Southeast Asian oil paintings: supports and preparatory layers

Nicole Tse and Robyn Sloggett

ABSTRACT Oil painting practice emerged in Southeast Asia in the nineteenth century. Preliminary identification of artists' supports and preparatory layers from the region illustrate that their adopted practices reflect 'Western' techniques. However they are not direct reproductions. Contributing factors such as the availability of local materials, and the artist's training and material conditions aided in the development of a cultural practice representative of its geographic location. This paper draws upon a current research project, with partners from cultural institutions in Bangkok, Kuala Lumpur, Manila, Singapore and the University of Melbourne, which has examined 208 oil paintings from the period *c.*1900 to the 1950s.

KEYWORDS canvas paintings, tropical climates, Southeast Asia, materials, techniques

Introduction

Studies of the transference of cultural practice have, in the main, focused on the interest generated in Europe by particular objects, or cross-cultural influences, often framed as the 'exotic'. Recent scholarship (Madeline and Martin 2006) is exploring the dialogue around such interactions. Conservation studies of Western artists' use of materials and techniques have extended our understanding of art practice but predominantly within the confines of European art. Writers such as Flores (1998) and Poshyananda (1992) have provided seminal accounts of the history of Western-informed art practice in Southeast Asia. Nevertheless few material or technical studies focus on art practice in Southeast Asia. Such studies serve to broaden and contextualise discussions of artists' practice. This paper is the result of recent research that aims to explore artistic practice and the choice of materials in Southeast Asia, involving the use of European artists' materials.

The practice of painting on stretched canvas in Southeast Asia reflects the development of colonisation in the region. Early extant examples in the Philippines date from the early 1800s (Fig.1), in Thailand from 1856, in the City of Singapore (Fig. 2)[1] and Malaya (Fig. 3)[2] from the nineteenth century. Today there are vast collections of historic canvas paintings in public and private ownership. The painting materials and techniques now used in Southeast Asian art were originally developed for temperate conditions. This paper provides a preliminary study identifying the materials and techniques of artists' supports and preparatory layers of oil paintings from collections in Malaya, the Philippines, Singapore and Thailand. It seeks to determine whether the adopted materials and techniques reflect their origin of practice, being European, or incorporate practices relating to geographic location.

This study was undertaken as a three-year joint project between the National Art Gallery of Malaysia (Balai Seni Lukis Negara), the J.B. Vargas Museum at the University of the Philippines (UP), the Heritage Conservation Centre in Singapore, the National Gallery in Bangkok and the Centre for Cultural Materials Conservation (CCMC) at the University of Melbourne in Australia. It focused on a survey examination of canvas paintings with some specific materials analysis when possible. Results were also reviewed in the context of the supply of artists' materials and art training opportunities, proposing that they provided the conditions for the transfer of 'Western' oil painting practice. Conclusions outlined in this paper pertain to the range of materials and techniques available for assessment, and are made within these parameters and the limitations of the techniques employed.

Figure 1 Fernando Amorsolo, *Cooking Rice* (1959), oil on canvas, 412 × 560 mm, J.B. Vargas Museum, University of the Philippines, acc. no. UPVM-III.00067.

Figure 2 Georgette Chen, *Vegetables and Claypot* (1940), oil on canvas, 729 × 597 mm, Singapore, National Heritage Board, acc. no. P-0803.

Figure 3 Yong Mun Sen, *The Goose Lady* (1940), oil on canvas board (marouflaged?), 532 × 455mm, National Art Gallery, Malaysia, acc. no. 1990.17.

Background and early history

In *Modern Asian Art*, Clark (1998: 12–13) argues that geographical location directly influenced the assimilation of canvas painting practice to Asia. In the Philippines, Western art materials and techniques were introduced by the Spanish missionaries (Pilar 1994: 63). By the seventeenth century, the Augustine missionaries had provided drawing classes to the Chinese *mestizo*[3] community in Manila. In Thailand, there are accounts of English and French 'imperialists' bearing 'Western' paintings as gifts in 1680, which almost two centuries later influenced the work of the Thai muralist Khrua In Khong in the 1850s (Clark 1998: 42). Following Khrua In Khong's assimilation of Western motifs in the iconography of his works, the royal Thai court took control of the patronage of 'Western' cultural practices and commissioned Italian artists as part of the country's agenda to control foreign influences (Poshyananda 1992). Two centuries later the British colonists in the nineteenth century commissioned official portraits and landscapes in the City of Singapore and Malaya (Hsu 1999: 64). Despite British patronage, art practice in Malaya was largely established by the Chinese community whose training was a Chinese technical discourse assimilated from the French (Piyadasa 1979: 24–6). It was this influence that led to the establishment of the City of Singapore's first art academy, the Nanyang Academy of Fine Arts in 1938 (Piyadasa 1979: 6).

Paintings in the region were produced in an international context. As can be seen, the above artists had access to pictorial examples and skills from European 'imperial' powers and the Chinese. As Clark also suggests, the establishment of local art academies in Asia facilitated the 'cultural transfer' of canvas painting practice; these are detailed in Table 1 (Clark 1998: 49).

Research methods

From 2003 to 2005, 208 paintings were examined from the four national collections in Southeast Asia. The case studies included 62 works from the Heritage Conservation Centre in Singapore, 53 works from the National Art

Table 1 Art schools in Malaya, the Philippines, City of Singapore and Thailand from 1815 to 1952.

Country	Date	School	Director or established by	Academic model
Manila, Philippines	1821	Private art school	Damian Domingo	Spanish missionary, self-taught(?), locally trained mestizo artist
Manila, Philippines	1823–1834	Academia del Dubujo (Academy of Drawing) under Domingo	Sociedad Económica de Amigos del Pais and Damian Domingo	Self-taught (?), locally trained artists
Manila, Philippines	1850	Academia de Dibujo y Pintura	Agustin Saez Granadell Don Lorenzo Rocha	Academia de San Fernando in Madrid
Manila, Philippines	1908	School of Fine Arts at the University of the Philippines (UPSFA), later changed to the UP College of Fine Arts	Don Raphael Enriquez Fabian de la Rosa Ferdinand Amorsolo	Based on the Academie de Dibujo y Pintura principles, Manila, Philippines
Bangkok, Thailand	1913	Rongrian Poh-Chang (School of Arts and Crafts)	King Rama VI	Italian academic
Bangkok, Thailand	1934	Praneet Silpakum School (School of Fine Arts)	Silpa Bhirasri (Corrado Feroci) Thai Royal Monarchy	Italian academic: Florence (National Committee for Organizing the Celebrations for the 50th Anniversary of His Majesty's Accession to the Throne 1996: 32)
Bangkok, Thailand	1943	Silpakorn University	Silpa Bhirasri (Corrado Feroci)	Italian academic
Singapore	1938	Nanyang Academy of Fine Arts (NAFA)	Lim Hak Tai	Xiamen Academy of Art, Shanghai Academy, Chinese practice assimilated from French academic discourses (Piyadasa 1979: 24, 26)
		Art Superintendent of High Schools	Richard Walker	British (watercolours)
Kuala Lumpur	1935	Societe des Artistes Chinois (The Society of Chinese Artists)		Chinese assimilated from French practices (Hsu 1999 113)
	1952	Wednesday Art Group	Peter Harris	British (Tan Chee Khuan 2001:3; P. Harris, pers. comm. 11 October 2004)

Gallery in Malaysia, 61 works from the J.B. Vargas Museum, University of the Philippines, and 33 works from the National Gallery, Bangkok. The study focused on oil paintings on canvas from *c.*1900 to 1965, although some on rigid supports were assessed to provide additional context. Information was collated on a Filemaker Pro 5.5v2 relational database, which standardised the data into searchable fields.

Additional materials analysis depended on the resources available in each institution, and some sample material was removed for analysis at CCMC. Techniques included fibre identification under a stereomicroscope, staining of cross-sections to identify protein size layers (Martin 1977), and polarising light microscopy and microchemical tests to aid in the identification of ground layers (Plesters 1956). As sampling from every work was not possible, there is variation in the information across the survey group. Visual, classificatory and analytical assessment was supported and contextualised with literature reviews and interviews. Interviews formed an important part of the methodology as little written information exists.

Discussion and results

Auxiliary supports

Of the surveyed works,[4] 63% were on wooden strainers and the remaining 37% were on stretchers. The stretchers were mainly a type of pinewood with strongly marked growth rings, bevelled edges and tongue and groove joins (21% of the total number of auxiliary supports), being typical of imported stretchers supplied by artists' colourmen. As the species of pinewood is not native to Southeast Asia, this further confirms they were imported. Interviewees confirmed that tongue and groove joins were not taught at local art academies and these techniques were not used by local frame-makers (Paras Perez 2004). One of the pinewood stretchers, probably imported, was marked with a Filipino artists' colourman stamp 'EL82'. EL82 was the first commercial art supplier in Manila, established by a *mestizo* Filipino, Roman Ongpin in 1882 (Ongpin 2005). This additional stamping of imported artists' materials was a common practice in the USA before equivalent products could be made locally, which appears to have become a commercial practice in the Philippines (Zucker 1999). On the whole the artists utilising imported stretchers had some connection with Europe and the USA, based either on their academic training or through the types of commissions received from the royal family or governing powers.

An exception to this preference for imported auxiliary supports was the great Filipino artist Fernando Amorsolo

Figure 4 Example of a Fernando Amorsolo stretcher, identified on *Portrait of Nena Gabaldon* (1955), oil on canvas, 1313 × 1109 mm, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00037.

(1892–1972), whose stretchers appear to be locally constructed. His stretchers, representing 13% of the total auxiliary supports in this study, were constructed in a consistent manner using a local Filipino wood identified by the absence of growth rings, a characteristic typical of tropical woods. He employed dovetailed, tongue and groove joins with a bevelled edge, and keys secured with a nail (Fig. 4). As the Director of the University of the Philippines (UP) School of Fine Arts and as a painter with many commissions, Amorsolo was influential in artistic circles. Roces (1975: 130) states that Amorsolo's artistic practice was systematic and he instructed his assistants to prepare custom-built canvas supports according to his methods. Cotton canvas was purchased from Hap Siong, a Chinese store in Binondo, Manila. Among the works examined, Amorsolo appeared to be the only artist using locally produced stretchers.

This assessment of the strainers (which comprised 56% of the auxiliary supports) showed that they appeared to be locally constructed, as evidenced by their use of local woods and their direct method of construction. The joins were simple or lapped mitres and as 78% of the works included a bevelled edge, this indicates that makers were aware of the importance of an inner sloping edge, and more importantly, of standard painting practices. Their consistent manufacturing techniques and use of local woods also suggest they were commercially constructed. Interviews with commercial art shops such as Nanyang Art Supply in Kuala Lumpur and Straits Commercial in the City of Singapore support this view, as local framers built commercial strainers and supplied them to their shops (Long Nan Seng 2003; Lian Warn Jian 2004). In the Philippines, Lucio Rualo, the janitor from the UP School of Fine Arts, was instructed by Amorsolo to prepare stretched canvases for students and staff of

Table 2 Details of works identified with colourmen's stamps (imported and local).

Imported artists' colourman and country of origin	Type and number of works	Works identified with stamps	Artist's country of origin	Local art material supplier (some double stamped)
Daler Rowney English	1 board	Peter Harris, Tanjung Bidara (1958), oil on board, 495 × 397 mm, Kuala Lumpur, National Art Gallery, acc. no. 1958.8	Malaysia	
Devoe & Reynolds USA	1 board	A.E. Ujares, Going to Market (1950), oil on canvas board, 455 × 605 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III 00432.	Philippines	
French illegible	1 auxiliary support	Georgette Chen, Watermelons (1940–1945), oil on canvas, 614.5 × 503 mm, Singapore, Singapore Art Museum, acc. no. 1994.04140. (A canvas stamp appears to be present but it was obscured by a loose lining.)	Singapore	
George Rowney England	2 boards	Pablo Amorsolo, Piro (1930), oil on artist's board, 183 × 138 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00077.	Philippines	
		Pablo Amorsolo, Sisilyo (1930), oil on artist's board, 183 × 138 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00078.	Philippines	
Grumbacher USA	1 canvas stamp	Jose Lagniton, Chinese Mandolin Player (1954), oil on canvas, 395 × 410 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III 00293.		
Joya Japan	1 canvas stamp	Datuk Mohd. Hoessein Enas, Dua Beradik (Two Sisters) (1962), oil on canvas, 1123 × 910 mm, Malaysia, National Art Gallery, acc. no. 221965.81.	Malaysia	
Lefranc France	2 artists' boards, 1 backing board	Pablo Amorsolo, Piro (1930), oil on artist's board, 183 × 138 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00077 (stamp on backing board)	Philippines	'ARTE, Ave. Rizal 415, Manila' (double stamped)
		Teodoro Buenaventura, Countryside 1863–1950 (undated), oil on artist's board, 255 × 354 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00131.		'La Paleta de Plata, 248 Carriecio, Sta Cruz Manila' Art supply shop c.1930
		Vicente Genato, Un Torero Picando Con Su Machete (1943), oil on artist's board, 260 × 165 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00260.		
One generic English or American stamp	1 board	Pablo Amorsolo, Character Study (1940), oil on canvas board, 478 × 350 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III 00071.	Philippines	
Reeves & Sons Ltd England	3 canvas stamps	Princess Pilai Laekar Dissakul, Unknown (Still Life with Dog Statue) (c.1950s), oil on canvas, 355 × 305 × 17 mm, Bangkok, The National Gallery, 26/2530.	Thailand	
		Princess Pilai Laekar Dissakul, Morakod (Still Life with Buddha) (c.1950s), oil on canvas, 305 × 253 mm, Bangkok, The National Gallery, 22/2530.	Thailand	
		Unknown artist (signed CAS?), Unknown (Sultan of Selangor?) (1927), oil on canvas. Kuala Lumpur, National Art Gallery of Malaysia.	Malaysia	
Unknown	1 stretcher	Dominador Castaneda, Ravaged Manila (c.1940s), oil on canvas. Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III.00143.	Philippines	EL82, established 1882 to the 1930s, Manila, the Philippines
Weber USA	1 board	Emilia Ibanez del Valle, Landscape (c.1940s), oil on board, 345 × 241 mm, Manila, J.B. Vargas Museum, University of the Philippines, acc. no. UPVMA-III 00433.	Philippines	
Winsor & Newton England	1 canvas stamp	Unknown Singapore Waterfront by Chinese School (c.1850), oil on canvas, 611 × 352 mm, Singapore, Singapore History Museum, acc. no. 1997-00721.	Singapore	
Pelikan/ Gunther Wagner Germany	2 boards	Xu Beihong, Portrait of Lim Hak Tai (1939), oil on canvas board, 502 × 400 mm, Singapore, Singapore Art Museum, acc. no. 1991.225.	Singapore	
		Chen Chong Swee, Fort (1946), oil on artist's board, 372 × 452 mm, Singapore, Singapore Art Museum, acc. no. 1993-01698.		

the school from the 1940s (Paras Perez 2004; Concepcion 2005; Duldulao 2005). The strainers were constructed with butt lap joins secured with four nails at the corner. These were consistently identified in this study. There was also one work on a strainer by Georgette Chen (1907–1993), a Chinese Singapore artist who studied and painted in France. It was marked with a French stamp: 'Fabrique de Cadele ? Mde Apruzese...' (Table 2). During this period, 1940–1945, Chen was in China and may have obtained the strainer locally or brought it with her from Europe as she would have recently arrived from Paris. On Chen's arrival in Malaya after World War II, it appears she no longer used imported strainers as the remaining nine strainers identified were made with tropical woods. Given Chen's academic training and the quality of her materials and techniques, her continued use of strainers from a local source raises some interesting issues. It is possible either that there was an interruption to the supply of imported artists' colourman materials during the war, since their production in Europe would have been scaled back at that period, or that Chen developed a preference for the use of locally constructed strainers. The latter is more likely as the pinewood typically used in imported auxiliary supports does not withstand insect attack in tropical Southeast Asia. The durability of local timbers would have been well known at this time and hence would have encouraged the development of the local manufacture of strainers.

Flexible support

Cotton canvases appeared to be more commonly employed than flax or bast fibres. In this study, 63% were identified as cotton and of these 80% were plain weave. Eight of the cotton supports (or 5% of the examined works) were marked with a European artists' colourman supplier's stamp confirming their importation (Table 2). The origin of the remaining cotton canvases are unknown, although 15 of the 24 interviews recounted the use of cotton fabrics from local upholstery shops, often run by Chinese merchants (Roces 1975: 30; Choong 2003; Long Nan Seng 2003; Lian Warn Jian 2004; Paras Perez 2004; Tay Lye Hoe 2005). In Thailand, the more expensive green-edged cotton canvas was preferred to the cheaper red-edged canvases (Sarasek 2005). These cotton fabrics were available from the Old Siam market around the corner from the Rongrian Poh-Chang (School of Arts and Crafts) established in 1913 in Bangkok. Likewise in the Philippines, cotton canvases otherwise known as *katsa* were purchased locally from the upholstery shops in Gandarra Street in China Town (Paras Perez 2004). This is not far from the address on San Sebastian Street in Quiapo where the UP School of Fine Arts was located at this time (Santiago 2003: 8). In the Philippines, cotton flour or sugar sacks was also the source of flexible supports for artists and students of the UP School of Fine Arts (Paras Perez 2004; Concepcion 2005; Duldulao 2005).

It is not surprising that proprietary cotton fabrics were used as an artists' material, given the likely expense of imported artists' colourmen supplies. Furthermore, cotton materials were historically and readily available throughout Southeast Asia, with their origins in India. In Thailand cotton was traditionally used as a support for religious banners. They were first tied up along the side edges, tensioned out and primed much like Western canvas paintings (Pimorak and Krue-On 2005). Among the works examined, three by unknown Thai artists (dated *c.*1850s), were on cotton supports attached to a strainer. Their media however appeared to be tempera,[5] namely the materials of traditional religious banners and Thai mural paintings. These works represent a merging of practices where a 'Western' strainer has been used in place of a local banner, but with traditional media that reflect what was materially possible around the 1850s.

In this study, 27% of canvases were identified as linen and 91% of these were plain weave. Their origin is likely to be linked to the importation of artists' colourmen materials, given that linen is not grown or manufactured in Southeast Asia. Of the linen canvases examined, 44% were on strainers, 30% on stretchers and 25% had their original supports removed. Where linen has been attached to a strainer, the strainer appears to be locally constructed, as in the case of nine of Georgette Chen's works. This suggests that imported linen was cut from a roll. Similarly eight works by Lui Kang (1911–2004), a significant Singaporean artist who trained in France and China, utilised linen supports. The hypothesis that linen canvases tended to be utilised by artists who were trained abroad is supported by the examination of works by the Filipino artist Felix Resurreccion Hidalgo (1855–1913). Similarly in Thailand, five works by Phra Luang Soralaklikhit (1875–1958) were on linen canvases. Luang Soralaklikhit was a court painter trained by the Italian expatriate artist Cesare Ferro (Poshyananda 1992: 18). His paintings are characteristic of Thai court artists who had received academic training and were patronised by the king.

A survey that examines Southeast Asian fibres could reasonably expect to find evidence of Manila hemp and jute, both of which are grown in Southeast Asia, yet neither were conclusively identified under magnification. The use of jute as a canvas support, however, was described during interviews (Paras Perez 2004; Sarasek 2005) and 8% of works were possibly a bast fibre. For example, Yong Mun Sen (1896–1962), an important Malaysian painter, apparently used burlap which contains jute and vegetable fibre, yet it was not identified in his works examined in this study (McNally 1998: 188).

Sizing layers

The identification of the size layer relied on the staining of selected samples to tag protein-based materials. Thirteen samples were stained with amido black (AB2) as outlined by Martin (1977). Results were unclear with seven samples indicating the possible existence of a proteinaceous layer; however the differential absorption of stains by pigments and the porous materials created difficulties for positive identification. Hence results are not conclusive and this is an area requiring further research.

The identification of sizing layers is particularly important for conservation studies of Western artists' materials in tropical Southeast Asia, given that they swell in humid conditions. Thus other avenues of investigation relied on art historical accounts, interviews and the examination of the paintings. Statements by artists in the Philippines make clear that rabbitskin glue was not used as it was 'too technical' and the process was not taught at the UP School of Fine Arts (Paras Perez 2004; Concepcion 2005). In Malaya, accounts by artists were often conflicting; for instance some stated that rabbitskin glue was introduced by Peter Harris, the English art educator who set up the Wednesday Art Group in 1952 in Kuala Lumpur (Choong 2003; Long Nan Seng 2004). Harris himself did not mention the usage of rabbitskin glue as he focused his teachings on the aesthetic rather than technical practices.[6] In the City of Singapore, apparently Liu Kang learnt how to apply rabbitskin glue when he trained in France. A similar experience abroad was also reported for the significant nineteenth-century artists, Filipino Juan Luna (1857–1899) and Felix Resurreccion Hidalgo (Long Nan Seng 2003; Paras Perez 2004). In terms of the supply of rabbitskin glue in Malaya, the firm Straits Commercial in the City of Singapore stated that they supplied rabbitskin glue but in small quantities and Nanyang Art Supply in Kuala Lumpur provided it only recently (Long Nan Seng 2003; Lian Warn Jian 2004). In Thailand, the sizing of canvases appears to have been taught by Professor Silpa Bhirasri (1892–1962), an Italian artist who set up the Praneet Silpakum School (School of Fine Arts) in 1934 and later Silpakorn University in 1943 (Anon 1996: 32; Sanasen 2005). Given Professor Bhirasri's academic training in Florence, it is not surprising that he introduced the technique of sizing canvases. Rabbitskin glue, however, was not available and animal glue from buffalo was used by Professor Bhirasri for both the size layer and as a binder for pigments (Sarasek 2005). Traditionally, buffalo glue was used in Thai mural paintings, but it was not a popular material as its increasing brittleness was well known, indicating an awareness of, and selection according to, the specific material capabilities of the tropics (Pimorak and Krue-On 2005).

In light of the identification of 16 stamped colourmen supports, a number of works in the collections are likely to have a rabbitskin glue layer as they are commercially prepared including their priming layers (Table 2). This conclusion was supported by the examination of a number of seriously water-damaged works in Thailand; their extensive paint loss at the support layer is typical of a swelled glue layer which also aids in their identification.

Ground layer

All the paintings examined had a white priming layer. The question is whether artists knew the importance of porous material in the ground layer. This was assessed by identifying the pigments or fillers contained in the ground layers, but the binders were not identified. Again not all works were sampled and extrapolations cannot be made across the collections. Identification was based on on-site microchemical tests and polarising light microscopy at CCMC. Of the canvas paintings sampled, 34 included calcium carbonate, 12 included calcium sulphate and three included basic lead white in their ground layer.

All of these materials were locally available in Malaya, the Philippines and Thailand. Natural deposits of calcium carbonate are found in maritime locations across Southeast Asia. In a recent study of five Filipino panel paintings, calcium carbonate was identified as a filling material and its origins appeared to be oyster shells (Tse 2005: 152–3). Documentary sources in the church archives examined in the same study indicated the supply and availability of calcium carbonate. Lead white was also available through Chinese intra-Asian trade as evidenced by export records in early nineteenth-century texts in the Hong Kong Daily Press (1906). Literature and interviews also support the supply of Chinese lead white for traditional Thai mural painting (Lyons 1975: 170; Pimorak and Krue-On 2005). Furthermore, lead white was identified in the panel painting study which revealed that local church records indicated it was imported, most likely from China (Tse 2005: 154–5).

Apart from calcium carbonate, calcium sulphate and basic lead white, the use of starch as a ground layer was recorded. This was particular to the Philippines and interviews noted the application of a cooked flour starch (*gaw gaw*) on flour or sugar sacks (Concepcion 2005; Duldulao 2005). Apparently this was a method taught by Amorsolo at the UP School of Fine Arts where the desired thickness was described as 'something that would hold a handkerchief' (Concepcion 2005). Students were also taught to apply a thin layer, as otherwise cracking would result (Concepcion 2005). Examination and analysis of Amorsolo's painting supports indicate the use of starch. Two of the cross-sections stained with iodine permanganate positively showed the presence of starch (Odegaard *et al*. 2000: 128). This is likely to have contributed to the

brittle behaviour of Amorsolo's paintings, as the majority are extensively cracked, unlike any other works in the collection. Examination of the works also showed that they are secured to tightly tensioned stretchers that have further contributed to the cracks.

In the other countries of this study, there are many reported cases of the use of local material for the ground layers. These claims have yet to be validated with materials analysis but to date the anecdotal evidence in Malaysia includes the application of cowhide glue followed by a coat of enamel house paint (Choong 2003). Khrua In Khong is thought to have used traditional materials in his Western-style paintings, including the use of tamarind glue in the ground layer and ox animal glue as a paint binder (Sanasen 2005). Examination of two of Khrua In Khong's paintings on wood panel indicates a matt binder with many pigments being underbound, in a manner similar to traditional Thai mural practice.

Interestingly in all the layers in the canvas paintings examined, visible evidence of mould was rare regardless of the high humidity levels. It is unlikely that this is due to conservation treatment as only one of the four institutions has an active treatment conservation programme in place.

Supply of imported materials

The arrival of local artists' colourmen is an important historical demarcation line that greatly contributed to the use of Western artists' materials in Southeast Asia. The early art supply shops important to this study include the Malaysian Nanyang Book Company established in 1943 in Kuala Lumpur and Penang; the Straits Commercial Company established in 1947 in the City of Singapore; EL82 established in 1882 in Manila; the Enriquez Art Supply shop dating from the 1900s; and Mohameds, who supplied the royal court, around the 1940s in Bangkok (Long Nan Seng 2003; Lian Warn Jian 2004; Ongpin 2005). These suppliers emerged when European and American artists' colourmen were active in this region. At the same time Malaya, the Philippines, the City of Singapore and Thailand were becoming increasingly international in their focus. The beginning of World War II is another demarcation point in the supply of imported artists' materials as their availability would undoubtedly have been interrupted during this time frame. Given this, it was important to assess the types of art materials used, whether local or imported, according to whether they were available.

Nineteen imported colourmen stamps were recorded on the reverse of painting supports, backboards or auxiliary supports; these represent 9% of the examined works (Table 2). Many of these artists had trained abroad or enjoyed the status and financial prosperity that allowed them to obtain such artists' materials. Of these imported 19 stamps, ten were identified in the Philippines, four in Singapore, two in Thailand and two in Malaysia. A larger survey sample could indicate which colourmen were more active in the region, however, at this present time the Philippines appears to be the largest user. The larger number of colourmen stamps on Filipino work examined is possibly linked to the fact that canvas painting practice in the Philippines has a longer history enabling a skills base to develop and foreign materials to be sought. This is also supported by the fact that three of the works with European colourmen stamps in the Philippines were double stamped with that of a local supplier. The Filipino suppliers include El82 (1), Arte (1) and La Paleta de Plata (1). Of the same works, seven were marked with English companies, more than other countries, indicating that English merchants were more actively engaged in the overseas trade of art materials. Interestingly, one work by Mohd. Hoessein Enas (1924–1995), an important Indonesian-born Malay artist, was marked with a Joyo canvas stamp from Japan, which obviously relates to the Japanese occupation of Malaya in the 1939 to 1944 period (Fig. 5). It was also noted that World War II interrupted the supply of imported art materials and local alternatives had to be sought (Sarasek 2004). Nanyang Art Supply Company in Penang even purchased additional stock during the war in case there was a shortfall and surviving examples of this material still remain today.

It can be argued that the percentage of works employing imported art materials is quite low for two possible reasons: colourmen's stamps are not always found on every canvas painting, as Harley (1987: 77) suggests, and they may have been cut from the roll of fabric. Auxiliary supports are not always marked either, yet their materials and construction methods are indicative of an imported supply. This is the case with 25% of the auxiliary supports

Figure 5 Joyo colourman's stamp reads 'Joyo canvas 5m/ 45 c Made in Japan' identified on Datuk Mohd. Hoessein Enas, *Dua Beradik* (*Two Sisters*) (1962), oil on canvas, 1123 × 910 mm, National Art Gallery, Malaysia, acc. no. 221965.81.

identified, all of them stretchers. A more likely reason for the low percentage of imported materials, however, is that artists prepared their own supports due to the high cost and limited availability of imported materials. This is supported by interviews with artists and the visual identification of possibly commercial cotton canvases. The same trend also occurred for the period before and after World War II. Further discussion about artists' colourmen in Southeast Asia will be published in the future. For now, this information highlights which art materials artists' colourmen were probably importing into the four countries in question, with the exclusion of art materials purchased by artists when abroad.

Conclusion

Through this preliminary work we have shown that there are distinct categories according to the artist's training and the country in question, for the materials and techniques used by Southeast Asian artists in the late nineteenth century and early to mid-twentieth century. The artists trained abroad in European art academies, such as Georgette Chen (Singapore), Liu Kang (Singapore) and Hoessein Enas (Indonesia and Malaya), tended to use imported linen canvas either on imported stretchers or locally constructed strainers. Most of the Thai royal portraits were also painted on imported linen canvases. The Filipino artists, who had a longer history of oil painting practice and art training, largely used cotton supports that appeared to be from a proprietary supplier. Furthermore, those stretchers identified in the Philippines were locally made, unlike those in the other collections examined. Perhaps this is due to the earlier introduction of art training which enabled the transfer of techniques to become an established practice in Filipino art academies.

This research characterises some of the probable supports and preparatory layers utilised in Malaya, the Philippines, the City of Singapore and Thailand during the period when Western artists' practice began to be adopted. Of the works examined, 63% had strainers that were largely locally made and 37% had stretchers that appeared to be imported, with the exception of those constructed by Fernando Amorsolo. Supports on linen canvas, representing 27% of the works examined, are likely to have been imported; the origins of the remaining 73% cotton canvases are unknown, yet local suppliers were noted anecdotally. With respect to the identification of size and ground layer, no conclusions can be made across the collections although examples of the use of calcium carbonate, calcium sulphate, basic lead white and starch were identified. As a study across four Southeast Asian countries with diverse cultural and social histories, it is by no means conclusive but it does establish some groundwork upon which further studies can be based.

Acknowledgements

This research was made possible with the support of the Australian Research Council (2003–2005) in collaboration with the National Art Gallery in Malaysia (BSLN), the J.B. Vargas Museum at the University of the Philippines (supported by the Australian Embassy in Manila), the Heritage Conservation Centre (HCC) in Singapore and the National Gallery in Thailand (supported by the Australian Embassy in Bangkok), and the Centre for Cultural Materials Conservation, University of Melbourne in Australia. A special thanks is extended to all the staff from the above institutions for their collaboration on the project, notably Ms Loh Heng Noi, Director and Mr Lawrence Chin, Senior Conservator (HCC); Dr Ana Labrador, Curator (J.B. Vargas Museum); Ms Zanita Anuar, Curator and Mr Amerrudin Ahmad, Assistant Curator (BSLN); Mr Sakchai Pojnunvanich, Director, and Mr Phongthorn Wongkietkachorn, curator (National Gallery Bangkok). Travel was supported by Arts Victoria in 2003, the Post Graduate Overseas Research Experience Scholarship (PORES) in 2004, and an Australian Endeavour Cheung Kong Award in 2005.

Notes

1. Singapore became an independent country in 1965; prior to this it was part of the 'Federation of Malaya' from 1953 to 1963, and 'Malaysia' from 1963 to 1965. Singapore did have a short period of independence from 1959 to 1963. For practical reasons, the 'City of Singapore' will be used in this paper.
2. The name 'Malaysia' existed from 1963. From 1953 to 1963 it was known as the Federation of Malaya, during British colonial rule it was called 'British Malaya' or 'Malaya' and prior to British rule it was known as the 'Malay Peninsula'. 'Malaysia', 'Malaya'.
3. A *mestizo* is a person of mixed native Filipino (*indio*) and Chinese or Spanish parentage.
4. Of the 208 works examined, 51 works had their auxiliary supports replaced. Only works on their original auxiliary supports were assessed.
5. The medium was not analysed. Identification of the binder as tempera relies on provenance details.
6. P. Harris, pers. comm., 11 October 2005.

References

Clark, J. 1998. *Modern Asian Art*. Sydney: Craftsman House and G&B Arts International.

Choong, K. 2003. Interview Transcript on 'Western' Art Materials in Malaysia by Nicole Tse, Kuala Lumpur, Malaysia, 6 August 2003. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Concepcion, F. 2005. Interview Transcript on 'Western' Art Materials in the Philippines by Nicole Tse, Manila, Philippines, 13 October 2003. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Flores, P.D. 1998. *Painting History: Revisions in Philippine Colonial Art*. Manila: UP Office of Research Coordination and National Commission for Culture and the Arts.

Duldulao, T. 2005. Interview transcript on 'Western' Art Materials in the Philippines by Nicole Tse, Manila, Philippines, 22 October 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Harley, R. 1987. 'Artists' prepared canvases from Winsor & Newton 1928–1951', *Studies in Conservation* **32**: 77–85.

Hong Kong Daily Press 1906. *The Directory & Chronicle for China, Japan, Corea, Indo-China, Straits Settlements, Malays States, Siam, Netherlands India, Borneo, the Philippines, & c.* for the year 1906.

Hsu, M. 1999. *A Brief History of Malayan Art*, L. Kien (tr.). Singapore: Millennium Books.

Lian Warn Jian 2004. Interview Transcript on Nanyang Art Supply Company. Kuala Lumpur, Malaysia, 21 December 2004. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Long Nan Seng 2003. Interview Transcript on Straits Commercial Art Supply Shop in Singapore, Singapore, 30 May 2004.

Lyons, E. 1975. 'A note on Thai painting', in T Bowie (ed.), *The Arts of Thailand: A Handbook of the Architecture, Sculpture and Painting in Thailand*. Bloomington, IN: Indiana University Press, 166–74.

Madeline, L. and Martin, M. 2006. *Picasso and Africa*. Cape Town: Iziko South African National Gallery.

Martin, E. 1977. 'Some improvements in techniques of analysis of paint media', *Studies in Conservation* **22**: 63–7.

McNally, B. 1998. 'Appendix: Yong Mun Sen', in Tan Chee Khuan (ed.), *Social Responsibility in Art Criticism (or Why Yong Mun Sen is the Father of Malaysia Painting)*. Penang: The Art Gallery, 161–85.

National Committee for Organizing the Celebrations for the 50th Anniversary of His Majesty's Accession to the Throne 1998. *Rattanakosin Art: The Reign of King Rama IX*. Bangkok: Published in Commemoration of the 50th Anniversary of His Majesty's Accession to the Throne, Bangkok, Amarin Printing and Publishing Public Company Limited.

Odegaard, N., Carroll, S. and Zimmt, W. 2000. *Material Characterization Tests for Objects of Art and Archaeology*. London: Archetype.

Ongpin, L. 2005. Interview Transcript on 'Western' Art Materials in the Philippines by Nicole Tse. Manila, Philippines, 21 October 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Paras Perez, R. 2004. Interview transcript on 'Western' Art Materials in the Philippines by Nicole Tse. Manila, Philippines 15 April 2004. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Pilar, S. 1994. 'Philippine painting: the early Chinese heritage', *Arts of Asia* **24**(6): 62–72.

Pimorak, A. and Krue-On, S. 2005. 'Interview Transcript on 'Western' Art Materials in the Thailand by Nicole Tse, Bangkok, Thailand, 30 May 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Piyadasa, R. 1979. 'The Nanyang Academy of Fine Arts', in *Pemeran Retospektif Pelukis-Pelukis Nanyang*. Kuala Lumpur: Muzium Seni Negara Malaysia, 24–35.

Plesters, J. 1956. 'Cross-sections and chemical analysis of paint samples', *Studies in Conservation* **2**: 110–57.

Poshyananda, A. 1992. *Modern Art in Thailand: Nineteenth and Twentieth Centuries*. Singapore: Oxford University Press.

Roces, A. 1975. *Amorsolo*. Makati City: Filipinas Foundation Inc.

Sanasen, U. 2005. Interview Transcript on 'Western' Art Materials in Thailand by Nicole Tse, Chiang Mai, Thailand, 26 September 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Santiago, L. 2003. *Fabian de la Rosa and the U.P. School of Fine Arts*. Quezon City: Jorge B. Vargas Museum and Filipinia Research Center.

Sarasek, P. 2005. Interview Transcript on 'Western' Art Materials in the Thailand by Nicole Tse, Bangkok, Thailand, 4 September 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Tan Chee Khuan 2001. *Peter Harris, Founder of the Wednesday Art Group*. Penang: The Art Gallery.

Tay Lye Hoe 2005. Interview Transcript on 'Western' Art Materials in the Malaysia by Nicole Tse, Penang, Malaysia, 10 December 2005. Available at the Centre for Cultural Materials Conservation, University of Melbourne.

Tse, N. 2005. 'Artistic practices of the Bohol School of Paintings: an analytical and archival study of nineteenth-century panel paintings in the Philippines', in P. Jett, J. Winter and B. McCarthy (eds), *Scientific Research on the Pictorial Arts of Asia*. London: Archetype, 149–59.

Zucker, J. 1999. 'From the ground up: the ground in 19th-century American pictures', *Journal of the American Institute for Conservation* **38**(1): 3–20.

Authors' addresses

- Nicole Tse, Centre for Cultural Materials Conservation, University of Melbourne, Parkville, 3010 Victoria, Australia. (nicoleat@unimelb.edu.au)
- Robyn Sloggett, Centre for Cultural Materials Conservation, University of Melbourne, 3010 Victoria, Australia.