Steel Pan Tuning

This book is dedicated to
the rhythmic people of Trinidad and Tobago
and their master tuners

Steel Pan Tuning

A Handbook for Steel Pan Making and Tuning

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Preface

When I first started to write this book three years ago, my intention was to update Peter Seegers book about steel pan making from 1964. I was trying to understand and learn how to tune steel pans as a part of my research in the acoustics of the steel pan, and it seemed suitable to document what I was learning. But, during my research project I realized that the art of steel pan tuning has now reached a degree of crafting refinement that makes it impossible to teach a novice how to do it properly from a reading book only – if it ever was. In fact, I believe that it would be easier to make a working violin from just reading a handbook than to make a steel pan. Still, as a scientist I wanted to document what I was learning and felt that a building description could serve as a written guidance to the basics of steel pan making.

The main purpose of this handbook is thus *not* to teach novices how to tune steel pans. The making and tuning of good steel pans is a crafting art that must and should be taught practically by a skilled panmaker. But the methods have hitherto been passed on completely through oral tradition. Therefore, a handbook like this one can, seen as a complementary aid, facilitate the teaching of pan making. The documentation is also intended to serve as a basis for a discussion of existing and emerging new tuning techniques.

The aim of this book is *not* to promote a standardization of the crafting process. It is rather to present major steps of the process and gather the tricks, specialities and results of some different methods so we can have an open discussion of their usefulness. In this way the community of panmakers can join the information society and start to develop the steel pan instrument through the same methods as used by manufacturers of high-tech instruments, such as pianos, violins, saxophones, etc.

As a researcher in acoustics I want to bring my measurements and theories to the skilled tuners to see if the marriage of practical crafting knowledge and scientific theory can bring the steel pan further in its evolution towards a matured instrument. The aim is to promote a fruitful feedback between theory and practice – to try to make a ”reference work” both for skilled panmakers and newcomers in the field.

You may argue that the panmakers have managed very well without any theory or written documentation through the first fifty years of the steel pan history. This is perfectly true, but the future development of the instrument can be facilitated and speeded up by providing

written documentation and theories. This has been realised by individuals and organisations in Trinidad. A paper from Pan Trinbago (the national organisation for steel pan music in Trinidad & Tobago) from 1980 states the following about the need for technical research: "Today, however, there is a need to carry this development to a higher plane and to marry the rich practical experience of the individual panmaker with the theory of engineering science".

I do not claim to be anyone who knows very much about steel pan making and tuning. I don't even know how to keep my own tenor pan in tune, when it comes to practice. But, as I am eager to learn the practical methods and have access to tools for measurements and theoretical models, this book can be seen as a first step towards a thorough documentation of the instrument and the tuning techniques.

The book is divided into four main parts:

I – a practical section with a brief description of the crafting method.

II – a documentation of various inventions and trends for the future development of pan.

III – a theoretical section with a discussion of the acoustical aspects of the steel pan and a documentation of research results, gained in projects during the years 1989 and 1990.

IV – appendices with data and measurements on some common steel pan models and tools.

This handbook is intended to be published in a step-wise refined procedure. This means that the first edition is to be revised when a sufficient amount of new findings and data are at hand. Therefore, if you find something that seems faulty or poorly described, please report it to me to have it altered in the next edition. In this way the handbook can serve as an evolving reference work for the art of steel pan making and tuning in the future.

Stockholm, December 1991.

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Steel pan history

The steel pan, the tuned steel drum, is one of the few genuinely novel acoustic instruments invented in the twentieth century. Its origin is believed to be dustbins, used as rhythm instruments by the traditional Carnival bands of Trinidad & Tobago in the 1930's. During its 50-year history the steel pan has evolved from a multi-pitched percussion instrument to the mellow-sounding melodic-harmonic instrument of today.

The history of the steel pan is a story of prohibitions and compulsion. Its invention was in fact induced by the ruling colonialists trying to suppress the strong rhythmic heritage of the black Africans. Here are some milestones in the history of the pan:

1883 The use of drums in street parades was outlawed since the colonialists feared that passing of secret messages by means of drumming might become the impetus for social unity and revolt among the black. Riots and conflict between the natives and the authorities led to the banning of drum processions after the carnival this year.

1900-1934 The ban of drums led to the use of tuned bamboo sticks in street parades. During the 1930's biscuit tins were included as rhythm instruments in the Tamboo Bamboo bands.

1934 Tamboo Bamboo bands were forbidden due to street clashes among rival groups.

1935-1938 A gradual change to steel instruments in street bands.

1938-1939 Are considered to be the "birth" years of the steel drum. Tamboo Bamboo bands finally switching over to steel. Alexander's Ragtime Band, led by pioneer Carlton Forde, is said to have been the first known band with an ensemble exclusively consisting of steel instruments.

1942 Carnivals forbidden during World War II for "security reasons", which gave people more time for acoustic experiments with the emerging "steel drum".

1939-1945 The first melody pans with three to eight tones was introduced. The pan crafting process was improved by sinking, grooving and tempering. Sticks damped with rubber tubing were starting to be used. The