

## REFERRNCES

- Boonsener, M. 1977. **Engineering geology of the town of Khon Kaen, Northeastern Thailand**. Master's Thesis. Department of engineering geology, Graduate School. Asian Institute of Technology.
- Bunopas, S., Yaemniyom, N., and Kositanont, S. 1999. Catastroloess and its derivatives, the life time sustainable construction sands was originally high atmospheric settling in the Quaternary cometary impact in Thailand and Asia. **Proceedings of Symposium on Mineral, Energy and Water Resources of Thailand: Towards the year 2000**: 142-151.
- Cambell, K.V. and Nutalaya, P. 1975. Structural elements and deformational events. **Proceedings of the Conference on Geology of Thailand**, Spec. Pub. 1(1): 155-164.
- Chaimanee, Y., Yame, C., Caetean, P. and Kaewiset, K. 2003. **Biodiversity of the ancient elephants in Changwat Nakhon Ratchasima**. Department of Mineral Resources. Bangkok, Thailand. 63pp.
- Chamley, H. 1990. **Sedimentology**. Germany: Springer-Vrlag Berlin Heidelberg.
- Charusiri, P., Daorerk, V., Krowchan, V., Klongsara, N., Kosuwan, S., Srirattanachatchawan, V., and Santatiwongchat, U. 2002. Quaternary tektites and their sediment hosts at Ban Tha Change sandpit, Chaloe Prakiat, Nakhon Ratchasima, northeast Thailand: stratigraphy and thermoluminescence ages. *In*: Mantajit, N., ed. **Geology of Thailand Symposium**. Department of Mineral Resources, Bangkok, Thailand: 9.
- Chong, K.Y. 1988. **Geohydrology of the Town of Khon Kaen, Northeastern Thailand**. Master's Thesis. Graduate School, Asian Institute Technology.
- Coppens, Y. and Beden, M. 1978. **Moeritherioidea. In evolution of African mammals**, (ed. Maglio, V. J. and Cooke, H. B. S.). pp. 333-335. Cambridge: Harvard University Press.
- DeBlase, A.F. and Martin, R.E. 1974. **A manual of mammalogy with keys to families of the world**. 2ed. America: Wm.C. Brown.
- Department of Mineral Resources. 2001. **Geology of Thailand**. Bangkok: Department of Mineral Resources. 556 pp. (In Thai)
- Einsele, G. 1992. **Sedimentary basins: Evolution, facies, and sediment budget**. Germany: Springer-Verlag Berlin Heidelberg.
- Fleischer, R.L., Price, P.B. and Walker, R.M. 1965. On the simultaneous origin of Tektites and other natural glasses. **Geochimica et. cosmochimica acta**: 161-166.
- Ginsburg, L., and Tassy, P. 1985. The fossil lignite beds in the intramontane basins of northern Thailand. **Journal of the Geological Society of Thailand**. 8(2): 13-27.
- Hunta, R., Ratanasthien, B., Kunimatsu, Y, Saegusa, H., Nakaya, H., and Chintasakul, P. 2005. Description of the Tha Chang *Merycopotamus* and its preserved condition. **International Conference on Geology, Geotechnology and Mineral Resources of Indochina (GEOINDO 2005)**. Khon Kaen University, Khon Kaen, Thailand: 600-605.

- Huttunen, K. and Gohlich, U.B. 2002. A partial skeleton of *Prodeinotherium bavaricum* (Proboscidea, Mammalia) from the Middle Miocene of Unterzolling (Upper freshwater Molasse, Germany). **Geobios** 35: 489-514.
- Japakasetr., T. 1985. Review on rock salt and potash exploration in Northeast Thailand. **Conference on Geology and Mineral Resources Development of the Northeast Thailand**.
- Japakasetr, T. and Suwanich, P. 1984. Potash and rock salt in Thailand, appendix A. **Nonmetallic mineral Bulletin** No.2.
- Kobayashi, T., Takai, F. and Hayami, I. 1963. On some Mesozoic fossil from the Khorat Series of east Thailand and a note on the Khorat Series. **Journal of Geological Geogs**. V. 34.
- Koenigswald, G.H.R. von. 1959. **A mastodon and other fossil mammals from Thailand**. Report of Investigation. Department of Mineral Resources. 2: 25-28, 2 fig.
- Kunz, J., Bollinger, K., and Jessberger, E.K. 1995. Ages of Australasian Tektites. **Abstracts of the Lunar and Planetary Science Conference, 26<sup>th</sup>**.
- Lee, M.Y. and Wei, K.Y., 2000. Australasian microtektites in the South China Sea and the west Philippine Sea: Implications for the age, size, and location of the impact crater. **Meteoritic and planetary science**. 35: 1151-1155.
- Lister, A.M. 1996. Evolution and taxonomy of Eurasian mammoths. **The proboscidea: evolution and palaeoecology of elephants and their relatives**. England: Oxford University Press.
- Loeffler, E., Thomson, W.P. and Liengsakul, M. 1983. Geomorphological development of the Tung Kula Ronghai. **Proceedings of the 1<sup>st</sup> Symposium on Geomorphology and Quaternary Geology of Thailand**, Bangkok: 123-130.
- Magilo, V. 1973. Origin and evolution of the Elephantidae. **Transactions of the American philosophical society of Philadelphia**. New Series. 63(3): 1-149.
- Mazo, Ana V., 1996. Gomphotheres and mammutids from the Iberian Peninsula. **The proboscidean evolution and paleoecology of elephants and their Relatives**. Oxford: Oxford University Press.
- McGowan International Pty. Ltd. 1982. **Tung Kula Ronghai salinity study 1981-1982**, Report of Thai-Australia Tung Kula Ronghai Project, 145 pp.
- Moormann, F. R., Montrakun, S. and Panichapong, S. 1964. **Soils in the Northeastern Thailand, a key to their identification and survey**. Soil survey Divisions, Department of Land Development.
- Moormann, F. R. and Rojanasoonthon, S. 1972. **The soils of the kingdom of Thailand, explanatory text of the general soil map**, report SSR-72A, Soil Survey Division, Department of land development, Bangkok, 57pp.
- Nakaya, H., Saegusa, H., Nagaoka, S., Ratanasthien, B., Kanimatsu, Y., Tanaka, S., Fukuchi, A, and Chintaskul, P. 2003. Neogene mammalian faunas from

- Thailand. **Proceedings of 1<sup>st</sup> International Conference on Paleontology of Southeast Asia**, Mahasarakham University, Mahasarakham, Thailand. 22: 102-103.
- Nakaya, H., Saegusa, H., Ratanasthien, B., Kunimatsu, Y., Tsubamoto, T., Nagaoka, S., Suganuma, Y., Chintaskul, P., and Thasod, Y. 2003. Late Cenozoic mammalian faunas of Thailand. **Proceedings of the 8<sup>th</sup> International Congress on Pacific Neogene Stratigraphy: Pacific Paleoenvironments and their Evolution**. Chiang Mai University, Chiang Mai, Thailand: 90.
- Nakchiya, T. 2002. **The high gravel bed's at Ban Nong Bua Ri, Changwat Nakhorn Ratchasima**. Bachelor degree of science, department of geology Chulalongkorn University.
- Nutalaya, P., Vella, P., Bunopas, S., and Kaewyana, S. 1987. Quaternary processes in Thailand. **Proceedings of the Workshop on Economic Geology, Tectonics, Sedimentary Processes, and Environment of the Quaternary in Southeast Asia**: 23-33.
- Nutalaya, P., Sophonsakulrat, W., Sonsuk, M and Wattanachai, N. 1988. Catastrophic flooding-an agent for landform development of the Khorat Plateau: a working hypothesis. **Proceedings of the Workshop on Correlation of Quaternary Succession in South, East and Southeast Asia**. Bangkok, Thailand: 95-115.
- Osborn, H.F. 1936. **Proboscidea: A monograph of the discovery evolution, migration and extinction of the mastodonts and elephants of the world**. Vol.I: Moeritherioidea, Deinotherioidea, Mastodontoidea. New York: The American Museum Press.
- Osborn, H.F. 1942. **Proboscidea: A monograph of the discovery evolution, migration and extinction of the mastodonts and elephants of the world**. Vol.II: Stegodontoidea, Elephantoidea. New York: The American Museum Press.
- PN MAP. 2003. **Thailand Highway Map**. Bangkok: PN MAP. Center. 63 pp. (In Thai).
- Piyasin, S. 1985. Problem of Stratigraphic Classification and Environments of Khorat Group. **Proceedings of the Conference on Geology and Mineral Development**. pp. 85-97.
- Prakash, U. 1979. Fossil dicotyledonous woods from the Tertiary of Thailand. **The Palaeobotanist**. 26: 50-62.
- Racey, A., Goodall, J.G.S., Love, M.A., Polachan, S. and Jones, P.D. 1994. New age data for the Mesozoic Khorat Group of Northeast Thailand. *In*: Angsuwathana, P., Wongwanich, T., Tansathien, W., Wongsomsak, S., and Tulyatid, J., ed. **Proceedings of the International Symposium on Stratigraphic Correlation of Southeast Asia**. Department of Mineral Resource, Bangkok, Thailand: 245-252.
- Raksaskulvong, L., Chairangsi, C., Audsawapadchara, S., Pangkaew, V. and

- Latnok, V. 2003. **Geology of Changwat Nakhon Ratchasima (5438I), Amphoe Non Song (5439 II), Amphoe Mung Yang (5539 I) and Amphoe Chum Pung (5539 IV)**. Bangkok : Department of Mineral Resources.
- Romer, A.S. 1933. **Vertebrate paleontology**. Chicago: University of Chicago Press.
- Royal Thai Survey Department. **“Ban Saraphi”** Sheet 5438 I. Topographic Map Series L7017. 1996. Scale 1:50,000.
- Royal Thai Survey Department. **“Amphoe Non Sung”** Sheet 5439 II. Topographic Map Series L7017. 1996. Scale 1:50,000.
- Royal Thai Survey Department. **“Amphoe Non Thai”** Sheet 5439 III. Topographic Map Series L7017. 1969. Scale 1:50,000
- Royal Thai Survey Department. **“Changwat Nakhon Ratchasima”** Sheet 5438 IV. Topographic Map Series L7017. 1969. Scale 1:50,000
- Rust, B.R. and Koster, E.H. 1984. Coarse alluvial deposits. **Facies model**. 2<sup>nd</sup> Canada: Geoscience.
- Saegusa, H., Thasod, Y., and Ratanasthien, B. 2005. Notes on Asian stegodontids. **Quaternary International**. 126-128: 31-48.
- Sanders, W. J., Kappelman, J. and Rasmussen, D. T. 2004. New large-bodied mammals from the late Oligocene site of Chilga, Ethiopia. **Acta Palaeontologica Polonica**. 49(3): 365-392.
- Sataruga, P. 1987. **Engineering geology of Khorat city**, Master's Thesis. Department of Asian Institute of Technology, Bangkok, Thailand. 86 pp.
- Sato, Y. 2002. Preliminary report on the occurrence of fossil mammals in Nakhon Ratchasima, Northeast Thailand. **Proceedings of Symposium on Geology of Thailand**: 230-232.
- Sattayaruk, N. 1985. Review on Geology of Khorat Plateau. **Proceedings of the Conference on Geology and Mineral Development**. 23-30.
- Schneider, D.A., Kent, D.V., and Mello, G.A. 1992. A detailed chronology of the Australasian impact event: the Brunhes/Matuyama geomagnetic polarity reversal, and global climate change: **Earth and planetary science letters**. 11: 395-405.
- Selley, R.C. 1985. **Ancient sedimentary environments**, 3<sup>rd</sup> ed. London: Chapman&Hall,
- Shoshani, J. and Tassy, P. 1996. **The proboscidean evolution and paleoecology of elephants and their relatives**. Oxford: Oxford University Press.
- Shoshani, J., and Tassy, P. 2005. Advances in proboscidean taxonomy & classification, anatomy & physiology, and ecology & behavior. **Quaternary International**. 126-128: 5-20.
- Simpson, G. G. 1945. The principles of classification and a classification of mammals. **Bulletin of the American Museum of natural history**. 85: 1-350.
- Sreprateep, K., Bunchalee, P. and Sato, Y. 2003. Discovery of the mineral, vivianite from the mammal fossil locality in Nakhon Ratchasima, Northeast

- Thailand. **Proceedings of the 1<sup>st</sup> International Conference on Palaeontology of Southeast Asia**. Mahasarakham University, Mahasarakham, Thailand. 22: 257.
- Suteethorn, V., Chaimanee, Y. and Khunsupha, S. 1997. **Discovery of the vertebrate fossils in Tertiary from Khorat Basin**. Department of Mineral Resources. Bangkok, Thailand: 111-114
- Takaya, y., Hattori, T. and Wichaidit, P. 1984. **Soil salinization in the Khorat Plateau**, Original Paper Submitted to Mekong Secretariat.
- Tassy, P. 1988a. The classification of Proboscidea: how many cladistic classifications? **Cladistics**. 4: 43-57.
- Tassy, P. 1996. Dental homologies and nomenclature in the Proboscidea. **The proboscidean evolution and paleoecology of elephants and their relatives**, Oxford: Oxford University Press.
- Thasod, Y., and Ratanasthien, B. 2005. New proboscideans, *Sinomastodon* (Proboscidea, Mammalia) from Thailand. **International Conference on Geology, Geotechnology Resources of Indochina (GEOINDO 2005)**. Khon Kaen University, Khon Kaen, Thailand: 594-599.
- Thornbury, W.D. 1954. **Principles of geomorphology**. Japan: John Wiley & Son.
- Tuckson et al. 1983. **Tung Kula Ronghai salinity study**, Thai-Australia Tung Kula Ronghai project. 145 pp.
- Udomchoke, V. 1988. Quaternary stratigraphy of the Khorat Plateau area Northeastern Thailand. **Proceedings of the Workshop on Correlation of Quaternary Succession in South, East and Southeast Asia**. Department of Geology, Chulalongkorn University, Bangkok, Thailand: 69-94.
- Vozenin-Serra and Prive-Gill, C. 1989. Bois Plio-Pleistocene Du Gisement De Saropee, Plateau De Khorat, Est De La Thaïlande. **Review of Palaeobotany and Palynology**. 60: 225-254.
- Ward, D. and Bunnag, D. 1964. Stratigraphy of the Mesozoic Khorat Group in Northeastern Thailand. **Department of Mineral Resources Report Investigation**, no. 6.
- Wongsomsak, S. 1986. Quaternary stratigraphy in Northeast Thailand : A stratigraphic research at Changwat Buri Ram. **Proceedings of the CCOP Symposium on "Developments in Quaternary Research in East and Southeast Asia during the last decade**. Bangkok: 179-196.
- Workman, D.R. 1977. Geology of Laos Cambodia South Vietnam and the Eastern part of Thailand, **Oversea Geology of Mineral Resources**.
- Yamei, H., Potts, R., Baoyin, Y., Zhengtang, G., Dieno, A., Wei, W., Clark, J., Guangmao, X., and Weiwen, H. 2000. Mid-Pleistocene Acheulean-like stone technology of the Bose basin, south China. **Science**. 287: 1622-1626.



**APPENDICES**

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



Plates

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## Explanation of Plate 1

Figure	Plate
1 a. Left lower molar of <i>Stegodon</i> (Reg. no. CuM- 0005), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	84
2 a. Molar of <i>Stegolophodon</i> (Reg. no. CuM- 0006), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	84
3 a. Anterior part of the third molar of <i>Stegolophodon</i> (Reg. no. CuM- 0009), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	84
4 a. Posterior part of a left lower molar of <i>Sinomastodon</i> (Reg. no. CuM- 0011), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	84

  
 ศูนย์วิทยทรัพยากร  
 จุฬาลงกรณ์มหาวิทยาลัย



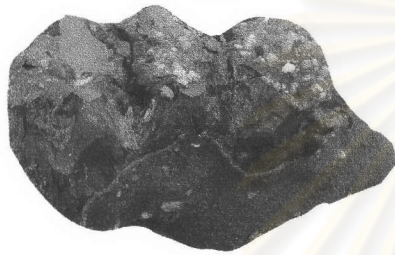
PLATE 1



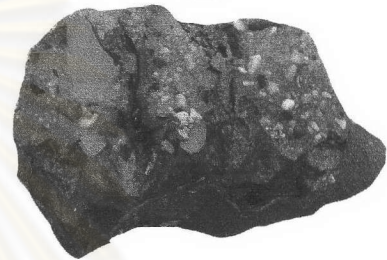
1a



1b



2a



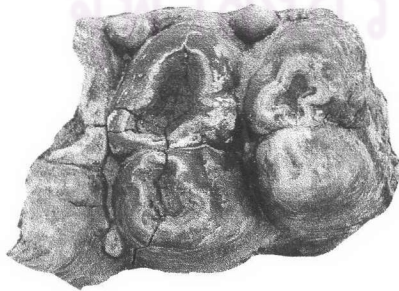
2b



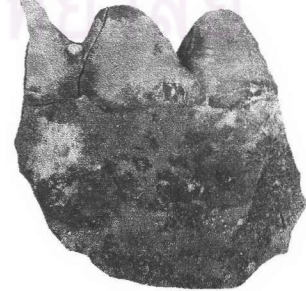
3a



3b



4a



4b

—  
1.5 cm

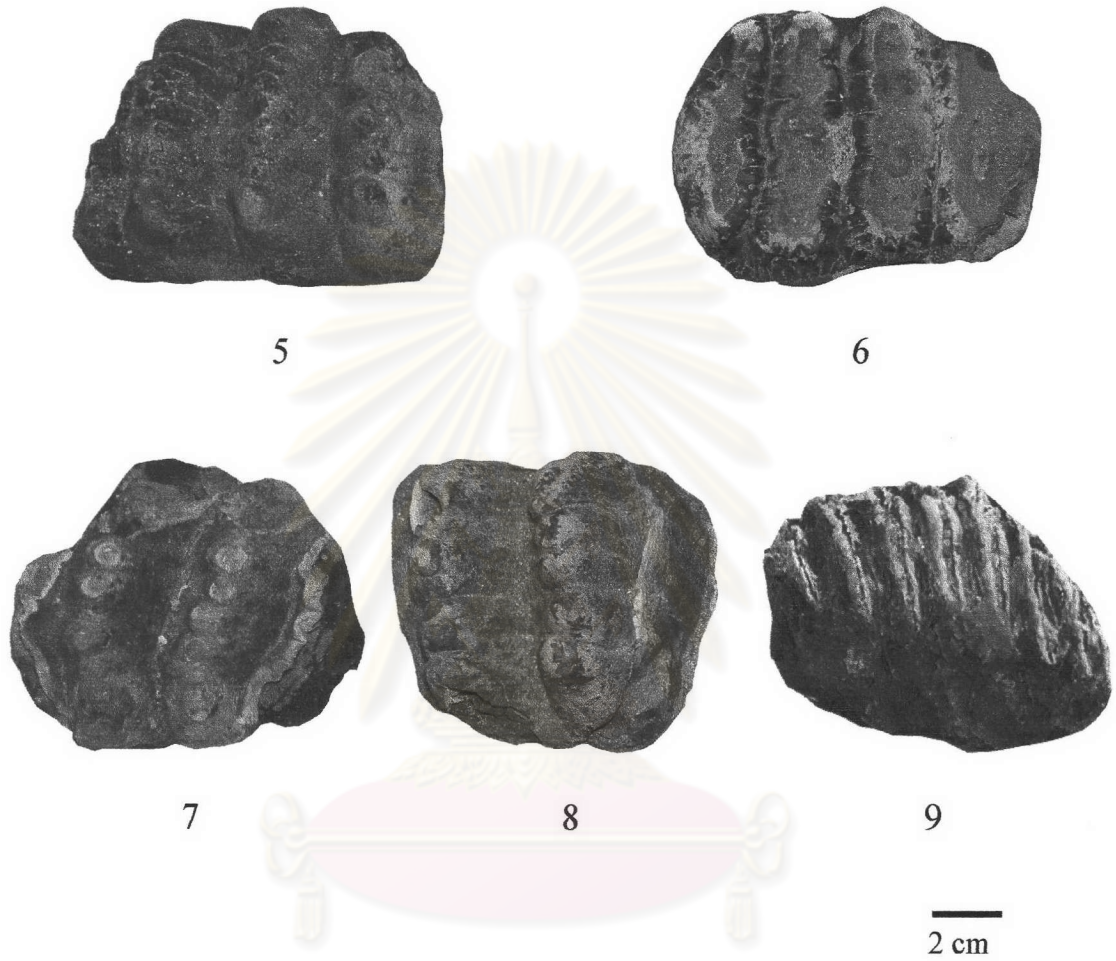
Explanation of Plate 1(continued)

Figure	Plate
5. Molar of <i>Stegodon</i> (Reg. no. CuM- 0007), in lateral view.....	86
6. Molar of <i>Stegodon</i> (Reg. no. CuM- 0014), in occlusal view.....	86
7. Upper molar of <i>Stegodon</i> (Reg. no. CuM- 0015), in occlusal view.....	86
8. Upper molar of <i>Stegodon</i> (Reg. no. CuM- 0016), in occlusal view.....	86
9. Molar of <i>Elaphas</i> (Reg. no. CuM- 0017), in lateral view.....	86



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

PLATE 1 (continued)



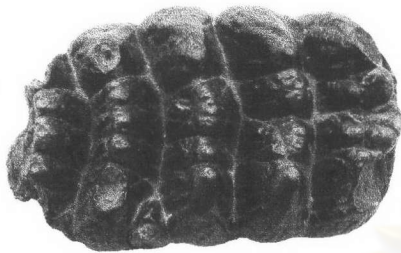
ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## Explanation of Plate 2

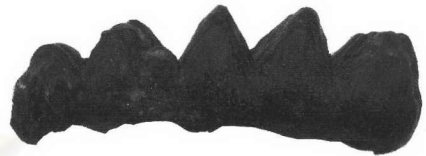
Figure		Plate
1 a.	Right upper molar of <i>Stegodon</i> (Reg. no. RIN- 1), in occlusal view	
b.	The same specimen as in (a.) but in a lateral view.....	88
2 a.	Left lower molar of <i>Stegodon</i> (Reg. no. RIN- 14), in occlusal view	
b.	The same specimen as in (a.) but in a lateral view.....	88
3 a.	Right upper molar of <i>Stegodon</i> (Reg. no. RIN -24), in occlusal view	
b.	The same specimen as in (a.) but in a lateral view.....	88
4 a.	Molar of <i>Stegodon</i> (Reg. no. RIN -28), in occlusal view	
b.	The same specimen as in (a.) but in a lateral view.....	88


  
 ศูนย์วิทยทันตวิทยาการ  
 จุฬาลงกรณ์มหาวิทยาลัย

PLATE 2



1a



1b



2a



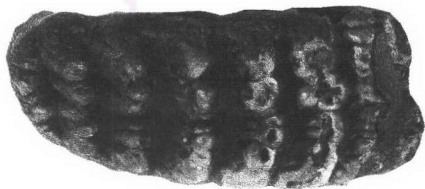
2b



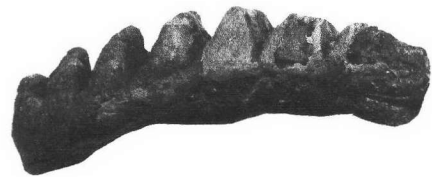
3a



3b



4a



4b

3.5 cm

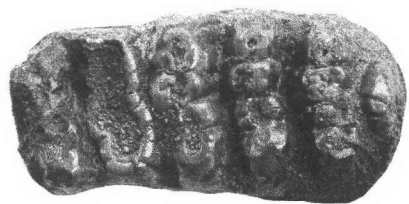
ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## Explanation of Plate 2 (continued)

Figure	Plate
5 a. Left lower molar of <i>Stegodon</i> (Reg. no. RIN-30), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	90
6 a. Molar of <i>Stegodon</i> (Reg. no. RIN-31), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	90
7 a. Left lower molar of <i>Stegodon</i> (Reg. no. RIN-32), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	90
8 a. Lower molar of <i>Stegodon</i> (Reg. no. RIN-43), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	90
9 a. Left lower molar of <i>Stegodon</i> (Reg. no. RIN-46), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	90


  
 ศูนย์วิทยทรัพยากร  
 จุฬาลงกรณ์มหาวิทยาลัย

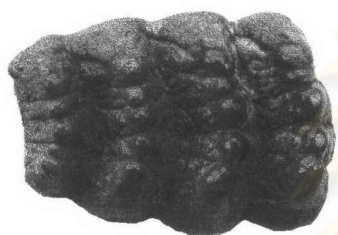
PLATE 2 (continued)



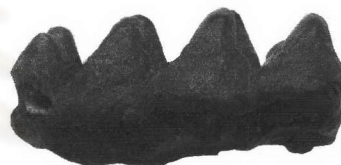
5a



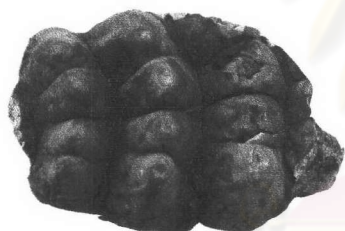
5b



6a



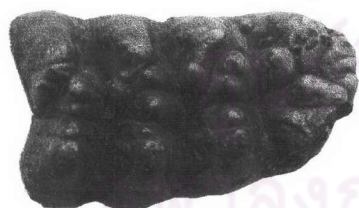
6b



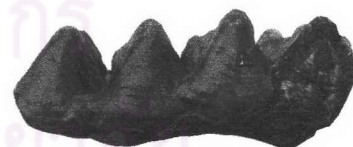
7a



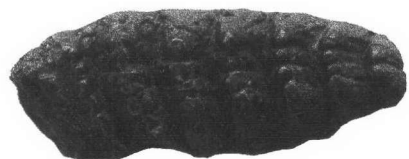
7b



8a



8b



9a



9b

2 cm

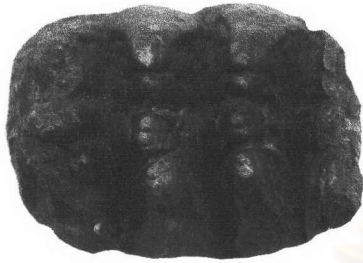
## Explanation of Plate 2(continued)

Figure	Plate
10 a. Molar of <i>Stegodon</i> (Reg. no. RIN-48), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	92
11 a. Right upper molar of <i>Stegodon</i> (Reg. no. RIN-50), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	92
12 a. Left lower molar of <i>Stegodon</i> (Reg. no. RIN-60), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	92
13 a. Right upper molar of <i>Stegodon</i> (Reg. no. RIN-64), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	92

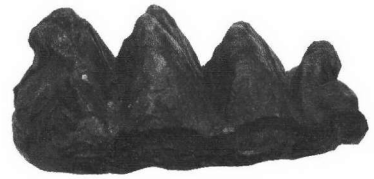
  
 ศูนย์วิทยทันตวิทยาการ  
 จุฬาลงกรณ์มหาวิทยาลัย



PLATE 2



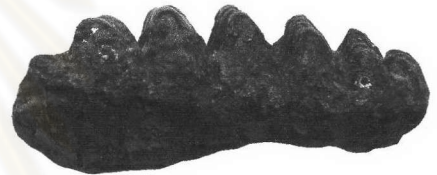
10a



10b



11a



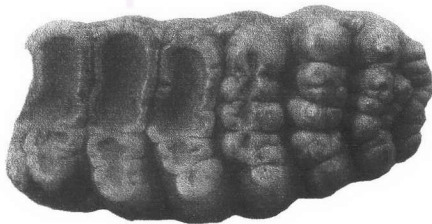
11b



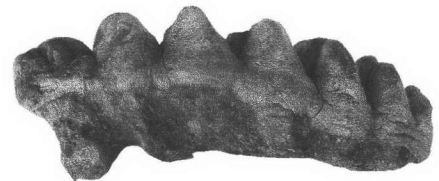
12a



12b



13a



13b

3 cm

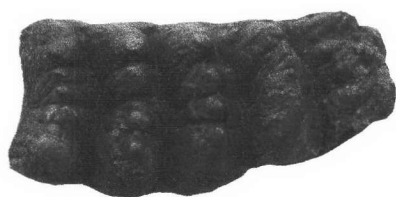
ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

### Explanation of Plate 3

Figure	Plate
1 a. Right lower molar of <i>Stegolophodon</i> (Reg. no. RIN-3), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	94
2 a. Upper molar of <i>Stegolophodon</i> (Reg. no. RIN-33), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	94
3 a. Left upper molar of <i>Stegolophodon</i> (Reg. no. RIN-35), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	94
4 a. Right upper molar of <i>Stegolophodon</i> (Reg. no. RIN-36), in occlusal view b. The same specimen as in (a.) but in a lateral view.....	94


  
 ศูนย์วิทยทรัพยากร  
 จุฬาลงกรณ์มหาวิทยาลัย

PLATE 3



1a



1b



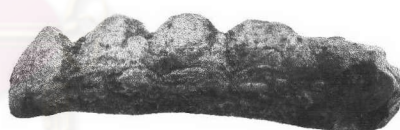
2a



2b



3a



3b



4a



4b

3 cm

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

### Explanation of Plate 3 (continued)

Figure	Plate
5 a. Left upper molar of <i>Stegolophodon</i> (Reg. no. RIN-61), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	96
6 a. Right upper molar of <i>Stegolophodon</i> (Reg. no. RIN-65), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	96
7a. Upper molar of <i>Stegolophodon</i> (Reg. no. RIN-66), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	96
8 a. Upper molar of <i>Stegolophodon</i> (Reg. no. RIN-348), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	96

  
 ศูนย์วิทยทรัพยากร  
 จุฬาลงกรณ์มหาวิทยาลัย

PLATE 3(continued)



5a



5b



6a



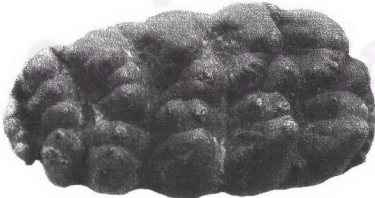
6b



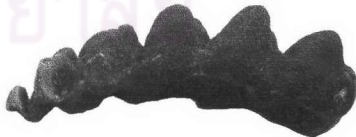
7a



7b



8a

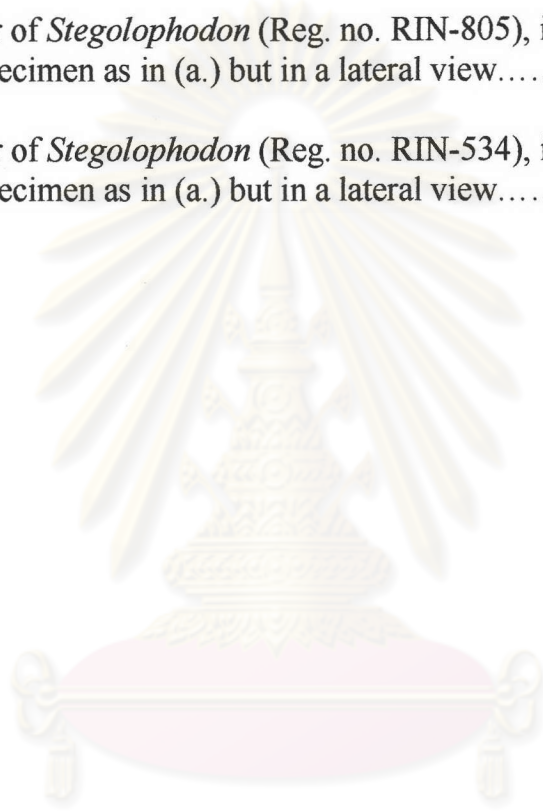


8b

3 cm

### Explanation of Plate 3(continued)

Figure	Plate
9 a. Right upper molar of <i>Stegolophodon</i> (Reg. no. RIN-804), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	98
10 a. Lower molar of <i>Stegolophodon</i> (Reg. no. RIN-805), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	98
11 a. Lower molar of <i>Stegolophodon</i> (Reg. no. RIN-534), in occlusal view	
b. The same specimen as in (a.) but in a lateral view.....	98



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

PLATE 3 (continued)



9a



9b



10a



10b

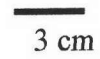


11a



11b

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



## BIOGRAPHY

Mrs Kanlaya Srepreateep was born on 29 November 1969, Samutprakarn Province. She has got Bachelor Degree from Department of Biology, Faculty of Science, Burapha University in 1992. After that she worked at Department of Anatomy, Faculty of Science, Mahidol University as scientist in Laboratory of cell and electron microscope in 1992-1994. She carried out further study on Master Program on Zoology, Department of Biology, Faculty of Science, Chulalongkorn University in 1995. She has worked at Department of Biology, Faculty of Science, Khon Kaen University since 1996. She has studied for Master Program on Earth science, Department of Geology, Faculty of Science, Chulalongkorn University in 2002.



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย