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PREFACE

The author has a desire to write about the Myanmar's ancient mathematics, especially the portion of the mathematics numerical problems, since the time 1960 when the author was appointed as a tutor in mathematics department at Magwe college.

The author became a professor in mathematics department at 1995 and then the author fulfilled his desire by completing a scripture with the title **Compilation of Myanmar's Ancient Numerical Problems.**

Since the time when we were young, we all had been familiar with the ancient numerical problems such as:

- (က) ခိုခွဲ၊ ဝမ်းဘဲ ငါးကျပ်၊ စာတစ်မတ်၊ ကောင်အစိတ်၊ ငွေအစိတ်၊
- (ခ) Khou-khwe, wum be ngakyat, satg ma', kaun a ze' 'ngwei a ze'.

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This ancient puzzle can be translated into the mathematics problem as follows:

The price of a pigeon is half kyat, that of a duck is five and that of a sparrow is one-fourth kyat. With twenty five kyat, it can buy twenty five birds. Calculate the separate number of pigeon, duck and sparrow.

This is an algebra problem of three unknowns giving two equations.

(ခ) တွန့်မ အသက် သပြေခက် လပ်နှံစားခြေ တူပါစေ-

(b) Kja-ma a the' dhabjei khe', la'l hnin sa gjei tu pa sei.

This problem may also be explained in mathematics sense as follows:

"My age can be denoted by the word, "dha bjei khe" (Leaf of Eugenia tree). This number has equal division and the quotient. How old I am?

This problem can be solved by using the translation of alphabets into the numerals.

(ဂ) အလံတစ်ရာ ခြေ၊ တွင်းမှာခွေ၊ တစ်နေ့လက်တစ်သစ် ကျွန်မမွေးသက္ကရာဇ်။

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(c) a lam taja mwei, twin ma khwei, ta nei le' ta thl', kjang mwei the' gaji.

This problem can be transformed into English version as follows.

A snake with a long length of a hundred lan, lives in a hole. He comes out daily slowly by le' the' th' only. (The length of portion of figure). The total number of portions of figure is date of birth. Find it.

To solve this problem, we have to know Myanmar's ancient nomination of the length relations between Le' the' and lan.

It is clear that to solve these ancient numerical problems, it is necessary to be familiar with the basic arithmetic definitions, theories and formulae described in Myanmar's original peizas which are the palm leaves on which the arithmetic inscriptions are stated by using kanji (ကညပ်) stylus. These palm leaves are packed like the book. This packet is called systematically peidau' (ပေထုပ်)

With the kind permission of U Thaw Kaung, the Chief Librarian of Universities Central Library, the author spend about three years to read, search, compile and

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copy the required brief portions of the ancient numerical problems and solutions from the following five peidau's.

- (1) သင်္ချာပကာသတကျမ်း
Thin cha pa ka tha ka kjan:
- (2) ဝိသေသဝိဇ္ဇာသင်္ချာကျမ်း
Wi thei tha Weiza ganan: kjan:
- (3) ဘေဝဂ္ဂသင်္ချာကျမ်း
Bei Wiza Thinchka Kjan:
- (4) သင်္ချာပညာဝဗ္ဗနကျမ်း
Thinchka pjin nja wu'dana kjan:
- (5) သုဝိဇ္ဇာဝဗ္ဗနကျမ်း
Jhuwi seita ganan weiza kjan:

Although these five kjan are not sufficient to study and to research about the wide ancient numerical problem, the author believes the proverb that "တစ်နေ့တစ်လ- ပုဂံ ဘယ်ပြေးမလဲ" ie. By walking only one Lan, we can reach the last goal-Bagan Capital.

The author not only studied and researched on these peidau's but also learned about the ancient arithmetic articles

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from many other books such as "Algebra" written by U Hpo Maung, "The ancient Myanmar's sciences kjang" written by Dr.Myo Thant Tin and "Myanmar's ancient arithmetic numbers" written by Dagon Nat Shin etc.

Thus the author already makes the first step for the study the ancient mathematics goal so that there will appear the other steps by interesting reseanchers and scholars with one decade or one century.

These standard units showed the higher level of mathematics and the traditional culture of the ancient



Couple of ancient Myanmar (Bagan Era)

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Myanmars. Since they are rigidly written and stood in Peidau', we should be proud of these standard units which revealed the living standard of our ancient grandfathers and great grandfathers.

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