining components of the gasoline. The natural gasoline industry attempted to obtain a more stable product by allowing these volatile constituents to "weather away" and they were thus lost to the atmosphere.

Dr. Snelling obtained some of the condensate which collected in cold weather in the high pressure pipe lines transmitting "wet gas" and began making tests on it. This material was very "wild" and Dr. Snelling was fortunate in having the exceptional facilities of the Bureau of Mines laboratories for his experiments so that he could confine and study the condensates that he obtained. These tests began in September of 1910.

In experimenting, Dr. Snelling decided to employ the temperature-pressure relationships of the different gases as a method of separating them. By utilizing considerable pressure and a series of coils heated to different temperatures above the normal boiling points (at atmospheric pressure) of the ethane, propane, butane, pentane, hexane, etc. of the natural gas condensate, he was able to fractionate the vapors from natural-gas gasoline, enabling him to obtain one fraction which was equal to the best refinery gasoline. This gasoline was obtained without the loss of any of the other fractions.

The remaining fractions -- propane, butane, and other hydrocarbons -- could be changed to a liquid condition by suitable pressure and cooling. He noted that the percentages of butane and propane were relatively high and that the production of gasoline from some types of natural gas would result in a considerable waste of natural resources if these volatile constituents could not be put to practical use.

It is not hard to see that Dr. Snelling, a man with many inventions and more than 200 patents to his credit could visualize that these gases, liquefied and stored in steel cylinders, would form an ideal gas for the varied uses LP-Gas now fills. Dr. Snelling at once carried on further experiements to determine the possibility of producing and utilizing butane and propane.

In this work, Dr. Snelling was encouraged by Dr. Joseph Holmes, chief of the Bureau of Mines. Dr. Holmes recognized the great scientific value of the work.

In 1911, Dr. Snelling had produced samples of relatively pure propane and butane and had stored them in liquid form. He had also conceived a plan for salvaging propane and butane from natural gasoline and distributing it as bottled gas for homes and industries beyond the gas mains.

On June 9, 1911, Dr. Snelling made formal claim to the invention of liquefied petroleum gas products and demonstrated his invention to his colleagues at the Bureau of Mines. He has signed statements by many of these men on this date.

The first disclosure to the daily press of this discovery was in March 1912. Newspaper clippings following that date declare that Dr. Snelling was the discoverer of LP-Gas. Major newspaper feature articles appeared in the Brooklyn Eagle on May 12, 1912, and in the Pittsburgh Sunday Post on September 8, 1912, listing him as the father of LP-Gas.

The May, 1912, issue of The Natural Gas Journal also contained a copy of a paper on "Liquid Gas" which Dr. Snelling presented before the Pittsburgh Section of the American Chemical Society, April 5, 1912.

Knowledge of Dr. Snelling's work in 1911 was not confined to his associates in the Bureau of Mines. On October 24, 1911, James McKeen Cattell, then editor of "The Popular Science Monthly" wrote Dr. Holmes and asked that Dr. Snelling prepare a paper on liquid gas. This letter was forwarded to Dr. Snelling at the Pittsburgh office of the Bureau of Mines. The article was not written at that time because Dr. Holmes cautioned Dr. Snelling to continue his work further before making the public notice.

Dr. Snelling applied for a patent on a method of making liquefied petroleum gases on January 29, 1912 and it was granted March 25, 1913. This became the property of the American Gasol Co. which shall be covered later.

At about the same time, separate experiments were being conducted by Frank P. Peterson at Grove City, Pa., and Chester L. Kerr and his cousin Arthur N. Kerr at Happy Hollow, Pa.

By the end of 1910 the Kerrs, working for Riverside Oil Co. claim to have succeeded in liquefying several hundred gallons of the volatile hydrocarbons. This product was about 60 per cent butane together with pentane and some propane and had a vapor pressure of 30 lbs.

Frank Peterson, who was employed by Bessemer Gas Engine Co., was also considering making practical use of the gases wasted in the making of natural gasoline. He succeeded in liquefying propane and butane by a compression procedure and was granted a patent in 1912 for a method of producing stable gasoline and liquefied petroleum gases which be believes might be used as a substitute for Pintsch gas in the lighting of railroad cars.

Snelling, Peterson, and the Kerrs realized that they had each approached the problem angle, and that cooperation might provide a solution to the problem. They could, they saw, make use of the liquid product,produced through the stage-compression method of Mr. Peterson and by running it through Snelling's process obtain a complete rectification of the material. This would produce a liquid gas which would at all times be of uniform quality, without the waste of any portion of the original gas.

Dr. Snelling was the first of these men to envision the great LP-Gas industry as it now exists. He resigned from the Bureau of Mines and encouraged the Kerrs and Peterson to join him in the formation of the American Gasol Co. This company was wholly his idea and was the first firm to commercialize LP-Gas in any way. Initially it was financed wholly by Dr. Snelling and was incorporated with money supplied by him.

Operations of the company were started from scratch. Fittings, valves, and regulators were not made for LP-Gas and had to be adapted. National Tube Co. made the first 20 bottles, each holding about 20 lbs. which sold for 10 cents a lb. The cylinder weighed over 100 lbs. when filled.

The first customer was served on May 17, 1912. He was John Gahring living at a farm outside of Waterford, Pa. Three additional domestic customers were taken on by the company and several industirial uses, such as metal cutting, were found for LP-Gas.

Additional money was brought into the company at a later date. At first 20 per cent of the stock was given to each of Snelling, Peterson and C. L. Kerr. The other 40 per cent was held for further financing. Bessemer Gas Engine, Mr. Peterson's employer, was later given 20 per cent because he wanted to assign his invention to American Gasol and Bessemer had first call on its employees ideas.

The final 20 per cent stock was given to the two Robinson brothers, officers of Riverside Oil. They allowed Mr. C. L. Kerr to participate in American Gasol and also advanced money to the company.

Officers of American Gasol became C. L. Kerr, president; O. D. Robinson, vice president; E. D. Robinson, secretary-treasurer; and these three and Frank Peterson and Dr. Snelling were directors of the company. Dr. Snelling was also director of research for American Gasol.

In setting up the company, Mr. Peterson gave Dr. Snelling valuable help in reducing his laboratory equipment to commercial apparatus and also assisted in the design and construction of the first LP-Gas installation.

American Gasol was purchased in 1913 by DeBauer for $50,000.
He organized Consolidated Liquid Gas Co. Mr. Whitfield was hired to operate this company but no gas was ever sold. The company was later reorganized as American Light and Heat Co.

This research seems to prove that Dr. Snelling was the first to conceive and to reduce to practice the separation, bottling and utilization of LP-Gas.