

# WersiClub UK.Focus

## The Sound of Wersi

By Thomas Shevels

### Exploring the differences between analogue and digital sounds.

Whilst there are many Wersi organs, both old and new, there are often great differences in the sounds of various types of Wersi, especially between the older analogue and the newer digital models. Some club members have commented upon being unable to reproduce the 'sound of...' various Wersi organs and artists such as Mark Shakespeare, Brett Wales, Claudia Hirschfeld, Franz Lambert and of course Klaus Wunderlich. In some cases it may be that the sound has been multi-tracked or even augmented by other instruments, recordings might contain real drum kits or voices, or added keyboards of other brands. There are quite marked differences, especially between the analogue and digital organ types. This article seeks to try and discover why that might be so, from the point of view of how each type of organ creates its sounds.

### THE ORGANS

1] **Analogues:** the original Helios range:

This series consisted of the Cosmos, **Orion**, **Helios**, Saturn, Concerto, Classica, Zenith and the flagship 3 manual Galaxy. The semi-digital Comet was a later addition.

2] The early **DMS Digitals** and the **CD line:**

The *DMS* digital series was made up of the Condor, Prisma, Omega, **Alpha**, **Beta**, Gamma and Delta.

The *CD* series consisted of the Performer, Penta, Phon-X Arcus, **Wega**, Gala, Luna, **Spectra** and Atlantis 3 manual.

3] The **OAS** collection: consisting of the variable format Abacus, Icarus, Pegasus, Xenios, Vegas, **Verona**, **Scala** and topped by the fabulous Louvre.

The models in **bold italics** were/are considered the most popular and of these the **Helios**, **Wega** and **Verona** were/are probably the most common so I will mainly concentrate upon these 3 organs from this point, having built a Helios, Wega and currently own a Verona.

### THE ANALOGUE RANGE

The various sections of the Helios:

#### KitPack Contents

- 1 Power Supply, Master Tone Generator [including Vibrato, Slalom, Transposer].
- 2 Electronic keying, soft and direct attack.
- 3 Polyphonic Envelope control, sustain [3 levels], soft attack, Manuals electronics.
- 4 Cabinet, shelves, drawbars and stop-boards.
- 5 Stereo Pre-amps with reverb, swell pedal [+2 footswitches], main wiring harness.
- 6 Power-amps, 4 Speakers, crossover kit.
- 7 Fixed Stops Kit: 18 upper, 12 lower PolyPhonic voices

- 8 Pedals Kit with 4 MonoPhonic voices.
- 9 Liturgical electronics *for Classica organ only.*
- 10 WersiVoice with rotary and 'choir' effects.
- 11 Special Effects Kit [Wah, Auh, Contracussion, Percussion, Tremolo].
- 12 Piano Kit [Piano, Harpsichord, Clavinet, HonkyTonk, Celesta, Kinura, Banjo]
- 13 Sound Computer Presets storage Kit. [Used to store user Presets]
- 14 Wersimatic2 Rhythm Unit

### **Drawbars footages:**

Upper: 16, 8,  $5+1/3$ , 4,  $2+2/3$ , 2,  $1+3/5$ ,  $1+1/3$ , 1,  $3/5$ ,  $2/3$

Percussion: 16, 8,  $5+1/3$ , 4,  $2+2/3$ , 2,  $1+3/5$ ,  $1+1/3$ , 1,  $3/5$ ,  $2/3$

Lower: 8, 4,  $2+2/3$ , 2,  $1+3/5$ ,  $1+1/3$ ,

### **Later additional Kits:**

Guitar, Piano Arpeggiator, CX1 Rhythm, Key Click, Lower Manual Piano, Electronic Reverb; Bass coupler, mains spike silencer, WersiChord.

The Kit self-build system allowed one to own a very expensive organ for around half the cost of the shop bought model and to buy it as and when funds permitted.

As you can see, there was a lot more to this organ than meets the casual eye. The average construction time totalled 500 hours! Professional technicians could probably finish the Helios well under that time, but this task was aimed at the amateur builder, some of whom had no technical prowess whatsoever. I can remember spending hours and hours soldering components, chips, wiring harness plugs and such like ad infinitum, but eventually the organ was completed [it could be played in a raw-sounding drawbar state after Kit 6 was completed]. So what about that legendary sound? Well, from the viewpoint of the Drawbars, the extra two [ $3/5$ ths and  $2/3$ rds] certainly made the whole sound very bright and crisp. Coupled with the WersiVoice, with its Slow, Normal, Fast Speeds and Light Medium or Heavy Depth, this far exceeded the mechanical rotary speakers then being used and could also be recorded by wire and played through headphones. All Fixed Stops and Special Effects could also be treated to its effects. In addition, there is a Choir setting. By selecting Cello 16', Viola 8' and Violin 4' [in any combination] and routing these to WersiVoice Choir you could produce an excellent String Orchestra. If you added soft attack and level-3 sustain, Mantovani could be emulated.

A similar effect could be used to treat Brass, Woodwind or Pianos with similar results. Routing certain Drawbars through the Choir setting did exactly that, produce a Choir effect.

Klaus Wunderlich would mix drawbars and add maybe a 4' string to add depth for many compositions, or perhaps 'choir' both trumpet and strings to get a brighter string sound. There were many possibilities. The Arpeggiator deserves special mention. This used the Piano voices already supplied to add riffs and chords to lower manual playing. The selections were up, down, up+down, inverse chords, contact activated or continuous. With the last added to up+down and inverse chords, it was easily possible to sound like a concert pianist in full flow. There was also a small plastic strip about 15x2cms which was affixed between the two keyboards above middle C. This was a touch contact strip. By holding a chord, and stroking it with a free finger, manual arpeggiations, like Harp strumming, could be produced. The Guitar add-on kit could be used to convert Fixed Stops into all sorts of guitar type sounds. Most effective was the Trumpet, which could be transformed into a Stratocaster sort of sound. By adding Contracussion and soft attack, the sound of Hank Marvin playing The Deer Hunter

[whereby he pulls on the string rather than plucks it] was possible. The point is that most stops and drawbars could be 'user-routed' to all the 'effects' sections at will, to create

thousands of combination and then store these in the Sound Computer [a forerunner to the OAS Presets]. This usually meant that if you didn't have a particular 'sound' you could try and mix it manually. As most of the organ was analogue circuitry, there were therefore obvious limitations in capacity [both electronic and physical] as to what could be added to these models. This, the rapid evolution of electronics and the faster construction times lead to the replacement of these organs by the Alpha, Beta, Gamma and Delta 'semi-digital' series. In passing, I was personally never 'convinced' by the sounds produced by these, not to mention the somewhat quaint and slow data storage system [a small hand held tape recorder!] and awaited the arrival of something better.

### **DIGITAL RANGES - CD-LINE ORGANS.**

The arrival of a fully digital Wersi series was welcomed by many fans and they did not disappoint. Whilst not being perfect, they certainly outshone the previous series. The following list shows the various departments, many traceable right back to the Helios series. As usual, the Cabinet woodwork came mostly complete, with the stop-boards, shelves and roll-top requiring construction and installation. The concept here was similar to the OAS, whereby a central computer controlled and routed sounds and rhythms to various sound management and filtering systems. At the core was a large Card-rack where most of the organ electronics were housed. This was about the size of a large shoe-box and held around 15 vertical cards of A5 paper size. Six of these were Slave amps and extra memory capacity. The whole system consisted of:-

<b>Central Electronics</b>	Card-rack+backplane to house the main control circuits, namely:- A/D Converter, Central Processor, CoProcessor, Effects, Pre-Amps, Digital Reverb, Rhythm, WersiVoice, 6 Slaves.
Main Display	3 line x 80 character LED display [a small version of OAS display]
Interfaces	There were many inputs and outputs, eg:MIDI, Speakers, Tape
Keyboards	4 Octave, with several suspended electronics boards
Memory Card Slot	To take various sound and rhythm upgrade cards
Pedals	13 or 25 pedals plus control electronics, and Swell
Power Supply	Power Chassis, Supply, Transformer and Power-Amps, Speakers
<b>Later Additions:</b>	
Livestyle	Extra voicing and software to add a 'human touch'
Memory Tower	Replaced Memory card slot to house all extra memcard software
GoldenGate	Further enhancements and additional voices+rhythms.
<b>Drawbars footages:</b>	Upper: 16, 8, 5+1/3, 4, 2+2/3, 2, 1+3/5, 1+1/3, 1 Percussion: 16, 8, 5+1/3, 4, 2+2/3, 2, 1+3/5, 1+1/3, 1 Lower: 8, 4, 2+2/3, 2, 1+3/5, 1+1/3, 1

The average construction time for a Wega [similar specs to the Helios] was around 50 hours. This was because much of the previously analogue electronics were now held on integrated circuits, of which there were many, some having as many as 48 pins, but these were frequently plugged into sockets which were faster and more easily installed. The main wiring harness was replaced by ribbon cables which again were easier to integrate. The construction manuals were slimmer and easier to follow. If this series had a weakness, it lay mainly in the memory card idea, which on the face of it was quite clever. The owner had the Basic Sounds

supplied within the Central Electronics. This could then be doubled by dumping the contents of a card into spare memory chips. Additionally, another card could be accessed whilst sitting in the Card Slot. So you could have 3 separate sets of sounds/rhythms available at the same time, and these were mixable. The only weaknesses were two fold; **a**] the cost of a memory card was at least £80 [some higher] and there were, at the last count, 20 available; and **b**] there were problems with the contacts on the edge of the card not properly engaging with the slot contacts which got worse as the slot got older. This latter problem was 'cured' by the Memory Tower kit added later; this came with 5 cards permanently recorded chips and 5 empty chips for user's cards to be dumped into [a further card could still be left in the slot]. A number of the chips were very expensive to produce in small numbers.

The CD organs were basically enhanced digital versions of the earlier analogue/semi-analogue ranges, but with much greater capacity and flexibility, yet were similar in sound and rhythm, but obviously of much better quality by the time the CD organs arrived. Sound mixing similar to that described for the Helios could be achieved since the WersiVoice and Effects boards were still available to 'doctor' raw sounds. Those sounds were a tremendous improvement upon previous organs, though when compared to the OAS there is a marked difference,

### **THE OAS ORGANS.** [Briefly!]

My initial reaction to these was one of wondering how Wersi could improve upon their CD line system. The player only had to hear an OAS organ to discern there was a great improvement on the sounds being produced by the former. Whilst I was sad that the kit system had been abandoned [for obvious reasons, hand soldering the micro-components was impossible not to mention the surface mounted technology!], which also meant paying 'in full' and because the player had not constructed their instrument, full understanding of how it worked would be missing as well as the ability to self-correct any faults arising.

There is another big difference; the OAS organs are completely software driven and really are 'sound computers'. There is very little sound mixing possible compared to previous organs, since all sounds and rhythms are bought-in already compiled. There is much greater capacity however and seemingly endless sound permutations are possible. Additionally, these sounds are exact copies of the original instruments right down to the finest detail.

For those still hankering after the old sounds, many are available within the ranks of the Presets in the OAS: look out for Helios, Spectra, CDxxxx, Galaxy etc. in their names; there is much to find. Whether these old sounds are exact duplicates of the originals is down to personal taste but to me they DO sound just the same as way back then.....Play and Enjoy!

**Drawbars footages:** Upper: 16, 8, 5+1/3, 4, 2+2/3, 2, 1+3/5, 1+1/3, 1  
Lower: 8, 4, 2+2/3, 2, 1+3/5, 1+1/3, 1

### **Drawbar Settings [Upper]** [See websites **Topic List** for original Helios settings]

An assortment of interesting sounds, edited for the **OAS** organs. [A number of these were originally from the Klaus Wunderlichs LP **Wersitime2**, demonstrating the Wersi Helios]:- Rotor + vibrato set ON:

FULL	50782457
SOFT	60850007
BRILLIANT	50580000
SIMPLE	00888000
DISCO	78252568
TUTTI-FRUITI	54888884
HOLLOW	48800004
SHARP	50824685
VERY SHARP	40744884

MEDIUM 78070635  
 TRUMPET 00688765\*  
 CLARINET 00727242\*  
 FLUTE 00820000\*  
 ENSEMBLE 78252568\*  
 STRINGY 78070635 + MANTOVANI STRINGS on 2nd Voice [Volume:6] [Klaus!]  
**Others:** 68063135 68360244 88520000 88888888 80808080  
 FLAT 88530300 No effects  
 SLOW 88700005 + Rotor ON  
 WHIRL 88530300 + PERCUSSION D-BARS 00008005 + Rotor ON + Vibrato ON:

**No Rotor or Vibrato:**

GLOCKENSPIEL 68050008 + SUSTAIN  
 CHIMES 58000208 + SUSTAIN

**JIMMY SMITH [USA] Jazz:**

Fast rotor 88800000  
 Slow rotor 00008000

**SPECIFIC SONG SETTINGS:****Whiter Shade of Pale:**

Verses: ROTOR ON 78800508 [Slow]  
 Chorus: ROTOR+VIBRATO ON 78888508 [Fast]

**Girl from Ipanema:** 88080088 Rotor ON Vibrato OFF

**Cheek to Cheek:** 58080408 No effects

**Dankeshon:** 58060808 + SUSTAIN [no effects]

**Rock Around the Clock:** 6886500000 Rotor and Vibrato ON

[\* from Theatre organ days!]

**Orchestral Sounds**

I find it useful to keep 2+ banks of Presets as some **Basic Settings**, so that when playing Orchestral sounds, there is a contiguous flow to the music being produced. If you just keep pushing various Presets with very different settings, the volume levels jump around and the sound becomes dis-jointed. Equally, if you start off with a Preset, then push a single Voice button, the other voices frequently switch off, leaving just the selected solo voice. Below are my settings for Banks 51+52 [or wherever you may wish] on the Verona [V7 RO.0036, but little is different from earlier versions]. Other Wersi's have their own 'User' Presets accordingly.

**Highlighting Conventions:**

**Bold italic** items are selected to be **ON** when Preset is pushed. Other items need to be added as and when required. \* Sounds are from the Daniel Watt DelApre Studios CD-ROM **Voices** but you could use similar standard voices [such as Girl, Vocal or Duh] if you don't possess this. Set Upper1+2 Volume to 7/8, UM3 to around 5/6, Lower1 to 4/5 and LM2 to around 6/7. U/M 3 may need lowering whenever it is diverted to WersiChord use. Pedals aren't included here, use your own judgement.

**String/Orchestral Sound Bank 51:-**

<b>Preset:</b>	<b>Voice:</b>	<b>Sound:</b>	<b>Notes:</b>	<b>Name:</b>
51~1	Upper1:	<b>Grand Piano</b>	Up 1 octave	GP+String
	Upper2:	<b>Mantovani Strings</b>		
	Upper3:	AHH*	or use JazzDuh	
	Lower1:	<b>Mantovani Strings</b>		
	Lower2:	Vocal-1		

<b>Preset:</b>	<b>Voice:</b>	<b>Sound:</b>	<b>Notes:</b>	<b>Name:</b>
51~2	U1: U2: U3: L1: L2:	<b>Stratocaster</b> <b>Mantovani Strings</b> MHH* <b>Mantovani Strings</b> E-Piano1	Up 1 octave  or use DUH	Strato+Stg
51~3	U1: U2: U3: L1: L2:	<b>Mantovani Strings</b> <b>Strings Sustain</b> Vocal Strings <b>String Sustain</b> Piano Strings	Up 1 Octave	StringOrch
51~4	U1: U2: U3: L1: L2:	<b>Rhodes2</b> <b>String-Vocal</b> Orchestra <b>Mantovani Strings</b> EEH*	or use Vocal2 up 1 Oct.	EP+Stings
51-5	U1: U2: U3: L1: L2:	<b>Vibes2</b> <b>Mantovani Strings</b> Harmonica <b>Mantovani Strings</b> Oboe	Up 1 Oct  or Musette	Vibe+Strg
51-6	U1: U2: U3: L1: L2:	AHH* <b>Mantovani Strings</b> Girl <b>Mantovani Strings</b> Vocal2	or use Vocal 2	Choir
51~7	U1: U2: U3: L1: L2:	<b>West.Guitar</b> Mantovani Strings OHH* or use JazzDuh <b>Mantovani Strings</b> Alt.Sax	to WersiChord Up 1 Octave	WestGuitr
51-8	U1: U2: U3: L1: L2:	<b>Nat.Guitar</b> Mantovani Strings Piccolo <b>String Sustain</b> Fantasia		NatGuitr
51-9	U1: U2: U3: L1: L2:	<b>Uprght Piano</b> <b>StringVocal</b> JazzFlute <b>String Sustain</b> Fantasia		UPian+Strg
51-10	U1: U2: U3: L1: L2:	<b>FlugelHorn</b> String Sustain Whistle <b>Mantovani Strings</b> BrightPiano		Flugel

**Brass/Orchestral Sound Bank 52:-**

<b>Preset:</b>	<b>Voice:</b>	<b>Sound:</b>	<b>Notes:</b>	<b>Name:</b>
52-1	U1:	<b>Clarinet</b>	Up 1 Octave	G.Miller
	U2:	<b>Saxophone</b>		
	U3:	<b>Alt-Sax</b>	To WersiChord	
	L1:	String-Sustain		
	L2:	Piano		
52-2	U1:	<b>Trombone</b>		Trombone
	U2:	any String		
	U3:	E-Piano1		
	L1:	<b>Mantovani Strings</b>		
	L2:	JazzBAH		
52-3	U1:	<b>TenorSax</b>		TenorSax
	U2:	Str-Attack		
	U3:	Violin1		
	L1:	<b>String1</b>		
	L2:	Flute		
52-4	U1:	<b>AltoSax</b>		AltoSax
	U2:	Str.Sustain		
	U3:	E-Piano2		
	L1:	<b>Mantovani Strings</b>		
	L2:	E-Piano1		
52-5	U1:	<b>Clarinet</b>		Clarinet
	U2:	StringVocal		
	U3:	E-Piano3		
	L1:	<b>String Sustain</b>		
	L2:	Vocal1		
52-6	U1:	<b>JazzFlute</b>		JazzFlt
	U2:	<b>Mantovani Strings</b>		
	U3:	Harp		
	L1:	<b>Str-Vocal</b>		
	L2:	E-Piano3		
52-7	U1:	<b>PanFlute</b>		PanFlt
	U2:	Mantovani Strings		
	U3:	Girl		
	L1:	<b>Str-Sustain</b>		
	L2:	Alt-Sax		
52-8	U1:	<b>Oboe</b>		Oboe
	U2:	Mantovani Strings		
	U3:	VocalMix		
	L1:	<b>Str.Sustain</b>		
	L2:	Rondo		
52-9	U1:	<b>Harmonic</b>		Harmon
	U2:	Orchestra		
	U3:	Vocal2		
	L1:	<b>Str.Sustain</b>		
	L2:	Carribic		
52-10	U1:	<b>12 Str.Guitar</b>		Country
	U2:	Mantovani Strings		
	U3:	Banjo		
	L1:	<b>Str.Sustain</b>		
	L2:	Musette		

These suggested Presets form the basic mixtures to help the flow of the music without sudden 'drop-outs' of sound and a new solo voice can be selected at any point without interruption to the lower manual sound. You could also select Lower Man.Hold on the touchscreen to completely lock the LM sound during each song. The predominant use of Strings on UM2 + LM1 [esp. Mantovani] helps to achieve this flow. Vocal sounds predominate UM3 so that Choirs can be added by sending these sounds to WersiChord [lower this volume to 4/5]. The voices used on LM2 are designed to be used when splitting the lower keyboard around the central area so as to add a *extra* solo voice. A favourite trick of Franz Lambert is to split and use the lowest octave of the upper manual to add in the Timpany along with some light Strings and use this to punctuate certain [loud] passages [see his DVD 40yrs On Stage]. Obviously you can alter these mixtures to personal taste and add others. These banks are the default Presets when my organ is first switched on and are always therefore immediately ready for use.

Do please experiment with these settings and above all ENJOY!

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