THE EARLY HISTORY OF THE SOAP INDUSTRY

By L. W. Bosart

From almost the earliest times of which we have any record, use has been made of some addition to water to soften it or to increase its cleansing properties.

The early Greek writers, Aristophanes and Plato, who lived about 400 B.C., mention the use of an alkaline lye.

That the Phoenicians made use of soap has been claimed but has not been satisfactorily proven.

It is mentioned twice in the Old Testament. In Jeremiah II, 22, we read: "For though thou wash thee with nitre and take thee much sope." The Hebrew word "borith," which is translated "sope," probably means potash lye. In Malachi III, 2, reference is made to "fuller's sope." The Hebrew word "nether," which is here translated "sope," is believed to refer to a mineral lye, that is, to soda in some form.

Somewhat later we find an account of a soap, resembling in a measure soap as we know it today, given by the elder Pliny who died in 79 A.D. during the eruption of Vesuvius. Pliny gives some quaint methods of treating scrofulous sores, one of which is to use the burnt hoof of an ass or horse applied with oil or water. He then goes on to say: "Soap too is very useful for this purpose. This is an invention of the Gauls for giving a red color to the hair. It is made from tallow and ashes, the best from beechwood ashes and goats' tallow. There are two kinds, solid and liquid. Both of these are much used by the Germans, by the men in particular more than the women."[1]

It is said that the remains of a soap factory with soap in a state of perfect preservation was unearthed in Pompeii, and W. L. Carpenter, author of a book on soap making published in 1885, claimed to have some of the lime from it in his possession. From this, it would appear that the Pompeiians knew how to make caustic lye from soda or potash solution by treating with lime, and combined this lye with fat to make soap.

There must have been a great deal of soap in use at this time, but there is no evidence that it was used for purposes other than those mentioned by Pliny. Pliny's work "Historia Naturalis" is a comprehensive encyclopedia of the knowledge of his day. It seems quite improbable that he would not have made some mention of its remarkable cleansing properties, if they were known at that time. Further confirmation of this is the fact that nowhere does any mention seem to be made of the use of soap in the ancient, elaborate Roman baths.

It is a matter of some speculation how these people used it on the hair.

[1] "Prodest et sapo: Gallianum hoc inventum rutilandis capillis: fit ex sebo et cinere. Optimus fagino et caprino; duobus modis, spissus ac liquidus: uterque apud Germanos majore in usu viri quam feminis."

If they worked it into a suds, they would have to use water; if they smeared it into the hair, using water would be the easiest means of removing it afterwards. How they could have used water with soap and not learned of its action as a cleanser is difficult to comprehend.

In fact, one writer, Moride, is of the opinion that what Pliny meant to say was that the Gauls merely discovered the use of soap as a hair dye, and believes the real inventors were the Phoenicians who brought their art to Gaul when they settled at the mouth of the Rhone 600 years before Christ. But it is rather difficult to read this meaning in the Latin text.

The earliest writer to mention soap as a cleansing agent is Claudius Galen, who was born in Pergamus, Mysia, Asia Minor, 130 A.D. He spent much time in Rome and became renowned as a physician. Galen states that soap is made from fat and lye (from ashes with lime) and that it acts medicinally by softening and removing the dirt from the body and clothes.

It has been suggested that soap probably originated from the accidental mixing of oil and ashes, the mixture being used as a salve for skin eruptions and similar ailments. Later it was found by chance, perhaps, that a much more powerfully acting salve could be obtained if the ashes were first mixed with water and burnt lime and then with fat or oil. Gradually such a material was attained as is known today in the interior of Algeria and which serves both for cleansing and remedial purposes. It is a yellowish, somewhat transparent soap of the consistency of jelly and contains very little water. It is made of olive oil and caustic lye obtained from wood ashes and burnt lime.

Before the general use of soap for cleansing, the ancients are said to have employed the juices of certain plants, besides wood ashes and natural soda.

They also made use of fuller's earth. This was placed on the clothing and stamped in with the feet. The grease was absorbed by the earth and removed with it on scouring. Fuller's earth is said to have been employed also as a cleansing material in bathing and to have been used by the people of Rome as late as the 18th century.

It is probable that in the earlier centuries of the Christian era the Arabs and related people knew both soap and soda, as is indicated in the Koran.

The natives of West Central Africa are said to have made a kind of soap from palm oil and the ashes of the banana and plantain.

Strange to say the Chinese, who had the earliest knowledge of so many useful inventions, appear not to have known the use of soap until comparatively recent years when it was brought in to them from Europe.

The manufacture of soap underwent very slow development for several centuries after the time of Galen, but it seems to have flourished in Italy and Spain in the 8th century, where the olive furnished the bulk of the fat used. No really great advance was made until the early part of the 19th century when the researches of Chevreul into the constitution of fatty

bodies and Leblanc's discovery of how to make soda from salt, about the year 1790, opened the way for the establishment of the soap industry on a scientific and practical basis. These two men may therefore be regarded as the founders of the soap industry. In the 13th century Marseilles became famous as a soap center especially for the manufacture of olive oil soap. Other Mediterranean coast cities, Genoa, Savona and Venice became lively competitors of Marseilles and for several centuries kept up an active trade, but Marseilles has long upheld its preëminence. Besides the name Castile, indicating its Spanish origin, olive oil soap has come to be known also as Marseilles soap.

It was quite natural that the soap industry—such as it was—should settle about Marseilles. The olive tree with its oily fruit flourished in the South of France; moreover it was a seaport town so that it was in easy touch with the olive districts of the Mediterranean. Sea plants were close at hand which on being burned gave barilla, a crude soda which was used as a base for making hard soaps, while neighboring forests furnished wood from the ashes of which potash for soft soap could be obtained.

Soap does not appear to have been known in England at all until the 14th century. The first record of its manufacture there was in 1524. In 1622 an English soap company was granted a monopoly for the manufacture of soap, paying a yearly tax of 20,000 pounds for 3000 tons.

A monopoly was also formed in France in the 17th century.

Even at this early date there were complaints about adulteration and in 1688 the French government laid down definite rules for its manufacture, allowing the use of only barilla, soda, ashes and olive oil, without other fat or other material. But this was not entirely satisfactory and these rules were later revoked and with the outbreak of the French Revolution withdrawn entirely.

Two factors which developed about the beginning of the 19th century were of the greatest importance for the progress of the soap industry. One of these was the investigation of Chevreul into the constitution of fats, which gave to science the first actual knowledge of the chemical nature of fats and oils and consequently of soap; the other was the discovery of a means of making soda from common salt.

The soap industry was dependent for its existence on an adequate supply of soda or potash. It is probable that natural soda or natron was early brought into Italy from some of the Mediterranean coast countries of Asia and Africa, for considerable quantities of soda must have been available to supply the large glass industries of Italy. Certain it is, however, that wood ashes and barilla (the ash of seashore and sea plants) were the greatest sources of supply of alkali for soap making until about a century ago.

In 1775 the French Academy of Science offered a prize of 2400 pounds for a satisfactory method of making soda from salt.

De la Méthérie proposed to ignite sodium sulfate, made from salt and oil of vitrol, with charcoal. But the product of this reaction was principally sodium sulfide.

This, however, suggested the solution of the problem to Nicolas Leblanc, physician to the Duke of Orleans. His thought was that the addition of chalk or limestone would cause the formation of soda. Jean D'Arcet, professor of chemistry of the College of France, tried it out in his laboratory and made a favorable report. The Duke of Orleans advanced 200,000 francs to exploit the process and a factory was erected at St. Denis near Paris for the purpose. This was in successful operation for several years and produced from 500 to 600 pounds of soda ash per day. Then reverses came. As a result of the Revolution in France the Duke met his death on the guillotine, the plant at St. Denis was confiscated, the supplies sold and Leblanc was forced to reveal the secrets of his process for the good of the commonwealth. Leblanc was ruined. In 1800, by way of compensation, his factory was returned to him, but he was unable to get financial assistance and finally in 1806 in poverty and despair he took his own life. The prize which he had fairly won was never paid him. Eighty years later a monument was erected to his memory in Paris.

Fortunately his discovery lived on, but was exploited to a much greater extent in England than in France. It was not until about 1824 that James Muspratt began the manufacture of soda on a large scale in England. At first there was a certain prejudice of soap makers in favor of barilla to be overcome, and it is said that he had to give away this much purer product by the ton before he could get them to use it and to realize that it was actually a better and more economical material.

It would be difficult to overrate the value of Leblanc's discovery both to chemical industry and to the world's civilization. Certainly without it there would have been no great soap industry. The modern glass industry is also dependent upon the artificial production of soda. Great quantities of sulfuric acid were necessary to convert salt into sodium sulfate. This acid, which is essential to so many chemical industries, was therefore produced on a greater scale and at a lower price. Hydrochloric acid, chlorine and sulfur were valuable by-products which played a part in the development of other chemical industries.

The Leblanc process has served its purpose. That it has been almost entirely displaced by the ammonia-soda process of Solvay, does not in any way detract from the value of the part it played in the world's progress and industrial development.

In the early days of this country soap making was practised as a household art. The ashes from burnt wood were saved and leached out with water. This solution was boiled with the kitchen fats or the suet from slaughtered animals to produce a crude form of soap. Early in the 19th

century the manufacture of soap began to develop into a separate industry. Manufacturing plants were established in most of the larger centers of population. The industry has been marked by a continuous and rapid growth and today about two and one-half billion pounds of soap are produced annually in the United States.

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