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日本熱帯農業学会第125回講演会

- I. 研究発表講演要旨
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会場：千葉大学環境健康フィールド科学センター

2019年3月16日, 17日

日本熱帯農業学会平成 31 年度総会並びに第 125 回講演会

期 日 2019 年 3 月 16 日 (土)・17 日 (日)

場 所 千葉大学環境健康フィールド科学センター 〒277-0882 柏市柏の葉 6-2-1

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参加費 一般 : 5000 円、学生 : 3000 円 (要旨集代含む)

懇親会費 一般 : 5000 円、学生 : 3000 円

第一会場 : シーズホール、第二会場 : 管理研究棟講義室

講演会 研究発表 (発表 12 分、質問 3 分)

3 月 16 日 (土)

開始時刻	第一会場 シーズホール			第二会場 管理研究棟講義室		
	座長	番号	講演題目	座長	番号	講演題目
9:00	犬伏和之氏・千葉大	1	南インドの畑作地におけるバイオ炭の施用が土壌炭素動態および作物生育へ与える影響の解明 関真由子 ら 東京農工大学 他	パチヤキル	10	Comparative Analysis of Land Use/ Land Cover Changes in Three Areas in Myanmar Using Satellite Images Kay Khaing Oo et. al. Kyoto University.
9:15		2	Biological Nitrogen Fixation in Water Yam (<i>Dioscorea alata</i> L.) and Lesser Yam (<i>Dioscorea esculenta</i> L.) Associated with Endophytic Diazotrophic Bacteria M. OUYABE et. al. Tokyo University of Agriculture	バビル氏	11	Collaborative Exploration of Plant Genetic Resources in Northern Cambodia Tokuda, M. et. al. Shinshu University.
9:30		3	沖縄県のサトウキビ畑土において土壌型が蓄積するリンの量および形態に与える影響の解明 野々村詠人 ら 東京農工大学 他	東農大	12	ミャンマー連邦共和国におけるアブラナ科野菜“Mohn Nyin”の探索収集とその実態 吉田沙樹 ら 東京農業大学 他
9:45		4	Formation Processes and Properties of Soils in Central and Northern Malawi C. Chisambi, H. Shinjo Kyoto University	上吉原裕亮氏	13	カラシナ(<i>Brassica juncea</i>)遺伝資源の花形成の変異に関する研究 谷ちぐさ ら 東京農業大学 他
10:00		5	パーマカルチャー農法が栽培環境および作物と雑草の生育に及ぼす影響 プトロ ラディティヨ ハルヨ・宮浦理恵 東京農業大学	日大	14	カンボジアにおける野菜生産の実態と生産拡大に向けた課題 吉田達矢 ら 名古屋大学 他
10:15		6	ネパール山間地域における農業・生活に関する在地の知識および技術 —ムスタン郡コバン地区を事例として— 倉田祐輔 ら 信州大学	篠原卓農氏	15	Effect of 1-MCP microbubbles treatment on delay of postharvest ripening in 'Khai (Sucrier)' banana fruit INOUE T. et. al. University of Tsukuba

10:30	竹田晋也氏・京大	7	Terracotta depicting "drawing a plough" from Ranir Banglo, Moinamoti, Bangladesh and Ananda Temple, Bagan. Myanmar K. Ando et. al. Kyoto University.	篠原卓氏・東農大	16	イネの天水直播栽培における、プライミング種子利用リスクの検討 中尾祥宏・坂上潤一 鹿児島大学
10:45		8	Socio-economic characteristics and migration patterns of a village in Ayeyarwady Delta: A case study of Ywathitsu Village, Maubin Township, Myanmar Min Paing et. al. Maubin University		17	Analysis of rice yield variation among paddy fields along 2 estuaries of Red River, Vietnam Phan Luyen, Kamoshita Akihiko University of Tokyo
11:00		9	A micro-level analysis of rural-urban migration in Bhutan Tashi Chopel, Tashi Jamtsho Royal University of Bhutan		18	湛水条件下におけるサトウキビの根の形態的变化 坂上潤一ら 鹿児島大学
11:15 ~ 12:00	<p>ポスターセッション（セミナー室）（1~11、学生優秀発表賞対象ポスター）</p> <ol style="list-style-type: none"> Effect of rice straw, biochar and nitrogen on greenhouse gases production in paddy oils in south India K. Inubushi et. al., Chiba University 複数の植物成長調節剤が収穫後のライム 'Paan' の果皮色に及ぼす影響 富山博之ら、千葉大学他 Table Grape Production in Afghanistan and Attempt to Prevent Berry Shattering as a Serious Postharvest Problem Masomi Abdull Wahid, Hiroshi Gemma, Tokyo University of Agriculture Practical Solutions to Maintain Shelf Life of Apple Using Intermediate Temperature Incorporated with Modified Atmosphere Packages, Edible Coatings and 1-MCP in Afghanistan Niamatullah Dawlatzai, Hiroshi Gemma, Tokyo University of Agriculture 完全冠水下におけるイネの根の通気組織及び酸素漏出バリアの形成 岩田晋子ら、鹿児島大学他 ウガンダ国セレレ県における在来農法と JICA 推奨農法の比較からみた陸稲普及の課題点 斉藤雄介ら、日本大学他 Influence of different fertilizers and water management on CH₄ emission in IR50 rice Kyu Kyu Hmwe et. al., Chiba University サゴヤシ実生の対肥料反応性に関する研究 浅野航輝ら、名古屋大学 ひこばえを利用した高収量稲作栽培体系の評価 岩永響希ら、鹿児島大学 Effects of conservation agriculture on some biological and chemical properties of soil in rain-fed upland ecosystem of Cambodia S. SIENG et. al., Tokyo University of Agriculture and Technology タイにおける高齢果樹農家の現状と展望 ・サムットサーコーン県, ノンタブリ県, ラチャブリー県, チャンタブリ県の事例を中心に 大塚俊ら、千葉大学他 Effects of Logging and Forest Fires on Stand Structure of <i>Acacia catechu</i> Forests in Saw Township, Magway Region, Myanmar Way Phyoe Maung, S. TAKEDA, Kyoto University 根色が異なる島ニンジン根におけるカロテノイド含量, 糖含量, SOD 活性および味覚の系統間差異 砂川春樹ら、琉球大学他 温度がムラサキクダモノトケイソウおよびキイロクダモノトケイソウの光合成特性に及ぼす影響 島田温史ら、鹿児島大学 カンナ属植物種系統間の生育, 根茎・デンプン収量の評価 宮崎彰・後藤啓太、高知大学 					

**Terracotta depicting “drawing a plough” from Ranir Banglo, Moinamoti,
Bangladesh and Ananda Temple, Bagan. Myanmar
Kazuo Ando¹, Md. Ataur Rahman², Myint Thein³**

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Commission, Ministry of religion and culture, Myanmar

Key Words: Plough, Monamoti, Terracotta, Bagan, Bangladesh, Myanmar

1. Introduction

At the moment, people of Myanmar, Bangladesh, and even Japan tend to consider that Myanmar and Bangladesh have weak relationship historically. The the majority people of Myanmar is Theravada Buddhist and that of Bangladesh is Sunni Muslim and also two countries are belonging to different international political/administrative regions namely South Asia and Southeast Asia or SAARC and ASEAN. These biases may give much influence to the people including the scholars of history, geography, tropical studies, area studies etc.. The comparative studies covering Bangladesh and Myanmar or crossing the national boarder between South Asia and Southeast Asia are not conducted commonly. However, Rila Mukherjee has clearly stated the strong economic linkage of both the countries in 9-13 C (Mukherjee 2018 “Silver Links! Bagan-Bengal and Shadowy Metal Corridors:9th to 13th Centuries” in Goh Geok Yia et al ed. 2018. Bagan and the world:153-178). Thein Lwin and U Min Han have also stated the following cultural linkage of both the Countries (Lwin and Han, 2017 “11th century in Images of Brahma in the Buddhist Art of Bagan (circa 11-13th century), paper presented at “Bagan Metropolis July 9-15, 2017 SOAS University of London Southeast Asian Art Academic Program, <https://www.soas.ac.uk/saaap/news/file125695.pdf>)

Especially, Buddhism was flourished in Bagan period during the 11th century to 13th century A.D. The numerous stupas, temples and monasteries were witnessing the people of Bagan. Originally most of the walls and vault ceilings of monuments in Bagan were adorned with mural paintings. "The earliest murals at Bagan, which are dated to the 11th century, have strong stylistic similarities with the pictorial art of northeast India, the Bihar-Bengal region, notably Nalanda-Bodhgaya. There were both push and pull factors involved in the arrival of Indian art styles in Bagan at this time. The growth of a Buddhist regime would have naturally attracted artists and architects experienced in creating Buddhist works. After the decline of Buddhist sites in India, or at the very least in the creation of an environment in which Buddhists generally, including artisans, would have been motivated to find a more accepting the culture. At Bagan, the imported Indian models were assimilated and transformed into genuinely local formations. (Bautze Picron, 2003)"

As a concept, a culture, a technology etc. is usually transmitted from one place to another place as a form of complex, the farming technology of Bagan was surely influenced from Bengal during 11-13 C. The mystery of the traditional farming implements in Bagan is that a harrow or “Tun” is usually used instead of plough or “Te”. The word of a plough has been not found in the inscriptions of the archaeological materials of Bagan (Ando *et al.* 2006 Study Note on Harrow(Tun) Farming in Pagan, Myanmar, JJTA Vol.50.Extra Issue2 :49-50). Therefore, this study aims to re-think this mystery by re-thinking of the overlooked Terracotta depicting “drawing a plough” from Ranir Banglo, Moinamoti, Bangladesh and Ananda Temple, Bagan. Myanmar

2. Methodology

The field work on the glazed terracotta was conducted in Ananda Temple, Shezigon Pagoda and Dhamma Yazika Pagoda on Jan.19,2011 in Bagan, Myanmar. The terracotta depicting “drawing a plough” was investigated in the regional director office, the department of Achaecology, the government of Bangladesh on Nov.1,2018 in Moninamoti, Cumilla , Bangladesh. The investigation in Ananda temple was conducted again on July 26,2011 by Myint Thein and Photo2 was taken at that time.

3. Result and discussion

The terracotta of Photo 1(hereafter this is called “MPTP: Moinamoti Plough Terracotta Plaque”) of Photo1 was excavated from Ranir Banglo Mura Mainamati or Queen Moinamoti Palace in 1997. The glazed terracotta of Photo2 (hereafter this is called “APTP: Ananda Plough Terracotta Plaque”) is set up in the outer wall of Ananda Temple. Ranir Banglo Mura Mainamati was constructed in 9-10 C and Ananda Temple was in 1091. It can be considered that MPTP was made in 10-11 C and APTP was in 11-12C. The motif of terracotta plaques of Moinamoti is mainly animals and country every day life etc.. That of Bagan including Ananda temple is Jataka or Stories of the Buddha’s Former Births. APTP is the Jatka story No.389. We could the other terracotta plaques of the Jatka story No.389 in Shezigon Pagoda and Dhamma Yazika Pagoda, but their depicting design is a harrow or Tun such as that of Shezigon Pagoda (Photo3, hereafter this is called “ SPTP:Shezigon Plough Terracotta Plaque ”). Shezigon was constructed between 1059 and 1090 , mostly at the same time as Ananda temple. The structural shape of Ananda temple and Buddha statue of Shezigon are strongly influenced by Pala style including Moinamoti in Bengal, 8-12 C(Hussain ed.1997,Mainamati- Decaparvata, Asiatic Society of Bangladesh:55, Katsuyoshi Ito,2003BIRUMA BKYO ISEKI,Hakushobo:203). The Jatka story of No.389 mentions ”One day he had gone to the field with his men,and giving them orders to plough . . .”(Cowell ed.The Jataka Vol.III-IV, Motilal Banarsidass Publishers:184). The artisan made SPTP (also terracotta of Dhamma Yazika Pagoda mentioning Jatka No.389) may have considered a plough as a harrow or Tun, but the artisan who made APTP knew that a plough was not a harrow or Tun. It means that at least, a farming implement of a plough was introduced into Bagan from Bengal as a technological knowledge with the Pala style Buddha statue and temple.



Photo1 MPTP (By Ando)



Photo2 APTP (By Thein)



Photo3 SPTP (By Ando)

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