Participatory Educational Research (PER)
Special Issue 2016-III, pp., 224-235 November, 2016
Available on
line at http://www.partedres.com
ISSN: 2148-6123

Kitchen Lithography as an Alternative to Traditional Litography

Tezcan BAHAR* and Sevgi KOYUNCU
Ondokuz University, Samsun, Turkey

Abstract
Handprints which is known that made on the cave wall thousands of years before, footprints left by our feet in the seaside or fingerprints that we used instead of signatures in the past are just a few of the actions that a signing and reproduction of human being. It is seen that the reproduction action is developing, expanding and specializing in time. Especially the after the Industrial Revolution, printmaking area comes in an important point, associated with the increase of technology development and material diversity. Multiplication techniques like posters, stamps and photocopying has become part of our daily lives. Every technological innovation emerged is affects also printmaking significantly like in all fields. In particular, the acceleration of variety of materials is forced to emerge new techniques of printmaking. The newest printmaking techniques has variations from traditional printmaking techniques. It is required to reveal the variations. "Kitchen lithography" is one of these new (alternative) printmaking techniques. Comparison of the traditional lithography and kitchen lithography which could be an alternative to traditional lithography is done practically. These differences have been presented in the paper by putting them into writing. As a result of this study, it is seen that unlike the traditional lithography, kitchen lithography can be applied without harmful chemicals (acid, thinner types, etc.). Compared to traditional lithography in this technique results are received faster and students or artists doesn't have to work in a specifically arranged studio. Being cost-efficient and not holding complex process steps are among other acquired results about kitchen lithography. This technique is defined that not only by professionals but also be used by amateurs. It is inferred from the results that kitchen lithography has features that even children can apply therefore it is expected to it can be used widely.

Key words:art, printmaking, lithography, kitchen lithography

Introduction

Art started with the existence of human beings and developed for ages with the improvements in social, economic and technical knowledge of human beings, and reached in our today's world (Ilbeyli, 1994, p. 58). The handprints, which are known to be painted on cave walls thousands of years ago, the prints left by the feet on the beaches, or the fingerprints used in the past instead of signatures are only a few of the examples of the will of mankind to

* tezcanbahar@gmail.com

leave traces behind or for the desire to re-produce existing things. The action of re-producing increased especially with the invention of printing press and had a wide variety from then on. In time, the aim of re-producing evolved as an artistic activity and not for merely re-producing texts, and then the art of "print making" came into being. Print making lies in a line that reaches to human beings easily because of being re-produced easily and because of including all the characteristics of painting pictures and due to its being authentic (Ilbeyli, 1994, p.59). Print making has a different structure not only with its specific contents but also with its technical characteristics, and handles the aesthetical concern in the field of art with its own methodology together with its technique and materials (Ilbeyli, 1994, p.60).

Figure 1. Cueva de las Manos, 7300 BC, Argentina

Print making continued its development in a fast pace with the development of technology and with the increase in the variety of the materials especially after the "Industrial Revolution", and became a separate and unique branch of art by being separated from graphic arts. In late 19th Century, Print Making had certain advantages and priorities when compared with the other fields of art in which some of the artists were interested deeply. For example, the use of materials is more; and it is open for using experimental methods. These details brought print making to be one of the most interesting branches of art by artists of other fields as of 19th Century. It is possible to define Print Making, which attracts the attention of artists deeply, as follows: The painting, which is performed by the artist by pressing on paper or any other similar material with artistic concerns in all stages from the preparation of the mould to the printing (Atar, 1993, p. 83). "*Anything that is made in a re-producible format is a printing. Photocopies, rubber stamps, seals, photographs, posters, the T-shirt printings we like most, the printed papers you have from computer, etc. These are among many examples of printed materials we can meet in our daily lives*" (Grabowski & Fick, 2012, p.7). Print Making is defined as "*stampa*" in Italy; "*estampe*" in France; and as "print/printmaking" in England.

The moulds in some of the authentic printing techniques are made by carving with hand. The paintings that are made by pressing these moulds are called as "gravure", which means "carved" in French. However, the term "*gravure*" does not imply the authentic printing art as a whole because in Print Making (stone printing) the techniques of some other art

branches such as serigraphy (screen printing), collotype (licdruc i.e. printing with light) are also made use of (Aslıer, 1992, p. 50). For this reason, the term Print Making, which was mentioned with words like “art graphics”, “gravure” and “carved picture” previously in our country, was used as “authentic printing” in 1972 by Prof. Mustafa Aslıer in a way that covered all techniques, and was adopted by masses from then on. The “authentic printing” did not have any differences from painting in terms of aesthetical value, and was used as “authentic printed painting” and “Print Making” in later years. Today, it is generally referred as “Print Making”. It will be used as Print Making in the further sections of this text.

When the historical development of Print Making, which is one of the branches of graphics art, and which includes several printing techniques, is considered, it is observed that it dates as back as the paintings made on cave walls, which were the first production of art by humans. In these early examples, it is noticed that there are hand printings on the cave walls. Sumerians and Assyrians determined the first method of printing technique by rolling clay on carved cylinder seals. Egyptians and Babylonians painted meaningful shapes that were carved on wood slightly and used them as seals, and formed the first movement point of “wooden printing art”. In 105 AD, paper was invented in China, and wooden seals were printed on water-based paint (drawing ink) on paper and silk (Akalan, 2000, p. 2). With the increase in inventions and in the variety of materials, the Print Making, i.e. the print making techniques also developed and reproduced. When we consider the history of Print Making in Europe, we can see that the starting of Print Making dates as back as the 15th Century in Central Europe. In this age, wooden moulds were carved to print the pictures of religious books. Again in 15th Century, the first metal gravures were printed especially on copper. The spread of Renaissance in the Western World brought with it the art of carving pictures on wood and metal sheets and printing them. This made it become the art of the painters from being the art of jewelers (Aslıer, 1992, p. 50). Towards late 18th Century, the opportunities for colored printing increased with the invention of print making, and therefore the art of print making was accelerated. In late 1840s, Print Making became an efficient means of expressing oneself in history of art; because in early years of Print Making, it had the role of today’s printing for those who were illiterate. In other words, the purpose was not art. When Print Making is considered in terms of its real purpose, it is observed that it formed a process that covered the social, political, technological, spiritual and aesthetical concerns of human life (Ilbeyli, 1994, p. 59).

The traditional Print Making techniques are separated into four categories: Relief Printing, Intaglio Printing, Offset Printing, and Grid Printing. This separation has been made by considering the mould and method-technique used. The digital printing has also been added to these techniques today.

Lithography (Stone Printing)

Lithography, or stone printing, is one of the Offset Print making techniques. In Lithography Technique, there are no high or hollow areas, which is different from the Relief Printing and Intaglio Printing techniques. The stone used has a smooth surface, and the technique is performed with chemical methods not with physical methods. It is performed when the water pushes the areas that are formed with oil ink on limestone that has a surface that is sensitive to oil. The basic principle of lithography is the water and oil pushing each other. Lithography is considered as the starting point of modern Offset Printing. Lithography technique was invented in 1798 by German AloisSenefelder. Senefelder looked for a way to

print the musical notes in a cheaper way, and started his research in 1796; and a few years later, the Lithography technique emerged. Senefelder improved his technique in time; and in 1800, presented the "A Full Depiction of Stone Printing" to the Inventions Office in England (Atar, 1995, p. 70).

Lithography technique has been connected to commercial applications from its early years. Senefelder himself used stone-printing to perform the re-productions of the music notes and the other printed materials for the theater. The income he obtained from these projects ensured that he developed the techniques that attracted the attention of prominent artists (Grabowski & Fick, 2012, pp. 158-159). Francisco Goya (1746-1828) and Henri Toulouse-Lautrec (1864-1901) were the first artists who used the Lithography Technique for the first time. Goya is especially famous for his four Lithography series named Taureaux de Bordeaux. Lautrec came to the front line with the posters he made with Lithography Technique. It is possible to add Hanore Daumier, who produced more than four thousand Lithography works about the French culture and policy, to these two names. The method that was found by Senefelder came to our today's world without major changes. Today, aluminum plates are also used as well as stone in this technique. Before aluminum plates are used, they are made to become grained, and thus they are prepared for drawing and printing.

The technique is extremely complicated. Fine-filtered stream sand, silisium or emery powder is sprinkled onto the surface of the stone, moistened, and moved regularly by placing a stone on it. As a result of the friction, the surface of the stone is cleaned and also grained. Oil Bography Ink or water-soluble touching ink is used to work on the cleaned stone surface. When these materials are not available, an acetate pen, or eyeliner may also be used. During this work, it is possible for the artist to use all the wealth and opportunities of the technique (scratching, spraying, templates, material printing, and photo-stone printing, buffering etc. techniques). After the study is over, dust resin is applied to the surface of the stone with a clean cloth, it is then cleared, and talcum powder is applied, and cleared again.

2% nitric acid and Gum Arabic mixture is applied with the help of a brush or sponge, and kept waiting for at least 12 hours. The surface of the stone is washed with plenty of water; the work is cleaned with turpentine, and washed with plenty of water. The surface of the stone is kept moist and Withdrawal Ink is applied with a rolling pin, and the work re-appears. The surface of the stone is dried, talcum powder is applied, cleaned; nitric acid and Gum Arabic mixture is applied, and kept for 15 minutes. It is cleaned with plenty of water. It is cleaned with turpentine, and washed with water. Printing ink is given with a rolling pin to the surface of the moist stone, and the printing process is completed in press (Atar, 1993, pp. 92-93).

Figure 2. AloisSenefelder (1771-1834), Lithography

Probably, the most difficult one among the Print Making techniques is Lithography, because this technique has complex process steps. The duration that is spent until the completion of the work is extremely long when compared with the other Print Making techniques. In addition to these, the tools and materials used cannot be obtained easily and are expensive, making the applicability of this technique be influenced negatively.

Kitchen Lithography as an Alternative Print Making Method

Print Making techniques are generally performed in Print Making Workshops that are furnished with various tools and materials. Lithography Technique is most probably the one that requires the most equipment and special technique opportunities, and covers complex process steps. For this reason, its applicability in workshops that do not have full equipment is extremely low. Lithography Technique, which is one of the Offset Printing techniques, is based on the principle of water and oil pushing each other. Kitchen Lithography is also based on this basic principle. For this reason, its name is Lithography in English, which is derived by adding two words, “stone printing” and “kitchen”. The reason of using the word “kitchen” is the fact that the materials we can find in a kitchen play the basic role in performing the technique. The most important characteristics of this technique are its being easily applied by everybody and the materials being easily available.

French ÉmilieAizier started to try and develop this technique in 2009. In 2011, Émilie was accepted as the inventor of this technique, and named this technique as “Kitchen Lithography”. ÉmilieAizier searched for a Print Making technique that would be applied without using thinner and turpentine, which are used in Lithography, because these substances influenced health in a negative way; and he received positive results after many experiments. At first, ÉmilieAizier used aluminum sheets; however, later tried aluminum folio, which we used in our kitchens, and received successful results. In addition, Aizier also discovered that the vegetable oil was also useful for the same function as turpentine, which was a toxic substance used for cleaning the drawing on the sheet; and thus, the Kitchen Lithography technique appeared.

The most distinctive characteristics of this technique are not using the harmful substances, which are used in Lithography. Substances that contain toxic vapor such as turpentine, acid and thinner are not used in this technique; and with this property, it does not pose a danger especially for children and people who are influenced easily by these substances. The oil pen used when drawing on the surface with vegetable oil, pastel, replace turpentine to wipe the oily ink. As the corrosive element, phosphoric acid, which is used in coke, or soda, fruit juice, vinegar and similar liquids, which have relatively adequate acid, are used instead of the nitric acid used in Lithography. Kitchen Lithography is extremely advantageous in terms of speed. It saves time for the user because it does not have complex processes in preparing the stone, which is the case in Lithography. Since aluminum folio is ready in terms of surface, there is no need to apply extra processes onto it.

Figure 3. A Kitchen Lithography Example Done By ÉmilieAzer. (2012)

The materials used in this technique are easily available everywhere, and meanwhile do not require high costs like the ones used in Stone Printing. Folios, corrosives (coke, soda, vinegar) and oil are materials that are available everywhere. The printing press paint may be used as printing paint. In printing trials, oil paint also gave positive results. Oil paint is easily available almost everywhere today. A wooden spoon replaces the Lithography Press, which is heavy and expensive in the printing stage. The pressure applied with a wooden spoon is adequate to transfer the drawing on the surface to the paper.

It is considered that aluminum folio press technique is an extremely practical technique especially because of the facility in usage in educational institutions, not using harmful materials for health, and receiving quick results in a short time.

Kitchen Lithography Application

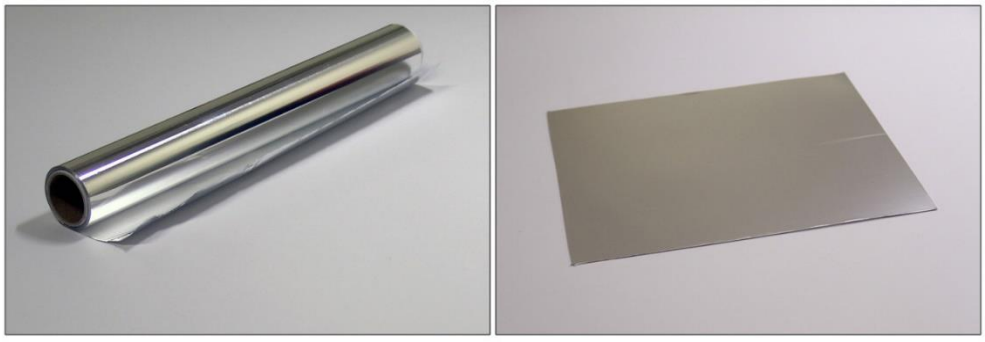
Required Materials:

- Plastic or metal sheet for stretching the aluminum folio: The acetates sold in stationery stores in 0.45 micron are the most ideal sheet to stretch the aluminum folio. It is easy to cut acetates, and they are not heavy.
- Aluminum folio in the form of roll that will be used as mould and on which the work will be drawn. These types of folios are easily available in many markets, and the ones that are thicker are stronger and endurable. For this reason, the mould-type aluminum folio should be preferred.
- There are many alternatives for drawing. The oil pen, acetate pen or the eyeliner used in Lithography are the ideal drawing tools. Aside from these, wax, pieces of soap and oil pastel may also be used for drawing.
- Instead of nitric acid, coke is used as corrosive. The cokes that include phosphoric acid should be preferred.
- A rolling pin with medium-hardness to apply the paint onto the drawing.
- Printing ink or oil paint.
- Two pieces of natural sponge to moisten the surface of the sheet.
- A wooden spoon that will be used to transfer the work to paper.
- A paper towel that will be used to increase the pressure when transferring the work onto paper.
- A spatula that will be used to mix the paint.
- Powder that will be used to decrease the stickiness of the paint.
- Adhesive tape to fix the aluminum folio to the surface.

Aluminum folio replaces the stone in Kitchen Lithography. Aluminum folio is sold in various thicknesses. Generally it is 30 cm wide and 10 or 30 meters long. There are aluminum folios with 10 and 12 micron thicknesses available in the market.

The aluminum folios that are sold in 12 microns, which is known as “thick folio” should be preferred in Print Making. The folio’s being thick increases its endurance. In addition, when buying folio for Print Making, the surface should be smooth and there should not be folds on its surface.

Figure 4. Aluminum Foil and Mold



Basically, the materials have oily contents and are materials that have additives resistant to acid like wax, which is the case in Lithography. Oil pastel, acetate pens, eyeliner, oil soaps and similar materials may be used for drawing. Since aluminum folio is very thin, it is easily folded, and for this reason, it is necessary to stretch and fix it on a hard and smooth surface. When drawing on the folio, a piece of paper must be placed under our hand to avoid

the contact of our hand to the folio, which is also the case in Lithography; and the drawing must be performed in this position.

Figure 5. Aluminum foil stretching on acetate

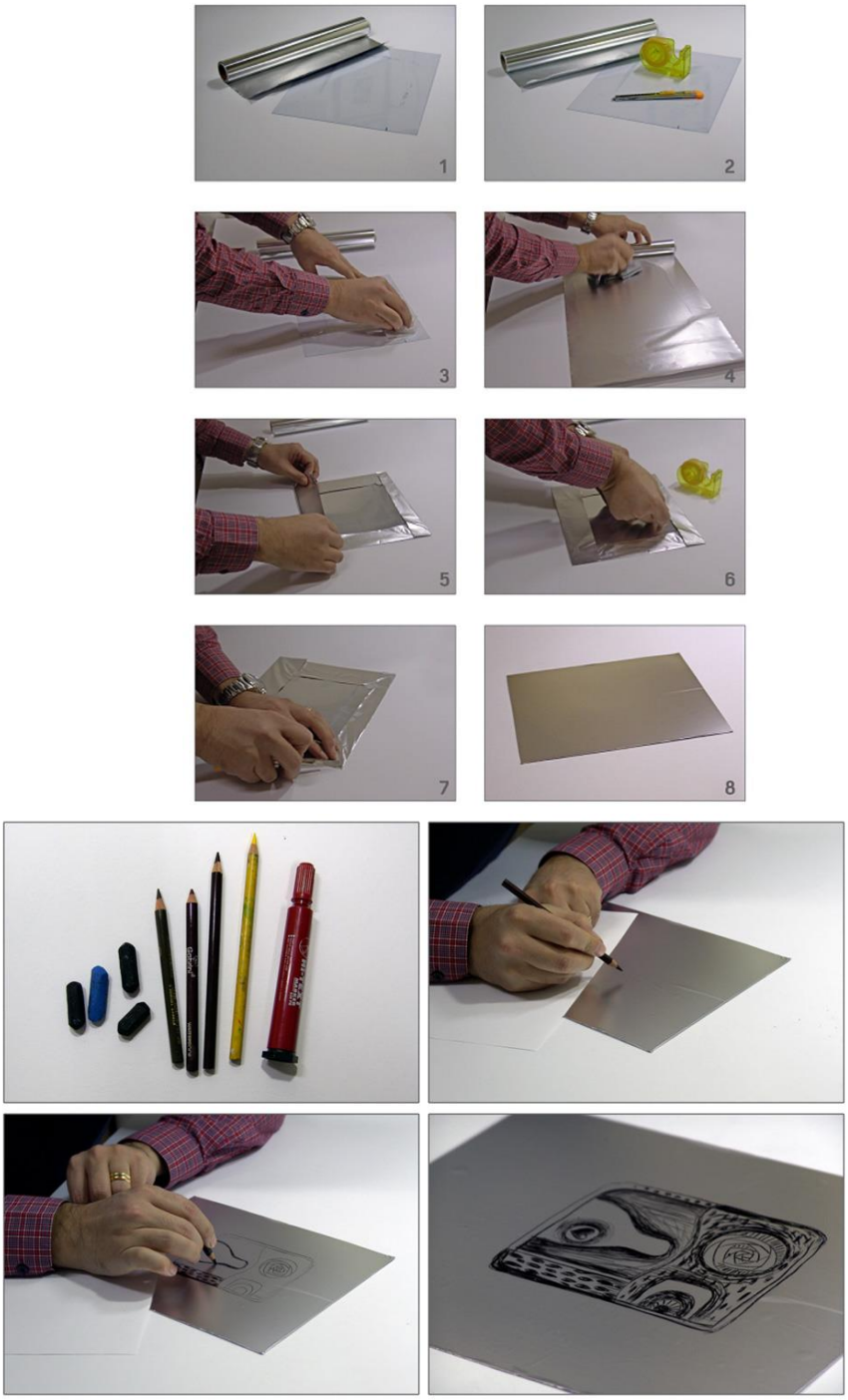


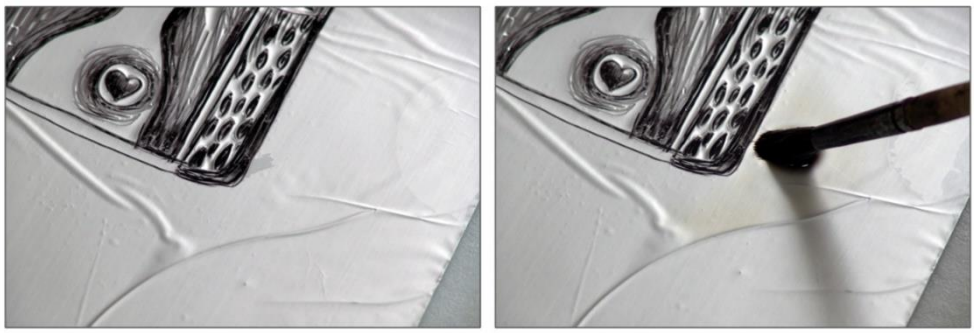
Figure 6. Drawing on foil

After the drawing is made on the folio, the corrosion process should be started. In this step, coke is used as corrosive. The coke is poured into a container in which the mould can also be placed. The mould is placed into the coke, and kept there for a little while, and then removed. During this process, a soft brush is used to pass over the drawing to ensure that the coke penetrates into these areas.

Figure 7. Corrosion of foil with cola

The folio mould should be kept under water to ensure that the coke on it is totally cleared. In areas where the corrosion is not observed after this stage, the brush should be used again to apply corrosion fully. If these areas are left without applying corrosion, these areas receive paint when the paint is applied, and the paint stays in these areas, which is not desired.

Figure 8. Applying corrosion with brush to the areas that are not corroded.



After Aluminum folio is completely cleared from coke, the press stage starts. The surface of the folio is moistened with natural sponge. The stickiness of the paint that will be used (oil paint, printing ink) is decreased by adding powder. When powder is not added, the paint collects on areas that are not desired on the folio. The paint is given to the moistened folio with a hard rolling pin. The folio must be kept moist continuously when applying this process. Otherwise, the paint stays in areas other than the drawn area. If there is paint in these areas, these areas are wiped with wet wipes to clear the extra paint.

It is possible to press the work without Lithography Press. In the first method, the work is placed on the Intaglio Printing Press, and a paper without tissue is placed onto it, and press is applied. If there is no Intaglio Printing Press, the work may be printed by hand. In order to do this, the work is placed on a hard and smooth surface, and a piece of paper is placed on it. Pressure is applied on it with a wooden spoon, and the work is transferred onto paper. If the pressure applied with wooden spoon is not adequate, a towel may be placed on

the paper to increase the pressure. Positive results may be received by using this method without the need for a press.

Figure 9. Pressing work with spoon

In press trials, 20-30 prints may be obtained without damaging the mould. This number is adequate when the facility of the technique is considered. It is considered that an adequate number is obtained especially for students. It is also possible to work with colors in this technique. In color works, the work is completed by following an order beginning from light color to dark ones, which is the case in relief printing.

Figure 10. The press stages of colors in kitchen lithography technique

Figure 11. Kitchen Lithography works of academician TezcanBahar in "*Authentic Print Making Workshop*" in Fine Arts Faculty in Priština University (Kosovo) between November 16 and November 20, 2015.

Results

In addition to technological developments, the increasing variety in materials also led to developments in alternative Print Making methods, and ensured that new Print Making techniques appeared in this field. In technical terms, Kitchen Lithography is similar to Lithography, which is one of the Offset Print Making techniques, and has emerged as a result of the direction of today's artists towards experimental and alternative methods.

Classic Lithography technique requires too much time, and there are some problems in obtaining the tools and materials. This technique is performed with limited time and limited material opportunities. The majority of the materials used in Classic Lithography (acid, thinner, etc.) pose drawbacks in terms of health. Some of these substances are dangerous due to their physical structures.

It is possible to claim that traditional Lithography Technique has several negative sides in terms of cost, time and health. For this reason, it is necessary to emphasize the Kitchen Lithography, which may be an alternative for the existing Lithography Technique. It is possible to list the advantages of Kitchen Lithography technique as follows:

- The substances that are harmful for health (turpentine, thinner, etc.) are not used in Kitchen Lithography. Because of this property, there is no danger for children and people who are influenced easily by harmful substances.
- This technique may be resulted in a shorter time period. In traditional Lithography, at least two days are necessary to complete the work, while it requires one or two hours in Kitchen Lithography.

- There is an extremely convenient cost in economic terms. The materials used in Kitchen Lithography are easily available everywhere with low costs.
- Since it is a technique that produces quick results in a short time, many works may be produced in a shorter time period.
- The necessity for working at a fully equipped workshop is eliminated.
- Since the stone used in Lithography (Stone Printing) is extremely heavy, it requires extreme strength to move the stone and make it ready for printing. Although it is heavy, it also has a fragile structure. The physical structures of the materials used in Kitchen Lithography do not force the user. The aluminum folio used as the surface is light and easily cut.

Non-toxic techniques are becoming widespread especially at schools in recent years in Print Making field. It has been determined that this technique may be used not only by professionals but also by amateurs.

At the end of the study, it has been observed that this technique has properties that may be applied even by children, and therefore it may easily be used commonly.

References

Akalan, G. (2000). *Gravür*, Ankara: KaleseramikSanatYayınları

Aslıer, M. (1992). Grafiksanatlartarihveyorumlar, *Marmara ÜniversitesiGüzelSanatlarFakültesiYayınları, 2, p.50*

Atar, A. (1993). ÖzgünBaskıresimTeknikleri. *Sanatveişteknolojisi(ss.82-98).*Eskişehir: AnadoluÜniversitesiAçıköğretimFakültesiYayınları

Atar, A. (1995). *Başlangıcındangünümüzetaşbaskı*, Eskişehir: AnadoluÜniversitesiYayınları

Grabowski, B. Fick, B. (2012). *Baskıresimkapsamlımateryaller&tekniklerrehberi.* İzmir: KarakalemKitabeviYayınları.

İlbeyli, G.(1994). Baskıresim. *AnadoluSanat,* 2, p.58.

https://tr.wikipedia.org/wiki/Dosya:SantaCruz-CuevaManos-P2210651b.jpg, 20.08.2016)

http://alchetron.com/Alois-Senefelder-1105360-W , 21.08.2016