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Instrumentation for Decoration of Folk Textile as Source of Contemporary Print (on the Examples of Lithuanian and Western Ukrainian Folk Items)

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1. Introduction

The textile prints have soundly taken their place among the modern interior design. On the other hand, they have become especially popular as an element of clothing decoration. It is also easy to create drawings on the textile fabric surface at home by using the imprint of the paint previously applied to the stamp. This again popular method was known in Asia, Europe and America since ancient times because the primitive stamping on the cloth surface exists for about 3000 years.

The Lithuanian Folk printing is thoroughly analysed in the article by O. D. Aleknienė [1]. In the album about the printing of Estonia [2] some of the presented ornaments have analogues of décor of both Lithuanian and Ukrainian wooden clichés for fabrics. Fundamental research about this old method of fabric printing in Ukraine is still not published, despite the fact that the manuscript by R. Dutky was prepared [3]. In 20th c. Eastern European printing for folk textile, in particular Polish and Ukrainian studied R. Reinfus [4].

The aim of this article is to present an analysis of oil and water folk textile printing instruments and techniques, typology of stamps and to clarify some local names of printed products. The novelty of this research is the first try to analyse and compare Lithuanian and Ukrainian instrumentation for decoration of folk textile.

2. Materials and methods

The objects of this study are folk wooden clichés and stamps for hand textile printing which are stored in the museum's collections of Lithuania and Western Ukraine, also methodology and peculiarity of printing process. The scientific value of the performed research is the possibility to supplement the knowledge about the cultural heritage of both Lithuanians and Ukrainians. The received information will be a practical impulse for the popularization of traditional artistic handicraft as a marker of folk identity in modern processes of total globalization.

The collections of the Andrey Sheptytskyi National Museum in Lviv, Klementii Sheptytskyi Museum of Folk Architecture and Rural Life and Museum of Ethnography and Crafts (MEC) of Ethnology Institute of the National Academy of Sciences of Ukraine are the sources for the study of Ukrainian printing. 289 units of exhibits concerning printing of folk textile are stored in the funds of the last mentioned museum. The listed artefacts collections according to territorial distribution belong to the ethnographic localities of Western Ukraine: Boikovshchyna, Sambir-Zhidachiv's Pidhiria, Opillia, Nadsanya, Volyn, Western Podillia.

The National Museum of Lithuania in Vilnius (NML) stores 20 exhibits related directly to the mentioned technique of folk textile printing. The adornment of this collection is square board for vegetative ornaments printing (Fig. 1).



Fig. 1 Printed weaved fabric (fragment). Flax. Printing “verchova”.
The beginning of 20 c. MEC № EII 23647 Photo O. Bolyuk

The National Art Museum in Vilnius holds two clichés for textile decoration using discussed printing technique. Textile printing instruments stored in Lithuanian museums were found in all ethnographic regions of Lithuania but most of these artefacts were discovered in the Southern part of the country Dzūkija.

3. Results and discussion

The technique of the textile printing in the special literature has several synonyms: textile printing, blue print. This folk textile decoration process can be performed using several different methods of printing. The first method is “verchova”, when oil paint does not penetrate deeply in a fibre. In this case, the ornament is moved from the paint-coated wood stamp onto the fabric surface by stroking with a hammer through the back side of the cliché or by pressing of the damp fabric with a roller to the cliché which is located under him.

A different kind of printing (“kubova”, aqueous) is obtained by immersing in the tub “kub” with a boiled special dyeing liquid. Before the fabric is dipped, the areas of the ornament, which must remain of light tones, with printing stamps were covered with special substance as wax, wax compounds or compositions based on adhesives and clay with copper sulphate. The background can have a colour from woad blue to a pale blue (lunar) hue. Soot or rust with oil were used in the Ukrainian oil-stained textile printings, respectively dominated achromatic colouring.

The third way of drawing white or light ornaments on already painted textile surface is a surface-discharging by lemon or wine acid, chlorine lime of the certain (“reserve”). And the last way is a combination of colouring of a background and stamping of drawing in places of “reserve”, after its removal.

In Ukrainian language dialectical names of products decorated with the help of this technique also are known: “dymka” greyish colour of the picture resembles shades of smoke; “malovanka” (from the word “maljuvaty” is “to draw”), that is, the master “draws” on the fabric ornamental compositions carved clichés; “farbanka” (from the word “farbuvati” is “to paint”).



Fig. 2 Cliché. Wood. For textile printing. Museum of Gudai 16th c. 18x17 cm
NML IM 5564. Photo A. Baltėnas.

Wooden carved forms (called “maniery”) or a cliché from a beech, a birch or an oak were used for drawing of ornaments on the fabric surface. Such

instruments are of three kinds. The first of them consist of a board, closer to the form of a square, the side of which exceeded half a meter (Fig. 2).

Another kind of a board is similar to the first one and has difference only in the form and dimensions: (20 x 105 cm). As well as square boards, they come with one-sided or double-sided carved pattern (Fig. 3).



Fig. 3 Cliché. Wood. MEC Inv. № EM8989_EII38220. Photo O. Bolyuk

The third type of the textile printing instrumentation is a small stamp (in the cross section of pyramidal shape), ordinarily with a handle. The main part of it is tightly glued layers of boards, the bottom “robocha”, which is carved from solid wood (beech, oak, maple, pear), and the upper parts can be made from coniferous breeds (Fig. 4).



Fig. 4 Stamp for the kit. Wood. MEC. ME_HT-301/KB-16286
Photo O. Bolyuk.

Additional instrumentation includes a soft lining on the table for amortization the board while printing; studs, by which board was fixed to the fabric; special hammers “tolochyky” (“podushky”), by means of which oil paint was allocated on a surface of a carved cliché and beat off on the fixed fabric. Such “podushky” on the front side were covered up with leather and filled with wool fibers or sawdust. Wooden spatula was needed for painting a “podusky” and a clay pot was needed for making of dyestuff (Fig. 5).

A special kind of handmade printing were stamps made from potatoes, beets, carrots among peasants. Even in the middle of the 20th century such primitive tools could paint on the surface of paper wallpapers, directly on the walls

or other surfaces, thus reminding the original nature of the manual kit on the “coltrynach”, “shpalerach”, “tapetach” the wall upholstery of rich interiors.



MEC Inv. № EII15174 MEC Inv. № EII15166

Fig. 5 “Podushky” for printed fabric. Wood, leather, fibre.
The first half of the 20th c. Photo O. Bolyuk

Ornaments of the boards on the studied territories of Western Ukraine and Lithuania are divided into vegetative and geometrical ornamental groups, which in their turn divide into species. In rare cases the printings of both countries have zoomorphic and skeuomorphic (subject) motives. As exceptions the printed inscriptions can be considered, the complexity of the manufacture of which is the fact that the text on the surface of the cliché should be mirror image of the text on the cloth so that the product phrases can be read correctly.

The key parallels of comparative analysis are based on the national products of Lithuania and the Western part of Ukraine for several reasons: roughly equal territories of two European countries with a common century's old history are taken; it is taken into account manufacture of home tissues from flax, hemp and wool for a long time. In the research of the folk textile printing, as a folk cultural phenomenon, the issues related to the uneven distribution of its spread, different conventionality of the consumption of the printed fabric as well as the favourite motifs of patterns remain open. The main distinguishing fact between the Lithuanian and Ukrainian remains disproportionate use of products from folk textiles, decorated with oil and water printing. On the basis of the fact of presence of a larger number of printed products in Dzukija the hypothesis about intense influence of Grodno, Polotsk and Vitebsk on this Lithuanian folk region is arise.

4. Conclusions

The presented part of carved printings for folk textiles convinces that the distribution of this kind of folk arts and crafts on the territory of Lithuania and Western Ukraine and its intensive use during a certain period can be regarded as a significant marker of the uniqueness or universality of specific folk fabrics in both countries.

The presented instrumentation for printed fabrics can become an important source for the expansion of design technologies in the industry.

In modern conditions difficulties of preservation of national identity, multiplication of brands recognizable by people and even search of originality, individuality of the adherent of folk style is a stage of cultural process which begins to revive.

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References

1. **Alekniėnė, O. D.** 2006. Printed textile in Lithuania. *Etnografija*, 13-14 (2003-2004), 122-137 p. (in Lithuanian).
2. **Konsin, K.** 1970. *Trükipakud*. Tallinn: Kirjastis “Kunst”, 15 c. (in Estonian).
3. **Dutka, R.** (1995). Ukrainian printed woven cloths. Dissertation presented to archivement of Candidate’s degree in Art Sciences; speciality 17.00.06 – Decorative and Applied Art. Lviv Academy of Arts, Lviv. (in Ukrainian).
4. **Reinfuss, R.** 1953. *Polskie druki ludowe na płótnie*. Warszawa: Państwowy Instytut Wydawniczy, 254 p. (in Polish).

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