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The Development of the Role of the Keyboard in Progressive Rock from 1968 to 1980.

A Musicological Exploration of the Musicians and Their Use of Technology.

MARTIN JAMES QUINN

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Master of Arts.

University of Huddersfield

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Abstract

This thesis is a musicological and technological analysis of the development of the role of the keyboard in progressive rock from 1968 to 1980, the musicians and their use of technology.

Progressive rock has been studied by many researchers who have tended to focus on the background, social-class differences, and musicianship of the bands. However, there has been little analysis of the keyboard, its use, and its role in progressive rock. The main research of this thesis looks at 86 albums over a 13-year period to establish what the role of the keyboard was in this particular genre. The listening analysis is informed by a range of sources ranging from books, online sources and an interview. The thesis compares a number of subjects, such as who played the keyboards, what keyboards were used, and which keyboards increased and decreased in popularity. The findings of this thesis examine the differences, similarities, and the popularity of the keyboards that were used, together with the role of the keyboard in progressive rock, and how this role developed.

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Introduction

There is an extensive amount of research and published work highlighting the importance of progressive rock as a genre in rock music, its counterculture, and the social class differences between other genres. However, far too little attention has been paid to the instruments and their technology.

As mentioned, the reason for researching this topic is to examine the keyboard due to it having been overlooked in existing research into progressive rock. This thesis covers progressive rock of that period by including the well-known popular bands such as Yes, Genesis and Pink Floyd, plus bands that were not as popular, and the bands that have not been written about. The inclusion of lesser known bands along with the popular ones adds to the data that is collected, and they are used for the tables and charts which highlight the similarities and differences of keyboard choices and popularity. The information gathered about the keyboard contributes to other popular music studies, such as the history of instrument technology, as this thesis highlights when certain keyboards were released and first used.

The period from 1968 to 1980 was chosen deliberately because it covers the formative years of progressive rock in mainstream music culture, the 'golden era', and also includes its decline in popularity in the late 1970s.

The main aim of the research was to carry out a year by year exploration of albums that were released in the period from 1968 to 1980. The analysis of the music of the chosen albums includes who were the keyboardists, what keyboards were used, and how they were used. The focus of the analysis was directed upon how the role of the keyboard developed within the music and bands, and which keyboards increased and decreased in popularity. The second aim was to highlight the key changes and technological advancements of keyboards from 1968 to 1980. This was done by covering the advancements and changes that changed the sound and playability of the instruments.

The thesis includes a literature review which highlights previous research on progressive rock and any information about the use of keyboards. In the method section it explains how the research was conducted using the albums of the 1968 to 1980 period. The information that was gathered is presented in album summaries, tables and charts to assist in the analysis of the keyboards in the meta-analysis and discussion sections. The discussion incorporated the information that was researched from books, online sources, and the study of the albums to show how the keyboard's role developed, and what enabled the development.

1. Literature Review

Progressive rock began as a counter-culture movement in the mid to late 1960s and took influences from both jazz and classical music. Winterson (2003) states that progressive rock has taken influences from jazz and instilled it into the compositions, such as having “extended doodling solos” (Winterson, 2003, p.54).

Moore (2001), Shuker (2005), and Morra (2014) look at what influenced progressive rock. Their findings include the recognition of when ‘rock’ and ‘pop’ split, and noted that it was different from psychedelic rock (even though many progressive rock bands started in that genre), and that progressive rock showcased an “elitist form of musical expression” (Morra, 2014, p. 182).

A considerable amount of literature has been published on how progressive rock sprang from the psychedelic rock movement (through bands such as Pink Floyd), and that Procol Harum’s ‘A Whiter shade of Pale’ from 1967 “with its blend of Bach and self-conscious ‘poetry’... was more important than *Sgt. Pepper*” (Doggett, 2015, p.383). Middleton (1990) and Moore (2001) highlight that progressive rock emerged from the psychedelic movement and the music of the counterculture of that period.

The advancement in the usage of music in radio in the United States was also included by Doggett (2015). He indicates how progressive rock was referred to as a format, rather than a genre on American radio, and that these ‘progressive’ stations were able to broadcast, songs from albums, songs that were not in the Top 40, songs that lasted longer than the allotted time for most radio stations, and even entire albums. The length of most progressive rock tracks often lasted over five minutes (Lucky, 2000), which at the time was completely different from the norm where tracks generally lasted around three minutes.

A number of studies have shown that in the 1970s critics did not look too kindly upon progressive rock. Holm-Hudson (2002) and Sheinbaum (2008) express the opinion that Emerson, Lake and Palmer were the “worst excesses of progressive rock” (Holm-Hudson, 2002, p.111). For example, the group had around 36 tons of equipment during their 1973-74 world tour.

Holm-Hudson (2002) and Hegarty (2007) highlight that the genre was seen as self-indulgent art music which was accompanied by long studio recording sessions that allowed bands to have “a long process of lush production” (Winterson, 2003, p. 62).

It is claimed that for a period in America, progressive rock albums were only available as imports from the UK and the rest of Europe (Frith and Goodwin, 1990). Research by Frith and Goodwin identifies that bands such as King Crimson and ELP had achieved success in America the early 1970s, whilst bands “such as Genesis and Gentle Giant, did not become popular until the middle of the decade” (Frith, S., & Goodwin, A., 1990, p.106).

The following section highlights social movements and differences in progressive rock.

Previous studies draw our attention to some of the influences and background of progressive rock. Bayer (2009) addresses the point that having baroque, classical music and jazz influences in the genre meant that the people who played, and who listened to the genre were most likely to be middle class. Such musicians like Rick Wakeman of Yes, and Keith Emerson of The Nice and Emerson, Lake & Palmer incorporated baroque, classical music and jazz in their music, “enabling it to gain a devolved authenticity from the high cultural form” (Bayer 2009, p.37).

Moore (2001) claims that the musical background of progressive rock musicians was quite different to the average pop musician at the time. Moore points out that Keith Emerson, Rick Wakeman and many other musicians “had undergone an extensive conventional instrumental training” (Moore, 2001, p. 90) where they would have been subjected to classical music. Adding to the musical background of the musicians, Frith and Goodwin (1990) mentioned the use of traditional and symphonic musical forms in the music of Jethro Tull, Yes, and Emerson, Lake and Palmer.

Research by Borthwick and Moy (2004) identifies the social and music movement of progressive rock, the links between the United Kingdom and the United States, and the links between the United Kingdom’s audience and the bands from continental Europe, such as Germany and the Netherlands.

Wiseman-Trowse (2008) defines the social differences and the gender orientation within the genre. It has been suggested that the use of acoustic instruments such as flute and accordion can be perceived to add feminine characteristics to music.

Describing the differences within progressive rock and with other genres like punk, Wiseman-Trowse (2008) identifies that such musicians like The Sex Pistols’ John Lydon had “been candid in his appreciation of Pink Floyd, Can, and Gong, all associated with psychedelic or progressive rock” (Wiseman-Trowse, 2008, pp.133-134). By this Wiseman-Trowse (2008) shows that the likes of punk musicians have or had a fondness for progressive rock whilst opposing the middle-class rock genre.

The following section shows research sources that include the musicianship and music that was played by progressive rock bands.

A number of studies have examined the balance of a band’s sound with a keyboard player. Macan (1997) and Brackett (2005) include information about when newly released keyboards were used for the first time, such as when Keith Emerson began using the Yamaha GX-1. Lucky (2000) reports that the displays of virtuosity demonstrated by the likes of Keith Emerson and Rick Wakeman were “designed to show off the technique of the instrumentalist” (Winterson, 2003, p. 62).

There has been research looking at passages of songs such as ‘Awaken’ by Yes, that identify what was played on a keyboard, and which highlights its links with the vocal parts and the other instruments. Covach (2000) identifies what Rick Wakeman had played in certain passages. It includes details of which chords were played, the type of arpeggios used, and how the instrumentation affected the song sonically, and its structure. Palmer’s (2001) work includes examples of notation showing what a keyboardist played on certain songs, as they are used to show the harmonic links and emphasis on the melody. Borthwick & Moy (2004) also highlight instrumental and technological innovations, choice of keyboards used by keyboardists, and a few performances and recordings by keyboardists such as Keith Emerson and Rick Wakeman.

This section is about the technology that was used by musicians such as Rick Wakeman and Keith Emerson.

Some research has examined the history, the distinctive sound and the technology of the Hammond organ (Théberge, 1997; Borthwick and Moy, 2004; Sheinbaum, 2008). Their work explains how the distinctive sound of a Hammond is produced by the use of revolving tone wheels and a synchronous motor. Their work also highlights how the Hammond was publicised by the organ’s

inventor Laurens Hammond in 1935, its commercial success, and its usage in jazz and popular music.

Doggett (2015) identifies the introduction of the Moog synthesizer in popular music and its gain in popularity. One of the most notable users of the Moog synthesizer was Walter Carlos with such works as *Switched-On Bach* (1968) and the soundtrack for *A Clockwork Orange* (1972).

When it comes to synthesizers, both Théberge (1997) and Doggett (2015) examine the emergence of the Minimoog, which derived from the “large, modular systems designed for laboratory use” (Théberge, 1997, p.52). The design of the Minimoog enables the user to change the settings easily, as on an electric organ, and because of this it became one of the most widely used electronic keyboards in the 1970s.

Cunningham, Eno and Parsons (1998) explain how the recording of Rick Wakeman on a church organ was carried out for the track ‘Parallels’. They explain how the telephone system was used to connect the church and the studio. This was achieved by renting telephone cables which allowed them to record the organ in stereo.

An in-depth analysis of songs such as ‘Roundabout’ from the album *Fragile* and ‘Close to the Edge’ is provided by Sheinbaum (2002), identifying what Rick Wakeman had played. Summaries of the album *Fragile* has also been written by Charlton (1997). Charlton highlights that the arrangement of “Roundabout” is complex and that the band members displayed a high level of musicianship. Charlton also highlights that each instrument was carefully played so that there was no overlapping of parts, musically and sonically.

2. Method

A mixed methods (Creswell, 2009) approach was used for this thesis because the use of only one method can result in weaknesses in the research and in outcomes. The mixed methods approach combines qualitative and quantitative research. Qualitative research was used for the listening analysis as it is exploratory and is used to acquire a deeper understanding in an area. Quantitative research was used for the analysis of the development of keyboard instruments over the 1968 to 1980 period, as it provides a representative insight of the research. Both of these methods are necessary for this research; the use of the qualitative method provides an insight into why and how the instruments were used, and the quantitative method is used to provide an insight into the popularity of the keyboard instruments.

My research into the keyboards used on the albums from 1968 to 1980 is set out year by year. This method is based on the way Brockhaus¹ (2017) showcases information about keyboards, and other technology used in popular music in his book *Kultsounds: Die Prägendsten Klänge Der Popmusik 1960-2014*, which he presents chronologically by year.

The book *Progressive Rock Files* by Lucky (2000) also has a timeline, highlighting releases of progressive rock albums along with summaries. It also lists all the members of the bands. This book was used as a guide for which bands to include, such bands are The Nice, Yes, Pink Floyd, Procol Harum, Caravan and Gentle Giant. Although it is disputed as to whether or not Pink Floyd count as a progressive rock band, it was decided to include them in this thesis after reading sources by the likes of Lucky (2000), Borthwick and Moy (2004), Wiseman-Trowse (2008) and Doggett (2015) who write about Pink Floyd in the progressive rock scene.

In this thesis each particular year looks at a number of albums that are classed as progressive rock. The choice of which bands to include is based on the most popular progressive rock bands from 1968 to 1980 that use keyboards on their albums. The choice as to which bands and albums to include in this thesis was informed by Lucky (2000) and other researched sources by the likes of Frith and Goodwin (1990), Moore (2001), Holm-Hudson (2002) and Wiseman-Trowse (2008).

Frith and Goodwin (1990), Macan (1997), Holm-Hudson, (2002) and Shuker (2005) look at which bands were popular. Frith and Goodwin (1990) write that “King Crimson and ELP—achieved North American success in the early 1970s, others, such as Genesis and Gentle Giant, did not become popular until the middle of the decade” (Frith, S., & Goodwin, A., 1990, p.106). Also, Shuker (2005) highlighted that in the early 1970s, progressive rock became popular and commercially successful with bands like “the Nice, Yes, and ELP (Emerson, Lake and Palmer); then with ...Pink Floyd, and Genesis” (Shuker, 2005, p.210).

Progressive rock bands and albums that were not popular in the UK during this period were also considered (Lucky, 2000). Many of them however made little or no use of keyboards, so those bands and albums were not analysed, e.g. the German band Amon Düül II. The German bands of that period were all mostly generalised under the genre known as Krautrock.

Progressive rock is summarised by Borthwick and Moy (2004) as “a product of the late-1960s’ *Zeitgeist*, wherein virtuosity, complexity and the ‘album as art form’ assumed greater significance within the newly named ‘rock’ field” (Borthwick, S., & Moy, R., 2004, p.61). This then leads to the problem of researching this genre and raises questions as to what is progressive rock, what defines a band or album

¹ <http://www.cult-sounds.com/>

as progressive rock, and when is a band or album part of a genre of rock that may be classed as progressive. However these questions are beyond the scope of this thesis.

Only studio albums were used, as live performances differ. The use of live albums and performances would be difficult to analyse. Such differences may include parts being played differently, the use of different keyboards, the use of different settings, or parts being omitted.

The process of analysing the music was done by listening to the albums, using websites such as Discogs and Prog Archive, and books by the likes of Théberge (1997), Covach (2000), Holm-Hudson (2002), Borthwick and Moy (2004), and Brackett (2005) for information as to what keyboardists did, what keyboard technology was used, and what where the technological advancements and innovations.

When analysing a keyboard that sounds considerably different it is difficult to define whether it is affected by personalised electronics, an effect pedal, studio production techniques, multiple takes or studio effects.

After each year's album summaries there is a table showing which keyboards were used on which albums. This was done to show the amount of usage of each type of keyboard for that year. The process of filling in the tables was done by using the summaries which listed the keyboards that were used. The information gathered includes the analysis of the music and the use of websites and books which highlight the keyboard details. Those keyboards that could not be identified were generalised and listed such as "electric piano" and "synthesizer". Listing keyboards as just their general type ensures that the research, tables and charts are not incorrect or incomplete. However, this does show the gaps in the research because it does not identify the make and name.

A year by year process shows the progression in which keyboards were introduced and which keyboards were most and least used. The years are split into four periods, 1968 to 1970 covers the start of progressive rock and its popularity, 1971 to 1973 covers the first half of progressive rock's 'golden era', 1974 to 1976 covers the last half of the 'golden era', and 1977 to 1980 covers the decline in popularity of progressive rock. This is done to show the increase and decrease in usage of each keyboard throughout the thirteen year period using the data in each year's table. The data from the tables are used for the bar and percentage charts in the meta-analysis section.

An interview with Thijs van Leer, the keyboardist, vocalist and flautist of the Dutch band Focus, was carried out on the 25th of November 2018 in Holmfirth, West Yorkshire at the Picturedrome. The interview lasted approximately 28 minutes and was recorded using a digital recorder, and later transcribed word for word. The information gathered from this was used in the summaries of the Focus albums and in the keyboard tables. The reason why only one interview was carried out was that this research was not originally intended to include an interview study. The opportunity to have an interview with Thijs van Leer became possible after the majority of the research was done, which made the interview an extra source of information for some already researched areas.

3. The Technology of the Electric Organ and Synthesizer in Progressive Rock

The electronic organ and synthesizer differ considerably from each other in how they produce sound. Both were used extensively in progressive rock in similar roles, which is why it is important to include this section covering their origins and how they work.

Organ

There are many different types of organ and many different companies that produced them, such as Farfisa, VOX and Lowrey. The organ that I shall be focusing on is the Hammond B3 organ and its similar variants, all of which are electrically powered. The reason for focusing on a Hammond organ is that it is the most popular and well known out of all the electric organs.

Origins of the Hammond Organ

The Hammond organ was first introduced to the world in 1935 by its creator Laurens Hammond. It was produced on a mass scale due to its great commercial success. Its success came instantly after its release, “accumulating over 1,400 orders in only a few weeks” (Théberge, 1997, p.45). The Hammond organ was sold for use in churches and as a home organ, however its popularity as an instrument was due to its extensive use in jazz and other popular music genres, such as rhythm and blues, and rock.

In the 1920s Lauren Hammond worked on creating a new type of electric motor for use in a clock that would keep the correct time to a high degree of accuracy. This was done by the clock being synchronized “to its incoming mains a power frequency of 60 Hz (the standard in North America)” (Pejrolo; Metcalfe, 2017;2016, p.8). Hammond looked at other opportunities for the use of his motor and, as the motor provided a constant speed, it was ideal for use in an electronic organ. The synchronous motor would rotate the tone wheels at a constant speed which produced an accurate pitch for each note. In the 1930s, Hammond patented his design that included the motor with the organ’s tone generator (which houses the tone wheels), which is an electromechanical geared frame where the organ’s sound is created.

Why was the organ used in rock?

The organ was seen as a versatile instrument that could be manipulated and customised to create personalised sounds, using the drawbars to set the amount of which frequencies to be sounded and to which volume level. These ‘settings’ produce the familiar sounds that one would now identify as being a typical Hammond organ, jazz organ, or rock organ sound. Different sounds are then produced by changing the console settings, such as sliding the drawbars, turning ‘ON’ or ‘OFF’ the vibrato and its settings, including the percussion. The type of speaker also adds to the sound of the organ, as a Leslie speaker and a Marshall speaker produces different tones and timbre. The choice of speaker is a huge

factor in defining the organ's sound. The Leslie cabinet speaker is the most common amplifier for the Hammond organ, being used together for gospel, jazz, R&B, soul, and other pop music genres.

The use of the organ in popular music was firmly established in the 1960s with the likes of Booker T and the MG's and The Doors. Keyboardists such as Billy Preston, Jon Lord and Keith Emerson "moved more into the center of attention, creating a new category of potential rock / pop idols" (Brockhaus 2017, p.233). This paved way for the organ to have a large role in the overall instrumentation and sound of progressive rock. The use of the organ in progressive rock can be looked upon as the mainstay keyboard instrument from the late 1960s up until the decline of popularity of progressive rock in the late 1970s. Bands that used a Hammond organ throughout the 1968 to 1980 period included the likes of Camel, Yes, and Focus.

How does the Hammond Organ Work?

What makes the Hammond stand out from other electric organs is the use of revolving tone wheels, which are powered by Lauren Hammond's own design of a synchronous motor. The Hammond organ's tone wheels are not so different from the ones used in Thaddeus Cahill's Telharmonium. However, the advancement in electronic amplification since Cahill's time enabled the Hammond organ's tone wheels to be considerably smaller, this allowed Lauren Hammond to create "an instrument of reasonable proportions" (Théberge, 1997, p.46).

The Hammond organ B3, C3, A100 and the 'M' series consoles are turned on by two switches, one called 'Start' and the other is 'Run'. There is a procedure to start a console; it commences with holding on the 'Start' switch that turns on the synchronous motor. The 'Start' switch is held in order to get the motor up to its correct speed to engage the gearing that revolves the tone wheels in the tone generator; this is done by pressing the switch in place for an amount of time. After the motor is up to speed and is engaged, the 'Run' switch is turned on whilst the 'Start' is still held, then the 'Start' switch is released, and having done that the organ would be ready to be played.³ Once the organ is fully operational, to make the organ produce a sound one would have to move a drawbar and press a key. This would indeed make a sound but it probably would not be the desired Hammond organ sound that one would recognise; using only one drawbar would result in a very thin sound, as "each drawbar controls the output level of a tone wheel" (Pejrolo, & Metcalfe, 2017;2016, p.10). An average drawbar set is made up of 9 drawbars, this allows the player to choose the amount of output from each harmonic (Pejrolo, & Metcalfe, 2017;2016, p.175).

³ The Hammond B3 Series: How to operate a Hammond B3 and Leslie (also B2, C2, C3). (2019). Retrieved from <https://www.youtube.com/watch?v=8S2DrZTcluQ>
How to Start a Hammond Organ. (2019). Retrieved from <https://www.youtube.com/watch?v=tegMIgIghNHk>

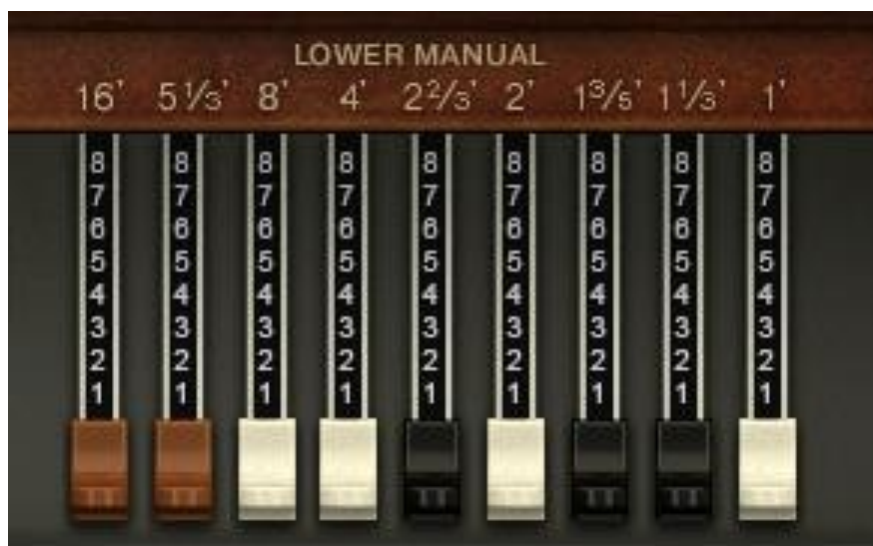


Figure 1 Logic Pro X. Retrieved February 20, 2018, from Native Instruments: Kontakt 5. Screenshot by author.⁵

The diagram above (Figure 1) and below (Figure 2) shows the 9 drawbars, with the harmonic setting of each drawbar.

Table 1. Drawbar Harmonics.

Drawbar Harmonics:	
16':	Octave lower than 8'.
5 1/3':	Sounds a fifth above 8'.
8':	Fundamental.
4':	Octave above 8'.
2 2/3':	A fifth above 4'.
2':	Two octaves above 8'.
1 3/5':	A third above 2'.
1 1/3':	A fifth above 2'.
1':	Three octaves above 8'.

The purpose of the drawbars is to control the outage of signal from the tone wheels, arranging them into certain shapes. Using certain drawbars together allows the user to create a desired sound whether they are playing gospel, jazz, R&B, 'pop', or rock.

In the tone generator, there is a pickup for each individual tone wheel by which the drawbars control the level of volume outage. The tone generator has ninety-one tone wheels each of which have indentations creating an uneven surface on their circumference. This results in fluctuations in the distance between the pickup and the wheel thus creating a particular tone and pitch. A tone wheel's pitch is determined by the amount of indentations it has, having a lot of indentations will produce a high

⁵ The screenshot of Native Instruments' Kontakt 5 virtual organ's drawbars is accurate, as it is designed to replicate a Hammond organ. The layout of the drawbars is identical to those that are found on B3, C3, A-100, M series and L series models of Hammond organs.

pitch and having fewer indentations will produce a lower pitch. This is because the revolving tone wheels' indentations create waves that are "pretty close to a sine wave, which is what makes it a quasi-additive synthesis instrument" (Pejrolo, & Metcalfe, 2017;2016. p.10).

This diagram (Figure 2) shows a side view of two tone wheels and how they are revolved, and where the pickups are situated.

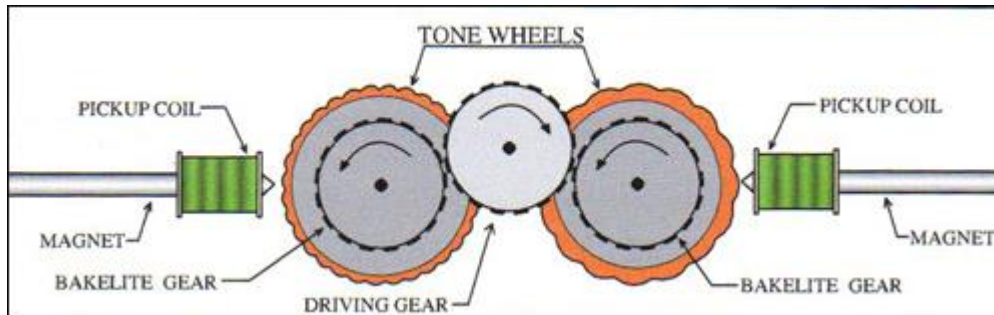


Figure 2. Image retrieved from: <https://www.quora.com/How-exactly-do-the-tone-wheels-work-to-generate-a-sound-on-a-Hammond-organ>.

On the organ console there are different effects which add to the sound, by changing the timbre, attack of the note, harmonics, vibrato and tremolo effect from the Leslie speaker. The Percussion has an on/off switch which dampens the higher frequencies of the attack of each note, when it is 'on' it would render the last drawbar (the '1' harmonic) soundless on some organs due to the dampening or cutting out of those higher frequencies.

There are three other switches that form part of the controls for the percussion. These are illustrated below (Figure 3):

- The 'percussion volume' switch has the options of 'soft' and 'normal' settings.
- The 'percussion decay' switch has the options of 'fast' and 'slow' settings, which controls the speed of the percussion's decay.
- There is also a 'percussion harmonic selector' switch which allows the user to choose the added harmonic for each note; the two options, are 'third' and 'second'.



Figure 3 Logic Pro X. Retrieved February 20, 2018, from Native Instruments: Kontakt 5. Screenshot by author.

The vibrato and chorus setting has two on/off switches, one for each keyboard manual, 'lower' and 'upper'. The switch adds vibrato to the sound, the type of vibrato is selected using a V.C (Vibrato, Chorus) selector knob, and the settings that are normally available are named V1, V2, C1, C2, and C3. (Figure 4)



Figure 4 Logic Pro X. Retrieved February 20, 2018, from Native Instruments: Kontakt 5. Screenshot by author.

The most common amplifier was the Leslie speaker cabinet. The cabinet is split into top and bottom halves, each housing a speaker. One speaker has its sound directed through two horns in the top half of the speaker cabinet, and the other speaker has the sound directed through a drum in the bottom half. The horns and the drum are made to revolve by means of two motors which are controlled by a switch which is normally on the organ console, the switch has three settings; 'slow', 'off' and 'fast'.

Synthesizer

The main manufacturers of synthesizers from the late 1960s to 1980 were Moog, ARP, Buchla, EMS, Korg, Roland and Yamaha. However, Moog synthesizers were the main force and instigator of the use and popularity of such keyboard technology.

The synthesizers derive from Thaddeus Cahill's Teleharmonium (1896) and Leon Theremin's Etherphone (1920) as they were the first electronic instruments that were ever designed. The Etherphone, otherwise known as the Theremin, became very popular in comparison with the Teleharmonium; it influenced and was used by electronic musicians and inventors. Indeed, the Theremin was so popular that it was "used in virtuoso performances as well as a wide array of early science fiction movies" (McGuire, & Rest, 2016, p.53). Even today they are still made and used. The Theremin has two antennae, one for pitch and one for volume control. To play the instrument the user would place both hands between the antennae to create and control the sound, which is produced by two oscillators that sound pitch by beat frequencies.

Not long after the invention of the Theremin, the French inventor Maurice Martenot released the Ondes Martenot (1928), which in principle was the same as the Theremin but using a keyboard, and this allowed users to produce stable pitches. The Ondes Martenot also has a ring connected to a wire that is used to control the pitch by moving it from left to right in line with the keyboard. The Ondes Martenot can only produce a sound if the ring is used or a key is pressed whilst the user's left hand presses a block that controls the amplitude. (McGuire, & Rest, 2016).

It was not until the 1960s that advances in electronic instruments would break new barriers with the design and release of two ground breaking synthesizers, the Buchla 100 Series Modular Electronic Music System and the R.A. Moog Modular System.

Robert Moog, the creator of the Moog modular synthesizer, designed his synthesizer with the Theremin in mind. Moog used the same oscillators that were used in the Theremin but, like the Ondes Martenot, used a keyboard to control the pitch of instrument. Owing to the popularity of the Hammond organ, “Moog, from the outset, had no reservations about creating an electronic instrument with a conventional organ keyboard as a controller” (Théberge, 1997, p.52). This meant that users would be able to play the instrument easily compared to other electronic instruments that did not have a keyboard, such as the Theremin. The Moog synthesizer is made up of multiple sections connected together by quarter-inch cables. Patching these cables in certain inputs and outputs is one of the main processes required in order to produce a desired sound. The other main process requires manipulating the settings by using switches and dials. The Moog synthesizer is built up from modules comprised of oscillators, LFOs, envelope generators, attenuators, amplifiers, filters and mixers (McGuire, & Rest, 2016, p.56).

Synthesizers at that time were monophonic which means that they could only produce one note at a time. This frustrated a lot of keyboard players as they were “used to playing polyphonic instruments like the piano and the organ” (Théberge, 1997, p.52). However in the 1970s synthesizers were able to produce more than one note at a time, usually two or three, but to have a synthesizer that was fully polyphonic “was so revolutionary that it wouldn’t be commonplace on synthesizers until the late 1970s and 1980s” (McGuire, & Rest, 2016, p.54).

The Moog synthesizer’s breakthrough into the mainstream market and popular culture was achieved by the release of Walter (later known as Wendy) Carlos’ 1968 album *Switched-On Bach*. It is looked upon as the album responsible for bringing “the synthesizer out of the experimental music studios and into popular culture” (McGuire, & Rest, 2016, p.57). The album was so successful that it reached the Top 10 in the charts, as well as becoming the “first classical album to go platinum (selling over 500,000 copies), and took home three Grammy awards” (Pejrolo, & Metcalfe, 2017;2016, p.13). As the Moog synthesizer that was used was monophonic it meant that Carlos had to record a track for each part; this meant that up to ten parts were recorded for just one piece of music.

Although the synthesizer gained in popularity, Moog and ARP found it difficult to sell them, as retailers would not stock them due to lack of promotion and retail networking. By 1973 7000 Moog synthesizers were sold in the US alone, valued at “approximately \$8 million, rising to approximately 24,000 units annually during the latter part of the decade” (Théberge, 1997, p.53).

In 1970, following the success of the Moog modular synthesizer, the Minimoog was released. The Moog modular synthesizer was intended for studio/laboratory use, and popular musicians were highly interested in using the instrument in the studio and also in live performances. Due to the modular synthesizer being very large and heavy, Robert Moog designed the Minimoog, a new synthesizer that “would be portable, reliable, and easy to use” (Théberge, 1997, p.52). The Minimoog is easily carried by one person, whereas the Moog modular synthesizer has to be carried by at least one person to move each section, which is not ideal for live performances. Another important factor that the Minimoog had in its favour was that it was internally wired; this meant that the user does not need to patch the instrument to produce a sound.

The Minimoog ranks as one of the most popular synthesizers of the 1970s, and it advanced the technology of keyboards in the market. Following this a “wealth of companies began releasing compact

analog synthesizers” (McGuire, & Rest, 2016, p.58). Such companies were ARP and Sequential Circuits whom released the Prophet-5 synthesizer in 1978.

The synthesizer’s popularity from its beginning and throughout most of the 1970s resulted in it being seen as a mainstay piece of keyboard technology. “There was a general feeling that the synthesizer would be welcomed as a mainstream instrument in a number of different pop genres” (Théberge, 1997, pp.1-2). This however was not the case for synthesizers in the late 1970s, as the use of synthesizers began to wane due to the growing popularity of new genres like punk and new wave.

How does a synthesizer work?

The focus of this section is to present a summary about analog synthesizers of the 1968 to 1980 period.

The synthesizer creates its sound by using oscillators to generate waveforms. An oscillator is also referred to as a VCO (voltage-controlled oscillator). These waveforms are sine, saw tooth, triangle, square, and pulse wave. Each waveform has different characteristics in respect of timbre, frequency and harmonic qualities. The user of the synthesizer selects the type of waveforms that they desire based on these characteristics.

The main sections that make up a working analog synthesizer are listed below:

1. Most synthesizers have more than one oscillator so that different waveforms can be combined to make more complex sounds than those having just one waveform. The combination of multiple oscillators produces a fundamental frequency and harmonics which can be detuned or have the harmonic note changed.
2. Low Frequency Oscillator or LFO is used to modulate the sound by creating sweeps, pulses and tremolo like effects.
3. Voltage-controlled filter or VCF is a filter that has four settings low-pass, high-pass, band, and notch so that the user can reduce or stop unwanted frequencies from sounding.
4. The Envelope can have up to four or more parameters that control the likes of attack, decay, sustain and release of the produced sound.
5. The Amplifier is used to alter the output of the sound.
6. Some synthesizers also have effects which the user can use to add reverb, chorus etc.

All of these sections are connected together to enable the synthesizer to create a sound. The user can alter the settings on these sections to create their desired sound. Some settings on a synthesizer can produced a sound that is very similar to a brass instrument, string instrument, or even an electronic organ. Depending on the synthesizer, there are other parts and sections that make up the synthesizer, but this summary highlights the essentials.

What are the different types of synthesizers?

There are many types of synthesizers that produce sound in numerous ways. These include FM synthesis (frequency modulation synthesis), vector synthesis, phase distortion synthesis, re-synthesis, sample-based synthesis, physical modelling synthesis and many more including digital keyboards. However, this section focuses on the types of synthesizers that were released and used in the 1968 to 1980 period.

Additive Synthesizers: Additive synthesizers produce sound by adding oscillated waves together to produce the same frequency or multiple frequencies. The latter is used to produce harmonics of the fundamental note.

Subtractive Synthesizers: “Subtractive synthesis can sculpt close approximations of many natural sounds (such as voices and traditional instruments)” (Roads, 1996, p185). The method of controlling the produced sound is done by using filters. The filters are used to shape the signal by boosting or reducing certain sections of the frequency spectrum to alter the tones and character of the sound. There are four main parts that all subtractive synthesizers have; Oscillator, Filter, Amp and LFO. Depending on the synthesizer it will have a single or multiple oscillators, which produce a selection of waveforms, including sine, sawtooth, square and triangle waves, having more than one oscillator means that the user can have a blend of different waves to change the timbre of the sound. The ‘Filter’ can be a range of filters such as VCF (voltage controlled filter), low pass filter and high pass filter, allowing the user to change the ‘cutoff’ and ‘resonance’ of the signal. The Amp or VCA (voltage controlled amplifier) shapes the waveform by envelopes controlling the ‘attack’, ‘decay’, ‘sustain’ and ‘release’. Finally, the LFO (low frequency oscillator) controls the output by manipulating the sound. This is done by using ‘rate’ which controls the speed of which it oscillates, which can result in a pulse or wobble effect depending on other settings such as ‘filter cutoff’. Also, setting the LFO to ‘pitch’ or ‘volume’ will result in the sound having a vibrato or tremolo effect, with the speed being controlled by the ‘rate’.

The voicing settings of additive and subtractive synthesizers.

Monophonic Synthesizers: Monophonic synthesizers are keyboards that can only produce one note at a time such as the early synthesizers. That includes the Moog modular synthesizer, Minimoog, ARP 2500, ARP Pro Soloist and Moog Prodigy. The Moog Prodigy (1979) is a 32 key synthesizer that was designed by Robert Moog, it was “particularly useful for analog bass patches” (Pejrolo, & Metcalfe, 2017;2016 p.125). Such musicians like Keith Emerson and Rick Wakeman used the Moog Prodigy keyboard for lead and bass patch sounds.

Paraphonic Synthesizers: Paraphonic synthesizers are able to produce more than one note at a time, ranging up to eight notes. However, “all would share the same filter and/or envelope generator—meaning that as soon as the first note began, the envelope shape would begin as well; any subsequent

notes would join the envelope shape in progress rather than starting from the beginning with its own envelope shape” (Pejrolo, & Metcalfe, 2017;2016 p.17). This meant that true polyphony was not attained due the limitations of the design and technology. True polyphonic synthesizers did not become available until around 1975 with the releases of the Roland RS-202, Yamaha GX-1, Oberheim polyphonic and the Polymoog.

Polyphonic Synthesizers: As paraphonic synthesizers were also able to produce sound for multiple notes, they do not produce the attack of a note when another note is sounded, and were limited to a certain amount of sounded notes. Polyphonic synthesizers produce a sound for each note key that is pressed, that is including the attack of a note when another note is pressed and sustained.

4. The Musicians and Their Use of Keyboard Technology

Before 1968

Albums of progressive rock music were first released by bands that were classed as 'psychedelic rock', 'art rock', 'jazz fusion', 'acid rock', and the later coined sub-genre 'proto-prog'. The bands that are referenced to these sub-genres range from The Beatles, Pink Floyd, The Moody Blues, Procol Harum, King Crimson and The Nice.

The first album generally considered as being the first progressive rock album is *Days of Future Passed* by The Moody Blues. At that time Procul Harum released their debut single 'Whiter Shade of Pale' which has a melody and chord progression that was influenced by 'Air' from Johann Sebastian Bach's Orchestral Suite No. 3. 'Whiter Shade of Pale' is seen to be the first progressive rock single as it is the first song to become a hit that incorporated other genres in rock music. This signalled the start of popular bands using baroque, classical and other genres in their music. Bands such as The Nice, Emerson, Lake and Palmer, Yes and Deep Purple would go on to release albums that incorporated such genres into their own compositions or even record and perform their own arrangements of such earlier works.

The movement of incorporating other genres was epitomised by Keith Emerson who at the time played in the band The Nice. They released 'Rondo' on the album *The Thoughts of Emerlist Davjack* in 1967 which was their own take of the famous jazz instrumental 'Blue Rondo à la Turk' by Dave Brubeck. It also has a section which is very much of the baroque style, being not too dissimilar from Bach. Bach was used again by The Nice as the title track "Ars longa vita brevis" was made by repeating and building on one of the German composer's motifs. The most likely reason for the use of Bach as musical inspiration is because of Keith Emerson whose background of classical training "placed him perfectly to exploit the most theatrical elements of both traditions" (Doggett, 2015, p.411).

1968 to 1970

1968

1968 is the first year in the analysis, it highlights that the organ was the most used keyboard, followed by harpsichord, piano, and lastly Mellotron which was only used on one album.

The Nice: 'America' (single) - The Nice released their version of the West Side Story song 'America' by Leonard Bernstein as a single, which includes parts from Dvorak's 'New World Symphony'. The Nice consisted of Brian Davison on drums, Lee Jackson on bass guitar and vocals, and Keith Emerson who later went on to form ELP (Emerson, Lake and Palmer) on keyboards. The choice of keyboard technology used by Keith Emerson was a Hammond L100 organ. The organ is used in a normal way, there is no knife stabbing⁶, or pushing the organ around, but there is the use of turning off or on of the organ motor to give it a pitch sliding effect. The role of the organ in the recording of 'America' is the main instrument; it covers the chord progressions, melodies, also Emerson plays a solo after backing the guitar solo.

Iron Butterfly: *In-A-Gadda-Da-Vida* - The title track 'In-A-Gadda-Da-Vida' is seventeen minutes long, but it was also shortened so that it could be released as a single, there were different versions that were released around the world that varied in time, but the majority were the 2:53 edit. 'In-A-Gadda-Da-Vida' can be classed as psychedelic rock, but due to the continuous repeated progression, and the track's length of time, as well as having a different section for a drum and organ solo it was seen to be more progressive. The organ that is used on this song is a VOX Continental which is played by Doug Ingle.

Procul Harum: *Shine On Brightly* - On the album Matthew Fisher plays the Hammond organ, piano and harpsichord.

The Moody Blues: *In Search of the Lost Chord* - The concept album's overall feel and lyrical content connote psychedelic themes. The themes range from adventures, love, life and spirituality. The piano, harpsichord and Mellotron are played on this album by Mike Pinder.

The Nice: *Ars Longa Vita Brevis* - The organ that is used is a Hammond L100. As the guitarist David O'List left half way through recording the album it meant that The Nice carried on from that point as a three-piece band. This resulted in Emerson having more of a main role, as he was the only musician left to play chords, melodies and solos. In 'Intermezzo from the Karelia Suite' there is a section that is highly distorted, this was most likely done by using a Marshall Amp instead of a Leslie speaker. Side two on the album is called 'Ars Longa Vita Brevis' which the third movement of the piece is called '3rd Movement – Acceptance "Brandenburger"', is their own arrangement and version of a section of Bach's

⁶ "While onstage, progressive rockers often move very little so they can concentrate on their individual parts and seem "serious" (Keith Emerson's animated knife stabbing of his keyboard during ELP performances is a notable exception), and characteristically many bands attempt, like classical musicians adhering to a written score, to recreate the sonic experience of a recorded album (Macan 1997:64; Bangs [1974] 2002:49)". (Sheinbaum, 2008, pp.29-30)

'Brandenburg Concerto #3 In G, BWV 1048 - 1. Allegro'. In addition, Emerson plays a harpsichord with the orchestra in the recording.

Table 2. 1968.

1968	Organ:	Procul Harum: <i>Shine On Brightly</i> The Nice: <i>'America' (single)</i> The Nice: <i>Ars Longa Vita Brevis</i> Iron Butterfly: <i>In-A-Gadda-Da-Vida</i> The Moody Blues: <i>In Search of the Lost Chord</i> Procul Harum: <i>Shine On Brightly</i> The Moody Blues: <i>In Search of the Lost Chord</i> Procul Harum: <i>Shine On Brightly</i> The Moody Blues: <i>In Search of the Lost Chord</i> The Nice: <i>Ars Longa Vita Brevis</i>
	Hammond:	
	L100 model	
	VOX:	
	Continental	
	Mellotron:	
	Piano:	
	Harpsichord:	

1969

1969 shows an increase in choice of organ that was used. It also highlights the piano as the most used keyboard, as it was recorded on seven out of the eight albums that were analysed.

Yes: **Yes** - The band consists of vocalist Jon Anderson, on guitars and backing vocals is Peter Banks, bass guitar and backing vocals is Chris Squire, on organ and piano is Tony Kaye, and on drums and vibraphone is Bill Bruford. On this album Tony Kaye plays a Hammond organ which the other members of Yes found and hired, as Kaye had a VOX Continental which he would pass off as a Hammond by disguising it (Welch, 2008, p. 60). As it was Yes' debut album the band wanted the authentic Hammond sound, which was the most desirable organ of that time.

The piano on the album appears on 'Yesterday and Today', Kaye's playing is mostly block chords played between octaves with pedal, with broken chords, arpeggios, and a few notes to lead into the next chord change. This is done for the majority of the song; it makes the ensemble sound fuller as it covers a wide range of octaves. The piano is playing alongside vocals and bass guitar, acoustic guitar and vibraphone. In the last section of the song the piano plays a repeated pattern of a broken chord in a high register, the right hand is doubled by the left hand playing it an octave lower. As the chord changes the phrase in right hand modulates higher. The usage of the piano in this song fits the relaxing and

thoughtful feel and the lyrics. This is also achieved by the piano being an acoustic instrument; apart from the bass guitar the other instruments are also acoustic.

The organ is the main instrument that plays chords, as it sounds as if the guitar's role is to accent the chords and play lead parts such as riffs and solos. The prominence of the organ's role in this album's music can be heard in 'Looking Around', which it plays the introductory melodic line in the intro which leads into the first verse. The introductory theme is changed to be longer which is played as part of the instrumental fill, after which leads the song back into a verse. Another example of the organ being the main instrument in a song is the cover of The Beatles' "Every Little Thing". The organ is the most used instrument in the song, as in parts of the verses there is only vocals and organ.

King Crimson: *In The Court Of The Crimson King* - The Line-up: Michael Giles on drums, percussion and backing vocals, Greg Lake on bass guitar and lead vocals, Ian McDonald on saxophone, flute, clarinet, bass clarinet, Mellotron, harpsichord, piano, organ, vibraphone and backing vocals, and Robert Fripp on acoustic guitar and electric guitar.

The use of the Mellotron in 'Epitaph' affects the music as it "frostily spreads underneath the vocals, the eerie strings underlining the sense of dread and pessimism" (Smith, 2001, p. 62). The Mellotron is used for sustained chords in the ensemble parts of the song. The Mellotron accompanies Lake's vocals half way through the last chorus from the words "Crying... Crying...".

Pink Floyd: *Ummagumma* - *Ummagumma* is the fourth album that was released by the band. The lineup on the album consisted of Nick Mason on percussion, Roger Waters on bass guitar and vocals, Richard Wright on Farfisa Combo Compact Duo organ, Hammond M-102 spinet organ, piano, Mellotron Mark II and vocals, and David Gilmour on lead guitar and vocals.

Jethro Tull: *Stand Up* - On this album Ian Anderson recorded vocals, flute, acoustic guitar, Hammond organ, piano, mandolin, balalaika and harmonica, Martin Lancelot Barre on electric guitar and flute, Glen Cornick on bass guitar, and Clive Bunker on drums and percussion.

The Nice: *Nice* - Emerson only plays a piano on 'Azrael Revisited', which used a section from Rachmaninoff's Prelude in C# Minor, and 'Hang on to a dream'. The piano on 'Azrael Revisited' was detuned to give it a honky-tonk effect. Throughout the album Emerson plays piano and a Hammond L100 organ. Emerson did not affect the sound of the organ by pushing it around, banging or turning it off and on. As The Nice was a three-piece band the keyboard was the main part of the band. In 'She Belongs to Me' there is a section that has the same chord pattern and rhythm as the start of the main section in the theme for the 1960 film *The Magnificent Seven*.

Caravan: *Caravan* - The keyboardist on the debut album is Dave Sinclair, who plays piano and Hammond organ. The use of the organ in the album is quite prominent; it is the dominant instrument that plays chords and accenting parts, whilst the electric guitar fills the gap between the organ and bass guitar with its output in the mix being lesser than the organ.

Although the organ is a Hammond, to the listener it sounds as if it going through a generic amplifier instead of a Leslie speaker. This is noticed easily as the organ only produces 'clean' and 'straight' tones, with the vibrato/chorus setting being the only effect to the tone. If a Leslie speaker was used, the listener would hear at the organ's whirring sound due to the amplifier's horn and drum rotation at a slow or fast speed. However, the Leslie speaker has the option for the horn and drum to not rotate; it

would be most unusual for a whole album to be recorded without the keyboardist resisting the urge of using the speaker's full potential. Then again, a Leslie is not used because using such speaker on any setting would still alter the sound by not sounding certain higher frequencies, mellowing the attack, and making an organ sound 'roomy', that being compared to a 'clean' setting on a generic amplifier such as Marshall or Fender.

Genesis: *From Genesis to Revelation* - On this album Tony Banks plays organ and piano, the latter being the most used. The organ is easily heard on 'The Serpent' and plays a key role in the instrumentation, but it is not heard on any other song. The main keyboard instrument that is used by Banks is the piano, as it is played on all the other songs. The role of the organ and piano in the album are as prominent as the guitars. It is clear throughout the album that Peter Gabriel's singing is the main focus, as the rest of the instrumentation is used as backing.

Van der Graaf Generator: *The Aerosol Grey Machine* - The keyboardist Hugh Banton plays piano and organ on the debut album. In July 2000 Banton wrote the article "The Organs of Hugh Banton & Van der Graaf 1968-1976", he stated that on this album he used a Farfisa Professional Organ with a number of effects such as "2x Fluid Sound Box, Distortion Box, Phasing pedal" (Banton, 2000, p.2). An example of an effect being used with the organ can be heard on the first track of the album called 'Afterwards'. There is a take of the organ where Banton is using the phasing pedal similar to how one would with a wah-wah pedal. The use of this effect is used to add expression to the phrasing of the vocals and to what is played on the organ.

Table 3. 1969

1969	Organ:	King Crimson: <i>In The Court Of The Crimson King</i> Jethro Tull: <i>Stand Up</i> Caravan: <i>Caravan</i> Genesis: <i>From Genesis to Revelation</i>
	Hammond:	
	L100 model	
	M-102 Spinet	
	VOX:	
	Continental	
	Farfisa:	
	Combo Compact Duo	Pink Floyd: <i>Ummagumma</i>
	Professional	Van der Graaf Generator: <i>The Aerosol Grey Machine</i>
	Mellotron:	King Crimson: <i>In The Court Of The Crimson King</i> Pink Floyd: <i>Ummagumma</i>
	Piano:	Yes: <i>Yes</i> King Crimson: <i>In The Court Of The Crimson King</i> Pink Floyd: <i>Ummagumma</i>

		Jethro Tull: <i>Stand Up</i> The Nice: <i>Nice</i> Caravan: <i>Caravan</i> Genesis: <i>From Genesis to Revelation</i> Van der Graaf Generator: <i>The Aerosol Grey Machine</i>
	Harpichord:	King Crimson: <i>In The Court Of The Crimson King</i>

1970

1970 shows that the organ was the most popular choice of keyboard, and that the use of it had diminished in comparison to previous years. Also, in 1970 the Moog synthesizer was first used on the album *Emerson, Lake and Palmer*.

The Nice: ***Five Bridges*** - The first side of the album is "The Five Bridges Suite" which comprises of orchestral, jazz and rock movements. On the second side, it has "Intermezzo 'Karelia Suite'" which is an arrangement of Jean Sibelius' composition. The second track is "Pathetique (Symphony No. 6, 3rd Movement)" which is an arrangement of Peter Ilich Tchaikovsky's composition. The third track is "Country Pie/Brandenburg Concerto No. 6" which is an arrangement and fusion of two compositions, "Country Pie" by Bob Dylan and "Brandenburg Concerto No. 6" by Johann Sebastian Bach. The fourth and last song is "One of Those People" which is the only song on that side of the album which was composed by band members, Keith Emerson and Lee Jackson. On this album, Emerson plays the piano and Hammond L100 organ. Emerson's playing is very much the focus of the majority of the tracks due to them being instrumentals.

Focus: ***Focus Plays Focus*** - The Dutch band's debut album *Focus Plays Focus* is also known as *In and Out of Focus*. It was the only album that included the band's original line-up, that being Thijs van Leer, Jan Akkerman, Martin Dresden and Hans Cleuver. On the UK version, Akkerman's composition 'House of the King' which was originally released in the Netherlands as a single was included. On the track 'Happy Nightmare', van Leer plays piano, Hammond L100 organ and a Mellotron, which are all easily heard. The role of the organ and piano in the album are very prominent in the mixes, but they are used as backing instruments as the guitar and flute are the main solo instruments. The Mellotron in 'Happy Nightmare' is used to add texture to the overall mix, sounding like a "spacey" strings section.

Emerson, Lake and Palmer: ***Emerson, Lake and Palmer*** - "When he formed the trio Emerson, Lake & Palmer in 1970, he had nothing less than full blooded classical composition in his sights" (Doggett, 2015, p.411). The first track on the debut album 'The Barbarian' is the bands own arrangement of Béla Bartók's 1911 piano piece 'Allegro Barbaro'. On the track 'Knife-Edge', Emerson plays an organ solo, which again includes one of Bach's pieces, this one being Bach's 'Suite No. 1 in D minor, BWV 812' from the collection *French Suites*. Keith Emerson composed the track 'The Three Fates' which has three parts, 'Clotho', 'Lachesis' and 'Atropos', on this track Emerson plays piano and

pipe organ. On the track 'Tank' the leading instruments are the piano and clavinet; by them being layered together they make a syncopated effect. Later on, a Moog Synthesizer is used on the album; appearing on 'Tank' and 'Lucky Man', which was the first time that Emerson recorded the Moog synthesizer. Keith Emerson's role in the group was predominantly the main instrumentalist, as his ideas for what was to be recorded was normally done; this includes making arrangements of baroque and classical music. Emerson's importance in the band meant that the music was mainly keyboard driven, which was seen throughout ELP's releases from 1970 onwards.

Yes: *Time and a Word* - On this album Tony Kaye used a Hammond organ instead of the VOX Continental which was used on the album *Yes* (1969), and also piano. The opening track "No Opportunity Necessary, No Experience Needed" starts with the 1958 Western *The Big Country* opening theme by Jerome Moross (Morse, 1996, p. 17), which is also used again as a break in the middle of the track. Kaye's use of the Hammond organ is featured on all songs apart from "Clear Days", which is the only song where a piano is used on the album. The use of the organ in the album showcases the importance and the important role it has in the ensemble. This prominence is heard throughout the album, but mostly on "The Prophet", as Kaye starts the song with an instrumental introduction which is then doubled and partnered with a string section. As the start of "The Prophet" continues the ensemble of instruments that are playing are added upon, that being the electric guitar, bass guitar and drums. The organ throughout the song is the main most prominent instrument in the mix that is playing chords when there are vocals. After the lyrical line "Take the things you need in life but remember the giving", there is a key change with the organ playing a repeated phrase in unison with the string section. The organ in the following section and ending plays sustained notes and solo fills along with the full sound of the ensemble highlighting the end.

King Crimson: *In the Wake of Poseidon and Lizard* - On this album there is not a large amount of keyboard use compared to albums such as *Emerson, Lake and Palmer* and *Time and a Word*. However, there are a number of keyboarded instruments used in this album, being piano, electric piano, celesta and a Mellotron. The use of the Mellotron on "In the Wake of Poseidon" substitutes using a real string section, but as for most cases it was also chosen for its distinct sound, being a cross between actual string section and synthesizer. In the instrumental "Devil's Triangle" the Mellotron is the main instrument with a piano playing amongst the rest of the ensemble.

Jethro Tull: *Benefit* - On this album, the keyboard instruments that were used are piano and Hammond organ. The piano can be heard on most songs as part of the ensemble, and the organ is used on "Play in Time", "Sossity; You're a Woman" and "Teacher" which was on the US album release. The piano's role on the album is very much used as a backing instrument for the guitars, flute and vocals, never playing a solo or something to draw the listener's attention to it. On the songs that include piano it is used only for chords, melody and harmony lines. However, the organ on the album is more noticeable and prominent in the mix, playing embellishments and inversions of the chords to add depth.

Pink Floyd: *Atom Heart Mother* - On this their fifth album, Richard Wright used a piano and a Hammond organ M100 series, most likely being a M102. Throughout the album Wright uses organ and piano, apart from "Atom Heart Mother" as he only uses organ. The role of these two instruments in the album is predominantly used as backing for the solo guitar and vocal. The use of both instruments on tracks allows Wright to play a range of harmonies and melodic lines throughout sections where there

are also vocals. Also, it allows Wright to play multiple inversions of chords and add or subtract certain notes to differ from what is played between the organ and piano.

Egg: **Egg** - On this album by the three-piece British band, the keyboardist is Dave Stewart, he plays a Hammond organ, piano and a Mellotron. The role of the keyboards within the band's ensemble is very similar to the role of keyboards in such bands as The Nice and Emerson, Lake and Palmer. The organ is the main solo instrument on the album, covering chords, harmonies, melodies, riffs and solos. On the album, Egg recorded their version of Johann Sebastian Bach's 'Fugue in D Minor', which Stewart performs on organ with bass guitar and drums accompanying.

Genesis: **Trespass** - On this album the keyboard instruments that are used are piano, Mellotron and Hammond organ. Again, these keyboards are played by Anthony Banks. The piano on the album is used to make the sections where it is used sound fuller. The Mellotron is used as substitute for a string section. It is not used much but when it is the output level is lower than the piano and organ, as it is used to fill gaps in the instrumentation and adding depth doing so. The organ, when played, is very much prominent amongst the ensemble, as the album is guitar and vocals orientated. The organ's usage highlights harmonies, melodies, adds variants on chords, and enables for other instruments to perform and record solos, whether that is by accompanying or it being the soloing instrument.

Table 4. 1970.

1970	Organ:	Yes: <i>Time and a Word</i> Jethro Tull: <i>Benefit</i> Egg: <i>Egg</i> Genesis: <i>Trespass</i>
	Hammond:	
	L100 model	
	M-102 Spinet	
	VOX:	
	Continental	
	Farfisa:	
	Combo Compact Duo	
	Professional	-
	Pipe Organ:	Emerson, Lake and Palmer: <i>Emerson, Lake and Palmer</i>
	Mellotron:	The Nice: <i>Five Bridges</i> Focus: <i>Focus plays Focus</i> King Crimson: <i>In the Wake of Poseidon and Lizard</i> Egg: <i>Egg</i> Genesis: <i>Trespass</i>

Piano:	The Nice: <i>Five Bridges</i> Focus: <i>Focus plays Focus</i> Emerson, Lake and Palmer: <i>Emerson, Lake and Palmer</i> Yes: <i>Time and a Word</i> King Crimson: <i>In the Wake of Poseidon</i> and <i>Lizard</i> Jethro Tull: <i>Benefit</i> Pink Floyd: <i>Atom Heart Mother</i> Egg: <i>Egg</i> Genesis: <i>Trespass</i>
Electric Piano:	King Crimson: <i>In the Wake of Poseidon</i> and <i>Lizard</i>
Clavinet:	Emerson, Lake and Palmer: <i>Emerson, Lake and Palmer</i>
Harpsichord:	-
Celesta:	King Crimson: <i>In the Wake of Poseidon</i> and <i>Lizard</i>
Moog Synthesizer:	Emerson, Lake and Palmer: <i>Emerson, Lake and Palmer</i>

1971 to 1976

1971

1971 shows that organ and piano were very similar in popularity as both were the most used keyboards. This year was the first time a Minimoog was used, which was on Yes' album *Fragile*.

Yes: *The Yes Album* - On this album Tony Kaye plays a Hammond organ, piano and Moog synthesizer. Kaye changed his preference of which type of Hammond organ he used, the change from an M-100 series to a B3 was stated as a positive "turning point" in organ choice and usage (DeRiso, 2012). Kaye's usage of keyboards shows that he was not interested in the new releases of synthesizers (Martin, 2003). This differed and conflicted with the thoughts of the other band members about keyboard preferences.

The organ's usage on the album is one of the main instruments, playing chords, harmonies and melody lines. The organ is used on 'Yours Is No Disgrace', 'Starship Trooper', 'I've Seen All Good People' and 'Perpetual Change'. On the second section of 'I've Seen All Good People' called 'All Good People' the organ comes in at the end of the song slowly building up in volume and dominance in the mix. This is then followed by the vocals being accompanied by only the organ for a round of the chorus; this is then repeated with descending key changes with a fade out. Piano is used on 'I've Seen All Good People', 'A Venture' and 'Perpetual Change'. The piano's use on the album is mostly heard on 'A Venture' as it is the main accompaniment to the vocals. The piano's role on the other two songs is for backing, it is not easily heard amongst the other instruments as it is used to bulk up the ensemble's sound. The Moog synthesizer is only used on 'Yours Is No Disgrace'. It is partnered with the organ by playing the same melodic lines in the main sections of the song. The song ends with an ascending chromatic scale played on the synthesizer.

Jethro Tull: *Aqualung* - On this album the keyboards are played by John Evan. The keyboard instruments that are used are organ, piano and Mellotron. On the title track 'Aqualung' the piano is used for backing the guitar and vocals, as they are more dominant in the mix. On 'Cross-Eyed Mary' a Mellotron accompanies the flute with piano, bass guitar and drums in the introduction. Organ is then used for the verses and chorus playing the riff along with the bass guitar and guitar. On 'Wond'ring Aloud', 'Up to Me', 'My God' and 'Locomotive Breath' the piano is used in a backing role alongside the guitars for the vocals and flute.

Emerson, Lake & Palmer: *Tarkus* - On this album Keith Emerson plays a Hammond organ, piano, celesta, pipe organ and a Moog modular synthesizer. The track 'Jeremy Bender' main instrument is a piano which was detuned slightly so that it would give it a honky-tonk sound. For the introduction of 'The Only Way (Hymn)' Emerson plays a section from Johann Sebastian Bach's toccata in F-major on a pipe organ, later on in the song, Bach's Prelude VI from *The Well-Tempered Clavier* is used in the bridge. The use of a pipe organ connotes church music and grandeur, as pipe organs are used to accompany Mass and other church services. However, this track is the opposite of a hymn as it is anti-religious, as the song's lyrics are about questioning humanity's doings and God. The lyrics "kneel at the shrine, deceived by the wine" is used to highlight the opinion that Christians worship something that is not real.

Also, the lyrics “can you believe God makes you breathe. Why did he lose six million Jews” questions humanity. Using such lyrics contrasts with the pipe organ’s connotations, and naming this song a hymn highlights how ironic it is. The “irony provided by the organ introduction is only heightened by the fact that a “paragon of Protestant piety” like Johann Sebastian Bach is its author” (Stinson, 2013, p.118).

Pink Floyd: **Meddle** - On this album Rick Wright plays piano and organ. Piano is used on ‘Fearless’, ‘San Tropez’ and ‘Seamus’ in a backing role. On the track ‘Echoes’, Wright plays a Hammond organ, most likely to be a Hammond L-100, as well as piano which was recorded through a Leslie speaker to affect the sound. This was done by using a microphone setup which was plugged straight into a Leslie cabinet speaker. The organ on ‘Echoes’ plays chords in rhythmic style locking in with the groove that is produced by the bass guitar and drums. Also, the organ plays decorations and embellishments which provide depth and change of focus to the accompaniment of the guitar’s soloing.

Focus: **Focus II** - released in the UK as *Moving Waves*. Thijs van Leer plays a Hammond L100 organ, piano and Mellotron. On the first track ‘Hocus Pocus’ the organ plays chords backing the rhythm and lead guitar parts, as this track is mainly focused on guitar for soloing. On ‘Le Clochard (Bread)’ a Mellotron is used to add a sustained string section. The use of this keyboard adds a depth to the mix by sounding ghostly and distant compared to the main instrument the classical guitar. On ‘Moving Waves’ the only instrument which accompanies the vocals is a piano. It is mostly playing broken chords and arpeggios by both hands to give the effect of moving waves, which musically connotes the title of the song and album. On ‘Focus II’, the track starts off with the organ playing chords and the melody along with the piano. Mellotron is then used with the organ playing sustained chords, the piano playing chords, broken chords and embellishments all of which is accompanying the guitar which is playing the melody. ‘Eruption’ is the main track on *Moving Waves* lasting for 22 minutes and 35 seconds. For the majority of the track the only keyboarded instrument that is used is a Hammond organ. Throughout the track and in sections such as ‘Tommy’, the organ is used to double up the guitar melodically and harmonically. For the majority of the track the organ is used to accompany the lead guitar, but there are also a few organ solos. Piano is used during the track to add a classical feel. As the organ is playing sustained chords, the piano is playing broken chords to add movement to the section. A Mellotron is used in the latter part of the track to blend with the organ by playing the same part.

Genesis: **Nursery Cryme** - On this album Tony Banks uses a Hammond organ and Mellotron. The organ has an accompanying role, as guitar and vocals are the main focuses. The Mellotron is used on ‘Seven Stones’ and mainly plays single notes. Piano is also used on ‘Harold the Barrel’, which is the main accompaniment for vocals.

Yes: **Fragile** - Rick Wakeman plays Hammond organ C-3, Mellotron, Minimoog synthesizer, piano and RMI 368 Electra-Piano and Harpsichord. ‘Can and Brahms’ is Wakeman’s own version of the third movement from Symphony No. 4 in E minor by Johannes Brahms. On the track a RMI 386 Electra-Piano and Harpsichord is used along with organ, piano and Minimoog. Wakeman plays each keyboard as if it is a single orchestral choir, by doing so, Wakeman recorded all of the music’s parts which results in the ensemble sounding full. This is similar in comparison with Wendy Carlos’ album *Switched on Bach*, as both of the ensembles sounds full by using different keyboard timbres to highlight different part.

Throughout the rest of the album, organ and Mellotron is used as backing for vocals and guitars, with soloing parts in unison with a Minimoog on 'Hearts of the Sunrise'.

Table 5. 1971.

1971	Organ:	Jethro Tull: <i>Aqualung</i>
	Hammond:	Emerson, Lake & Palmer: <i>Tarkus</i>
		Genesis: <i>Nursery Cryme</i>
	B-3	Yes: <i>The Yes Album</i>
	C-3	Yes: <i>Fragile</i>
	L100 model	Pink Floyd: <i>Meddle</i>
		Focus: <i>Focus II</i>
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Pipe Organ:	Emerson, Lake & Palmer: <i>Tarkus</i>
	Mellotron:	Jethro Tull: <i>Aqualung</i>
		Focus: <i>Focus II</i>
		Genesis: <i>Nursery Cryme</i>
		Yes: <i>Fragile</i>
	Piano:	Yes: <i>The Yes Album</i>
		Jethro Tull: <i>Aqualung</i>
		Emerson, Lake & Palmer: <i>Tarkus</i>
		Pink Floyd: <i>Meddle</i>
		Focus: <i>Focus II</i>
		Yes: <i>Fragile</i>
	Electric Piano:	-
	Clavinet:	-
	Harpsichord:	-
	RMI 368 Electra-Piano and Harpsichord:	Yes: <i>Fragile</i>

	Celesta:	Emerson, Lake & Palmer: <i>Tarkus</i>
	Moog Modular Synthesizer:	Yes: <i>The Yes Album</i> Emerson, Lake & Palmer: <i>Tarkus</i>
	Minimoog Synthesizer:	Yes: <i>Fragile</i>

1972

1972 shows that there was an increase in use of synthesizers, and that the Mellotron was used on four albums, the same amount as in 1970 and 1971.

Jethro Tull: ***Thick as a Brick*** - On this album John Evan plays organ and piano. Both had more of a role in the music on this album than on previous albums. The organ's role in the music is as important as the guitar and bass guitar, as it plays many of the themes and parts alongside the guitar. The majority of the use of the organ is for playing chords and harmonies that accompany the vocals, flute and guitar on both 'Thick as a Brick, Part I' and 'Thick as a Brick, Part II'. On 'Thick as a Brick, Part I', there are sections where it is only the organ playing the melody with interjections by the other instruments. The role of the piano is a backing instrument, as it is used to add to the underlying sound of the organ in many parts. This is done by the organ parts being also played on the piano. The Harpsichord appears only on 'Thick as a Brick, Part II' twice, first after the lyric "Do you believe in the day?" where it plays an embellishment with the flute, then plays broken chords over the multiple recorded tracks of acoustic guitar. The second time the harpsichord is used it doubles the flute part during the instrumental section after the lyrical line "The pavements are empty, the gutters run red while the fool toasts his god in the sky".

Gentle Giant: ***Three Friends*** - The keyboardist on this album was Kerry Minnear; he uses a piano, electric piano, clavinet, a Baldwin spinet electric harpsichord, Hammond organ, Mellotron and Minimoog. On the first track 'Prologue', Minnear uses organ, piano and Minimoog. The use of the Minimoog can be heard doubling the guitar parts, adding to the layering of changing rhythms and syncopation with the rest of the ensemble. The piano is used to play the same or similar parts that are played by the guitar and organ. An example of the piano's role is when it was used for dramatic effect alongside percussion and strings in the middle of the track 'Schooldays'. Also, the electric piano can be heard at the end of 'School days' playing the same chords as the piano. Both are backing the vibraphone solo. The organ on the album is the main keyboard instrument as it the most heard instrument playing the accompanying chords, harmonies, riffs, melodies and solos. The other keyboard instruments are used as filler, texture and blending with other instruments.

Emerson, Lake & Palmer: **Trilogy** - On ELP's third album Emerson plays a Hammond organ C-3, piano, Moog synthesizer III-C and a Minimoog model D. On the first track 'The Endless Enigma (Part One)' Emerson uses a Moog synthesizer and piano in the intro, and the rest of the song, a piano and C-3 organ are used. The second track 'Fugue', piano is the only keyboard instrument used, and being the only played instrument for the majority of the track. On the track 'The Sheriff' both the piano and organ is used. For the outro of the track a piano with a Honky-tonk sound is played in an old American saloon bar style, and the sound of the outro connotes the theme and story of the song. The role of the keyboard instruments on the album is very important as they play the majority of the chords, harmonies, melodies and solos.

Yes: **Close to the Edge** - The keyboards that Rick Wakeman uses range from Moog modular synthesizer, Minimoog, pipe organ, Hammond organ, Mellotron, harpsichord and piano. The role of the keyboards on the album is to add to the intricate texture and depth. With the focus being on the vocals and guitars, Wakeman's playing blends in and complements the other band members' parts by playing certain harmonies, chords and riffs. Apart from the solos played by Wakeman, he is the main focus when the pipe organ starts playing on 'I Get Up, I Get Down', as he is the only musician playing for a section with Anderson's singing.

Genesis: **Foxtrot** - On this album Tony Banks plays Hammond organ, Mellotron, electric piano and piano. The most used keyboard is the Hammond organ. During 'Watcher of the Skies' a Mellotron is also used in unison with the organ to blend. Banks' role is to accompany the vocals and fill the gaps with melodies and solos; this can be heard on tracks 'Timetable', 'Get 'Em Out by Friday' and 'Supper's Ready'.

Gentle Giant: **Octopus** - Kerry Minnear on Hammond organ, Mellotron, Minimoog, Clavinet, harpsichord, electric piano and piano. On this album the keyboard parts are used to double and back the guitar and vocals parts, as the main focus is on the vocals and harmonies. An example of this would be the song 'Knots'.

Focus: **Focus III** - On this album Thijs van Leer plays a Hammond L100 organ, piano and a Moog synthesizer. The keyboardist and singer van Leer mainly uses a Hammond organ on *Focus III*, as piano is only used on 'Carnival Fugue'. A synthesizer is used for a harmony part as a flute is used for the melody on the track 'Love Remembered'. The Moog synthesizer plays a single note at a time with a slide effect between the notes. The slide may have been produced by a setting on the console or a pitch bend controller. The organ is the only instrument that plays chords or harmony when the melody or solo is played by the guitarist Jan Akkerman, this can be heard on 'Sylvia' and 'Focus III'. However, the roles swapped when van Leer plays the melody or a solo, as Akkerman plays the chords, riffs and harmonies, and this shows that both musicians had equally important roles in the ensemble.

Table 6. 1972.

1972	Organ:	
	Hammond:	Jethro Tull: <i>Thick as a Brick</i> Gentle Giant: <i>Three Friends</i> Yes: <i>Close to the Edge</i> Genesis: <i>Foxtrot</i> Gentle Giant: <i>Octopus</i>
	B-3	-
	C-3	Emerson, Lake & Palmer: <i>Trilogy</i>
	L100 model	Focus: <i>Focus III</i>
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Pipe Organ:	Yes: <i>Close to the Edge</i>
	Mellotron:	Gentle Giant: <i>Three Friends</i> Yes: <i>Close to the Edge</i> Genesis: <i>Foxtrot</i> Gentle Giant: <i>Octopus</i>
	Piano:	Jethro Tull: <i>Thick as a Brick</i> Gentle Giant: <i>Three Friends</i> Emerson, Lake & Palmer: <i>Trilogy</i> Yes: <i>Close to the Edge</i> Genesis: <i>Foxtrot</i> Gentle Giant: <i>Octopus</i> Focus: <i>Focus III</i>
	Electric Piano:	Gentle Giant: <i>Three Friends</i> Genesis: <i>Foxtrot</i> Gentle Giant: <i>Octopus</i>
	Clavinet:	Gentle Giant: <i>Three Friends</i> Gentle Giant: <i>Octopus</i>
	Harpsichord:	Yes: <i>Close to the Edge</i>

		Gentle Giant: <i>Octopus</i>
	Baldwin Spinnet Electric Harpsichord:	Gentle Giant: <i>Three Friends</i>
	RMI 368 Electra-Piano and Harpsichord:	-
	Celesta:	-
	Moog Modular Synthesizer:	Yes: <i>Close to the Edge</i> Focus: <i>Focus III</i>
	synthesizer III-C	Emerson, Lake & Palmer: <i>Trilogy</i>
	Minimoog Synthesizer:	Gentle Giant: <i>Three Friends</i> Yes: <i>Close to the Edge</i> Gentle Giant: <i>Octopus</i>
	Model D	Emerson, Lake & Palmer: <i>Trilogy</i>

1973

1973 shows that synthesizers such as Moog's Apollo polyphonic, Lyra monophonic and Taurus bass, Davoli, EMS, and ARP synthesizers were used for the first time.

Premiata Forneria Marconi: ***Photos of Ghosts*** - On this album keyboardist Flavio Premoli plays Hammond organ, harpsichord, spinet, piano, Mellotron and Minimoog. On the track 'River of Life' the use of synthesizers and Mellotron create a string like section, with a lead synthesizer part playing the melody during the instrumental sections after the lyrics "river roll, follow your star" and "journey's end, surely not far". Apart from a few synthesizer and organ solos, the use of organ, piano and other keyboards are mainly used to accompany the vocals, electric guitar and flute.

Rick Wakeman: ***The Six Wives of Henry VIII*** - Wakeman uses "two Mellotrons, three synthesizers, two electric pianos, and an organ. That's a portative organ, I want to add, from the late 1700s" (Campbell, 1973, p.30) according to a newspaper interview. However, the interview missed out the majority of information in respect of the instruments Wakeman uses, as piano and a Hammond organ can also be heard. The notes from the album reads: "Custom built Hammond C-3 Organ, RMI Electric Piano & Harpsichord, 2 x Mini-Moog Synthesizer, Mellotron 400-D (Brass/Strings/Flutes), Mellotron 400-D (Vocals/Sound Effects/Vibes), Steinway 9' Grand Piano, Frequency Counter, Custom Mixer. In addition to the above instruments a Thomas Goff Harpsichord and ARP Synthesizer were used.

All sounds were put through two Stereo Leslie's, Fender Duel Showman Amp & two JBL Cabinets. Also[,]...a custom built Oscillator, Fuzz & Wahwah Pedal and Binson Echo Unit [were used]. The organ on 'Jane Seymour' was recorded at St. Giles, Cripplegate".⁷ The album is keyboard based, with synthesizers, piano, RMI Electric Piano & Harpsichord and Hammond C-3 organ being the main keyboards used for chords, melodies and solos on such instrumentals as 'Anne of Cleves', 'Anne Boleyn', 'The Day Thou Gavest Lord Hath Ended' and 'Catherine Parr'. As keyboards are the main focus throughout the album, vocals and guitar have a backing role which is a contrast to most of the albums previously looked at.

Camel: **Camel** - Peter Bardens was the keyboardist for Camel. He plays piano, a Mellotron, organ, and a "VCS 3 synthesizer" ("Camel - Camel", 2018). Bardens' role on the album is to play backing for Andrew Latimer on guitar and vocals. However, it is an important role as both Bardens and Latimer alternated who played chords, harmony, melody and solos. Bardens' keyboard playing within the ensemble is similar to that of Thijs van Leer of Focus. The VCS 3 synthesizer is used on the instrumental 'Six Ate' playing the melody in sections and harmony with a high amount of modulation.

Pink Floyd: **Dark Side of the Moon** - On the album Richard Wright plays Farfisa organ, Hammond organ, Rhodes electric piano, piano and an EMS VCS 3 synthesizer. Wright uses an organ and electric piano on 'Breathe (In The Air)', organ and synthesizer on 'On the Run', electric piano, synthesizer, Farfisa organ on 'Time', piano, Hammond organ on 'The Great Gig in the Sky', electric piano on 'Money', Hammond organ and piano on 'Us and Them', Hammond organ and synthesizer on 'Any Colour You Like', Hammond organ and synthesizer on 'Brain Damage', synthesizer and Hammond organ on 'Eclipse'. Wright's playing of sustained chords on the organ incorporating off-beat rhythms on electric piano adds to the textures and progressions during vocals and guitar solos. Also, Wright's playing on 'The Great Gig in the Sky' showcases the use of piano and organ being blended together to produce a full and rich sound.

Mike Oldfield: **Tubular Bells** - On this album Oldfield uses a grand piano, Honky Tonk piano, Farfisa organ, Lowrey organ and Hammond organ. The use of instruments on this album was built by layering as most of the parts were recorded by Oldfield himself. The organs are used to produce sustained chords and harmonies that link to the introductory repeated minimalist movement in sections of 'Tubular Bells Part 1'. The keyboards' role on the album was mainly to provide backing for string and woodwind instruments.

Jethro Tull: **A Passion Play** - John Evan plays piano, organ and synthesizers on the album. The majority of the keyboards are used for backing guitar, vocals and flute. The album is set out as a single song with many movements repeating musical phrases and ideas, similar to the album *Thick as a Brick*. The roles of the keyboards differ in each movement. There is parts were piano, or organ or synthesizer is the main focus. The music on *A Passion Play* is a musical representation of a stage performance of some kind.

⁷ Retrieved from <https://www.discogs.com/Rick-Wakeman-The-Six-Wives-Of-Henry-VIII/release/449189>. Date of retrieval 29 July 2018

Gentle Giant: *In a Glass House* - Kerry Minnear plays Hammond organ, Mellotron, RMI 368 Electra- Piano and Harpsichord, electric piano, piano and Moog synthesizer. The keyboards are used as accompaniment for the vocals and the soloing guitar, by adding texture and blending with other instruments. This is done by playing chords, harmonies, riffs, melodies and solos.

Genesis: *Selling England by the Pound* - Tony Banks plays organ, ARP Pro Soloist synthesizer, Mellotron and piano. The role of the synthesizer is to play harmonies, doubling and solos. At the beginning of 'Dancing with the Moonlit Knight' the synthesizer plays broken chords in a higher register than the guitar, it also plays a solo later on in the track. Synthesizer solos are also heard on 'The Battle of Epping Forest' and 'The Cinema Show'. Doubling of the vocal melody by the synthesizer can be heard on 'I Know What I Like (In Your Wardrobe)' during the chorus. The piano is used on such tracks as 'Dancing with the Moonlit Knight', 'After the Ordeal' and 'Firth of Fifth' where it plays the introduction alone. The Mellotron is used for a strings and vocal choir sound on tracks such as 'Dancing with the Moonlit Knight' and 'The Cinema Show'. The organ is used for playing chords that are mainly sustained, arpeggiated or broken; such uses can be heard in the chorus of 'Dancing with the Moonlit Knight', 'Firth of Fifth', 'The Battle of Epping Forest' and 'The Cinema Show'.

Caravan: *For Girls Who Grow Plump in the Night* - Keyboardist David Sinclair plays electric piano, organ, piano, Davoli synthesizer and ARP synthesizer. The keyboards have a backing role as most are not easily heard for the majority of the album. There is however a synthesizer solo on 'The Dog, The Dog, He's at It Again' and on 'L'Auberge du Sanglier / A Hunting We Shall Go / Pengola / Backwards / A Hunting We Shall Go (reprise)'.

Emerson, Lake & Palmer: *Brain Salad Surgery* - Emerson plays the Hammond organ, piano, honky-tonk piano, harpsichord, Moog modular synthesizer, Minimoog synthesizer, Moog Apollo polyphonic synthesizer, Moog Lyra monophonic synthesizer and Taurus bass synthesizer. The first track is a cover of the hymn 'Jerusalem' on which Emerson plays organ and synthesizer. The organ provides the accompaniment for the vocals by covering the chords, harmonies and the melody, which is very similar to the actual score and arrangement of the hymn. For most of the first verse it is just the organ and vocals until the percussion comes in leading into the build-up for the lyrics "And was Jerusalem builded here, among these dark satanic mills?" In the second verse a synthesizer is played in a higher octave, a solo line which is not too dissimilar to a trumpet fanfare. In the introduction and the ending of the song a synthesizer plays a bass line which compliments the organ's chord changes. On 'Karn Evil 9 (1st Impression – Part 1)' organ and piano is used to cover chords using different inversions and octaves to create a full sound. The organ by itself also covers riffs, harmonies and melody lines. A synthesizer is used for a bass line, harmony, doubling the vocal melody and solo. The beginning of 'Karn Evil 9 (1st Impression – Part 1)' starts with "a sample and hold" (sfodallday, 2010) function on Emerson's modular Moog synthesizer. The repeated rhythm of one note on the Moog synthesizer is joined by vocals, organ, guitar and drums. Piano is also played later on which has a honky-tonk sound. 'Karn Evil 9 (2nd Impression)' is piano bass guitar and drums based with synthesizer playing a solo. 'Karn Evil 9 (3rd Impression)' starts with drums and the organ with distortion from high gain, followed by a synthesizer

playing an introductory line. In the verse the organ with a normal amount of gain, accompanies the vocals by playing the chords, harmonies and the melody. In the chorus, a synthesizer plays a soloing line that doubles the melody. In this song there is multiple solos done on a synthesizer and organ.

Yes: *Tales from Topographic Oceans* - Rick Wakeman plays organ, pipe organ, Mellotron, Moog synthesizer. On this album the keyboards are used for texture and highlighting sections as most of the album is focused on guitar and vocals. There are synthesizer solos on 'The Revealing Science of God (Dance of the Dawn)' and 'The Remembering (High the Memory)'. Mellotron is used to sound like a string section for large amounts of 'The Ancient (Giants Under the Sun)' and 'Ritual (Nous Sommes du Soleil)'.

Table 7. 1973.

1973	Organ:	Premiata Forneria Marconi: <i>Photos of Ghosts</i>
	Hammond:	Camel: <i>Camel</i>
		Pink Floyd: <i>Dark Side of the Moon</i>
		Mike Oldfield: <i>Tubular Bells</i>
		Jethro Tull: <i>A Passion Play</i>
		Gentle Giant: <i>In a Glass House</i>
		Genesis: <i>Selling England by the Pound</i>
		Caravan: <i>For Girls Who Grow Plump in the Night</i>
		Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
		Yes: <i>Tales from Topographic Oceans</i>
	B-3	-
	C-3	Rick Wakeman: <i>The Six Wives of Henry VIII</i>
	L100 model	-
	M-102 Spinnet	-
	VOX:	-
	Continental	-
	Farfisa:	Pink Floyd: <i>Dark Side of the Moon</i>
		Mike Oldfield: <i>Tubular Bells</i>
	Combo Compact Duo	-
	Professional	-
	Lowrey:	Mike Oldfield: <i>Tubular Bells</i>
	Pipe Organ:	Rick Wakeman: <i>The Six Wives of Henry VIII</i>
		Yes: <i>Tales from Topographic Oceans</i>
	Mellotron:	Premiata Forneria Marconi: <i>Photos of Ghosts</i>

		<p>Camel: <i>Camel</i> Gentle Giant: <i>In a Glass House</i> Genesis: <i>Selling England by the Pound</i> Yes: <i>Tales from Topographic Oceans</i></p>
	400-D	Rick Wakeman: <i>The Six Wives of Henry VIII</i>
	Piano:	<p>Premiata Forneria Marconi: <i>Photos of Ghosts</i> Rick Wakeman: <i>The Six Wives of Henry VIII</i> Camel: <i>Camel</i> Pink Floyd: <i>Dark Side of the Moon</i> Mike Oldfield: <i>Tubular Bells</i> Jethro Tull: <i>A Passion Play</i> Gentle Giant: <i>In a Glass House</i> Genesis: <i>Selling England by the Pound</i> Caravan: <i>For Girls Who Grow Plump in the Night</i> Emerson, Lake & Palmer: <i>Brain Salad Surgery</i></p>
	Honky-Tonk	<p>Mike Oldfield: <i>Tubular Bells</i> Emerson, Lake & Palmer: <i>Brain Salad Surgery</i></p>
	Electric Piano:	<p>Gentle Giant: <i>In a Glass House</i> Caravan: <i>For Girls Who Grow Plump in the Night</i></p>
	Rhodes	Pink Floyd: <i>Dark Side of the Moon</i>
	Clavinet:	-
	Harpsichord:	<p>Premiata Forneria Marconi: <i>Photos of Ghosts</i> Rick Wakeman: <i>The Six Wives of Henry VIII</i> Emerson, Lake & Palmer: <i>Brain Salad Surgery</i></p>
	Baldwin Spinet Electric Harpsichord:	-
	RMI Electric Piano and Harpsichord:	Rick Wakeman: <i>The Six Wives of Henry VIII</i>
	RMI 368 Electra- Piano and Harpsichord:	Gentle Giant: <i>In a Glass House</i>
	Spinnet:	Premiata Forneria Marconi: <i>Photos of Ghosts</i>
	Celesta:	-
	Synthesizer:	Jethro Tull: <i>A Passion Play</i>
	Davoli Synthesizer:	Caravan: <i>For Girls Who Grow Plump in the Night</i>
	EMS VCS 3 Synthesizer:	<p>Camel: <i>Camel</i> Pink Floyd: <i>Dark Side of the Moon</i></p>

	ARP Synthesizer:	Rick Wakeman: <i>The Six Wives of Henry VIII</i> Caravan: <i>For Girls Who Grow Plump in the Night</i>
	Pro Soloist	Genesis: <i>Selling England by the Pound</i>
	Moog Synthesizer:	Gentle Giant: <i>In a Glass House</i> Yes: <i>Tales from Topographic Oceans</i>
	Modular	Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
	synthesizer III-C	-
	Apollo polyphonic	Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
	Lyra monophonic	Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
	Taurus bass	Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
	Minimoog Synthesizer:	Premiata Forneria Marconi: <i>Photos of Ghosts</i> Rick Wakeman: <i>The Six Wives of Henry VIII</i> Emerson, Lake & Palmer: <i>Brain Salad Surgery</i>
	Model D	-

1974

1974 analysis shows that organs, Mellotron and piano were similar in usage, and that the usage of other keyboards was limited in comparison.

Camel: *Mirage* - Peter Bardens plays organ, Rhodes electric piano, piano, celesta, Minimoog synthesizer and Mellotron. On 'Freefall' the main keyboard that is used is the electric piano playing chords and also backing the organ solo. On the track 'The White Rider' a Mellotron is used for sustained chords on a strings setting. On 'Earthrise' a synthesizer is playing the melody which is doubled by the organ an octave lower for the majority of the track. The introduction on 'Lady Fantasy' starts with a synthesizer playing a repeated broken chord, and when it stops, organ and the electric piano play the chord progression, doubling and harmonies of the guitar part. When the vocals start, the electric piano is the only keyboard that is constantly used, as the organ with a high gain setting plays in-between some of the vocal lines until the organ solo.

Focus: **Hamburger Concerto** - On this album Thijs van Leer plays a Hammond L100 organ, piano, harpsichord, electric piano, Moog synthesizer, Mellotron, and pipe organ (The Organ of St. Mary The Virgin Church, Barnes). On 'Harem Scarem' the main keyboard instrument is piano which is doubled in parts by the Hammond organ. The piano is also the main keyboard instrument on 'La Cathedrale de Strasbourg'. After the introduction the piano is joined by a pipe organ which plays the same notes. In the section when the drums are also playing, an electric piano is used to play sustained chords, and ascending and descending embellishments. A harpsichord is the only instrument used for the introduction of 'Birth'. On the final track 'Hamburger Concerto' van Leer uses a Hammond organ, piano, Mellotron and synthesizer. The role of the keyboards on this album is to play a large amount of the melodies and accompany the guitar solos.

Gentle Giant: **The Power and the Glory** - On this album Kerry Minnear plays Hammond organ, Mellotron, clavinet, Wurlitzer electric piano, piano and Minimoog synthesizer. On the track 'The Power and the Glory' it starts off with Minnear playing electric piano. The repeated and transposed phrases that are played on the electric piano are also played on the clavinet. Minnear uses multiple keyboards on each track to add texture between the instruments. Some parts are played by more than one keyboard, which allows the same notes to be heard from both hard left and hard right due to the stereo's panning settings.

Jethro Tull: **Warchild** - On this album John Evan plays organ, piano and synthesizer. The album is vocals, flute and guitar focused, resulting in Evan playing a backing role for those parts. Evan's role on the track 'Back-Door Angels' is more dominant with the use of organ playing the chords and doubling the guitar riff. Also on this track, Evan uses a synthesizer for multiple solos when there is a vocal break. Another song where it showcases Evan's backing role is his piano playing on 'Bungle in the Jungle', where he mainly plays chords emphasising the chord changes.

Genesis: **The Lamb Lies Down on Broadway** - Tony Banks uses a Hammond organ, Mellotron, piano and synthesizers. The album's duration is close to 1 hour 35 minutes, lasting for roughly the same amount of time as two albums. Banks' playing on the album is important as his use of keyboards cover vital parts such as the introduction on piano for 'The Lamb Lies Down on Broadway', harmonies, and chord progressions on organ such as for 'The Lamia'. Banks uses a Mellotron for its strings and vocal choir sounds to add different timbre and texture to tracks, as well as synthesizers for soloing such as on 'In the Cage' and 'Riding the Scree'.

Yes: **Relayer** - The keyboardist Patrick Moraz uses a Hammond organ, Mellotron, Moog synthesizer, electric piano and piano. On this album the keyboards are used as backing instruments for the vocals and guitar solos. However, there is a long synthesizer solo by Moraz in the last part of the track 'To Be Over'.

Table 8. 1974.

1974	Organ:	
	Hammond:	Camel: <i>Mirage</i> Gentle Giant: <i>The Power and the Glory</i> Jethro Tull: <i>Warchild</i> Genesis: <i>The Lamb Lies Down on Broadway</i> Yes: <i>Relayer</i>
	B-3	-
	C-3	-
	L100 model	Focus: <i>Hamburger Concerto</i>
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Lowrey:	-
	Pipe Organ:	Focus: <i>Hamburger Concerto</i>
	Mellotron:	Camel: <i>Mirage</i> Focus: <i>Hamburger Concerto</i> Gentle Giant: <i>The Power and the Glory</i> Genesis: <i>The Lamb Lies Down on Broadway</i> Yes: <i>Relayer</i>
	400-D	-
	Piano:	Camel: <i>Mirage</i> Focus: <i>Hamburger Concerto</i> Gentle Giant: <i>The Power and the Glory</i> Jethro Tull: <i>Warchild</i> Genesis: <i>The Lamb Lies Down on Broadway</i> Yes: <i>Relayer</i>
	Honky-Tonk	-
	Electric Piano:	Focus: <i>Hamburger Concerto</i> Yes: <i>Relayer</i>
	Wurlitzer	Gentle Giant: <i>The Power and the Glory</i>

Rhodes	Camel: <i>Mirage</i>
Clavinet:	Gentle Giant: <i>The Power and the Glory</i>
Harpsichord:	Focus: <i>Hamburger Concerto</i>
Baldwin Spinet	
Electric Harpsichord:	-
RMI Electric Piano and Harpsichord:	-
RMI 368 Electra- Piano and Harpsichord	-
Spinet:	-
Celesta:	Camel: <i>Mirage</i>
Synthesizer:	Jethro Tull: <i>Warchild</i> Genesis: <i>The Lamb Lies Down on Broadway</i>
Davoli Synthesizer:	-
EMS VCS 3 Synthesizer:	-
ARP Synthesizer:	-
Pro Soloist	-
Moog Synthesizer:	Focus: <i>Hamburger Concerto</i> Yes: <i>Relayer</i>
Modular	-
synthesizer III-C	-
Apollo polyphonic	-
Lyra monophonic	-
Taurus bass	-
Minimoog Synthesizer:	Camel: <i>Mirage</i> Gentle Giant: <i>The Power and the Glory</i>
Model D	-

1975

1975 shows that organ, piano and electric piano were used five times, making them joint highest in usage. However, as a collective synthesizer was used seven times.

Camel: **The Snow Goose** - Keyboardist Peter Bardens plays a Hammond organ, Minimoog synthesizer, Arp Odyssey synthesizer, Rhodes electric piano and piano. On the track 'Rhayader' Bardens uses an electric piano and piano to play the backing chords and harmonies for the flute which plays the melody. On the track there is also a solo played on a Hammond organ which has a very high gain setting, making it sound similar to a synthesizer. On 'Rhayader Goes to Town', Bardens uses a synthesizer to play the melody which is doubled in sections by organ, it is also joined by the guitar playing the harmony. The Hammond organ on the album is used for playing the melody, solos, and chords to back the guitarist and flautist Andrew Latimer; this is heard on such tracks like 'The Snow Goose'. On the track 'Fritha Alone' it is just piano, which resembles the name of the track as the piano is the lone instrument. However, the track comprises of two piano recordings, the first being the main score which is played by both hands, the second is the moving patterned phrases which are played higher up on the keyboard. This affects the main part by adding texture and lightening the sombre feel to the piece. On 'La Princesse Perdue' a synthesizer plays the melody and harmony. The melody is a reprisal of the 'Flight of the Snow Goose' melody which is played by Latimer on guitar.

Gentle Giant: **Free Hand** - Kerry Minnear uses a Hammond organ, Moog synthesizer, electric piano, piano and harpsichord. On this album the keyboards are used as backing instruments for the vocals and guitar. This is done by doubling some of the guitar and vocals parts, as well as adding syncopation, harmonies and texture. There are a few solos such as on 'Talybont' where a harpsichord is used. It seems that there are keyboard solos on this album just to fill in spaces between vocal and guitar parts.

Jethro Tull: **Minstrel in the Gallery** - On this album John Evan plays an organ and piano. The use of the organ and piano on this album are primarily used for accompanying the vocals, flute, and guitar by playing chords. Organ is only used on the first two tracks 'Minstrel in the Gallery' and 'Cold Wind to Valhalla', and piano is only used on 'Black Satin Dancer'.

Pink Floyd: **Wish You Were Here** - On this album Richard Wright uses a Hammond organ, Minimoog, ARP String Ensemble V synthesizer, EMS VCS 3 synthesizer, clavinet, Wurlitzer electric piano and piano. The track 'Shine You Crazy Diamond (Parts I-V)' starts with the use of multiple synthesizers playing an introduction. During the multiple guitar solos, synthesizer solo, saxophone solo and vocals, Wright only plays sustained chords on the Hammond organ, using the Leslie speaker switch multiple times to add effect. Wright's style of playing with the sustain chords allows other instruments to play something else other than chords, as the chords are already covered by the organ's role on the track. The synthesizers on the track 'Welcome to the Machine' are the most prominent instruments, as acoustic guitar percussion and vocals are the only instruments. The synthesizers cover the pulsing bass

line, chords, harmonies, and the textural and decorative effects. The electric piano is used as a backing instrument and to play chords on 'Have a Cigar', whilst a synthesizer is used to harmonise and double with the backing guitar part in the chorus, and during the guitar solo at the end of the track. On 'I Wish You Were Here' Wright uses a piano and synthesizer. On 'Shine You Crazy Diamond (Parts VI-IX)' Wright uses a Hammond organ, synthesizers, clavinet, electric piano and piano.

Focus: **Mother Focus** - Thijs van Leer plays a Hammond B3 organ, Fender Rhodes electric piano, piano, clavinet and synthesizer. *Mother Focus* has a different feel compared to previous albums, as it has tracks that include funk and fusion musical elements. The track 'I Need the Bathroom' (which has funk elements) was composed by the bassist Bert Ruiter, who also provided the vocals. The track has an unchanging steady beat throughout, which is accompanied by the bass playing a repeated line throughout the verses. The electric piano on 'I Need the Bathroom' plays the chords in rhythmic patterns which accent the groove, whilst the synthesizer is used to play sustained chords. Other tracks such as 'Mother Focus', 'Soft Vanilla', 'Hard Vanilla' and 'Tropic Bird' include jazz-funk musical elements, the latter three tracks were also composed by Bert Ruiter.

Previous Focus albums were mainly composed by Thijs van Leer and Jan Akkerman, and were influenced by baroque, classical, and jazz music themes, chord changes and modulations. By including the four tracks that Ruiter composed the feel of the album is different, as Ruiter had other musical influences and aims. Thijs van Leer said "the big difference was that it was the first album that we did in the United States... Bert Ruiter our bass player... got the opportunity to be the main composer for that album. So, suddenly it was a big difference in atmosphere because his compositions were breathing another kind of atmosphere" (T. van Leer, interview, November 25, 2018).

Other reasons why *Mother Focus* is different is that it was recorded in the United States (which was a different environment), and the equipment that was used was also different. Thijs van Leer explained the reason for not using a Hammond L100, "I had another organ because we recorded that in Hollywood in USA ...I played a normal B3" (T. van Leer, interview, November 25, 2018).

Mother Focus is also the first Focus album to feature a clavinet. The reason for the inclusion of a clavinet was explained by van Leer as "there was a studio full of that hip shit, so I wanted to touch everything there" (T. van Leer, interview, November 25, 2018). Apart from the few keyboard solos, the keyboard's main role on this album is to accompany the guitar, vocals and flute, as van Leer plays chords, harmonies, fills and doubling of parts.

Table 9. 1975.

1975	Organ: Hammond:	Camel: <i>The Snow Goose</i> Gentle Giant: <i>Free Hand</i> Jethro Tull: <i>Minstrel in the Gallery</i> Pink Floyd: <i>Wish You Were Here</i>
	B-3	Focus: <i>Mother Focus</i>
	C-3	-
	L100 model	-
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Lowrey:	-
	Pipe Organ:	-
	Mellotron:	-
	400-D	-
	Piano:	Camel: <i>The Snow Goose</i> Gentle Giant: <i>Free Hand</i> Jethro Tull: <i>Minstrel in the Gallery</i> Pink Floyd: <i>Wish You Were Here</i> Focus: <i>Mother Focus</i>
	Honky-Tonk	-
	Electric Piano:	Gentle Giant: <i>Free Hand</i>
	Wurlitzer	Pink Floyd: <i>Wish You Were Here</i>
	Rhodes	Camel: <i>The Snow Goose</i> Focus: <i>Mother Focus</i>
	Clavinet:	Pink Floyd: <i>Wish You Were Here</i> Focus: <i>Mother Focus</i>

Harpsichord:	Gentle Giant: <i>Free Hand</i>
Baldwin Spinnet	
Electric Harpsichord:	-
RMI Electric Piano and Harpsichord:	-
RMI 368 Electra- Piano and Harpsichord	-
Spinnet:	-
Celesta:	-
Synthesizer:	Focus: <i>Mother Focus</i>
Davoli Synthesizer:	-
EMS VCS 3 Synthesizer:	Pink Floyd: <i>Wish You Were Here</i>
ARP Synthesizer:	-
Odyssey	Camel: <i>The Snow Goose</i>
Pro Soloist	-
String Ensemble V	Pink Floyd: <i>Wish You Were Here</i>
Moog Synthesizer:	Gentle Giant: <i>Free Hand</i>
Modular	-
synthesizer III-C	-
Apollo polyphonic	-
Lyra monophonic	-
Taurus bass	-
Minimoog Synthesizer:	Camel: <i>The Snow Goose</i> Pink Floyd: <i>Wish You Were Here</i>
Model D	-

1976

1976 shows that the piano was used on all the albums making it the most popular keyboard.

Genesis: **A Trick of the Tail** - On this album Tony Banks uses an organ, Mellotron, synthesizer and piano. On 'Dance on a Volcano' Banks plays an organ, a choir setting on a Mellotron, and a synthesizer. Synthesizer and Mellotron are used on the mainly acoustic track 'Squonk'. The track 'Mad Man Moon' starts with piano and synthesizer and Mellotron backing Phil Collins' vocals. On the track 'Robbery, Assault and Battery' Banks used organ, Mellotron, synthesizer and piano, mostly playing the chords as well as playing a solo on the synthesizer. On 'Los Endos', Banks plays a solo on a synthesizer as well as backing parts on organ and Mellotron.

Camel: **Moonmadness** - On this album Peter Bardens plays a Hammond organ, Minimoog synthesizer, Arp Odyssey synthesizer, Rhodes electric piano and piano. On 'Song within a Song' there is a synthesizer solo backed with multiple synthesizers doubling and playing chords. The organ is used to play the chords and the harmony of the guitar part on the instrumental 'Chord Change'. On 'Spirit of the Water' the piano is the only instrument that is used to accompany the two recorders and vocals. 'Lunar Sea' begins with an introduction played on a synthesizer which is joined by percussion. The main part of the track starts when the organ, bass guitar, drums and guitar start playing; this happens whilst a synthesizer is still playing sustained chords. There is also a solo played by Bardens on a synthesizer. The role of the organ on 'Lunar Sea' is to play the chords to back Latimer on guitar, as well as the synthesizer.

Gentle Giant: **Interview** - On this album Kerry Minnear uses a Hammond organ, Minimoog, synthesizer, clavinet, electric piano, clavichord and piano. On 'Another Show' Minnear uses organ and synthesizer. On 'I Lost My Head' a clavichord is used along with flute, percussion and a synthesizer playing drones, creating a sound that is not so different to renaissance music. The use of keyboard instruments on this album is to add texture by blending, creating syncopated parts, harmonies and playing different inversions of chords.

Jethro Tull: **Too Old to Rock 'n' Roll - Too Young to Die!** On this album John Evan plays a piano and electric piano. On this album keyboard instruments are not used that much at all, as they are only used for backing chords. The piano can be heard on 'Crazed Institution', 'Taxi Grab' and 'Too Old to Rock'n'Roll: Too Young to Die'. The electric piano can be heard on 'Quizz Kid', 'Big Dipper' and 'The Chequered Flag (Dead or Alive)'.

Focus: **Ship of Memories** - Thijs van Leer uses Hammond organ, Mellotron, piano, electric piano and a Moog synthesizer. As the lead instruments on this album is between flute and guitar the use of keyboard instruments is the same as previous Focus albums. Instead of playing a Hammond organ which is normally the main choice of instrument, on the track 'Out Of Vesuvius' the backing keyboard part and a solo is played on an electric piano.

Table 10. 1976.

1976	Organ:	
	Hammond:	Genesis: <i>A Trick of the Tail</i> Camel: <i>Moonmadness</i> Gentle Giant: <i>Interview</i> Focus: <i>Ship of Memories</i>
	B-3	-
	C-3	-
	L100 model	-
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Lowrey:	-
	Pipe Organ:	-
	Mellotron:	Genesis: <i>A Trick of the Tail</i> Focus: <i>Ship of Memories</i>
	400-D	-
	Piano:	Genesis: <i>A Trick of the Tail</i> Camel: <i>Moonmadness</i> Gentle Giant: <i>Interview</i> Jethro Tull: <i>Too Old to Rock 'n' Roll: Too Young to Die!</i> Focus: <i>Ship of Memories</i>
	Honky-Tonk	-
	Electric Piano:	Gentle Giant: <i>Interview</i> Jethro Tull: <i>Too Old to Rock 'n' Roll: Too Young to Die!</i> Focus: <i>Ship of Memories</i>
	Wurlitzer	-
	Rhodes	Camel: <i>Moonmadness</i>
	Clavinet:	Gentle Giant: <i>Interview</i>

Harpsichord:	-
Baldwin Spinet	-
Electric Harpsichord:	-
RMI Electric Piano and Harpsichord:	-
RMI 368 Electra- Piano and Harpsichord	-
Clavichord:	Gentle Giant: <i>Interview</i>
Spinet:	-
Celesta:	-
Synthesizer:	Genesis: <i>A Trick of the Tail</i> Gentle Giant: <i>Interview</i>
Davoli Synthesizer:	-
EMS VCS 3 Synthesizer:	-
ARP Synthesizer:	-
Odyssey	Camel: <i>Moonmadness</i>
Pro Soloist	-
String Ensemble V	-
Moog Synthesizer:	Focus: <i>Ship of Memories</i>
Modular	-
synthesizer III-C	-
Apollo polyphonic	-
Lyra monophonic	-
Taurus bass	-
Minimoog Synthesizer:	Camel: <i>Moonmadness</i> Gentle Giant: <i>Interview</i>
Model D	-

1977 to 1980

1977

1977 was the first year that a Yamaha GX-1 synthesizer organ and a portative pipe organ were used. This year's most popular choice of keyboard was the organ.

Pink Floyd: **Animals** - On this album Richard Wright uses a Hammond organ, Farfisa organ, Wurlitzer electric piano, clavinet, piano, ARP string synthesizer, EMS VCS 3 synthesizer and Minimoog. On the track 'Dogs' Wright plays a Hammond organ, Farfisa organ, electric piano and synthesizers, all of which are used for backing the guitar solos and vocals. There is a section on the track where it is just synthesizers playing sustained chords with one synthesizer using modulation to make it sound like a dog barking. On the track 'Sheep' Wright plays the introduction on an electric piano which is mainly sustained chords and broken chords. Wright's playing mainly consists of long sustained chords and this allows other instruments to play riffs and anything else than chords.

Jethro Tull: **Songs from the Wood** - On this album Jethro Tull has two keyboardists John Evan and David Palmer; they use a Hammond organ, portative pipe organ, piano and synthesizers. On the title track 'Songs from the Wood' multiple keyboards including organ, piano and synthesizers are used to build up the texture of the ensemble. Also, the use of multiple keyboards at once allows the musicians to emphasise certain beats, rhythms and sections. The introduction of 'Hunting Girl' is played using an electric piano playing the accompanying chords, and a synthesizer playing the melody with the flute playing a harmony line in the last part of the phrase. That particular phrase is repeated six times during the song where it is just mainly played by both keyboards. However, the phrase is used multiple times during the verses and choruses as it is incorporated with different ending chords, instrumentation and vocals. The importance of the repeated phrase being played by the electric piano and synthesizer creates the musical hook. On the track 'Velvet Green' there is a solo that is played on a portative pipe organ, at the same time a piano is used to play the backing 5th chords. The keyboards instrumentation and music on tracks such as 'Hunting Girl' and 'Velvet Green' take influence from renaissance and English folk music. The musical influences support the theme of the album, as the lyrics cover subjects about the countryside, folklore and pagan festivals.

Emerson, Lake & Palmer: **Works Volume 1** - Emerson plays Hammond organ, piano, clavinet, Moog synthesizers, and Yamaha GX-1. The album is comprised of two vinyl discs, one side for each member's compositions and arrangements, leaving one side for the group. Keith Emerson's track 'Piano Concerto No. 1' is a composition which was recorded by the London Philharmonic Orchestra with Emerson playing piano. On ELP's arrangement of Aaron Copland's 'Fanfare for the Common Man' Emerson only used "Yamaha's mammoth \$50,000 polyphonic synthesizer, the GX-1" (Brackett, 2005, p.284).

Yes: *Going for the One* - Rick Wakeman uses a Hammond organ, pipe organ, Rhodes electric piano, piano, Clavinet, Mellotron, Minimoog and a Polymoog synthesizer. On the track 'Going for the One' he uses the piano for backing the guitar solo and vocals. The Polymoog is played in a higher octave than the other instruments apart from the guitar solo. The Polymoog part plays harmonies, arpeggios, chords and broken chords, and also ascending and descending harmony lines in repeated chorus after the guitar solo. On the track 'Parallels' Wakeman recorded the pipe organ at St. Martin's church in Vevey, Switzerland. Wakeman mostly plays sustained chords, as the focus of the song is on the vocals, bass guitar and guitar. The track 'Awaken' features the Polymoog playing a repeated descending pattern which leads into a solo played on the pipe organ at St. Martin's church. Wakeman plays multiple solos on the pipe organ, during the vocal section, the slow section and the build-up, and the main section at end.

Rush: *A Farewell to Kings* - On this album the bassist Geddy Lee uses a Minimoog and a Moog Taurus bass pedal synthesizer. The track 'Xanadu' starts with Lee playing a sustained note on the bass pedal synthesizer. The Minimoog plays the same note as the bass pedal synthesizer to add emphasis when a tubular bell is hit. The Minimoog also plays a lead line during the build-up to the verse, and during the verse, sustained single notes that follow the chord changes. After the two choruses the Minimoog is used for a solo line which is doubled by a xylophone.

Camel: *Rain Dances* - On this album the keyboards are played by Peter Bardens apart from the track 'Elke' which is played by Brian Eno. The keyboardists use an organ, electric piano, piano, clavinet, Minimoog and ARP string synthesizer. The use of keyboards on the track 'Elke' is to accompany the flute and guitar played by Andrew Latimer, by playing long sustained notes and chords.

Gentle Giant: *The Missing Piece* - The keyboardist Kerry Minnear uses a Hammond organ, clavinet, piano, Wurlitzer electric piano, Minimoog and synthesizers. The keyboards on the track "Two Weeks in Spain" are electric piano, synthesizer and piano. The electric piano is used to double the electric guitars. The synthesizer is used for the first 8 bars in the 16 bars long instrumental break playing a section from the vocal melody. This is then followed by a piano with an affected sound playing the main melody line of the song for the last 8 bars, with a synthesizer playing sustained notes which gradually become louder. On the track "I'm Turning Around", the electric piano is the main instrument that accompanies the vocals on the first verse. An organ is also used, playing at the end of the first verse leading into the chorus, which is used to play sustained chords and double the melody line. In the second verse the organ is used throughout, with the Leslie speaker switch being used to affect the sound and add emphasis on parts of the melody. The solo on "I'm Turning Around" is played on the organ which then leads into the last chorus playing sustained notes and chords. A synthesizer features at the end of the guitar based track "Betcha Thought We Couldn't Do It" as a link between the guitar solo and the last chorus. "Who Do You Think You Are?" features a piano playing backing chords, and a synthesizer playing harmony in the chorus and sustained chords in the instrumental break. "Mountain Time" has piano, electric piano and organ playing throughout as backing for vocals and lead guitar. On the track "As Old as You're Young" a clavinet is used in the verses to accompany the vocals. Piano and synthesizer are used intermittently throughout, with an organ used in the instrumental section, the last verse playing broken chords, and the outro. The track "Memories of Old Days" features organ, electric

piano and synthesizer. Organ, piano and synthesizer are used on “Winning”. On “For Nobody” the only keyboard used is an organ.

Emerson, Lake & Palmer: **Works Volume 2** - Emerson uses Hammond organ, piano, electric piano, Moog synthesizers including the Apollo polyphonic synthesizer, Lyra monophonic synthesizer, Taurus bass synthesizer, and a Yamaha GX-1. On the track “Tiger in a Spotlight” Emerson uses piano, electric piano and synthesizers playing the bass line, chords, harmonies and solos. The track “When the Apple Blossoms Bloom in the Windmills of Your Mind I'll Be Your Valentine” is an instrumental on which Emerson plays backing and the melodic solos on synthesizers. On “Barrelhouse Shake-down”, “Maple Leaf Rag” and “Honky Tonk Train Blues” Emerson only uses a piano which has had strings detuned for a honky-tonk sound. On the track “Show me the way to go home” Emerson uses a piano which was not altered for a desired sound. Throughout the album Keith Emerson uses a range of synthesizer settings and effects such as slides, delays and pulse modulation to affect the overall synthesizer sound to make things differ and accent parts.

Table 11. 1977.

1977	Organ:	Pink Floyd: <i>Animals</i> Jethro Tull: <i>Songs from the Wood</i> Emerson, Lake & Palmer: <i>Works Volume 1</i> Yes: <i>Going for the One</i> Camel: <i>Rain Dances</i> Gentle Giant: <i>The Missing Piece</i> Emerson, Lake & Palmer: <i>Works Volume 2</i>
	Hammond:	
	B-3	
	C-3	
	L100 model	
	M-102 Spinet	
	VOX:	
	Continental	
	Farfisa:	
	Combo Compact Duo	
	Professional	
	Lowrey:	
	Yamaha GX-1 polyphonic synthesizer organ:	Emerson, Lake & Palmer: <i>Works Volume 1</i>

	Emerson, Lake & Palmer: <i>Works Volume 2</i>
Pipe Organ:	Yes: <i>Going for the One</i>
Portative pipe organ:	Jethro Tull: <i>Songs from the Wood</i>
Mellotron:	Yes: <i>Going for the One</i>
400-D	-
Piano:	Pink Floyd: <i>Animals</i> Jethro Tull: <i>Songs from the Wood</i> Emerson, Lake & Palmer: <i>Works Volume 1</i> Yes: <i>Going for the One</i> Camel: <i>Rain Dances</i> Gentle Giant: <i>The Missing Piece</i> Emerson, Lake & Palmer: <i>Works Volume 2</i>
Honky-Tonk	-
Electric Piano:	Camel: <i>Rain Dances</i> Emerson, Lake & Palmer: <i>Works Volume 2</i>
Wurlitzer	Pink Floyd: <i>Animals</i> Gentle Giant: <i>The Missing Piece</i>
Rhodes	Yes: <i>Going for the One</i>
Clavinet:	Pink Floyd: <i>Animals</i> Emerson, Lake & Palmer: <i>Works Volume 1</i> Yes: <i>Going for the One</i> Camel: <i>Rain Dances</i> Gentle Giant: <i>The Missing Piece</i>
Harpsichord:	-
Baldwin Spinnet	
Electric Harpsichord:	-
RMI Electric Piano and Harpsichord:	-
RMI 368 Electra- Piano and Harpsichord	-
Clavichord:	-

Spinnet:	-
Celesta:	-
Synthesizer:	Jethro Tull: <i>Songs from the Wood</i> Gentle Giant: <i>The Missing Piece</i>
Davoli Synthesizer:	-
EMS VCS 3 Synthesizer:	Pink Floyd: <i>Animals</i>
ARP Synthesizer:	Pink Floyd: <i>Animals</i>
Odyssey	-
Pro Soloist	-
String Ensemble V	Camel: <i>Rain Dances</i>
Moog Synthesizer:	Emerson, Lake & Palmer: <i>Works Volume 1</i> Emerson, Lake & Palmer: <i>Works Volume 2</i>
Modular	-
synthesizer III-C	-
Apollo polyphonic	Emerson, Lake & Palmer: <i>Works Volume 2</i>
Lyra monophonic	Emerson, Lake & Palmer: <i>Works Volume 2</i>
Taurus bass	Rush: <i>A Farewell to Kings</i> Emerson, Lake & Palmer: <i>Works Volume 2</i>
Minimoog Synthesizer:	Pink Floyd: <i>Animals</i> Yes: <i>Going for the One</i> Rush: <i>A Farewell to Kings</i> Camel: <i>Rain Dances</i> Gentle Giant: <i>The Missing Piece</i>
Model D	-
Polymoog Synthesizer:	Yes: <i>Going for the One</i>

1978

In 1978 the most popular keyboards were the organ and synthesizer, followed by piano and electric piano. It was also the first year that a Birotron synthesizer was used, as it appeared on Yes' album *Tormato*.

Genesis: "...And Then There Were Three..." - On this album Tony Banks plays Hammond organ, electric piano and synthesizers. The electric piano is most likely a Yamaha CP-70 and the synthesizers are most likely a Polymoog and an ARP 2600. Banks' playing was primarily to accompany the vocals and guitar, and add texture to the ensemble as guitarist Steve Hackett left the group which left Genesis as a trio. Banks is the main and sometimes only musician playing the chords and harmonies on the album, this can be heard on songs such as on "Undertow", "Burning Rope", "Deep in the Motherlode" and "The Lady Lies". The keyboard solos that feature on this album are played on a synthesizer; this can be heard on such tracks as "Down and Out" and "Burning Rope".

Jethro Tull: *Heavy Horses* - Keyboardists John Evan and David Palmer play Hammond organ, piano, portative pipe organ and synthesizers between them. Hammond organ is used on "...And The Mouse Police Never Sleep", "No Lullaby", "Journeyman", "Rover", "Heavy Horses" and "Weathercock". Piano is used on "No Lullaby", "Moths", "Rover", "One Brown Mouse", "Heavy Horses" and "Living In These Hard Times". Portative pipe organ is used on "No Lullaby", "Rover", "Heavy Horses" and "Weathercock". Synthesizer is used but it is only easily heard on "One Brown Mouse". Apart from accompanying by playing chords, the keyboards are used to blend, highlight movements, motifs and harmonies, and add embellishments. The main instruments on this album are guitars, vocals and flutes.

Yes: *Tormato* - Rick Wakeman plays piano, Hammond organ, harpsichord, RMI Electra-piano, Birotron synthesizer and Polymoog synthesizer. On the track "Future Times" synthesizers are used in unison with guitar and bass to accompany the vocals. Wakeman's use of synthesizers on "Don't Kill the Whale" is for a solo and to accompany as he mainly plays chords and harmonies. On "Madrigal" Wakeman uses a harpsichord playing broken chords and arpeggios, possibly to cover the chords for their duration as a harpsichord's sustain ends quickly after the note is played. For the rest of the album the use of the keyboard is used in a backing role. Wakeman's playing and importance on the album is less than previous albums, such as *Going for the One* (1977). Wakeman covers the chords, harmonies and the movements, and adds some embellishment to the music during instrumental and vocal sections.

Camel: *Breathless* - On this album Pete Bardens plays Hammond organ, piano, electric piano and synthesizers. On the track "Echoes" Bardens uses the organ to play sustained chords whilst using synthesizers to play broken chords, harmonies, textural decoration and solos. On "Starlight Ride" electric piano is used which is partnered with guitar, as both accompany vocal and woodwind instrumental parts. Electric piano is also used on "Summer Lightning". On the track "The Sleeper" Bardens uses electric piano and organ as backing instruments, and synthesizer is used for playing the track's melody for the first half and end of the track. The role of the keyboard has more of a backing role compared to the albums *The Snow Goose* (1975) and *Moonmadness* (1976).

Gentle Giant: ***Giant for a Day*** - Kerry Minnear plays Hammond organ, piano, electric piano, clavinet, Minimoog and synthesizers. On “Words from the Wise” Minnear uses electric piano for the chords and a solo, and a synthesizer for harmonies. On “Spooky Boogie” piano and multiple synthesizer parts are used to create the texture of the instrumental. The keyboards have different melody and harmony parts to play, and with the instrumentation and the mix it results in a spooky sounding track. Piano is used as a backing instrument on “Little Brown Bag”, as it plays chords in a Rock’n’Roll style. The style of piano playing changes from playing an on and off beat rhythm pattern in the verses, to playing 5ths on each beat in a higher register in the chorus. Minnear’s role on this album is an accompanying role for vocals and guitar.

Emerson, Lake & Palmer: ***Love Beach*** - Keith Emerson uses a Yamaha GX-1 polyphonic synthesizer organ, piano and electric piano. On “The Gambler” Emerson played the GX-1 for chords during vocal parts, and a solo using pitch bending and modulation. On “For You” he uses the GX-1 and piano to introduce and accompany Greg Lake’s vocals. Emerson is the main instrumentalist on “Canario”, playing multiple backing and main parts that include synthesizer solos. Emerson’s playing on “Memoirs of an Officer and a Gentleman” is mainly an accompanying role with few solos, the keyboards that are used on this track are the GX-1, piano and electric piano. The role of Emerson’s playing is to accompany, add fills, and play a few solos; this differs from albums such as *Brain Salad Surgery* (1973) where Emerson had more musical and instrumental input.

Focus: ***Focus con Proby*** - Thijs van Leer uses a Hammond L-100 organ, piano, Fender Rhodes electric piano and a synthesizer. On the album van Leer uses a Fender Rhodes with a Wah-wah pedal to be able to add expression. The idea of using a Wah-wah pedal was copied from Joe Zawinul of Weather Report (T. van Leer, interview, November 25, 2018). On the track “Wingless” van Leer plays a Rhodes electric piano and a synthesizer to accompany the vocals of PJ Proby and the guitar solo by playing chords. On the track “Brother” the piano starts the song playing alone for about 50 seconds. On this track, piano is the main backing instrument. Organ is also used for playing sustained chords in a few sections such as the guitar solo and vocals that follow. Throughout the album van Leer mainly uses electric piano and a synthesizer, as organ is only used on a few tracks such as “Eddy”. The keyboards on this album are just for backing the guitar and vocals. As there are no keyboard solos it is very unlike previous albums.

Table 12. 1978.

1978	Organ: Hammond: B-3 C-3	Genesis: <i>...And Then There Were Three...</i> Jethro Tull: <i>Heavy Horses</i> Yes: <i>Tormato</i> Camel: <i>Breathless</i> Gentle Giant: <i>Giant for a Day</i> - -
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L100 model	Focus: <i>Focus con Proby</i>
M-102 Spinet	-
VOX:	-
Continental	-
Farfisa:	-
Combo Compact Duo	-
Professional	-
Lowrey:	-
Yamaha GX-1 polyphonic synthesizer organ:	Emerson, Lake & Palmer: <i>Love Beach</i>
Pipe Organ:	-
Portative pipe organ:	Jethro Tull: <i>Heavy Horses</i>
Mellotron:	-
400-D	-
Piano:	Jethro Tull: <i>Heavy Horses</i> Yes: <i>Tormato</i> Camel: <i>Breathless</i> Gentle Giant: <i>Giant for a Day</i> Emerson, Lake & Palmer: <i>Love Beach</i> Focus: <i>Focus con Proby</i>
Honky-Tonk	-
Electric Piano:	Genesis: <i>...And Then There Were Three...</i> Camel: <i>Breathless</i> Gentle Giant: <i>Giant for a Day</i> Emerson, Lake & Palmer: <i>Love Beach</i>
Wurlitzer	-
Rhodes	Focus: <i>Focus con Proby</i>
RMI Electra-piano:	Yes: <i>Tormato</i>
Clavinet:	Gentle Giant: <i>Giant for a Day</i>
Harpsichord:	Yes: <i>Tormato</i>

Baldwin Spinet	-
Electric Harpsichord:	-
RMI Electric Piano and Harpsichord:	-
RMI 368 Electra- Piano and Harpsichord	-
Clavichord:	-
Spinet:	-
Celesta:	-
Synthesizer:	Genesis: <i>...And Then There Were Three...</i> Jethro Tull: <i>Heavy Horses</i> Camel: <i>Breathless</i> Gentle Giant: <i>Giant for a Day</i> Focus: <i>Focus con Proby</i>
Davoli Synthesizer:	-
EMS VCS 3 Synthesizer:	-
ARP Synthesizer:	-
Odyssey	-
Pro Soloist	-
String Ensemble V	-
Birotron synthesizer:	Yes: <i>Tormato</i>
Moog Synthesizer:	-
Modular	-
synthesizer III-C	-
Apollo polyphonic	-
Lyra monophonic	-
Taurus bass	-
Minimoog	

	Synthesizer:	Gentle Giant: <i>Giant for a Day</i>
	Model D	-
	Polymoog Synthesizer:	Yes: <i>Tormato</i>

1979

The analysis shows that Camel's album *I Can See Your House From Here* used eleven keyboards, which is the largest amount of keyboards used on any one album of those looked at.

Jethro Tull: *Stormwatch* - On this album David Palmer and John Evan play between them a Hammond organ, portative organ, piano and synthesizers. On "Warm Sporrán" piano is used playing fifth chords to create a doubling drone effect with the bass guitar, mandolin, vocals and bagpipes. On the track "Something's on the Move", organ and piano are used as backing instruments playing chords. Throughout the album the keyboarded instruments do not have much of a role, as they are used only for textural filler to back the vocals, flute and lead guitar.

Camel: *I Can See Your House From Here* - Keyboardist Peter Bardens left the band before this album was made. Kit Watkins and Jan Schelhaas took Bardens place. Between Watkins and Schelhaas they use a Hammond organ C-3, grand piano, Yamaha CP-70 electric grand piano, Rhodes electric piano, Hohner Clavinet, Moog synthesizer, Minimoog, Yamaha CS-80, Prophet-5, Solina synthesizer and an EMS Sequencer. On the track "Wait" there are a number of keyboards such as Hammond organ, electric piano and synthesizers used for backing vocals, lead guitar and the keyboard solo. Tracks such as "Your Love is Stranger than Mine", "Neon Magic", "Remote Romance" and "Ice" showcase the amount of keyboards that are used, and can be easily heard. Having two keyboardists allowed for the use of more keyboards, and resulted in a wider array than on previous albums.

Pink Floyd: *The Wall* - On this album Rick Wright uses a Hammond organ, piano, electric piano, clavinet, synthesizers and bass pedals. On tracks such as "In the Flesh?", "The Thin Ice", "Another Brick in the Wall (Part 2)", "Mother", "Comfortably Numb" and "Young Lust" Wright's keyboard playing is primarily a backing role. Wright's role is the mainstay of the rhythm section; this is mostly done by playing sustained chords. Wright plays a monophonic solo on "Run like Hell" which is played on a synthesizer using a lot of modulation.

Table 13. 1979.

1979	Organ:	Jethro Tull: <i>Stormwatch</i> Pink Floyd: <i>The Wall</i>
	Hammond:	
	B-3	-
	C-3	Camel: <i>I Can See Your House From Here</i>
	L100 model	-
	M-102 Spinet	-
	VOX:	-
	Continental	-
	Farfisa:	-
	Combo Compact Duo	-
	Professional	-
	Lowrey:	-
	Yamaha GX-1 polyphonic synthesizer organ:	-
	Pipe Organ:	-
	Portative pipe organ:	Jethro Tull: <i>Stormwatch</i>
	Mellotron:	-
	400-D	-
	Piano:	Jethro Tull: <i>Stormwatch</i> Camel: <i>I Can See Your House From Here</i> Pink Floyd: <i>The Wall</i>
	Honky-Tonk	-
	Electric Piano:	Pink Floyd: <i>The Wall</i>
	Wurlitzer	-
	Rhodes	Camel: <i>I Can See Your House From Here</i>

	Yamaha CP-70 electric grand piano:	Camel: <i>I Can See Your House From Here</i>
	RMI Electra-piano:	-
	Clavinet:	Pink Floyd: <i>The Wall</i>
	Hohner	Camel: <i>I Can See Your House From Here</i>
	Harpsichord:	-
	Baldwin Spinet	
	Electric Harpsichord:	-
	RMI Electric Piano and Harpsichord:	-
	RMI 368 Electra- Piano and Harpsichord	-
	Clavichord:	-
	Spinet:	-
	Celesta:	-
	Synthesizer:	Jethro Tull: <i>Stormwatch</i> Pink Floyd: <i>The Wall</i>
	Bass Pedals	Pink Floyd: <i>The Wall</i>
	EMS Sequencer:	Camel: <i>I Can See Your House From Here</i>
	Prophet-5:	Camel: <i>I Can See Your House From Here</i>
	Yamaha CS-80:	Camel: <i>I Can See Your House From Here</i>
	Solina Synthesizer:	Camel: <i>I Can See Your House From Here</i>
	Davoli Synthesizer:	-
	EMS VCS 3 Synthesizer:	-
	ARP Synthesizer:	-
	Odyssey	-
	Pro Soloist	-

	String Ensemble V	-
	Birotron synthesizer:	-
	Moog Synthesizer:	Camel: <i>I Can See Your House From Here</i>
	Modular	-
	synthesizer III-C	-
	Apollo polyphonic	-
	Lyra monophonic	-
	Taurus bass	-
	Minimoog Synthesizer:	Camel: <i>I Can See Your House From Here</i>
	Model D	-
	Polymoog Synthesizer:	-

1980

1980 highlights that piano and electric piano were the most used keyboards. This was also the only year that Oberheim's Ob-1 and polyphonic synthesizers were listed.

Rush: **Permanent Waves** - On this album Geddy Lee uses Oberheim Polyphonic, Oberheim Ob-1, Minimoog, and Lee and guitarist Alex Lifeson uses Moog Taurus Pedals. The track "The Spirit of the Radio" starts with an intro on electric guitar which is then joined by bass and drums; at the same time a synthesizer is used to play a long sustained chord until guitar, bass and drums start playing the first main section and riff. In the pre-chorus a synthesizer is used for playing five repeated staccato notes. Also a synthesizer plays five legato notes from "Emotional feedback on a timeless wavelength". From the last pre-chorus to the instrumental section multiple synthesizers are used playing the same previous parts, and also more sustained notes. After the guitar solo, the main riff is played again accompanied by a piano playing a repeated staccato 5th chord in the higher register, and this is ended by a quick downwards glissando. The track "Freewill" has a synthesizer playing sustained notes for most of the duration of the intro, and fades out at the start of the first verse. During the vocal break in the first verse a synthesizer is used as filler by playing the line from the intro. The track "Jacob's Ladder" starts with a sustained note played on a synthesizer. The use of synthesizers on this track is for sustained harmonies, harmonic lines and for a solo instrumental break. After the solo, multiple synthesizer parts

are played alongside the vocals, guitar, bass and drums until the end. On the track “Different Strings” piano is played by the graphic artist Hugh Syme. The role of the keyboard, which is mostly synthesizer, is for harmonic texture, instrumental sections and backing. The sustaining of notes is used for most of the album as they are also heard on “Entre Nous” and “Natural Science”, but not “Different Strings”.

Genesis: **Duke** - Tony Banks plays piano, electric piano, organ and synthesizers on this album. On the track “Behind the Lines” Banks uses a blend of piano and synthesizers in the introduction and throughout the track. Throughout the album Banks plays many keyboard parts in each song. This creates multiple and different blends and textures, as the keyboards are used as the main backing instruments for the main vocals of Phil Collins, as they cover the chords and harmonies. Keyboards are also used for solos and instrumental sections such as on “Duke’s Travels”. Also the keyboards are used for backing and doubling the guitar parts such as in “Man of Our Times”.

Yes: **Drama** - Geoff Downes plays Hammond organ, piano, electric piano and synthesizers including a Fairlight CMI synthesizer which is used on “White Car”. On the track “Machine Messiah” and throughout the album Downes use of keyboards is to cover the chords, doubling of vocal and guitar parts, harmonies and solos. Downes’ role in the band was not so different from the role that Rick Wakeman had. The only difference between Downes and Wakeman is that Downes did not play long soloing parts. Chris Squire played piano on “Run through the Light”.

Jethro Tull: **A** - Eddie Jobson plays piano, electric piano, and synthesizers. Jobson’s playing on this album covers the chords, harmonies and doubling of other instruments, fills and solos. Throughout the album there are multiple blends used, they are mainly two synthesizer settings and piano with synthesizer. This can be heard on tracks such as “Fylingdale Flyer”, “Working John, Working Joe”, “Black Sunday” and “Batteries Not Included”.

Caravan: **The Album** - Dave Sinclair plays organ, piano, electric piano, clavinet and synthesizers. On the track “Heartbreaker” Sinclair uses electric piano, synthesizer and piano to play chords and harmonies. On the track “Watcha Gonna Tell Me” Sinclair plays a solo on an electric piano and two solos on a synthesizer, one straight after the electric piano and one at the end. The solo section at the end of the track is a synthesizer and electric guitar taking it turns to improvise. On “Piano Player” the main accompanying instrument is a piano, which is partnered with a synthesizer from the first chorus onwards. The synthesizer doubles, harmonises and sustains the chords which are played on the piano. Sinclair uses a clavinet on “Make Yourself At Home” as the main chord based backing instrument. A synthesizer solo also features on this track. The use of keyboards on this album showcases that it is important in the line-up. The role of the keyboards on this album is to cover the chords, add texture and accompany or lead instrumental sections.

Gentle Giant: **Civilian** - Kerry Minnear uses a Hammond organ, piano, electric piano, clavinet and synthesizers. On the track “Convenience (Clean and Easy)” Minnear uses organ for chords in the low register, a synthesizer is used for adding texture to the chords and instrumentation. Hammond organ is used as the main chord playing instrument on “All Through the Night”, with synthesizer quietly doubling the organ from the first chorus. At the end of the track Minnear plays an accompanying repeated pattern of broken chords producing a percussive attacking sound. This is produced by having the percussion setting switch on and playing most of the notes staccato by playing staccato it accents the

attack of note and organ settings. On “Shadows on the Street” electric piano is used for playing arpeggiated and broken chords, with piano playing block chords, mostly on the chord changes. Organ and synthesizer is also used for the pre-chorus and chorus to heighten and add depth.

Table 14. 1980.

1980	Organ:	Genesis: <i>Duke</i> Caravan: <i>The Album</i> Yes: <i>Drama</i> Gentle Giant: <i>Civilian</i>
	Hammond:	
	B-3	
	C-3	
	L100 model	
	M-102 Spinet	
	VOX:	
	Continental	
	Farfisa:	
	Combo Compact Duo	
	Professional	
	Lowrey:	
	Yamaha GX-1 polyphonic synthesizer organ:	
	Pipe Organ:	
	Portative pipe organ:	
	Mellotron:	
	400-D	
	Piano:	Genesis: <i>Duke</i> Yes: <i>Drama</i> Jethro Tull: <i>A</i> Caravan: <i>The Album</i> Gentle Giant: <i>Civilian</i>
	Honky-Tonk	

	Electric Piano:	Genesis: <i>Duke</i> Yes: <i>Drama</i> Jethro Tull: <i>A</i> Caravan: <i>The Album</i> Gentle Giant: <i>Civilian</i>
	Wurlitzer	-
	Rhodes	-
	Yamaha CP-70 electric grand piano:	-
	RMI Electra-piano:	-
	Clavinet:	Caravan: <i>The Album</i> Gentle Giant: <i>Civilian</i>
	Hohner	-
	Harpsichord:	-
	Baldwin Spinnet	-
	Electric Harpsichord:	-
	RMI Electric Piano and Harpsichord:	-
	RMI 368 Electra- Piano and Harpsichord	-
	Clavichord:	-
	Spinnet:	-
	Celesta:	-
	Synthesizer:	Genesis: <i>Duke</i> Yes: <i>Drama</i> Jethro Tull: <i>A</i> Caravan: <i>The Album</i> Gentle Giant: <i>Civilian</i>
	Bass Pedals	-
	Fairlight CMI Synthesizer:	Yes: <i>Drama</i>
	Oberheim Polyphonic:	Rush: <i>Permanent Waves</i>

	Oberheim Ob-1:	Rush: <i>Permanent Waves</i>
	EMS Sequencer:	-
	Prophet-5:	-
	Yamaha CS-80:	-
	Solina Synthesizer:	-
	Davoli Synthesizer:	-
	EMS VCS 3 Synthesizer:	-
	ARP Synthesizer:	-
	Odyssey	-
	Pro Soloist	-
	String Ensemble V	-
	Birotron synthesizer:	-
	Moog Synthesizer:	-
	Modular	-
	synthesizer III-C	-
	Apollo polyphonic	-
	Lyra monophonic	-
	Taurus bass	Rush: <i>Permanent Waves</i>
	Minimoog Synthesizer:	Rush: <i>Permanent Waves</i>
	Model D	-
	Polymoog Synthesizer:	-

Meta-Analysis of the Findings

The Amount of Keyboard Instruments That Were Used On the Albums Researched:

In this section there is a bar chart and a percentage chart for 1968 to 1970, 1971 to 1973, 1974 to 1976, and 1977 to 1980. These charts show what keyboards were used, the amount of keyboards used, which keyboards were most popular between certain years, the introduction of new keyboard technology being used, and what keyboards were dismissed from being used as a result of new keyboards being released.

The charts below were produced using the data from the tables that were made from the researched albums.

1968 to 1970

The amount of keyboard instruments that were used on the albums researched from 1968 to 1970.

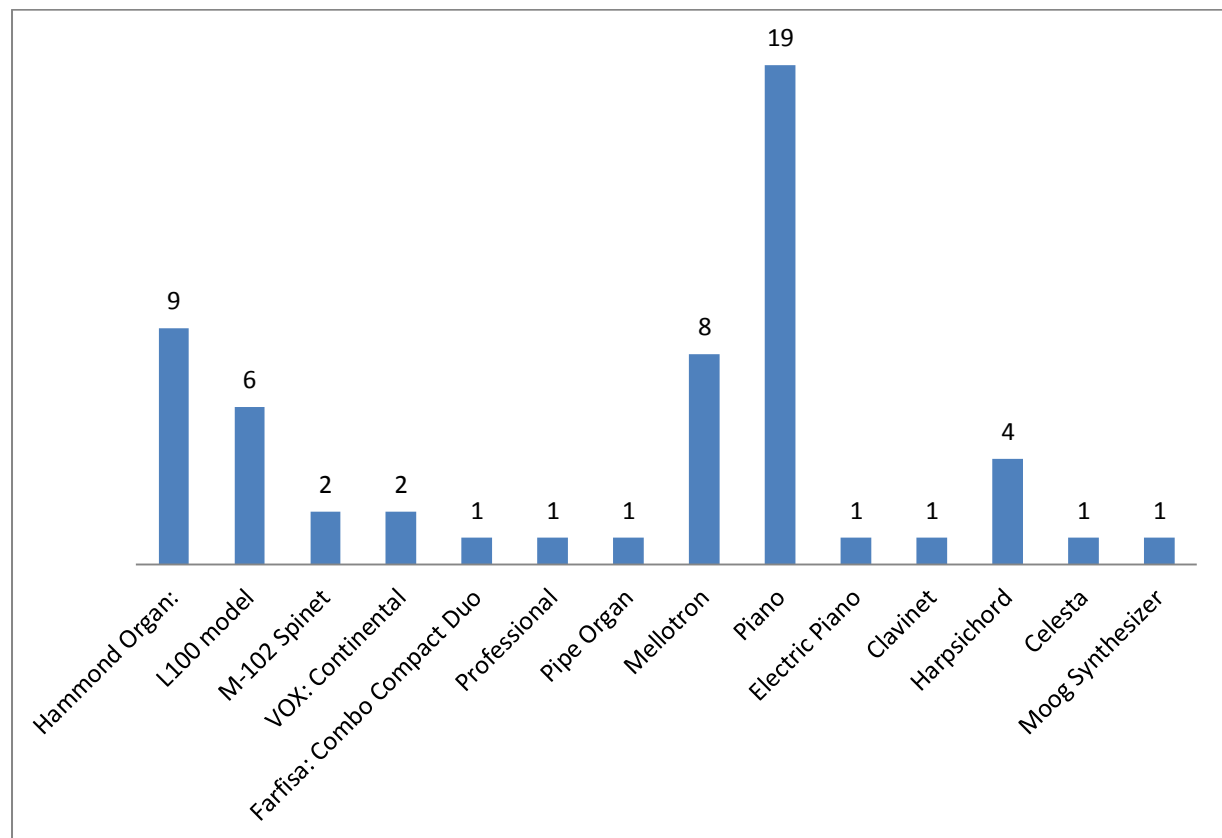


Figure 5. 1968 to 1970 Bar Chart.

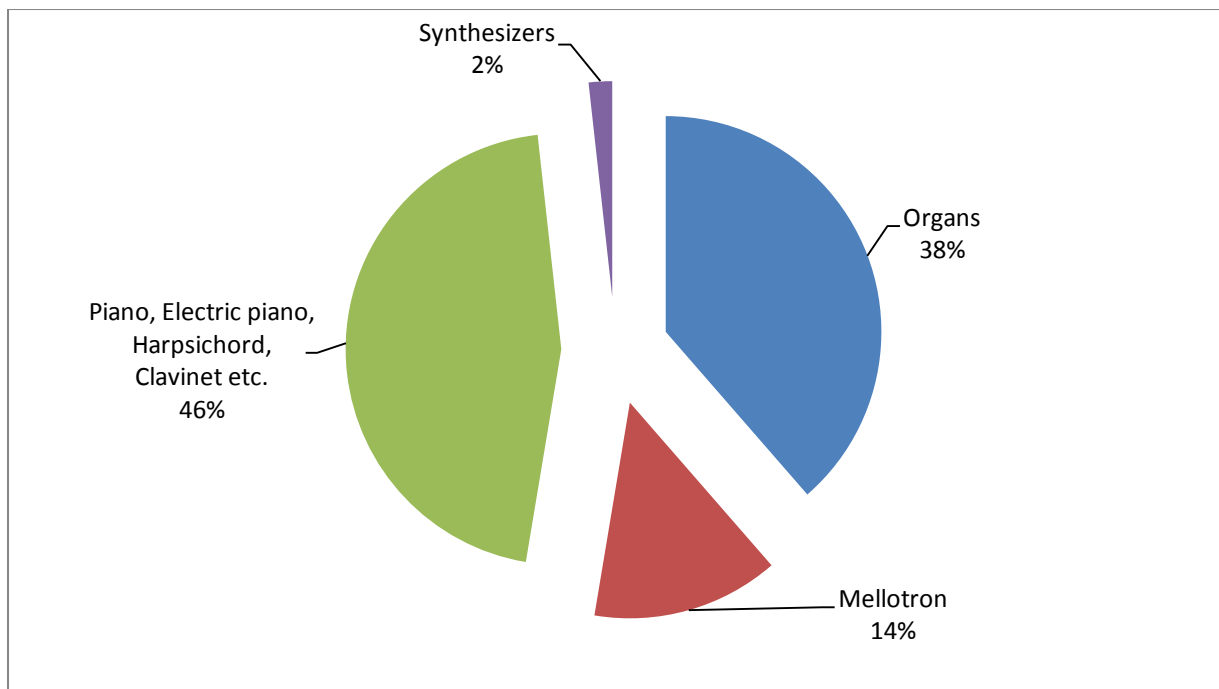


Figure 6. 1968 to 1970 Percentage Chart.

The bar chart shows that there were 22 organs used which were spread over 7 choices of organ. The piano was the most popular choice of keyboard which was used 19 times. Mellotron and Harpsichord were popular, and the Moog synthesizer was only used on one album. The percentage chart shows the usage of piano etc. and organs to be roughly equal, with Mellotron alone making up nearly a quarter of the keyboards used.

These charts show that the choice of keyboards on each album was most likely to include an organ and a piano. The Mellotron was third in popularity of choice, which was used as a substitute for string ensembles. Also, the harpsichord was preferred to an electric piano which shows that older keyboard technology was more popular than newer technology. These charts also highlight the beginning of the use of the synthesizer in progressive rock.

1971 to 1973

The amount of keyboard instruments that were used on the albums researched from 1971 to 1973.

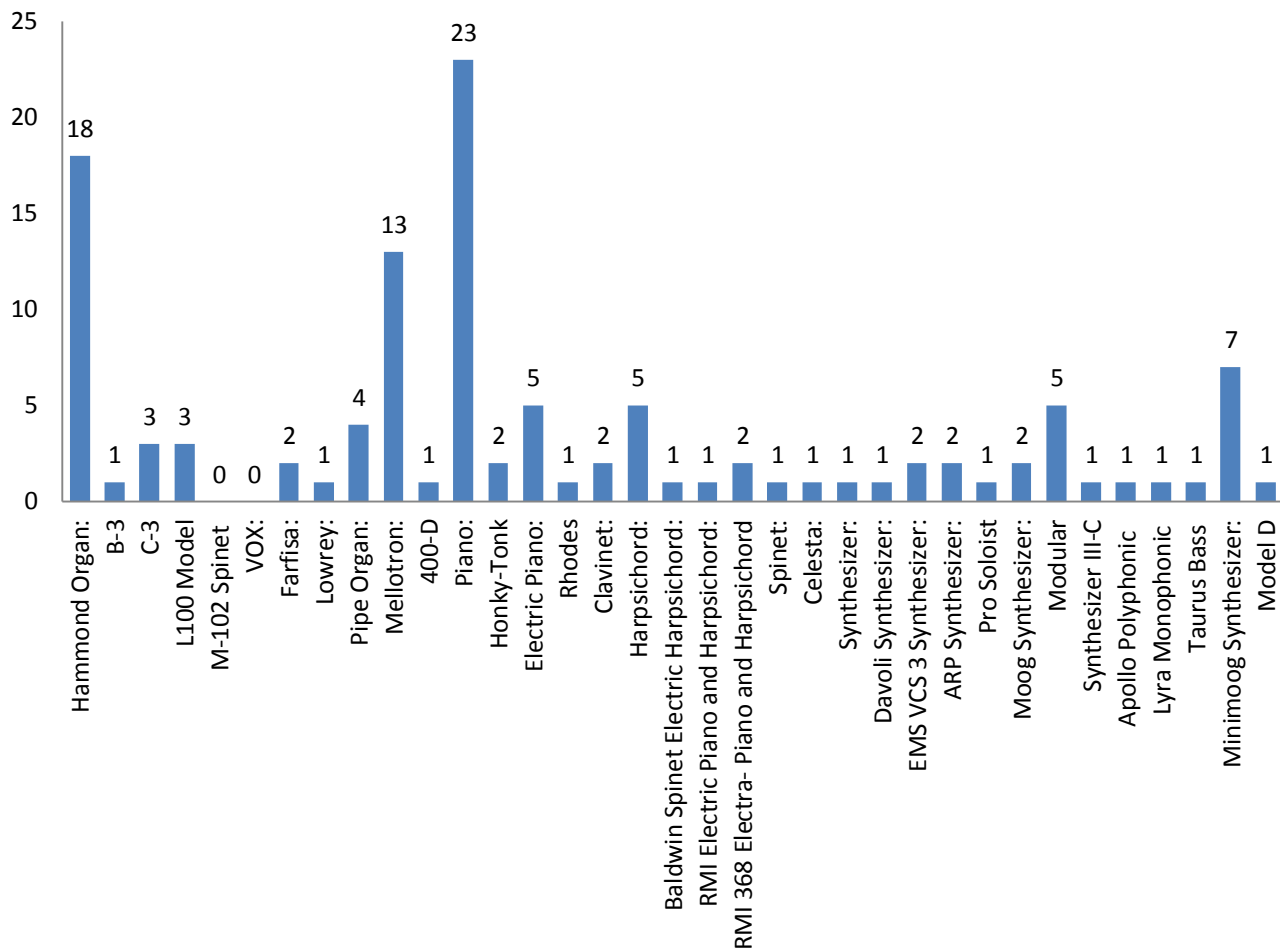


Figure 7. 1971 to 1973 Bar Chart.

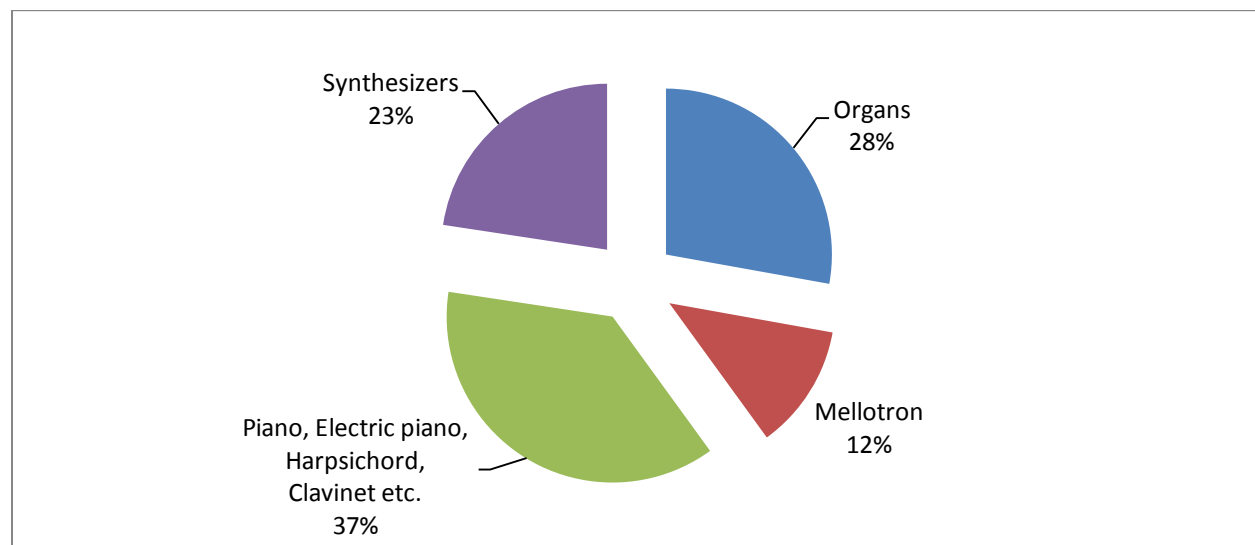


Figure 8. 1971 to 1973 Percentage Chart.

The bar chart shows there was an increase in the range of keyboards used. 1968 to 1970 had 14 choices of keyboards that were used, whereas 1971 to 1973 had 33. However, it shows that the Hammond M-102 and VOX organ were not used. The bar chart so far shows the difference in number of types of keyboards that were used, and the increase or decrease of them.

The percentage chart shows the Mellotron to be as popular as on the previous chart with only the reduction of 1%. The biggest change between 1968 to 1970 and 1971 to 1973 is the usage of synthesizers with a 21% increase. This however does not show the increased usage of both, with piano and etc. starting at 27 increased to 44, and organs starting at 22 increased to 32.

The percentage chart does not show the increase or decrease in number of keyboards being used, as it only shows the ratios of each period.

1974 to 1976

The amount of keyboard instruments that were used on the albums researched from 1974 to 1976.

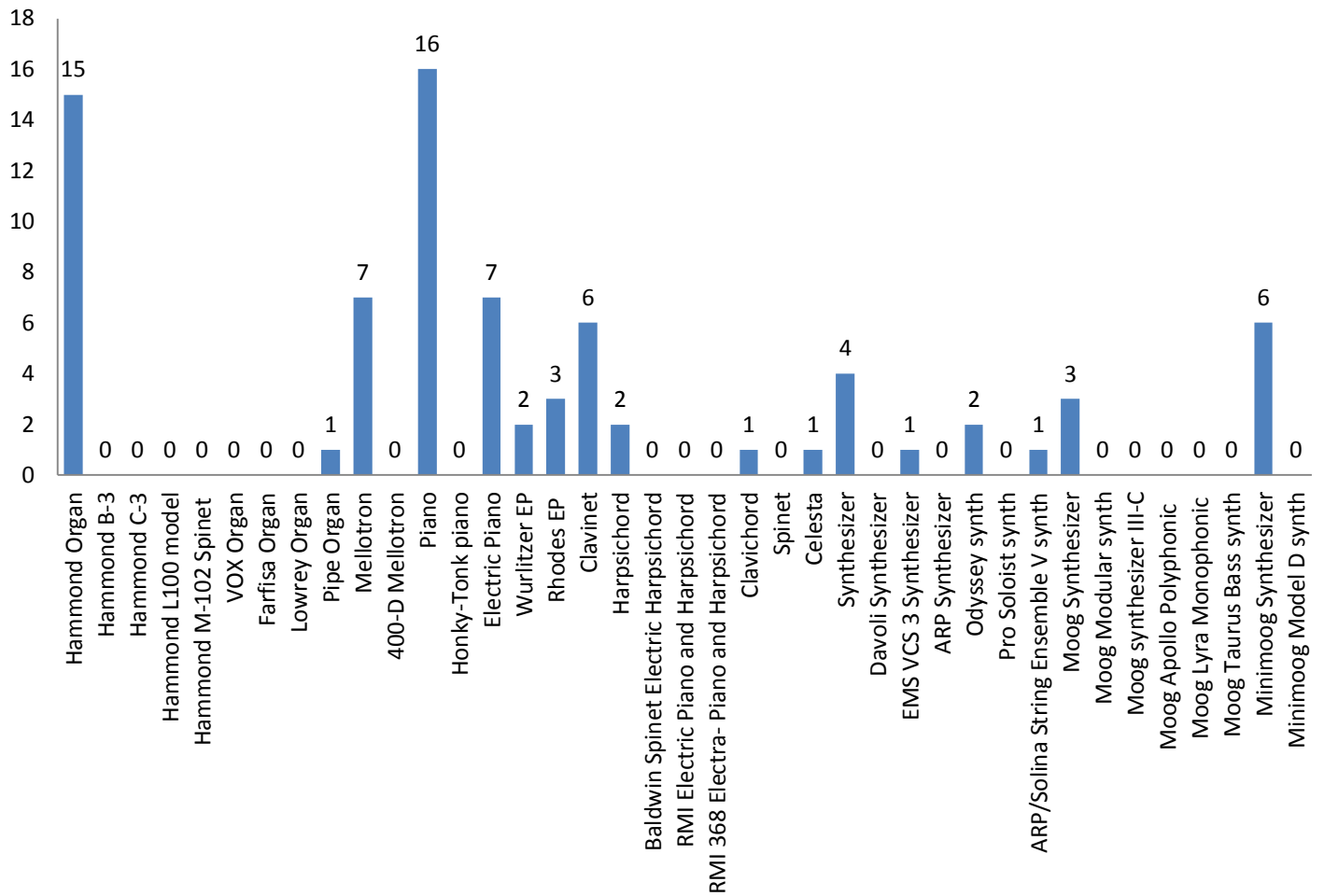


Figure 9. 1974 to 1976 Bar Chart.

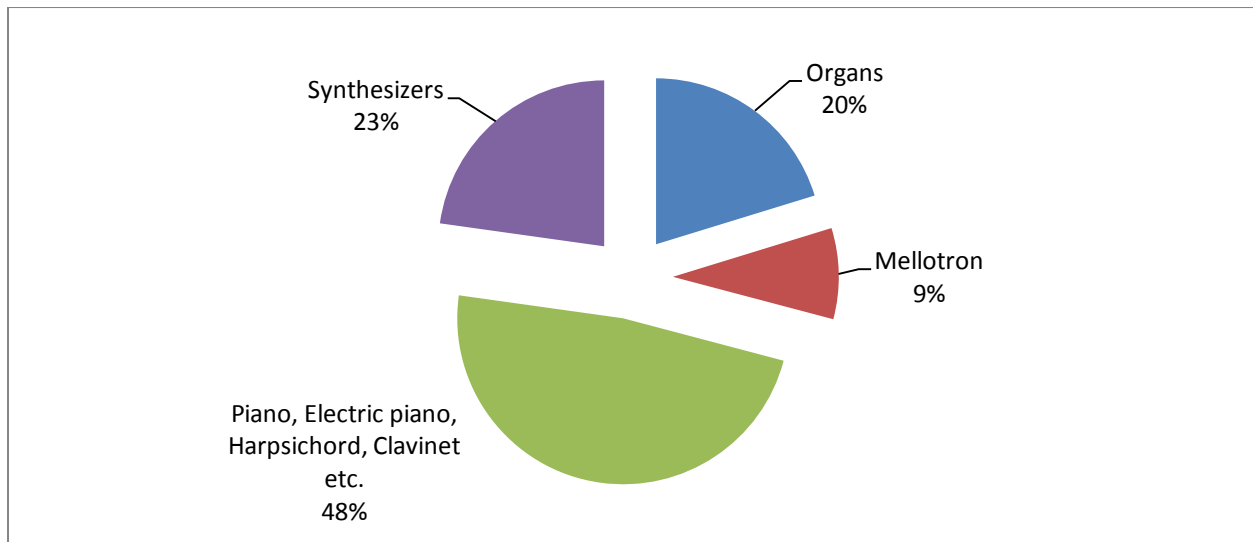


Figure 10. 1974 to 1976 Percentage Chart.

The bar chart shows another increase of choices of keyboards. However many keyboards could not be identified as the research had not been able uncover the exact details, such as the make and model. The most popular keyboard from 1974 to 1976 was piano at 16, with Hammond organ at 15.

The percentage chart shows that synthesizers stayed at 23%, organ decreased by 8%, Mellotron decreased by 3% and Piano and etc. increased by 11%. This shows that piano, electric piano, clavinet etc. were the preferred keyboards on the researched albums of this period.

1977 to 1980

The amount of keyboard instruments that were used on the albums researched from 1977 to 1980.

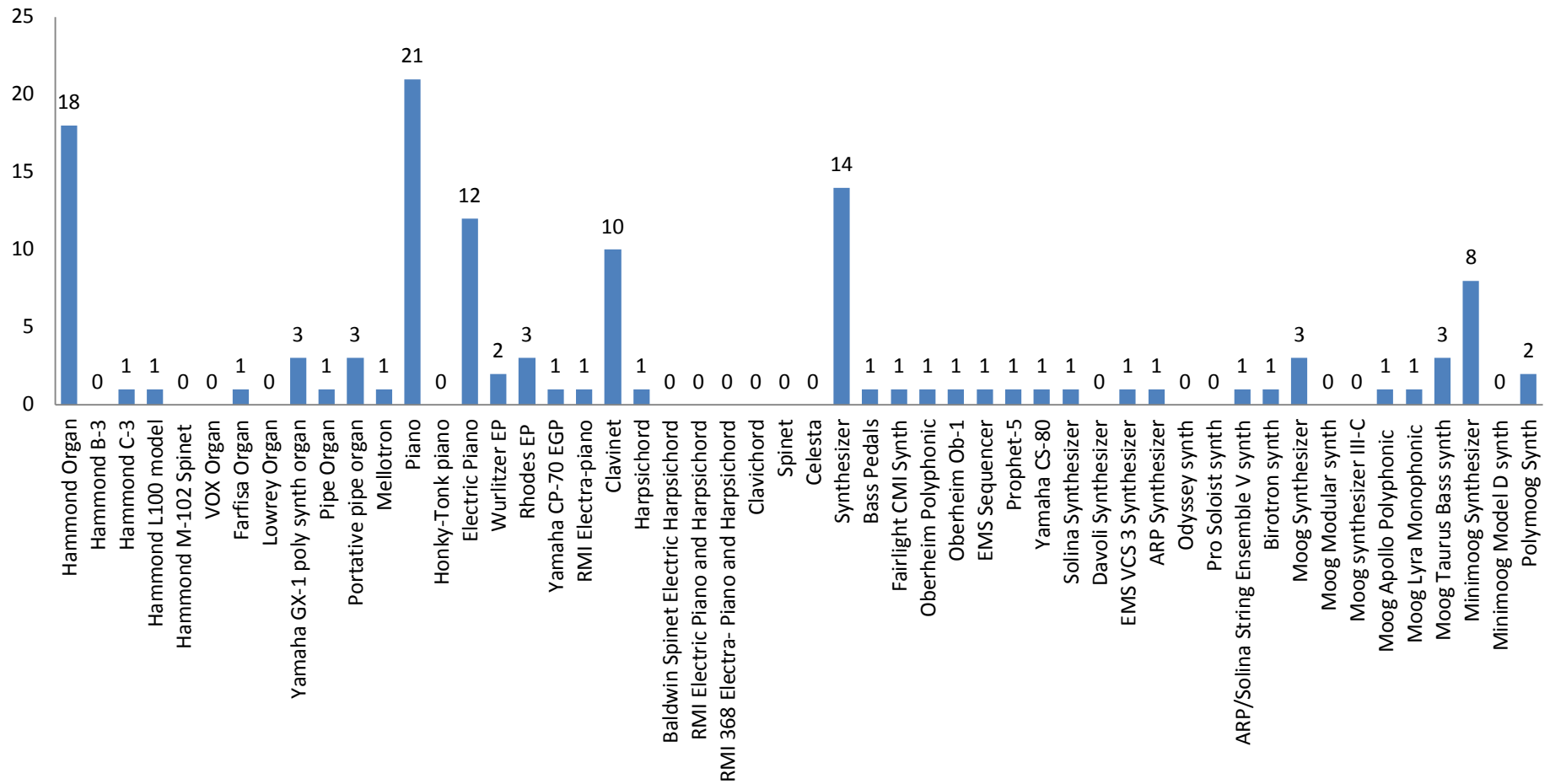


Figure 11. 1977 to 1980 Bar Chart.

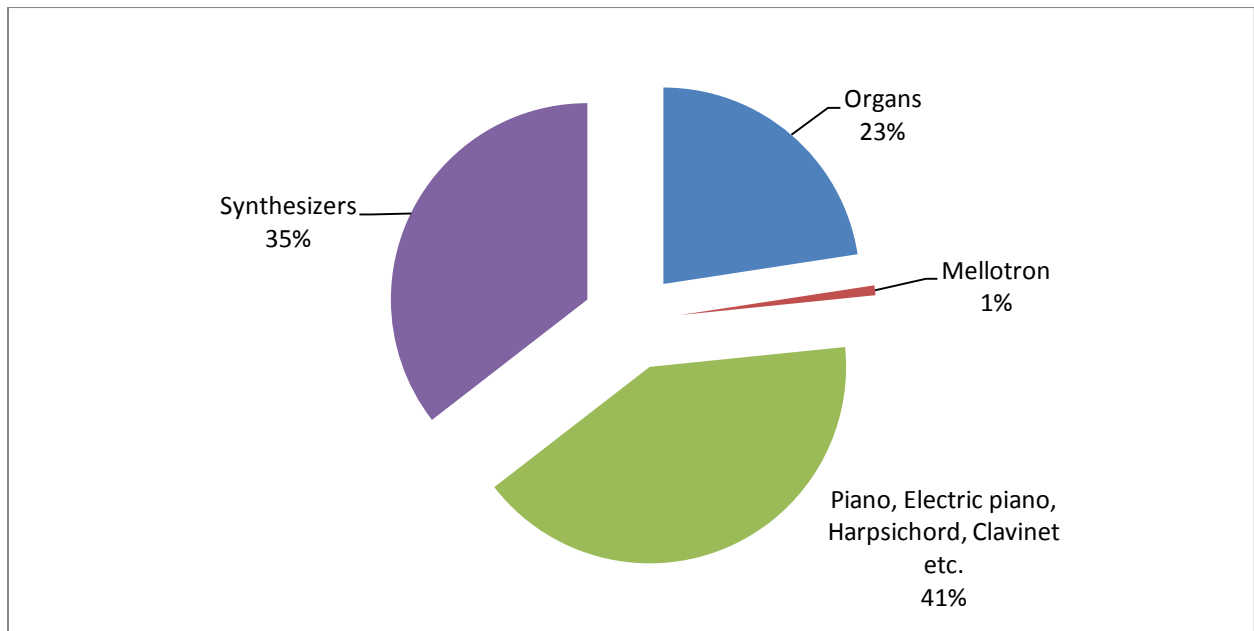


Figure 12. 1977 to 1980 Percentage Chart.

The bar chart shows by 1980 that there was a range of 52 keyboards that had been used since 1968. This shows that there was a 38 keyboard choice increase since 1968 to 1970.

The percentage chart shows that the popularity of certain keyboards had changed again in this period compared to the previous period. The Mellotron decreased from 9% to 1%, synthesizers increased from 23% to 35%, organs increased by 3% and piano, electric piano and etc. decreased by 7%.

5. Discussion

During the period from 1968 to 1970 keyboard instruments were limited in variety, and the majority of bands tended to use the same keyboards. The main keyboard instruments that were used were organ, Mellotron and piano.

The most popular organs used were made by Hammond, predominantly the L and M 100 series variants. This was because they were more compact and lighter than the B-3 and C-3, yet were able to produce a similar sound. The VOX Continental, Farfisa Compact Duo and Farfisa Professional were used by musicians who wanted a different sound to a Hammond, or in cases where a Hammond was not available. By 1974 to 1976 only the Hammond organ was used out of the electronic organ choices; clearly demonstrating that Hammond organs were the ones most preferred by keyboardists.

The Mellotron was first produced five years prior to 1968. It had been tried and tested by bands before its use in progressive rock, for example on The Beatles' 1967 single 'Strawberry Fields Forever'. The Mellotron is "a rudimentary sampler holding tape loops of strings, flutes or voices, which had the effect of giving a track a 'symphonic' underpinning" (Borthwick, & Moy, 2004, p.65). It was the only instrument that was able to produce sounds like those of acoustic instruments, such as strings, prior to the release of MIDI keyboards in the 1980s.

The Moog modular synthesizer was only used once during the 1968 to 1970 period, that being on the self-titled debut album by Emerson, Lake and Palmer. The Moog synthesizer was used because of the sounds that it can produce, and the popularity it received from the release of Walter Carlos' album *Switched-On Bach*⁸ in 1968, which was the synthesizer's recording debut.

A notable technological advance which occurred at the end of this early period was the release of the Minimoog in 1970. The Minimoog is smaller than the Moog modular synthesizer and can be easily carried and transported, which is of huge benefit for touring bands. Another advantage of the Minimoog is that it does not need patching, due to its design which allowed for all the wiring to be encased behind the control panel. From 1971 the Minimoog became highly popular, and this began a movement to incorporate new synthesizers within progressive rock. This movement also started the decline in popularity of the Mellotron in the periods that followed.

Synthesizers such as the Minimoog helped change the role of the keyboardist from being part of the backing section to a main soloing role. "An amplified Moog could easily compete with drums and electric guitars, thus spotlighting for the first time rock keyboard players like Keith Emerson (of Emerson, Lake and Palmer), Rich Wakeman (of Yes), Richard Wright (of Pink Floyd) and Tony Banks (of Genesis), among many others" (Pejrolo, & Metcalfe, 2017;2016, p.13). This meant that the synthesizer "became central to most major prog acts, often as the lead instrument of choice" (Borthwick, & Moy, 2004, p.65).

⁸ Walter (later known as Wendy) Carlos' album *Switched-On Bach* was the debut of the Moog Synthesizer in terms of recording and release on an album. The album comprised of Bach's 'Sinfonia to Cantata No.29', 'Air on a G String', 'Two-Part Invention in F Major', 'Two-Part Invention in B-Flat Major', 'Two-Part Invention in D Minor', 'Jesu, Joy of Man's Desiring', 'Prelude and Fugue No. 7 in E-Flat Major', 'Prelude and Fugue No. 2 in C Minor', 'Chorale Prelude 'Wachet Auf', and the first, second and third movements of 'Brandenburg Concerto No. 3 in G Major'.

The popularity of the synthesizer in the 1971 to 1973 period clearly shows that there was an increase in new models and usage. By 1971 to 1973 there had been an increase of up to twelve synthesizers that had been used, including ARP, Pro Soloist and Apollo polyphonic synthesizers. During this particular period the Moog synthesizer was regarded as something used to augment music rather than something that could be used to create and improve music. However, by the mid-1970s the view of how the synthesizer could affect music had changed, as “entire rock albums were being composed and performed on the Moog” (Doggett, 2015, p.507).

There came a point when keyboardists found synthesizers tedious due to the time required to change the settings, as this was not quick and easy in comparison to changing the settings on an organ. This made changes to settings on synthesizers “virtually impossible to execute in live performance contexts” (Théberge, 1997, p.56), and eventually led to the development and usage of synthesizers having pre-programmed settings which could be recalled at the click of a button.

During 1977 to 1980 there was another increase in the range of keyboards that were used, especially synthesizers. By this period the synthesizers that were released were polyphonic, such as the Yamaha GX-1 and the Polymoog. The Yamaha GX-1 polyphonic synthesizer was released in 1977, and was most notably used by Keith Emerson who used one on the albums *Works Volume 1* (1977), *Works Volume 2* (1977) and *Love Beach* (1978). This shows that new technology was being incorporated all the time. The Polymoog which was released in 1977, is “capable of sounding all of its seventy- one keys simultaneously, each with a dedicated filter and envelope” (Pejrolo, A., & Metcalfe, S. B. (2017;2016; p.17). This meant that the Polymoog was another keyboard that widened the synthesizer’s “palette from single notes to chords” (Doggett, 2015, p.507).

The meta-analysis charts show that the electric organ and piano were popular throughout the periods, and unlike other keyboards they were in constant use. The charts record the decline in use of Farfisa organs, VOX organs and harpsichord showing that their use was merely a phase. The charts also show the decline of the Mellotron, from making up 13% of the keyboards in 1968 to 1970, in 1971 to 1973 it was 12%, 1974 to 1976 it was 9%, and in 1977 to 1980 it had decreased considerably to make up only 1%. Synthesizers increased in popularity and usage according to the analysis of the four periods. The 1968 to 1970 period shows that only 1 synthesizer had been used, making up only 2% of the keyboards. 1971 to 1973 was 26 making up 23%, 1974 to 1976 was 18 making up 23% and 1977 to 1980 was 44 making up 35%. These results show that there was a huge increase in use between 1974 to 1976 and 1977 to 1980 correlating with the decline of the Mellotron. From these findings it can be argued that the decreased popularity of the Mellotron was the result of the availability of polyphonic synthesizers, as they too were able to produce string and choir-like sounds.

The keyboarded instrument that was used continuously throughout this period was the pipe organ. From 1968 to 1970 the pipe organ was used only once, 1971 to 1973 saw an increase to 4 times, but then it declined in use, only appearing once during 1974 to 1976 and once during 1977 to 1980. However, 1977 to 1980 saw the use of a portative pipe organ 3 times as it appeared on the Jethro Tull albums *Songs from the Wood* (1977), *Heavy Horses* (1978) and *Stormwatch* (1979).

The majority of the albums that were researched show that the keyboard had a supportive role, accompanying a lead instrument or vocals. The keyboard, such as the electric organ and piano, was part of many bands’ rhythm section. On some tracks layers of keyboards were used to create texture, depth and inversions, but they all still had a backing role. On most of the albums in which the keyboard has an accompanying role, there are sections where one or more keyboards are used for instrumental parts and solos. However, keyboards did not just have a supportive role. The likes of Keith Emerson, Rick Wakeman, Focus, Egg, and numerous other bands used keyboards for leading and soloing roles. For the

majority of the tracks by The Nice, Egg and Emerson, Lake and Palmer, a keyboard (mainly Hammond organ) was the leading instrument.

The keyboard also has a supportive role in composition. Brian Eno suggests “The tendency for synthesizer players to layer sounds is not simply a matter of searching for a “fat” sound but, rather, has been a fundamental part of a technique and aesthetic of pop music production since the 1960s” (Théberge, 1997, p.216). This approach to composition was used by the likes of Keith Emerson, Rick Wakeman and also the likes of Kraftwerk⁹ who are progressive in their own right, but come under the music genres of electronic music and Krautrock.

Apart from primarily having a supportive role, the role of the keyboardist did develop. From 1968 keyboardists were only using two or three of keyboards and were mostly part of the rhythm section, but by the mid to late 1970s keyboardists were using up to ten keyboards. This gave the keyboardist a range of sounds and timbres to work with, allowing them to be more influential in the music, such as playing solo instrumental tracks, improvising solos, main backing parts and melodies. In general the role of the keyboard did progress but only as far as the music allowed it to, as in most cases, the inclusion of a vocalist and lead guitar restricted the keyboard’s role in the music.

The literature that I have read for this research was mostly made up of history, social studies and generalisations of the genre. There are those like Théberge (1997), Sheinbaum (2008) and Doggett (2015) who write about keyboard technology. Cunningham, Eno and Parsons (1998) and Holm-Hudson (2002) identify Rick Wakeman’s usage of the pipe organ, settings and analysis of some of the music. Whilst Macan (1997), Lucky (2000), Covach (2000), Palmer (2001), Winterson (2003), Borthwick and Moy (2004) and Brackett (2005) look at the background of keyboardists such as Emerson and Wakeman, technological innovations, keyboard choice and examples of what the keyboard played. None of these however covered the keyboard alone, looking at its role and development. This research covers those areas, and includes bands and albums which have not been written about academically.

⁹ Kraftwerk is a German Krautrock group which was formed by Ralf Hütter and Florian Schneider. Their use of instrumentation was different to most popular bands as for the majority of their albums (apart from natural vocals) they only used “pre-programmed tapes, synthesizers, oscillators, sequencers, and drum machines with occasional computer-produced vocals” (Charlton, 1997, p.174).

6. Conclusion

New keyboard releases were acknowledged by bands and were used on albums soon after they were released. This meant that keyboardists were in a position to experiment and produce new sounds. For instance Keith Emerson used “Yamaha’s mammoth \$50,000 polyphonic synthesizer, the GX-1” (Brackett, 2005, p.284) soon after its release on Emerson, Lake & Palmer’s *Works Volume 1* (1977). Keyboardists who wished to use the latest keyboards may have wanted to be ahead of others in using a particular new release whilst also trying to make or improve their own sound.

Another possibility for using newly released keyboards could be to showcase the keyboardist’s virtuosity. By using a newer keyboard that had fewer limitations, such as a paraphonic or polyphonic synthesizer rather than a monophonic synthesizer, meant that more notes could be played at the same time. So it is reasonable to argue that keyboardists may not have been able to achieve what they did musically were it not for the development and release of new keyboards.

The musicianship of keyboardists such as Keith Emerson and Rick Wakeman is well documented, for instance Moore (2001) identifies that Emerson and Wakeman had undergone extensive instrumental training. Lucky (2000) and Winterson (2003) also highlight that the virtuosity of Keith Emerson and Rick Wakeman shows off their technique as instrumentalists. However, such keyboardists must have benefited from the increase in the duration of tracks as it gave them the opportunity to showcase their musicianship. If tracks lasted for only three minutes instead of five or more (Lucky, 2000), would such keyboardists have been able to showcase their playing and virtuosity as they did?

Progressive rock was seen as self-indulgent art music as bands were aiming to create a genre that was a higher form of rock. Bands such as Yes used long studio sessions and new recording techniques to achieve their musical aims. For instance Cunningham, Eno and Parsons (1998) highlighted how the pipe organ was recorded in the stereo for the track ‘Parallels’ by using telephone cables from a nearby church. However, the middle-class backgrounds and traditional music training of the majority of progressive rock keyboardists may explain the choices that were made regarding the use of keyboards such as a pipe organ. The pipe organ is the oldest type of keyboard instrument that was used during the 1968 to 1980 period. For instance, one was used by Keith Emerson on tracks such as ‘The Only Way (Hymn)’, and his inclusion of sections from J.S. Bach’s works demonstrates that progressive rock musicians had self-indulgent musical ideas deriving from their backgrounds and musical education.

The releases of keyboards during the 1968 to 1980 period allowed for keyboardists to acquire and use more keyboards. At the start of this period progressive rock keyboardists used similar keyboard setups, ranging from electronic organ, piano, Mellotron, Moog modular synthesizer, and electric piano. The meta-analysis shows that there was a 38 keyboard choice increase between 1968 to 1970 and 1977 to 1980. This availability of new keyboards must have inevitably enabled keyboardists to design or develop their own personal setup and sound.

This study has shown the increase and decrease in popularity of different types of keyboard instruments used in progressive rock during the period from 1968 to 1980. This was a result of new keyboard technology being released and their increase in popularity. This also resulted in a decrease in the popularity of other keyboards as sonic, musical and playability preferences changed.

The result of this investigation shows that the role of the keyboard developed along with the release of newer keyboard technology. The keyboard’s role is defined by how the keyboardists used them and how they were included in the band and music. The development and release of new

keyboards allowed for more of them to be included in albums, resulting in instruments such as the Minimoog being given lead roles in the music.

The findings are relevant for academia and practitioners as it illustrates the use of keyboards in progressive rock albums from 1968 to 1980, and it could serve as a basis for future studies because it covers an area of progressive rock which has not been researched extensively. This thesis is also relevant to historical research because it highlights changes in equipment and personnel within “The Musicians and Their Use of Keyboard Technology” timeline.

The study is limited by a lack of information on the keyboard instruments and equipment used on some albums, meaning that some keyboards had to be placed under the general keyboard term for the tables and charts, such as “organ”, “electric piano” or “synthesizer”. This is due to the keyboards being identified by listening only, as books and credible online sources lack information on the names and makes of keyboards that were used. However, the make of organs were easy to identify, for example the sound of a Hammond organ is very distinctive. Furthermore, many albums only noted “keyboards” after the name of the player.

Future research into these areas could include interviews with keyboardists, band members, studio engineers, touring management and staff to determine the exact type of keyboards that were used.

There is scope for more work to establish how keyboardists played their instruments, what settings they used to create their sounds, and how those sounds could be recreated today using modern keyboards and software. A further study could also assess passages, solos and parts that keyboardists played. It would be interesting to assess and compare the relevance of this thesis with future research in this area.

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Interview

Interview with Thijs van Leer

Member of the Dutch band Focus, Keyboardist, Flautist, Vocalist and Composer.

The interview was conducted and recorded backstage of the Picturedrome in Holmfirth, West Yorkshire on the 25th November 2018.

Martin Quinn: **MQ** Thijs van Leer: **TvL**

MQ: What was your main keyboard setup during 1970 to 1978?

TvL: Hammond L100, two manuals, and connected to... First it was two Leslie's, both L122. And why two? I liked that as an idea of symmetry, because you only need one when you mic a Leslie you only need one Leslie to mic. And when we were in America, I think it was 73/74, we used 48 Leslie's, 24 for the guitarist, and 24 for me but that was... just have a nice decorum, nice stage, and it was more a visual thing than a musical thing.

MQ: So were you using electric pianos?

TvL: I've been using electric piano later, I think after 75, so at 76 we played an English tour with Philip Catherine as a guitar player. Then I played a Fender Rhodes with Wah-wah, copied from Mr Joe Zawinul of Weather Report, I was very much under his influence and I even forgot to take the Hammond on tour which I still regret.

MQ: And that will be the L100?

TvL: That was still the L100, and only in 97 I bought a B3, and that's the one that I'm touring with now still, but now it's in repair, so I have my second organ, my... how you call that?

MQ: The XK series...

TvL: Yep, that's the one I'm playing tonight.

MQ: What is the role, or the roles of the keyboards on the studio albums from 1970 to 1978?

TvL: I think it's more an accompanying instrument, a supportive instrument than a solo one. Nevertheless, I play some long maybe too long solos here and there, but the main soloist has been the guitar, all of the time that we exist which is nearly 50 years now. And I love also to accompany, it's a profession on its own, apart, to be able to accompany and to really make... let's say... a beautiful, some beauty in the accompaniment. I really consider that a great honour to do that. I also write songs in which that can be worked out very well... Can be, not everywhere that it happens, but it is idealistically yes, most of the songs are apt for that kind of approach.

MQ: Would you say the organ is like a gel between the bass, drums to the guitar when it's playing a solo?

TvL: Yeah, it's actually does give the band its typical sound, but it comes out of a period that every band was a quartet, and very often with a solo singer or girl singer. But the quartet was always a guitar, a bass

guitar, drums and a Hammond organ in that period in the 70s. So, the only difference was all those bands was that we nearly did not sing, we are an instrumental band, but for the rest it was not at all different from other bands, there were thousands of bands with that quartet setup.

MQ: So the organ on *Focus plays Focus* would have been an L100?

MQ: Yep.

TvL: And also on *Moving Waves*, and also on *Focus 3* the double album, and on *Hamburger Concerto* has always been that organ.

MQ: What about *Mother Focus*?

TvL: No, I had another organ because we recorded that in Hollywood in USA, and I played a normal B3, old fashioned...

MQ: So that was your first album with a B3 recorded?

TvL: I would say so, yeah.

MQ: What synthesizers did you use on the track 'Love Remembered' from *Focus III*?

TvL: Moog. Yeah Moog synthesizer, big one. We rented that. And in other situations I played Roland, I played Yamaha, I played Korg, many many others... Not to forget Oberheim which I liked very much, very first vocoder that I used was connected to a Oberheim OBX, and that was a beautiful vocoder, even more beautiful than the one that I use now of Roland, tonight I mean. So, and then the electric piano as I told you, together with the wah-wah peddle, and that was a copy from Joe Zawinul, Weather Report, because I thought Joe Zawinul was very important for me.

MQ: So on *Hamburger Concerto*, would that be the Moog synthesizer again?

TvL: I think so... Moog, yeah.

MQ: My other question was during this period what other synthesizers did you use? But you've highlighted them.

TvL: Yeah, I didn't own many synthesizers, I've always owned some electric piano at home to study with, headphones you know, to not wake up the little children we had, but are grownups now. So I always had some electric keyboard in the house, but I'm not a fan that much of electric keyboards because when I compose, I compose most of the things on my grand piano. In the time that I was composing most of the songs for *Focus* I even had two grand pianos at home. I could never touch two, because I'm too small to touch two pianos. I had friends at home that played piano and we could make music for two pianos. But then I moved to a smaller house so I had to sell my Steinway grand piano, and I still have a Bechstein, more than a hundred years old, very beautiful. As a composer I used, most of the time, piano. And no synthesizers, no sequencers, just old fashioned piano.

MQ: On the album *Mother Focus* What was your keyboard setup? And why the use of Clavs (Clavinet)?

TvL: I don't know...

MQ: fashion?

TvL: There was a studio full of that hip shit, so I wanted to touch everything there. But I don't remember the names and brands of it I'm very sorry.

MQ: On *Mother Focus* I notice that the string sound wasn't a Mellotron, was it a Solina String Ensemble?

TvL: No it was a real Mellotron, which is always out of tune and always out of order, and always shit. But it sounds great.

MQ: So you never changed from Mellotron to Solina?

TvL: No

MQ: Again with *Mother Focus* would you say it is different from the other albums you did?

TvL: Yeah the big difference was that it was the first album that we did in the United States. And the guitarist and me kept are best compositions for our solo ends, so there was a third gentlemen that was Bert Ruiter our bass player, and he got the opportunity to be the main composer for that album. So, suddenly it was a big difference in atmosphere because his compositions were breathing another kind of atmosphere.

MQ: So *Focus Con Proby* that would be Mellotron?

TvL: Con Proby? I don't remember any Mellotron on. No, it was Hammond organ, piano... I have used a lot of piano on all the albums to just double the Hammond part, so that something of course that I never play live with Focus, but the sound is very often is Hammond and piano doing the same thing. So that's an overdub.

MQ: You did that also because of the sound of them together? Or was it because of the attack of the piano and being acoustic...

TvL: Yeah, the piano to me has more of a percussive sound, and also very recognisable 'Pop', 'Poppy' sound. And too much only organ to me is sometimes a bit too religious, to not use a good word... It needs for some... Also for slow pieces it needs some piano... It makes it a little more down to earth. And I like the combination between Hammond organ and piano.

MQ: On *Hamburger Concerto* you used a pipe organ, is there any particular reason why you used a pipe organ?

TvL: The engineer said "we have a nice organ in my church", two streets further in London we recorded it from the church in that little place which is a suburb of London... Olympic studios... in Barnes... the church of Barnes.

MQ: Where you more than happy to use it because of influences from classical or baroque music?

TvL: No, because I didn't have the intention to do that, it was just the engineer said yeah we can play some... we can use the church and if you want we gonna record there, so we did an overdub there. And

it sounded like it sounds, but I didn't have too many great expectations, I didn't have that. It worked out very well, so we kept that recording, but I don't have too much... heavy stories about that.

MQ: Was your choice of keyboards the result of fashion, or for their sonic qualities and for the sound that is produced from blending two or three together?

TvL: Yeah, the Hammond organ that I bought, I bought before Focus was founded. And the name of the band was Trio Thijs van Leer to my name. And then I bought a Hammond organ L100 with two Leslie boxes from the money that I inherited from an uncle of my mother, English man, and he gave me 12,000 guilders, which was then about 6000 pounds I think. And I immediately changed that into organ and two Leslies; because I loved Hammond organ and I loved a lot of jazz players, Jimmy Smith, McDuff, and many many other swinging organ players, and I tried to copy that style of course.

MQ: How would you define your role in the band? And has it changed at all since 1970?

TvL: No, I am one of the composers in the band, which has been always and which still is, and I am an accompanying member of the group, now and then I have a solo, and of course the solo in 'House of the King' is the flute so then I am the soloist suddenly. And with 'Hocus Pocus' I am the yodeller, so then suddenly the roles are a little different from the other tunes, because on most of the tunes the guitar player is the leader, which I love, because I love that sound and I love the way he plays... Menno is a great player... more than great, so the interpretations he gives are really unique and unheard let's say.

MQ: Do you have a certain way or process for writing and arrangement?

TvL: The process is very slow; most of the tunes that I write take months, except for 'Hocus Pocus' that was created in two and a half minutes during a rehearsal. Guitarist played (hums the riff)... I thought that was great, do it again... and then he did (hums the ascending second riff) Stop! And the drummer did... (vocalises the drum fill) And I started yodelling for the first time in my life. I never did that before, and then we thought hey maybe this would be nice to record this, so we went into the studio and the guy that did the production, he said I think this is a very strong number let's make a single out of that. How shall we call it? And then I said why don't we have some name that rhymes on Focus, yodocus, crocus, locus, hocus pocus yeah! That was the name, so it has nothing to do with magic and all that shit, it's just because it rhymes on Focus. And that was our big break for the world.

MQ: What are your main musical influences? And have they affected your work?

TvL: My first influence was my father, who played fantastic flute and he taught me how to play the instrument. And what was he playing every day in my youth life that was Johann Sebastian Bach. So as a composer I would say Bach is the most perfect example for me and also influence. And when I play Bach myself and also when I listen to it, it makes me happy. And when music makes you happy that's the highest thing you can expect, so to me Bach is the highest of all composers, and number two is Bartok, Bela Bartok... And we even do a little citation of Bartok in our piece called 'Eruption', and we play a part of his second movement of the concerto for orchestra. It's like a very beautiful, very slow piece in between all the blablalala (crazy stuff), I inserted it in that composition, and then we had Peter Bartok the son of the father Bela, and he said no we could not record that. So then we had to find another beginning theme for that piece, which I wrote also. But on the record *Live at the Rainbow* we actually played that again without asking Peter Bartok's permission, that was furtively done. So Bach, Bartok... and in jazz you could say I stuck with Oscar Peterson, I was a real fan. And then later Miles Davis, John

Coltrane, Herbie Hancock, Weather Report... that's about it. And in Rock'n'Roll I wouldn't know, Zappa maybe, and Beach Boys, but not the 'Beach' Boys but the Beach Boys, they have another side, they have a more contemplative side, more philosophic... So the philosophic music of the Beach Boys, and that's it. Oh and some folk music, Spanish flamenco and many other things to.

MQ: Would you say that Baroque has been a big influence on progressive rock?

TvL: No. Yeah there's some people like (whistles Bach's Bourée)... that's Jethro Tull, that's a rip-off from Bach, it is Bach. So he uses a theme by an old composer that's dead for years already. (Sings the beginning of the organ part of 'A Whiter Shade of Pale')... Bach! Procol Harum, one of the most beautiful pop songs ever written, it's not written it's stolen from Bach, beautifully stolen by the way. And so there are a few more you know, but I don't think Bach is a big influence on Rock'n'Roll, unfortunately not, because it would have been so much richer when it was, and it would have been, but it isn't.

MQ: What is your keyboard setup now?

TvL: The wrong Hammond on a terrible stand that doesn't belong to each other, but I'm fine and I'm so happy with this group you know, with Udo Pannekeet in the group as a bass player, and Menno Gootjes as a guitar player, and Pierre van der Linden on the drums, and Geert Scheijgrond who is our sound manager and he loves it. We have Mr Castro, he does our merchandise, so we have kind of a team, and that makes me so happy, so I can't complain. I never expected Focus being so big as it is now again for instance in England. You know it didn't go well the last five or six years, it went like... (up and down hand gesture) And now suddenly it goes up again, we play nearly everywhere full sold out houses, which is fantastic! Really.