ABSTRACT

Title of dissertation: NAUTILUS: FOR FLUTE/PICCOLO AND COMPUTER-PROCESSED SOUND

Yi-Chen Chen, Doctor of Musical Arts, 2006

Dissertation directed by: Professor Robert Gibson, School of Music

Nautilus for flute/piccolo, and computer-generated sound was completed in the spring of 2006. The electronic score for the piece was realized in Computer Music Studio B at University of Maryland.

As the title suggests, this piece is in some ways a musical representation of the structure of a chambered nautilus shell and the sound of this structure when one "listens" to the shell by holding near the ear. An analog to the spiral structure of the nautilus shell is created by using trills and rising and falling glissandi in the flute and the electronic score. Some extended techniques of the flute, such as tongue-stopped notes and "jet whistle" sounds create timbres that resemble speaking directly into a nautilus shell.
Nautilus can be roughly divided into four sections: the first section, which is also the longest section, opens with long and expressive phrases, and gradually introduces shorter and more rhythmic figures. In the second section, the flutist changes to piccolo. This is the most energetic and intense section, even somewhat agitated at times. The third section is a flute solo. The rapid shifts between fast-run figures and lyrical phrases creates a contradictory feeling, and a sense of tension, which is eventually resolved in the last section. The last section is tranquil and recalls the character of the opening section, leading to the conclusion.
NAUTILUS: FOR FLUTE/PICCOLO AND COMPUTER PROCESSED SOUND

by

Yi-Chen Chen

Thesis submitted to the Faculty of the Graduate School of the University of Maryland, College Park in partial fulfillment of the requirements of the degree of Doctor of Musical Arts 2006

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## TABLE OF CONTENTS

Acknowledgements........................................................................................................... ii

Performance Instruction.................................................................................................... v

Nautilus............................................................................................................................ 1
Performance instruction:

1. Tongue-stop

2. Key-slap articulating pitch

3. Key-slap alone

4. Key-slap with embouchure-hole stopped

5. Jet whistle

6. Key-slap with random fingering

fingering:
Nautilus
for flute/piccolo and computer-processed sound

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-1-
Change to Flute

wait until the electronic score stops, then start the flute solo

Freely \( (\text{\textit{j}} = \text{ca. 60}) \)

Flute

- 10 -