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Author(s): John. C. Huntington

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THE TECHNIQUE OF TIBETAN PAINTINGS

JOHN. C. HUNTINGTON

Abstract—Using written accounts of observed methods and materials of Tibetan paintings as well as examination of numerous examples, the techniques of Tibetan paintings, especially paintings on cloth, are discussed. Brief mention is made of the regional styles of Tibetan painting, since the techniques used in the production of these paintings apparently vary throughout Tibet and China. Various types of supports are mentioned and analyses of the types of cloths are given. The preparation and materials used in the ground, pigments and preliminary drawings and prints are discussed. The iconometrics of Tibetan painting are mentioned, since the total conception of the object is dependent upon them.

INTRODUCTION

Until recently, the regional nature and chronological developments of the styles of Tibetan painting had hardly been studied. Correct identification of style, however, is necessary so that proper treatment may be carried out in the Conservation Laboratory. The earliest known Tibetan paintings are stylistically very closely related to the art of the later Pāla and Sena dynasties of Eastern India during the 11th- and 12th-centuries. These paintings are only rarely found, and the few known examples are distinctive in their simplicity and boldness when compared to the later examples of Tibetan painting (Figure 1).



FIG. 1 Nepalo-Tibetan school of painting, 14th-century, 'Ratnasambhava', Courtesy of the Los Angeles County Museum of Art, Heeramanek Collection.

Nepalese painting stems from the same Pāla-Sena sources as the Tibetan styles. However, the Nepali school of painting from the 14th- to the 16th-century served as a constant source of stylistic influence on the styles of Tibet. It may therefore be postulated that there is a Nepalo-Tibetan school of painting in south central Tibet which is seen principally in the

painting of the Sa-skyapa sect (Figure 2). Other Nepalese-influenced styles may be found in the region known as sNar-thang in western Tibet. The earliest type of sNar-thang painting is very close to the painting of central Tibet and is also very closely related to the Nepalese tradition (Figure 3). In Guge, in far western Tibet, during the 16th- and 17th-centuries, a completely individual style of painting developed which, while still strongly Nepalese, contained at least some influence from Kashmir (Figure 4).



FIG. 2



FIG. 3

FIG. 2 Nepalo-Tibetan school of painting, Sa-skyapa subschool, late 15th-century or early 16th-century, 'Two Teachers of the Sa-skyapa sect', Courtesy of the Los Angeles County Museum of Art, Heeramanek Collection.

FIG. 3 sNar-thang school of painting, 15th-century, 'mGon-po', Courtesy of the Los Angeles County Museum of Art, Heeramanek Collection.

Because of the political situation in central Tibet, very little remains from an early date. The few extant examples show a great deal of Chinese influence and are somewhat a problem in date, but may be from the 14th- or 15th-century (Figure 5). Later central Tibetan painting may be identified as the Lhasa style and is a product of the dGe-lugs-pa or 'Yellow Cap Sect'. It is the style of this sect that was exported to China and Mongolia from the 17th-century onwards (Figure 6). Chinese interpretations (Figure 7) and Mongolian interpretations (Figure 8) differ only in minute details from the Lhasa type. Chinese thang-kas actually account for most of the paintings in American and European collections. Mongolian thang-kas are quite rare and are often smaller in size and more crude in execution than their Chinese and Tibetan counterparts.

In the interface regions between China and Tibet, a number of other styles developed. Two of the more notable are those from Yunnan in China and the Koko-nor or Khams region. The Yunnanese spatial conventions, having much less crowding, are quite different from the other styles (Figure 9). Khams style, known to the Tibetans as Kar-ma-sGa-'bris (Karma gadri), contains several unusual technical features which are discussed below (Figure 10).

MATERIALS AND METHODS OF TIBETAN BANNER PAINTINGS

Support

Banner paintings or thang-kas exist on various fabrics. By far the most common is a loosely woven cotton which is produced in widths from 16 to 23 inches. While some variation does exist, paintings that are wider than 17 or 18 inches frequently have seams in the support. These are generally vertical, although small sections are sometimes added to one of the



FIG. 4



FIG. 5

FIG. 4 Guge school, late 16th- early 17th-century, 'Aksobhya Buddha', Courtesy of the Los Angeles County Museum of Art, Heeramanek Collection.

FIG. 5 Early Sino-Tibetan style, 15th-century, 'An Arhat', Courtesy of the Los Angeles County Museum of Art, Heeramanek Collection.

vertical sections, thus giving a horizontal seam on one side. Such seams are generally a simple overlap with a single line of stitching along the median of the overlap (Fig. 11). The loose edge on the painting surface is covered by the ground, but has generally broken loose and may be seen as a jagged crack running vertically in the surface of the painting (Fig. 11b). Cracking of the ground and paint layers is very common along these seams, and a thang-ka with seams should be treated with care. Other supports used in Tibetan thang-kas are linen [2] and leather or skin [2, 3]. The use of these is quite rare — the author has seen only four or five examples on leather or skin, and none on linen. Silk is used fairly often, especially in China. Tucci [2] states that the older paintings will have a heavier and coarser fabric. As a general statement this may well be true, but many paintings of recent manufacture exist on coarse fabric supports. The following thread-counts were taken from paintings in several styles and of various dates. All examples were tabby weave cotton fabric (Table I).

TABLE I

THREAD-COUNTS MADE ON VARIOUS TIBETAN PAINTINGS

<i>Painting:</i>	<i>Warp</i>	<i>Weft</i>
'Ratnasambhava', Nepal, 14th-century (H. C., LACMA*) (Figure 1)	15 t/cm	32 t/cm
'Two Teachers', Sa-skya pa sect, late 15th- early 16th-century (H. C., LACMA) (Figure 2)	18 t/cm	22 t/cm
'mGon-po', Early sNar-thang school, 14th- to 15th-century (H. C., LACMA) (Figure 3)	21 t/cm	18 t/cm
'Aksobhya', Later Guge School, 16th- to 17th-century (H. C., LACMA) (Figure 4)	31 t/cm	32 t/cm
'Lohan', Central Tibet, 14th- to 15th-century (H. C., LACMA) (Figure 5)		
'Samvara', gSer-than painting from Central Tibet, 16th-century (not illustrated)	23 t/cm	22 t/cm
'Avalokitesvara', Central Tibet, Lhasa Style, 19th-century (Figure 6)	35 t/cm	29 t/cm
'Arhats', Chinese style, 18th-century, (Figure 7)	20 t/cm	22 t/cm
'Amitayus', Mongolian style, 19th-century, (Figure 8)		
'Arhat Bakula', Yunnanese style, 19th- to 20th-century, (Figure 9)	39 t/cm	29 t/cm
'Red Tara', Yunnanese style, 19th-century, (not illustrated)	18 t/cm	19 t/cm
'White Tara', Khams Style ('Karma gadri'), 17th-century (Figure 10)	28 t/cm	35 t/cm
'Samvara', Khams Style, ('Karma gadri'), late 18th- early 19th-century (not illustrated)	35 t/cm	30 t/cm
'A Yi-dam', Khams District, Lhasa-Sino-Khams style, post 1930 (not illustrated)	27 t/cm	29 t/cm
'Invocation to Tara', Nepal, dated equivalent to 1369, (H. C., LACMA) (not illustrated)	33 t/cm	22 t/cm
'Samvara', Nepal, 16th century (H. C., LACMA) (not illustrated)	16 t/cm	18 t/cm
'Forms of Avalokitesvara', Nepal, dated equivalent to 1810 (not illustrated)	22 t/cm	21 t/cm
'Astrological Mandala', Bhutan, late 19th- early 20th-century (not illustrated)	26 t/cm	25 t/cm

* H. C., LACMA: The Nasli and Alice Heeramanek Collection. Los Angeles County Museum of Art, Los Angeles, USA.

Besides serving as a general reference, the thread-counts demonstrate that there is no particular correlation between the date of the painting and the type of fabric. It may be suggested, however, that the fabric variation is due to regional differences in painting preparation. The cotton fabric used as a support in Tibetan paintings may thus be characterized as a light-weight, thin, smooth, very flexible and quite durable cloth of a fairly fine and uniform, slightly open weave. In all cases, the 'hand' of the fabric is in the light to medium range. Since silk supports are less frequently found, it has not been possible to make a series of thread-counts of these.

Ground

Sankrityayana [4] gives this formula for the ground, generally found in paintings executed on

fabric: 1 part glue, 7 parts white chalk (CaCO_3 ?), mix in tepid water. Tucci states that the material used in the ground is lime (CaO) slaked in water, thus giving $\text{Ca}(\text{OH})_2$. This is then mixed with an animal glue [2].

Glue

It is generally agreed that an animal-hide glue is used as size and as a binder. Pallis is more specific and states that yak-hide glue is the size which is mixed with the lime as the preparation of the ground [5]. Although the hides of other animals may be used in the preparation of the glue, it is probable that yak is the most common in Tibet.



FIG. 6



FIG. 7

FIG. 6 Lhasa style, 18th- or early 19th-century, 'Avalokitesvara Bodhisattva', (private collection).

FIG. 7 Chinese style, 18th-century, 'A Group of Arhats and Lokapalas', (private collection).

PREPARATION OF THE SURFACE FOR PAINTING

The ground is worked into the fabric from both sides, although the back is usually less carefully finished than the front. In some instances, especially in Khams and Central Tibet, the back is treated as carefully as the front. Silk thang-kas seldom have a ground, but when they do, it is usually very thin and applied to one side only in a single wash.

The characteristics of the ground desired by artists are: a smoothness and a white or near-white surface and great flexibility. Since the normal method of storing thang-kas is by rolling, the ground must be able to bend without cracking. In practice, this does not hold true, and one of the major causes of damage to thang-kas is the constant rolling and unrolling of the paintings.

The conservator of these paintings would demand physical and chemical stability of the ground. These can be achieved under proper storage conditions and with humidity control. A great deal of damage is often done to thang-kas through the methods employed in their normal storage in Chinese and Tibetan temples.



FIG. 8



FIG. 9

FIG. 8 Mongolian style, 19th-century, 'Amitayus', (private collection).

FIG. 9 Yunnanese style, 19th- or early 20th-century, 'An Arhat', (private collection).

THE APPEARANCE OF THE GROUND

The appearance of the ground is partly dependent on the weight of the fabric to which it is applied. For example, in Khams painting, the fabric is usually very thin.

When the ground is applied over the surface and worked into the fabric very well, as is typical in Khams, the result is an almost paper-like surface. Conversely, in western Tibet where the fabric is fairly heavy, the result is something more similar to the European painter's canvas. These differences account for variations in the final appearance of the paintings. In spite of the fact that the methods used by individual workshops account for much of these variations, some regional patterns can be seen:

1. *Earliest Nepalo-Tibetan paintings*

These seem to have been highly burnished at one time, but in most cases the present condition precludes positive determination. No paintings of a date prior to the 16th-century may be said with certainty to have had a high gloss. The ground tends to be thick and completely obscures the weave of the cloth. In addition, it appears to lie on the surface of the fabric rather than to be worked into it.

2. *Nepalese paintings of the 16th- to 17th-centuries*

Occasionally a very high gloss may be seen in these paintings, but there are a number of examples in which the burnishing is only adequate to smooth the surface. The ground is usually worked into the fabric, is relatively thick, and invariably obscures the weave.

3. *Nepalese paintings of the 18th- to 19th-centuries*

Generally, these paintings are not finely burnished, although in the better paintings there is evidence of careful finishing as late as the mid 19th-century. The ground tends to be on the surface rather than worked into the fabric. This condition often leads to serious paint losses if the painting has been frequently rolled and unrolled.



FIG. 10 Khams district, Karma gadri style, 17th-century, 'White Tara', (Private collection).

4. *Early western Tibetan paintings*

Although there is no evidence that the ground was burnished to a gloss, the ground is well worked into the fabric. This procedure leads to a quite homogeneous support in these paintings. Often the ground has darkened to a point where the values and chroma of the images have lost much of their presumed brilliance and have sometimes become difficult to read. A serious conservation problem with these paintings is the determination of a method of lightening this discoloration.

5. *Later western Tibetan paintings of the 16th- to 17th-centuries*

These paintings have a very smooth, fine-grained ground that lends itself to very refined work. The ground is worked well into the fabric although apparently never polished to high gloss.

6. *Recent western Tibetan paintings*

The ground is similar to that used in 16th- to 17th-century examples from this region although the grain is not as fine.

7. *Sa-skya pa painting of south central Tibet, 15th- to 16th-centuries*

Because this style is so closely related to Nepalese paintings of the same period, it is not

surprising that the method of preparing the ground is similar. In some examples which are burnished to a very smooth surface, there is no sign of gloss.

8. Early central Tibetan paintings of the 13th- to 16th-centuries

Too few paintings from this period and region have been examined to allow generalizations about the nature of the ground. One set of paintings showed a fine-grained, thin ground which had been very smoothly finished. Another painting in a related style (Figure 5) has a thick ground, which is fine-grained and has been partially worked into the fabric.

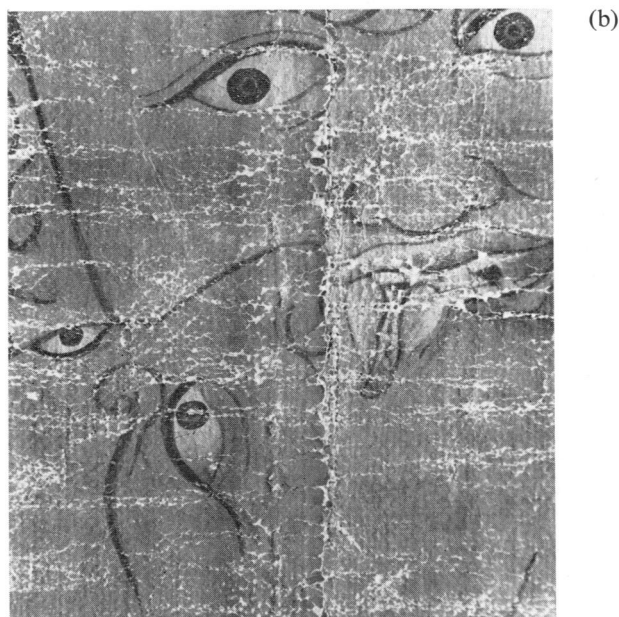
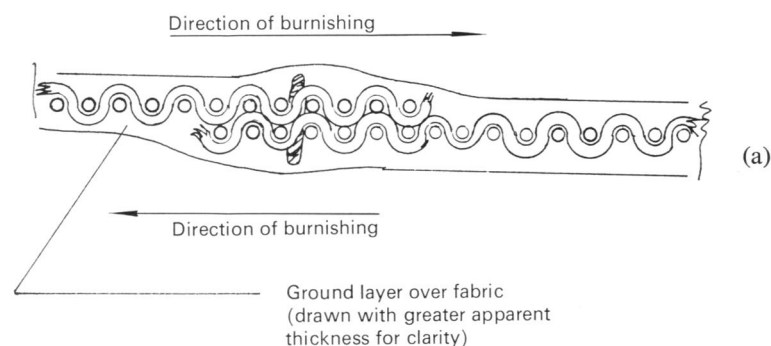


FIG. 11

- a. End view of a simple overlap seam. The arrows show the direction of the burnishing of the ground in relation to the seam.
- b. Section of the top of a seam showing the ragged edge common for such a seam.

9. Later and recent central Tibetan paintings

Although carefully finished and fine-grained, the ground in these paintings is neither polished nor well worked into the fabric.

10. Khams district paintings

There are three distinct manners of applying the ground in Khams paintings. The first type, 'Karma gadri', is unique to Tibetan painting (Figure 10). The paintings are frequently executed on a fabric which does not have a ground but is simply sized with glue which

contains little or no filler. Thus the fabric serves as part of the tonality of the painting. What may be properly called the ground also serves as the underpainting of the colored areas of the painting. Although not necessarily white, this value serves as the lightest chroma of the principal hue to be found in that area of the painting.

A second type of ground is common in the Khams region. The prepared ground is worked into the fabric in such a way that the two substances become a smooth surface. The composition of these paintings is generally similar to that in the first type of Khams paintings. Thus, large areas of unpainted ground surface become an integral part of the final paintings. The ground in these paintings seems particularly subject to water damage. Often, paintings in this style have extensive staining on the surface from water leaching the binder out of the ground, causing it to run down the surface and stain it.

The third type of ground seen in Khams paintings is almost identical to that seen in later central Tibetan paintings.

11. *Chinese and Yunnanese styles of painting*

In these paintings, considerable variation in ground types may be seen. Generally, the ground is even and fine-grained. Since they are comparatively heavy, the ground in these paintings is subject to severe cracking and flaking if rolled and unrolled.

12. *Mongolian paintings*

The ground used in Mongolian paintings is prepared in the same way as that of later central Tibetan paintings, but it is coarse-grained and frequently poorly finished. When the grounds are done smoothly and evenly, they are similar to those in central Tibetan paintings.

It is curious that, with all the influence from Chinese painting that may be found in Tibetan painting, none of the technical features were incorporated as well. It is possible that the sized fabric seen in Khams is the result of Chinese influence, but more careful study must be carried out before this can be accepted.

It can be seen that the ground determines much of the character of the finished painting because of its weight, texture, coloration and finish. It is possible that analyses of the technical methods of various schools of paintings will be useful in historical and stylistic analysis as well as in the conservation studio.

PIGMENTS

Ink

Although Chinese ink was well known and had been imported for many centuries, Tibetan ink was produced simply by grinding soot in water and glue, and pressing the mixture into pellets for use in ink-bottles. The pellets were dissolved in water in these bottles, and produced a rich black ink by constant soaking.

Colors

In recent years, European colors have been available in Tibet [4]. The concern here, however, is with the traditional pigments used in Tibet. Table II has been compiled from two principal sources; the first and more valuable is Sankrityayana [4] and the other is Tucci [2]. The only binder mentioned by these authors is the glue already described.

It may well be that other materials are present in the various pigments, and the list should not be regarded as being definitive.

TABLE II

TRADITIONAL PIGMENTS USED IN TIBET [2, 4]

<i>Color</i>	<i>Material</i>	<i>Tibetan name</i>	<i>Regional source</i>
<i>White</i>	lime	sa-dkar	—
<i>White</i>	chalk	(dkar-rtsi)	Ring-bum in Rong
<i>White</i>	lead white*	—	Trade?
<i>Yellow ochre</i>	iron oxides	—	Yer-va (east of Lhasa)
<i>Yellow</i>	arsenic	ser-po	Nepal?
<i>'Rock' yellow</i>	—	(rdo-ser)?	Khams
<i>Blue</i>	lapis lazuli	Vaidurya	India? Central Asia
<i>Blue</i>	azurite	sngon-po	Ni-mo (near Lhasa)
<i>Green</i>	verdigris	spang-ljang-kha	Ni-mo (near Lhasa)
<i>Green</i>	malachite	spang-shun, or spang-ma	—
<i>Red</i>	vermilion	li-khri	Chinese trade
<i>Red</i>	cinnabar	dmar-po, or rgya-mtshal	—
<i>Black</i>	soot from pine and other trees	nag-po, or gnag-tsha	Chinese trade and local variety of pines of Kong-bos of Lhasa
<i>Gold</i>	—	gser-po	Nepal and local sources
<i>Indigo</i> (rare)	organic	ram tshos-sngon-po	India trade
<i>Utpala water</i> (rare)	organic (yellow tint)	utpala-chu	Phem-bo and Bhutan

* Lead as a white pigment has been identified in Mongolian paintings (e.g. Figure 8). The work was done by James L. Greaves at the Conservation Center, Los Angeles County Museum of Art, in fall, 1968.

PIGMENT PREPARATION

Sankrityayana provides most of the following information. It must be noted that the descriptions are not complete enough to enable one to produce the paints in question. However, they illustrate the course of action which might produce acceptable paints on a trial and error basis.

Yellow ochre: Boil crushed rocks in water with a small amount of glue. Used as an under-coating for gold as well as a general purpose pigment.

Azurite and Malachite: Both are prepared by grinding the mineral in a mortar with glue and water. The mixture is allowed to settle for about fifteen minutes. The liquid is removed and the process is repeated. Three or four tints of the color may thus be produced.

Gold [6]: The small block of gold is first melted and beaten in an earthenware dish into thin leaves. Some of the leaves thus produced are heated over a fire (to anneal them? This would actually make it more difficult to powder the gold). After heating, they are washed, laid in the sun (to dry?), cut up into small pieces and, finally, rubbed into a powder in a mortar. They are then washed again, mixed with urine (why?) and dissolved (?) into it. This produces a paste which is spread on a bronze plate. Next, the powder is mixed like any other color.

This description from an excellent authority may well be a process which was followed. However there appear to be several useless steps — a phenomenon not found in other pigment-preparation methods.

Utpala water: The use of this color is unknown to the author, and the information on its preparation is included here only as a matter of compiling all available data. Petals from the utpala flower (?) from Phem-bo and the leaves from the shun tree (?) of Bhutan are combined in a mixture of one to ten and boiled to obtain a yellow (lake?) which is used in painting the 'edge of leaves' [4]. From this description, it may be assumed that the color is a tint or a lake color and is not a binder. In Tibetan painting, the edges of leaves are frequently accented in some way. This can consist of outlining in dark values of the hue of the leaf, or outlining in gold. Sometimes the two methods are combined to create a very elaborate form. In no case, however, is there evidence of anything of the nature of the pigment described above being used.

Methods of Painting

The painting may be undertaken either from a pounce tracing made from a wood block of the desired subject, or from an original drawing based on an iconographic text. After this preliminary stage, the procedure of making the painting is exactly the same. Additions and corrections are mostly made at this stage. Materials used in the drawings are the above-mentioned black ink, and occasionally red ink or charcoal pencil. The flat colors are then applied to the surface, as a first layer. The detail of the painting is then executed, with tints and washes of the basic color and black and gold. Corrections may also be made at the point of detailing the image. Due to the opacity of the paint as it is used by the Tibetans, substantial correction may be carried out if necessary. Often, whole sections of the iconography are changed by simple overpainting. This procedure usually leads to severe cracking and paint loss, resulting in a double image or a very confused image in this area. The final steps in the finishing of the painting are the addition of gold ornamentation and the painting of the eyes of the main iconographic form. When the painting is completed, the composition is cut out of the frame in which it has been worked and the painting is given the silk borders that are, in both a physical and a cosmogeneric sense, the support of the painted portion of the thang-ka.

CONCLUSIONS

Tibetan painting is a product of an extremely conservative tradition. It is quite likely that there has been very little change in method since the introduction of painting from India in the 8th-century. A few minor modifications of materials may be found, and perhaps some local variations have developed, but in general the methods remain the same. Chinese elements are mostly stylistic, although the Chinese method of preparing ink seems to prevail in Tibet. It is hoped that the material contained in this brief paper will be of use to the conservator in deciding a course of action when treating a Tibetan painting.

ACKNOWLEDGEMENTS

Thanks is due to Ben B. Johnson, Head Conservator of the Conservation Center, Los Angeles County Museum of Art, for his original suggestion concerning the need for a paper on this topic. Much of the information contained, while known to the relatively few Tibeta-

nists, is generally unavailable to the conservator who may from time to time be concerned with Tibetan painting. Mr Johnson has generously made his Laboratory available for studies and has given valuable aid and suggestions.

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JOHN C. HUNTINGTON, born 1937. Received Ph.D. in Buddhist Art History from the University of California at Los Angeles, specializing in Later Buddhist Art. A main aspect of his studies has been technical analysis of materials and methods of Buddhist art. He is currently travelling in India on a National Endowment for the Humanities grant and will join the Art History Faculty at Ohio State University as Associate Professor in September 1970.

Author's address: Division of Art History, Ohio State University, Columbus, Ohio 43210, U.S.A.

Abstrait—A l'aide de comptes rendus rédigés sur les méthodes et matières observées dans les peintures tibétaines aussi bien que par l'examen de nombreux exemples, on discute la technique de peintures tibétaines, surtout les peintures sur tissu. Les styles régionaux des peintures tibétaines sont brièvement mentionnés, étant donnée que les techniques utilisées dans la production de ces peintures varient apparemment dans tout le Tibet et la Chine. Divers types de supports sont mentionnés et on donne des analyses des types de tissus. On discute la préparation et les matières utilisées pour le fond, les pigments et les dessins et gravures préparatoires. On mentionne l'iconométrie des peintures tibétaines puisque la conception totale de l'objet en dépend.

Kurzfassung—An Hand der Berichte, in denen die Methoden und Materiale tibetanischer Gemälde beschrieben werden und der Untersuchung zahlreicher Beispiele, werden die Techniken tibetanischer Gemälde, besonders der Gemälde auf Leinwand, erörtert. Die regionalen Stilarten tibetanischer Gemälde werden kurz erwähnt, weil die Herstellungstechniken dieser Gemälde in ganz Tibet und China klare Unterschiede aufweisen. Die verschiedenen Arten von Träger werden genannt und es werden Analysen der Leinenarten gegeben. Die Vorbereitung und die gebrauchten Materiale der Malgründen, der Farbstoffe und der Vorzeichnungen und Graphik werden erörtert. Die Ikonometrien tibetanischer Gemälde werden besprochen, weil die Gesamtkonzeption des Gegenstands dadurch bedingt wird.

Riassunto—In base a documenti che descrivono, da osservazione, i metodi e materiali delle pitture tibetane, ed allo studio di vari esempi, si discutono le tecniche pittoriche tibetane, specie di dipinti su tela. Si accennano brevemente gli stili regionali nella pittura tibetana giacché pare sia variabile, attraverso il Tibet e la Cina, la tecnica adoperata nella produzione di tali dipinti. Si discutono la preparazione ed i materiali della mstica, i pigmenti, ed i disegni e le stampe preliminari. Si fa menzione della iconometria della pittura tibetana dato che la concezione totale dell'oggetto ne dipende.

Extracto—Empleando relaciones en escrito de métodos y materiales observados de pinturas tibetanas así como el examen de numerosos ejemplos, se discutan las técnicas de pinturas tibetanas, especialmente las pinturas sobre tela. Brevemente se mencionan los estilos regionales de la pittura tibetana, puesto que las técnicas usadas en la producción de estas pinturas aparentemente varían por todas las partes del Tibet y de la China. Se mencionan varios tipos de soportes y se dan análisis de los tipos de telas. Se discutan la fabricación y los materiales usados en la preparación, los pigmentos y los dibujos preliminares y las impresiones. Se mencionan los iconométricos de la pittura tibetana, ya que la concepción total del objeto depende de ellos.