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THE HISTORY OF COIN-OPERATED PHONOGRAPHS

1888 - 1998

An Illustrated Jukebox Documentary

by

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An

Illustrated Documentary

On

Coin-Op Phonographs

Contents

Introduction

Now in the beginning of the 21st Century the automatic music machines for public entertainment have been around for more than a century, and the first steps to make the modern electrically amplified multi-selection phonographs possible were taken in the late 1880s in London, England, by Charles Adams-Randall (1888) and especially in San Francisco, California, by Louis T. Glass and William S. Arnold (1889/90). The coin-op automatic phonographs, known today as jukeboxes, have over the years turned out to be among the most hard to kill cultural phenomena. Of course there have been good as well as bad times for the individuals and companies involved in the production of automatic phonographs, but so far the jukebox as such has survived both as a cultural and as a commercial phenomenon in most parts of the modern world. In some of the chapters and sections in this publication there will be special emphasis on the 'big four' manufacturers of the post-1920s era of the jukebox in America, because they did have such a big influence on the whole western world's jukebox industry and history. The main European and also Australian jukebox history is well described in several books and collector's magazines, and thus known to most historians and collectors. The origin of the terms 'juke-box' and 'juke-joint', plus special themes of importance to the whole historic understanding of the field, will be discussed in separate sections of this publication.

The very early European and American history of the phonograph is still not made quite clear, as new information concerning the pioneers Léon Scott de Martinville, Charles Cros, Thomas Alva Edison, William B. Hollingshead, and especially Frank Lambert and John Matthias Augustus Stroh, has been found over the last two decades by historians and collectors. However, the foremost, important name connected to the cylinder phonographs, the tinfoil machines, was of course Thomas Alva Edison, who applied for a patent for the "Phonograph or Speaking Machine" on the 19th February, 1877. That one particular invention by Thomas A. Edison became the basis of the first American automatic music machines with coin slots called 'nickel-in-the-slot machines'. The concept of inserting a coin in order to listen to music from an automatic or semi-automatic cylinder or disc playing machine forms the actual basis of the term 'jukebox', as we know it today.

Another invention of the same era, the late 1880s, also became quite important for the development of reliable coin-op music machines for public use. The invention in question was of course the flat disc-record, as we know it, invented by Emile Berliner and filed for patent on the 17th March, 1888. Both cylinder and disc playing mechanisms were soon fitted with patented coin slot attachments in America, and the story about coin-op phonographs could begin.

Chapter I

The ‘Pay to Play’ concept is born

1888-1890

The birthday of the jukebox is officially accepted today as the 23rd November, 1889, the day of the first public demonstration of a coin-operated phonograph in the Palais Royal Restaurant at 303 Sutter Street in San Francisco. The operator was Louis T. Glass, general manager of the Pacific Phonograph Co. at 323 Pine Street two blocks away, and together with his business partner William S. Arnold he had been permitted by the proprietor of the restaurant, Fredric Mergenthaler, to demonstrate the nickel-in-the-slot machine. Today Louis T. Glass alone is often regarded as the inventor of the jukebox concept, but his business partner deserves to be remembered as well. A short biography of the remarkable businessman Louis T. Glass will follow later in this publication. The late historian Richard M. Bueschel (1926-1998) tried to find information about the Palais Royal in San Francisco, but without success. The fact that there is very little information available today is quite easy to understand, as the Great Earthquake on the morning of the 18th April, 1906, and the following fires levelled the area around Sutter Street and Pine Street in the centre of San Francisco. After that the only reliable records of a saloon or restaurant on the spot can be found in old copies of the “San Francisco Chronicle”, and in the City Directory of 1890 discovered by the historian Allen Koenigsberg in Brooklyn, New York.

In connection with the two American patents for “Coin Actuated Attachment for Phonographs” (cylinder play) and “Coin Actuating Attachment for Phonographs” (disc play) applied for in 1889/90 by Louis T. Glass and William S. Arnold it is also important to note the British patent for a complete coin-op “Automatic Pariophone” applied for in 1888 by Charles Adams-Randall. The electrician Charles Adams-Randall had in those days a workshop at 15 Montpelier Square, same as 16 Trevor Square today, in Brompton south of Hyde Park in London, and it is difficult these days to find out, whether the “Automatic Pariophone” was actually demonstrated to the public. The patent, which was granted on the 4th May, 1889, is so detailed that at least one model must have been ready for testing in the workshop or maybe on location nearby on the 30th March, 1889, the date the complete specification was left at the Patent Office in Chancery Lane in London. The automatic phonograph, jukebox, has in spite of the British patent connection always been considered a typical American phenomenon even though it has become popular in most parts of the world since the invention.

During the first year of the jukebox, from autumn 1889 until summer 1890, quite a few coin-op music machines with cylinder or disc mechanisms were produced in

San Francisco. Louis T. Glass told other operators and manufacturers during the "First Annual Convention of Local Phonograph Companies of the United States" held at the Auditorium Hotel in Chicago on the 28th and 29th May, 1890, that the first 15 machines had brought in a little more than $4,000 from December, 1889, until May, 1890. That was quite a lot of money those days. Louis T. Glass also told the operators at the convention that they, he and his partner, had to make the instrument themselves as they did not have the facilities there (in the west), that was available in the east for that part of the work. However, it is important to mention today, that the first really successful and reliable coin-op phonograph in the States was developed and filed for patent in 1891 by Albert K. Keller, who soon assigned the patent rights to the Automatic Phonograph Exhibition Co. headed by Felix Gottschalk in New York. The Albert K. Keller designed automatic phonographs with Edison mechanism were at first manufactured in collaboration with Ezra T. Gilliland of the Gilliland Sales Co., and installed in arcades in many big cities. After the crisis on the stock market in 1893 the New York based company headed by Felix Gottschalk was dissolved by the trustees, and the efforts of the Automatic Phonograph Exhibition Co. to standardize the industry with the Keller designed machine had come to an end. It is interesting to note, that Albert K. Keller claimed that he first conceived the invention as early as 1887, and that he had built an operating machine, a forerunner of the known 1891 style, that same year. The first real series of machines was according to Albert K. Keller's statements manufactured at the James F. Gilliland Electric Co. in Adrian, Michigan, in the autumn 1889. The fact is still, that the first recorded public demonstration of a coin-operated phonograph took place in San Francisco on the 23rd November, 1889, and a lot of important historic information about Albert K. Keller and the other inventors of the era can be found in the book entitled "The Patent History of the Phonograph 1877-1912" compiled, edited and annotated by the noted historian Allen Koenigsberg and published in 1990 by APM Press in Brooklyn, New York.

The father of the concept, Louis T. Glass

Louis T. Glass was born in New Castle, Delaware, on the 6th August, 1845, but came to Butte County in California while still a boy. His father was Samuel G. Glass and his mother Susan Glass, born Springer (married 1836). Louis T. Glass started out as a Western Union telegraph operator in 1868, and remained with the company for ten years. In 1879 he had accumulated sufficient capital to buy an interest in the Oakland and San Diego Telephone Companies, and in 1889 he became general manager of the Edison General Electric Co. in San Francisco, also known as the Pacific Phonograph Co. founded on the 7th January, 1889. In addition he was also director of the Spokane Phonograph Co., Spokane Falls in Washington, and the West Coast Phonograph Co., Portland in Oregon.

On the 23rd November, 1889, Louis T. Glass and his business associate William S. Arnold demonstrated their first coin-operated phonograph in the Palais Royal Restaurant at 303 Sutter Street in San Francisco. They had been permitted by the proprietor, Fredric Mergenthaler, to demonstrate the music machine in the restaurant. The machine, an "Edison Class M Electric Phonograph" with oak cabinet, had been fitted locally in San Francisco with a coin mechanism invented and soon patented by Louis T. Glass and William S. Arnold. In 1890 the patents for coin mechanisms for both cylinder and disc playing machines were assigned to R. W. Smith in San Francisco, who apparently was the local representative for the New York based company Automatic Phonograph Exhibition Co. headed by Felix Gottschalk. Before the patents were assigned to R. W. Smith and sold, Louis T. Glass and William S. Arnold produced and operated about 15 nickel-in-the-slot machines in San Francisco during the six months from November/ December, 1889, until May, 1890. The first nickel-in-the-slot machine was, as mentioned above, installed in the Palais Royal Restaurant on the 23rd November. The second coin-op phonograph was installed in the same restaurant or saloon on the 4th December due to the immediate success. On the 10th December, 1889, Louis T. Glass and William S. Arnold installed another machine in the White Wings saloon and the following machine was installed on the 10th January, 1890, in the inner waiting rooms on the ferry between Oakland and San Francisco. The fifth machine was installed in the Conclave saloon on the 18th February, 1890. Before the "First Annual Convention of Local Phonograph Companies of the United States", held on the 28th-29th May in Chicago, the first 15 coin-op machines in San Francisco had brought in $4,019. At the convention Louis T. Glass as the official inventor of the coin-op phonograph concept accurately said: "...Nevertheless, gentlemen, there is money in the nickel-in-the-slot phonograph. There is an immediate result for every company in the United States. If you will look over the income that we have had there you will see that where you furnish interesting material, the receipts do not materially drop off, and I believe that for three or four years there is an enormous amount of money right in the nickel-in-the-slot phonograph...".

In 1892 Louis T. Glass went over to the Pacific States Telephone & Telegraph Co. and the Sunset Telephone & Telegraph Co., and in 1898 he was elected vice-president and general manager of both companies. Louis T. Glass was one of the originators and developers of the 'express switchboard', which came into general use on the Coast in the early 1890s, and he also made the first installation of the harmonic party line system for selective party line service. Louis T. Glass was unfortunate as the vice-president and general manager of the Pacific States Telephone & Telegraph Co. to be indicted for bribing supervisors after the Great Earthquake on the 18th April, 1906. The aim of the bribery was according to the investigations of the Oliver Grand Jury to prevent other telephone companies from obtaining telephone franchise in San Francisco.

In 1905 Louis T. Glass and his brother-in-law John Sabin formed the Philippine Telephone & Telegraph Co. to develop telephones in the islands. He became the first president of the company and was in fact president of the company until it was dissolved in 1922. Also involved in the company was his son-in-law Richard F. Beamer. In 1912 Louis T. Glass withdrew from active service with the Pacific States Telephone & Telegraph Co. and the Sunset Telephone & Telegraph Co. to devote all his time to the Philippine project. For decades he was supported in business by his wife Sarah Frances Glass, born Perkins (married 1872).

Louis T. Glass died 79 years of age on the 12th November, 1924, after a long and interesting life as a pioneer and major corporate player in the San Francisco area. According to the obituary in the "San Francisco Chronicle" Louis T. Glass passed away in his home on 375 Fourteenth Avenue in San Francisco, by then also his daughter Frances Glass Beamer's family home.

Chapter II

The coin-op concept spreading

1891-1905

Right from the beginning there was an acceptance of the phenomenon and an understanding among operators and saloon owners. The mutual understanding was easy to notice, because the operators often recorded a request like ‘go to the bar and buy yourself a drink’ at the end of each cylinder. The financial advantage was certainly greater than the costs of running a phonograph, and especially the operators were happy to get another source of income and prosperity.

It gives food for thought that the United States Patent Office had registered 18 patents for coin attachments for phonographs, which might have been in conflict by 1891; - only three years after the first instrument had seen the light of day. The number of patents pending in those early years show the operators’ eager to gain a foothold on the new market. However, it has to be mentioned that about 1/3 of the electrically driven mechanisms were Edison “Class M” machines for cylinders, and also it has to be mentioned that Thomas Alva Edison did not take active part in the production of coin-op phonographs in the early years. Thomas Alva Edison entered the market years later (after 1896), when he was able to buy back rights from the North American Phonograph Co.. Patent rights which had been sold to the founder of the company, Jesse H. Lippincott, years before. The crisis on the stock market in 1893 also had an unfortunate effect on Jesse H. Lippincotts activities (as a matter of fact he died of a stroke in 1894), and the Columbia Graphophone Co., a subsidiary of his firm, took over most of the activities of the North American Phonograph Co.. The subsidiary (Columbia Graphophone Co.) was in fact saved by the production of nickel-in-the-slot phonographs. However, important business connections soon gave Thomas Alva Edison a major share of the coin-op phonograph market with the electric “Class E” of 1899 and the succeeding electric models named “Imperial”, “Ajax”, “Regal”, “Climax”, “Majestic”, “Windsor”, “Vulcan”, “Acme”, “Eclipse”, and finally the “Alva”, produced in the years 1900 through 1907. The spring driven Edison machines “Bijou” and “Excelsior” made in the period 1901-1906, which came after the “Class H” of 1898, in fact only met serious competition from the small and relatively inexpensive Columbia Graphophone “AS” and “BS Eagle” cylinder phonographs of the same period (1897-1907). The Columbia “AS” model of 1897 was the first really successful counter-top, spring driven, coin-op phonograph on the market. The “AS” followed the “Type S” and “Type N” electric Graphophone models of 1895-96. The special, spring driven Graphophone “SG” (Slot Grand) for 5” cylinders was marketed as early as 1899. Another coin-operated Graphophone,

the model “AZ”, that looked much like the electric Edison floor models, was produced around 1906 by the William W. Rosenfield Manufacturing Co. in New York. The rise of AC current usage, by the way, soon became a small problem that had to be dealt with by operators of the Edison old style DC current and battery operated phonographs in the major cities.

After 1893 the spring driven motors, that followed the stable motors for phonographs first filed for patent in 1891 by Edward H. Amet, who was associated with the Chicago Talking Machine Co., and later by Joseph E. Greenhill in England, the latter one, however, not suited for coin slot attachment, soon made it possible to operate such a ‘money maker’ even in the most remote places. In the small joints near the cotton fields, officially called ‘juke-joints’, the music machines now called ‘juke-boxes’ could be found replacing the live ‘juke-bands’. The origin of the term ‘juke-box’ can be found in the following text on page 140 in the book “The Story of the Blues” by Paul Oliver (first published 1969): “...A hand-wound phonograph could now provide music for dancing more cheaply, and often with greater variety than could a single singer, a duo or even a string band. In the late thirties the inroads made in group entertainment by the record industry were bolstered by the introduction of the mechanical players, which could handle as many as fifty records at a time. They were set up in the country districts at every crossing cafe, and in every joint and juke. The latter gave them their name - juke-boxes began to replace live musicians everywhere; florid, chromium plated and enamelled in genuine pop art fashion, they were installed at roadside booths, even on breakfast counters...”.

The fact, that a reliable spring driven motor had been missing for years, had resulted in many patents related to electric coin-operated phonographs. Some years, however, would pass before stable electric installations were common in the big cities of America, and the operators in the rural districts of the States still needed either spring driven or battery powered mechanisms for decades. The battery powered motors were normally connected to a 2 1/2 volt chemical battery in the lower section of the cabinet, and they were often part of a complicated mechanical construction, which was taken directly from a spring driven cylinder phonograph. One of the first, really nice, portable spring driven phonographs was the four-spring “Nickle-in-the-Slot Graphophone” advertized in 1895 by Edward H. Amet, not to be confused with the “Nickel-in-the-Slot Phonograph” with Edison mechanism marketed by the North American Phonograph Co. (note: ‘Nickle’ vs. ‘Nickel’). In connection with the disc playing phonographs it ought to be mentioned that the first good and reliable mechanism for discs was developed for coin slot attachment in 1892 by Edward L. Wilson in New York.

The starting of the semi-automatic phonographs became the basis of many patent conflicts during the early years. Normally a 5 cent piece, called a nickel, blocked

the crank when it was inserted in the slot. After that the crank had to be turned up to seven times before it slipped the shaft. During the same sequence the reproducer was returned to the starting position, and the cylinder started revolving. Other phonographs had an almost reverse mode of operation, as the coin released the wound spring when it was inserted in the slot. The handle had then been turned until it slipped the shaft before the coin had been inserted. The mode of operation by blocking the crank was used for cylinder phonographs. The disc playing phonographs, which are now mainly called ‘gramophones’, had no feed-screw, and they were therefore difficult to attach with a coin-op device. That problem was of course soon dealt with, and Louis T. Glass and William S. Arnold had as early as 1890, as mentioned previously, the first patents granted for both cylinder and disc playing phonographs with coin slot attachment.

Locations, ‘juke-joints’, in the United States

There are two words or terms, which are closely related, namely ‘juke-joint’ (a small inexpensive café mainly in the southern States) and ‘juke-box’ (an automatic coin-op phonograph). Which of the two terms did in fact come first? It is the author’s opinion that the term ‘juke-joint’ undoubtedly did come first, because it was brought into the daily language in the South by the Afro-Americans decades before the first coin-op phonograph was demonstrated to the northern and mainly Caucasian population in San Francisco in 1889 and after that in most of the big northern cities. The words ‘juke’ and ‘jook’, which both are corruptions of the ancient Elisabethan ‘jouk’, were according to reliable sources brought to America by the not quite voluntarily immigrated coloured workers, that originated from the western part of Africa, and the word should mean ‘to dance’ or ‘act wildly (disorderly)’ in the evening after a long hard days work in the (cotton) fields. The small cafés and public houses, which were reserved for blacks only in the southern States, were usually named ‘jukes’ or ‘juke-joints’. The cafés were from the very beginning normally located next to the cotton fields and owned by the white first or second generation immigrated citizen and owner of the fields. In few cases, however, the café could also be leased to a long-time loyal old labourer, who could no longer work as hard as before.

The good local coloured musicians formed a basis for the classic blues in the ‘joints’, and met for decades no real competition from mechanical musical instruments like coin-operated pianos and orchestrions, or from automatic phonographs (‘juke-boxes’). The expensive and often heavy mechanical musical instruments with coin chutes were found in the better public places like oyster-bars etc. in the big cities, whereas the smaller and somewhat cheaper coin-op phonographs were distributed to amusement- and music-arcades, coffee houses, bars, and saloons. It is likely that the first ‘used’ coin-op phonograph was installed in one of the southern black community ‘juke-joints’ only a few months or maybe a year after the “Edison Class M” with coin attachment had been demonstrated by the noted Louis T. Glass and partners in San Francisco. It was a quite natural development, and the often tired musicians in the coloured ‘juke-bands’ were soon replaced by automatic coin-op music machines, which could even be a real money maker for both the owner of the ‘joint’ and the operator of the machine. The story of those coloured musicians can be read in detail in the wonderful book entitled “The Story of the Blues” by Paul Oliver, which was published first by Barrie & Rockliff (The Cresset Press) in 1969. Presumably the replacement of musicians did not arise before the coin-op phonographs were very reliable and had at least six or more selections to offer like for example the “Hexaphone” series produced by The Regina Music Box Co. of Rahway, New Jersey. The first non-selective cylinder playing phonographs were probably only looked upon as curious features of the evening entertainment, except of course when they were used in the arcades

in the big cities. After the coin-operated phonographs had been installed in the ‘jukes’ or ‘joints’, which were often built as poor annexes to grocery stores in the rural areas, the term ‘juke-box’ was brought into and accepted in the local language. Since the two words ‘juke-joint’ and ‘juke-box’ were used together and became accepted terms in the southern, coloured language (especially in the Delta area), both words soon had a positive effect on each other’s spreading to the rest of the US. There was for decades a continuous migration of coloured workers towards the industrial centres in the North, and the coloured workers of course brought the southern terms with them. The words ‘juke-joint’ and ‘juke-box’ were still for a long time considered being ‘black’ terms, and they were not accepted by the white population or accepted in the official vocabulary, or even used by the press, until the late 1930s or early 1940s.

There are, however, still old ‘juke-joints’ in the poor, rural areas of the southern States, where the music is provided by real ‘juke-boxes’ and not just by portable radios or stereos. A fantastic documentation of those ‘jukes’ can be found in the pictures printed in the great book entitled “Juke Joint Photographs” by Birney Imes. The book was published in 1990 by the University Press of Mississippi. The ‘juke-joints’ represent an American cultural heritage that ought not be forgotten, and it is the hope of the author that more people in the southern States will preserve the story of the original ‘juke-joints’, including the knowledge about now closed locations, and the life that took place in and around the small, inexpensive establishments for eating, drinking, and dancing to the music from a ‘juke-box’.

Chapter III

Multi-selection phonographs

1906-1924

The machines mentioned until now all had one single recording to offer the patron. The big automatic or semi-automatic music machines with six or more selections were to be found on the market after the year 1900, except the German push-button 6-selection "Hydraphonograph" introduced by the firm Runge & von Stemann in Berlin in 1897, and the special 5-selection "Multiplex" machines made by the mechanic George Washington Moore and the operator George V. Gress in Atlanta, Georgia. Most of those machines were, however, shipped to England. The multi-selection machines were impressive, but extremely expensive to produce in large numbers. One of the productions that took place around 1900 in the States was the special "Gomber Multiplex" with 12 selections designed by George W. Gomber and produced in at least two versions by the American Multiplex Talking Machine Co. in West Virginia. In Europe another very interesting production of coin-op machines took place at the Compagnie P. Jeanrenaud in Sainte Croix in Switzerland. The company made a 6-selection phonograph called "Théatrophone" and a smaller version called "Echophone" in the early years of the 20th century, but only a few models have survived in museums, and not much information about the Swiss production is known today, unfortunately. The company was founded on the basis of the 1880s patent(s) by Albert Jeanrenaud for the 'plerodienique' type musical box.

The most important selective automatic music machine of the first decade of the 20th century, the "Automatic Entertainer" with 24 selections, was patented and produced by the John Gabel owned company in Chicago. The first model, which was constructed late in 1905, was produced in 1906 with an exposed 40 inch horn (102 cm) on top, and it is today often considered the real 'father' of the modern multi-selection disc-playing phonographs. John Gabel and his company did in fact receive a special prize, the Gold Medal, at the 'Panama Pacific International Exposition' in San Francisco for the "Automatic Entertainer". John Gabel, who was an immigrant from the Austro-Hungarian monarchy (born in 1872 as son of a nailsmith), came from a position as machine shop foreman at the Mills Novelty Co. (M.B.M. Cigar Vending Machine Co.) and employee at the Bower Machine Co., and in October, 1898, he formed The Automatic Machine & Tool Co. in Chicago with the help of contract cabinet maker Edward Mikkelsen, an immigrant Dane, and the pattern maker Emil C. Mueller from the Bower firm. Edward Mikkelsen, however, was bought out of the company less than a year later, and John Gabel had full control of his company and destiny. The life of John Gabel

(1872-1955) and the history of his company is described in detail in an article well written by Rick Crandall. The article entitled “Diary Disclosures of John Gabel: A Pioneer in Automatic Music”, based on an unpublished diary, was published in the autumn, 1984, newsletter of The Musical Box Society International (Vol. XXX, No. 2), and contains a lot of interesting, historic information. Another story about John Gabel and his “Automatic Entertainer” appeared in the newsletter “Antique Phonograph Monthly” (Vol. VII, No. 8) published by Allen Koenigsberg in the summer of 1984.

A counterpart to John Gabels machine was the cylinder playing “Autophone” with 12 selections made in San Francisco by The Autophone Co. (also a division in the city of New York). The “Autophone” for cylinder play, which was a very nice instrument, was designed by Cornelius Reinhardt. Cylinders were also used in the third of the big selective machines to be mentioned here. The machine in question was the impressive 24-selection “Multiphone” produced in New York with cabinet design by William H. Pritchard, later also head of The Autophone Co., and a mechanism developed by Cyrus C. Shigley and Julius Roever. The design of the cabinet alone made it expensive to produce in large numbers, and alterations to the initial two patented designs were made. In fact a 30-selection “Magazine Phonograph” patented by Allison A. Pratt in 1907 might have been produced by The Multiphone Co. in New York, but none of those machines seem to have survived in private collections.

While mentioning the coin-operated multi-selection music machines of the period between 1900 and 1910 it is important to remember one particular fact. The fact, that there was no real amplification of acoustic sound. It was a problem for John Gabel’s “Automatic Entertainer” and other machines of the same size, because it was difficult to use them in bars and saloons with many people. The machines had to bring in a lot of money to make it worth while.

However, there were two means of amplification in those days, which could be used in the big machines. One of them was friction amplification according to the patents by Daniel Higham. A popular definition of amplification by friction is that an amber wheel connected to the feed-screw rotates, while the phonograph is in operation, and rubs a friction shoe, which is a simple strap of partially vulcanized rubber. As the stylus moves up and down in the groove the tension on the shoe changes affecting the amount of friction between the shoe and the wheel. The increased friction between the wheel and the shoe gives the stylus a little aid in tugging the diaphragm. This kind of amplification by friction was used by Thomas V. Skelly in 1906, when he constructed the big 25-selection “Concertophone”. The machine played three minute cylinders, and it was, so it seems, exported for the European market before World War I (1914-1918), but with the model name

“Uncle Sam’s Entertainer”. Today it is not known exactly how many of those machines were exported across the Atlantic.

Another way to amplify acoustic sound was the use of pneumatic amplification, which had become possible with the development and improvement of the ‘aux-e-to-phone’ principle by Horace Lenoard Short and Charles Algernon Parsons in 1898 and 1902, respectively. In the construction of the pneumatic disc playing machines the principle that the stylus alone should tug the diaphragm and produce vibrations of the air was no longer used. The diaphragm was to some extent still there, but in the form of a small comb-shaped body placed opposite two counter-combs. The comb-shaped body influenced with its vibrations the opening between comb and counter-combs, and when a current of compressed air from a receptacle was led through the opening amplified air-waves were directed through the horn. Another kind of amplification somewhat like the pneumatic one was used by Fortophon in Germany in the construction of special coin-op ‘Starkton’-machines. The machines used discs cut with a greater groove width than normal, which due to the movements of the needle could increase the volume even more.

Concerning coin chutes the manufacturers had searched for years for a stable rejector that could detect false coins and token for use in various coin-op amusement machines. The first company to introduce special music token for coin-op phonographs was in fact the New York Phonograph Co. in 1890, a token for the Albert K. Keller styled phonographs. However, a good reliable rejector was not available until Thomas V. Skelly developed and patented his version in 1907. Another even more reliable type was developed by Henry Koch, who sold his patent righs to the Regina Music Box Co. of Rahway, New Jersey. The coin rejector by Henry Koch was used in the successful “Style 100 Automatic Reginaphone” produced from 1905 until 1911 and the following “Hexaphone” models, “Style 101” through “Style 104”, which became popular throughout the acoustic era. The 6-selection “Hexaphone” announced in December, 1908, and produced by Regina Music Box Co. from 1909 until 1921 (‘Hexa’-prefix from Greek meaning ‘Six’) was probably the most popular ‘nickel-in-the-slot’ phonograph of the acoustic era on the American market with a production run of at least 6,500 machines. The first “Hexaphones”, the “Style 101”, played two-minute cylinders, but those became rather obsolete around 1909/10 and the later models played four-minute cylinders.

The nice machines from The Regina Music Box Co. surely did meet competition on the market for middle size models, especially from machines like the “New Automatic Phonograph” and the modified version, the “Fortune Teller Phonograph”, produced by the Mills Novelty Co. of Chicago, and the “Cailophone Style A” with AC current operation and the “Cailophone Style B” with combined spring motor wound up by an electric motor made since 1906 by the Caille

Brothers Co. of Detroit. The company was founded on the 1st August, 1901, by the brothers Adolph and Arthur Caille. The highly competitive models in question did not have any selections to offer the patron, but they were very typical in design of the era. Today both companies mentioned above have become well-known for production of various arcade and amusement machines during the first half of the 20th century, but they were indeed also represented on the market for coin-operated automatic phonographs. Especially the Mills Novelty Co. headed by the 3rd generation of the founding Mills family, all sons of Herbert Stephen Mills, became a well-known manufacturer of modern style, electrically amplified jukeboxes with ferris-wheel mechanism in the 1930s.

In Europe there were several good, reliable coin-op salon gramophones on the market during the period from 1900 until 1913. The best known of these big gramophones today are "Le Ogerphone", "Le Ramophone", and "Le Concert Automatique Française", which were produced on license by different French companies mainly for the local market, and used on locations well into the 1920s. Another nice, but not well known, coin-op gramophone, "Le Vairiphone", was made during the same period by G. Capy in Vaires s/Marne. Those French salon gramophones all play phono-cut Pathé records. The German gramophones with coin slots, however, were very often table-top models, that could be installed in very small locations. One company in particular, Deutsche Grammophon-Aktiengesellschaft in Berlin, made some very nice coin operated 6- or 12-selection gramophones in the years after 1904. Those machines were produced according to patents by Clarence Vogt, but later (in 1906) the patents were assigned to the big company G&T (Gramophone & Typewriter Co.) in London. At the time there were also a few tall German coin-op music cabinets on the market, like for example the "Orchester" made by Paul Lochmann, Original-Musikwerke GmbH in Leipzig, known better for production of mechanical musical instruments, but most of the "Orchester No. 30" or "Orchester No. 40" cabinets with phonograph mechanism to play 50 cm Pathé records were installed only in large dance halls.

A destinctive mark of most European style machines of the era was that they often played Pathé 'hill-and-dale' records, which were phono-cut. They were played with a rounded needle in contrary to the ordinary needle-cut records. By using a rounded needle instead of a pointed one the wear of the records was less noticeable, and especially the tall French models with big brass horns on top were suitable for public use. In the cabinet below the mechanism of the salon gramophones shelves for extra records could be found in order to give the patron an option. The many different types of automatic or semi-automatic phonographs with coin slots certainly were important for the promotion of music to the public during the decades before home phonographs and gramophones could be owned by everybody.

During the next era of the phonograph history following the first 25 years up to 1913, in which both the electric and spring-driven coin-op phonographs had been made more reliable, the big multi-selection machines took over most of the market in the States. In Europe, however, most of the acoustic coin-op phonograph productions were at a stand still due to World War I. In the States, however, the very nice "Hexaphones", "Style 101" through "Style 104", made by The Regina Music Box Co., were produced from 1909 until 1921 in a number of at least 6,500 units. As mentioned before, the 6-selection Regina models were very popular and competitive against the "Cailophone" models made by the Caille Brothers Co. in Detroit, and the "Mills Automatic Phonograph" models made by the Mills Novelty Co. in Chicago. The Mills company was founded back in 1890 as the M.B.M. Cigar Vending Machine Co. by Mortimer Birdsul Mills (born in 1845 in Ontario, Canada), and the company name changed in 1897/98 when the controlling share was transferred to his son Herbert Stephen Mills. Both phono types, the "Cailophone" and the "Mills Automatic Phonograph", had very typical oak wood cabinet designs of the era, but both were non-selective. The bigger type, the "Gabel's Entertainer" multi-selection phonographs, patented and made by the John Gabel owned company (Gabel's Entertainer Co. at 210 North Ann Street in Chicago, previously known as The Automatic Machine & Tool Co.) came out in most of the big cities, and they had a good reputation for reliability although they were extremely complicated machines. Most of John Gabel's phonographs were in fact distributed nationwide by a section of The Rudolph Wurlitzer Co. headed by Howard Eugene Wurlitzer. John Gabel had four patents granted during the acoustic era of the automatic phonographs including the classic one for the original "Automatic Entertainer" of 1905/06 with exposed 40 inch horn on top, and his firm even used the name "Gabelola" as a trademark around 1917 ('ola'-suffix from Latin meaning 'little' or 'small'). After the 1909-1928 eras of the enclosed horn models, as exposed brass horns were considered to be old-fashioned, John Gabel had another patent granted for the mechanism of the new 'modern' 12-selection "Entertainer" of 1934 with cabinet designed by Theodore E. Samuelson. John Gabel died in December, 1955, at the age of 83 (born in 1872 in the Austro-Hungarian monarchy), and it is estimated today that a total of about 7,300 "Entertainer" models (300 exposed horn models and 7,000 enclosed horn models) left the factory in the pre-modern period 1905-1928. It is interesting concerning the 'ola'-suffix that at least 50 manufacturers on the American market used the suffix in the name or trademark for their phonographs in the very active home phonograph business period from around 1916 until around 1923.

One or two of the other manufacturers of the era between 1914 and the early 1920s deserve to be mentioned here. The engineer John L. Vaughn of San Francisco had a few designs assigned to the well-known slot-machine inventor and manufacturer Charles August Fey (born Augustinus Josephus Fey, 1862-1944). The 20-selection Charles A. Fey machines were actually produced in series and operated on the

West Coast until the mid 1920s, and there was in fact a special San Francisco style of coin-op phonograph machines designed by Vaughn, Nelson, and Briggs & Jenkins. Later at least one of John L. Vaughn's automatic phonograph patents was assigned by mesne assignments to The Rudolph Wurlitzer Co.. It was filed for patent in April, 1929, and used on license by the Bussoz Frères company in Paris, France, for a line of "Phonolux" jukeboxes late in the 1930s. Around 1916 Cyrus C. Shigley started the production of the "Kalamazoo Electric Coin-op Phonograph" (named after the city). Cyrus C. Shigley had before that, after he had started out in Hart, Michigan, been involved in the production of the ornate "Multiphone" designed by William H. Pritchard. The new six feet tall square cabinet "Kalamazoo" still had the 24-selection cylinder playing ferris-wheel mechanism (four-minute Blue Amberols). The "Kalamazoo" was produced for two years until late in 1918, and in this connection it can be mentioned that the last cylinder phonographs for home use etc. were produced about ten years later, in 1929, when the Edison firm went out of the phonograph business. There were of course many other minor local coin-op phonograph manufacturers in the States, but most of them are not well known today. Only one person, the late historian Richard M. Bueschel, tried seriously to shed light on all the minor 'coin-op phonograph' productions in America, but unfortunately Richard M. Bueschel passed away on the 19th April, 1998, 71 years of age, and a lot of important, historic information was in the files he left behind. Especially in the unpublished manuscript entitled "Let The Other Guy Play It!", an illustrated history of automatic music and jukeboxes written in 1996/97.

In France after World War I had ended there was a market for new phonographs with coin-op mechanisms, and one of the best and well-known machines, often referred to as the "Bussophone", came from the company Société des Phonographes Automatiques Bussoz Frères & de Vère in Paris. The full patent for the machine entitled 'Phonographe perfectionné à magazin' was applied for on the 8th April, 1921, and finally granted on the 22nd December, 1921. Before that Cyril de Vère had four patents of his own. The last of the four was in fact granted on the 6th April, 1921, and when he came into the company owned by the Bussoz brothers, Michel and Pierre Joseph Bussoz, the four patents could be incorporated in the "Bussophone" patent. The Bussoz Frères company in Paris had been a manufacturer of slot-machines for many years and some of their finest wall-mounted slot- and arcade-machines were made in the period from 1915 until 1920. The 20-selection mechanism for the "Bussophone" was a very nice construction, and it is known today that some of them have survived in museums and collections. Only a few years ago, in the summer of 1998, one of them was taken over and thus preserved by the Gauselmann Collection in Germany together with one or two of the rare "Phonolux" models. Another extremely nice acoustic multi-selection phonograph of European origin came from Italy. The 16-selection "Fonografo Giacardi Automatico" was made and patented by Enea Flavio

Giacardi in Milan. The Italian patent was granted on the 5th June, 1922, and later Enea F. Giacardi also had the patent registered in England. That particular patent was much later referred to by the Ristau brothers in their patents, and as such used as the basis for a wonderful ‘Silver Age’ jukebox, namely the “Ristaucrat” built by the Atlas Manufacturing Co. in Kaukauna, Wisconsin, in 1956/57. Indeed a very nice machine made in a limited number of only fifty for export to the European market.

Chapter IV

Birth of modern selective phonographs

1925-1935

The acoustic era of the coin-operated phonographs finally came to an end around 1925/26 with the introduction of electrically recorded 78rpm records. Henry C. Harrison of the Western Electric Co., the manufacturing subsidiary of the American Telephone & Telegraph Co., was granted a patent for electrical recording in May, 1924, but the first commercial electrical recording session took place in February, 1925, and the first real electrically recorded disc was released on the market in April that same year. Electrical amplification of the sound was of course important to the manufacturers of phonographs because many of the different amplification methods used during the acoustic era were very expensive and after all not successful on location. One of the rare automatic phonographs of the intermediate phase between the acoustic era and the electric era was known as the "Daily Automatic Phonograph" constructed and patented by William H. Daily of Chicago in the mid 1920s. The phonograph with square three-window cabinet had four turntables and a tone arm from the centre, but it was short lived like many other constructions due to the fact, that four successive plays only were not enough for the patrons.

The era of the modern electrically amplified phonographs, often described as pieces of Americana, really started after 1926/27, when the "Electramuse" based on a patent of 1921/23 by James E. Stout was introduced by the firm Holcomb & Hoke Manufacturing Co. in Indianapolis, Indiana. The company was founded by Frank (Fred) J. Hoke Sr. and James Irving Holcomb in 1896, and both founders were still alive when the story of the company was written in 1958. The "Electramuse" had a square cabinet with front window and it was design patented in 1927 by Frank J. Hoke Sr., and according to the unpublished story "Two Heads Are Better" written by Frank Hoke Jr. in 1958, the company lost more than half a million dollars during the four years it was active in the automatic phonograph business. That is quite an interesting and honest statement from a pioneer in the business. Frank J. Hoke Sr. also states in the story that there was only one thing wrong with the machine: It was not selective, but the 1926/27 *Electramuse* was in fact the first 'light up' coin-op music machine with back lit artistic panel at the top (the *Concert Grand* model even had animation in that panel)! The "Electramuse" later came out in a very nice cabinet called the "The Auditorium Model" for use mainly in clubs and hotels. About the same time, early 1927, another well designed coin-operated phonograph, the "National Automatic Selective Phonograph", was introduced by the Automatic Musical Instrument Co. in Grand

Rapids, Michigan. The company was known then for its main product, a special 8-selection coin-operated piano that looked like a normal upright piano, but had no keyboard installed in the usual place. The cabinet housed an 8-roll changer including a selective mechanism with 8 coin slots that played National coin-piano rolls (according to recent information from the historian Arthur A. Reblitz the National rolls had their own musical layout). The coin-operated pianos with dog races in the top section had by then been operated on company owned routes in several States for more than ten years. The AMI company originated from two stockholding twin-companies, the National Automatic Music Co. (operating) and the National Piano Manufacturing Co. (manufacturing), founded in May and June, 1909, respectively. The companies were located in a building on the corner of the Ionia and Fulton streets until 1922, when both companies moved to a former horse-drawn hearse factory building at 1500 Union Avenue (Michigan Hearse & Carriage Co., later Grand Rapids Motor Hearse Co., owned by Walter Ioor), and it is known from the Grand Rapids' City Directory of 1912, that Clarence U. Clark was president and treasurer of the National Piano Manufacturing Co. and that Walter Ioor was vice-president, and it might be reasonable to assume that Walter Ioor, who indeed was a very able businessman, had been involved in the founding of the two companies three years earlier. The important basic company research by John H. Perschbacher shows that the Clark and Ioor management took over in 1911, when the real growth of the combined company activities began. The companies were by then based on several patents by Edgar B. Sherman, Karl O. Carlson, Edwin A. Kingsley, and John P. Ioor (probably family to the manager Walter Ioor). Also important patents by Clifford H. Green were filed and granted around 1914/15, and all rights to the known patents were assigned to the National Piano Manufacturing Co. when granted. The rights to the first patent were, however, owned by Edgar B. Sherman, so he may have been one of the founding partners together with Walter Ioor in 1909. Walter Ioor was also for years president of the Cordolo Musical Instruments Co. at 788 North Orange Avenue in Orlando, Florida, run by his son-in-law, Harry A. Yeider (inventor of the pick-up arm for the "National Automatic Selective Phonograph"), and it seems that Walter Ioor was a winter resident of Orlando for a few years until he decided to move permanently. The two twin-companies in Grand Rapids merged into one stockholding company under the leadership of Walter Ioor on the 9th November, 1925, but the new company name, Automatic Musical Instrument Co., was apparently not used officially until after the introduction of the coin-operated phonograph developed by Clifford H. Green with a record changing mechanism invented by Bertram C. Kenyon, and filed for patent on the 15th July, 1927, by Bertram C. Kenyon, Wilmur W. Boa, and Clifford H. Green. On the same day the three inventors filed a patent for a special coin chute for the phonograph. As a result of that it is often mentioned in history books, that AMI introduced the first coin-operated, electrically amplified, 20-selection phonograph with a mechanical

ten-record system that played on both sides. The ‘modern style jukebox’ was born. According to basic company research by John H. Perschbacher (the Babcock House Museum Collections) in Manistee, the AMI company wanted to put 8,500 multiple select phonographs in operation in the field, similarly to their piano routes, in late 1926 and early 1927. All pianos and phonographs operated on the routes in more than thirty states were owned by the company in Grand Rapids, and the route manager would deposit all coins in a local bank account. As a result of that the head office back home at 1500 Union Avenue S.E. in Grand Rapids could always keep track of the profitability of the route. Also it seems that the “National Automatic Selective Phonograph” was licensed for manufacture for the home market to General Motors Radio Corp. Those phonographs had the auto-select feature and a remote control unit to turn the machine on and off, and change records and volume, instead of coin operation. The firm Automatic Musical Instrument Co. ran into financial difficulties in 1931, and it was then forced into receivership by the Michigan National Bank. Also according to the research of John H. Perschbacher, and that of Durrell Armstrong, who wrote an unpublished story in 1996, the treasurer-secretary of AMI, Cornelius H. Knoll, who was in his mid thirties in 1931 and an employee since 1920, was instructed to resolve the financial problems. The company survived the years of recession with the phonograph model “F” until the model “FR” with a new mechanism developed by the company’s chief engineer at the time, Clifford H. Green, was introduced in 1934. The practice that all machines in the field were company owned was finally changed early 1936 and from then on the AMI phonographs were sold to the operators or route managers. Clifford H. Green, the chief engineer for many years who had been responsible for the development of the selective phonograph in 1927, died in an automobile accident in the 1930s.

Another line of nice automatic phonographs that had a kind of relation to the Holcomb & Hoke “Electramuse” would of course be the “Capehart Orchestrope” models “28G”, “28GB”, and “28F”, playing 18, 24, or 28 records, respectively, in chronological order without choice. The first of the series of “Capehart Orchestrope” models styled by the furniture designer David L. Evans was released in the spring of 1928 by the Capehart Automatic Phonograph Corp. in Huntington, Indiana. The company was founded by a former Holcomb & Hoke salesman, Homer Earl Capehart (1897-1979), who lived at 709 Packard Avenue in Fort Wayne (the avenue named after the Packard Piano & Organ Co. founded in 1872). The name Packard would certainly be known in the jukebox industry about two decades later, in the late 1940s. On balance one might say, that the “Orchestrope” with a mechanism based on patents filed by Frank J. Seabolt during the period 1915-1921, and important patents by Ralph R. Erbe (the “16-E” mechanism), was superior to the Holcomb & Hoke “Electramuse”. Not only was it the first apparatus to play both sides of its capacity of up to 28 records (56 selections), but it could also be supplied with remote control units (wall-boxes) for use in

restaurants. That feature was indeed far-sighted, although it was not a new idea. Back in 1916 James W. Bryce assigned a patent concerning a remote control for phonographs to The Aeolian Co., but one without coin rejector. The Capehart models, both the "Orchestrope" and the "Amperion", were marketed by the use of the following phrase: "You are listening to The Capehart Orchestrope, faithfully recreating the world's finest music for your entertainment!". Important men in the Capehart firm were Edward E. Collison, also a former employee at Holcomb & Hoke, and Ernest Degenhart, who had several patents granted and assigned to The Capehart Corp.. About the same time came also Paul U. Lannerd and Thomas W. Small into the firm with several important phonograph mechanism patents. Thomas W. Small initially invented the record turner-changer and sold it to Homer Earl Capehart. A new style turner-changer was invented by Ralph R. Erbe, who had been working for the Columbia Graphophone Co., and also that one was bought and used by the Capehart firm. The Capehart Corp. even produced a line of table-top phonographs around 1930/31. The "Capehart Model 1" through "Capehart Model 4" was design patented by Arvid Dahlstrom, a Swedish immigrant, who had three designs, each with its own special mechanism, filed for patent in 1929, 1930, and in 1931. It is interesting, however, that the mechanism actually used in the table-top Capehart phonographs was constructed and patented by Edward E. Collison and Paul U. Lannerd (filed for patent in November, 1930, and granted in 1933). Also, it is interesting to note that one-third of the rights to the first two patents filed by Arvid Dahlstrom was assigned to Justus P. Seeburg before the patents were granted in 1933/34, and in this connection it is important also to mention that the 8-selection two-layer mechanism developed by Arvid Dahlstrom (1930) was used in the "Seeburg Audiophone E" made in 1930/31. The noted pioneer in the business, Homer Earl Capehart, finally left The Capehart Corp. in 1932 after some disagreements with the other directors and investors, and started to work as head of the sales department of The Rudolph Wurlitzer Manufacturing Co. in June 1933.

Around 1928 several other companies released automatic phonographs, jukeboxes, and among them was the J. P. Seeburg Piano Co. at 1510 Dayton Street in Chicago, headed by the founder, Justus Percival Seeburg (1871-1958), and his only son Noel Marshall Seeburg (1897-1972). The J. P. Seeburg Piano Co. (founded in 1907) had in 1927, when the management heard news about the "Electramuse" model, tried to introduce a "Melatone" coin-op phonograph on the market. It was no success, and in fact all about hundred manufactured "Melatone" machines were recalled. Then, in 1928 and 1929, the J. P. Seeburg Piano Co. tried again for real (company name changed to J. P. Seeburg Co. around July, 1928), and had more success on the market with the "Autophone", which was first shown at the Chicago Commodore Hotel 'Music Trade Convention' in June, 1928, and certainly more success with the following line of 8-selection "Audiophone Senior" and "Audiophone Junior" pneumatic coin-op phonographs. Showing their

nickelodeon ancestry the “Audiophone” models were equipped with electric motors that in turn operated a suction pump. The pump was used to turn the ferris-wheel type mechanism for record selection, but the pump also supplied suction for rubber tubing that went to pneumatic operated valves that controlled the operation of several smaller pneumatics. In 1930 the J. P. Seeburg Co. (company name changed to The J. P. Seeburg Corp. around September, 1929) presented the all mechanically operated 8-selection phonograph called the “Audiophone E”, with mechanism developed by Arvid Dahlstrom, of which the first version looked very much like the “Electramuse” made by the Holcomb & Hoke Manufacturing Co. before 1929.

One of the other automatic phonographs, jukeboxes, that were introduced on the market in 1928, was the “Western Electric Selectraphone”, which to some extent looked like and was operated like the “Audiophone” model(s) made by the Seeburg company. The “Selectraphone” was based on the original patent filed on the 19th August, 1927, by Axel F. Larson and Charlie W. Anderson. It is of course known by most collectors today, that the Western Electric Piano Co. at 429 West Superior Street in Chicago was owned by the J. P. Seeburg Co. in those days. In fact the address of the Western Electric Piano Co. soon changed to 900 Blackhawk Street, which was the side entrance of the mighty Seeburg factory. As a result of that it should not be a surprise that the two phonograph models were much alike. The “Selectraphone” was essentially all mechanical except for the lights and of course the amplifier, and the model also came out as a “Selectraphone Combination” with built-in radio, and so the manufacturer combined two popular appeals, the ‘wireless’ and the ‘jukebox’. The Western Electric Piano Co. also introduced a nice coin-operated model named “Mechanic-Dynamic”, which to some extent looked like a slim-line version of the “Selectraphone” with a sliding-tray mechanism developed and patented by Arthur W. Wilson in the mid 1920s. According to recent information from the noted historian Arthur A. Reblitz, the amplifiers of both the early “Seeburg Audiophone” and the “Western Electric Selectraphone” had the brand name of the portable radio manufacturing company Operadio founded in 1922 by J. McWilliams Stone Sr., a company still around and known today as the Dukane Corp..

One of the most amazing phonographs released in the late 1920s was without doubt the “Link Autovox”. It was a very interesting coin-selective machine introduced by the Link Piano Co. Inc. at 183-185 Water Street in Binghamton, New York. A wonderful description of the talking machine designed by Edwin Albert Link Jr. (with technical assistance from George Thayer) can be found in the book “Encyclopedia of Automatic Musical Instruments” by Q. David Bowers. The book contains a transcript of an original tape recording (Arthur A. Reblitz, 6th November, 1965) of a talk between Harvey Roehl of Vestal Press, Murray Clark, Q. David Bowers, and of course Edwin Albert Link Jr.. The big 10-selection “Link

Autovox" was purely mechanical and it had two stacks of five records each on two spindles. The spindles were divided in the middle and one could raise the spindles and slip the records in, and then later select any one of the ten by push button. Despite the fact, that there were ten turntables and ten reproducers, the "Autovox" model was reasonably successful on the local market according to Edwin A. Link Jr., and quite a few of them were made. Unfortunately the production took place just before the 1929 crash on Wall Street, and after that the Link Piano Co. Inc. went out of existence. Edwin Albert Link Jr. had been working on an 'aviation trainer' since 1926 and continued with the flight trainer project after the piano and organ company folded. The "Link Trainer" was filed for patent on the 14th April, 1929, and Edwin A. Link Jr. soon after formed the Link Aeronautical Corp. to market the new invention. If the author is not mistaken, all cabinets for the Link pianos and organs were built by the Haddorff Piano Co. of Rockford, Illinois, and that may also have been the case with the cabinets for the short lived experiment, the "Link Autovox". Today it is known, by the way, that the 'Autovox' company in Binghamton also marketed a nice but much smaller coin-operated phonograph around 1928 with a cabinet much like that of the 1927 "Automatic Orthophonic Victrola" and other typical phonographs with coin attachment of the late 1920s era. The Link Piano Co. was originally based on the Binghamton Automatic Music Corp., which had been taken over when bankrupt by Edwin A. Link Sr. in 1910, and the company continued on the same address until 1929. Edwin A. Link Jr. (born 26th July 1904, deceased 7th September 1981), father of the 10-selection "Link Autovox", sure was a dedicated inventor and a true genius in several fields, and he was presented with the honorary degree 'Doctor of Science' (honoris causa) at the State University of New York (Binghamton Commencement Exercises) in May, 1981, only a few months before he died 77 years of age.

The Mills Novelty Co. at 4100 Fullerton Avenue in Chicago, entered the market for coin-operated radios and multi-selection phonographs in 1928, and became a very important competitor against other manufacturers in the years to come. The brothers Frank W. Mills and Bert E. Mills (sons of Herbert Stephen Mills, 1872-1929) had a lot of patents for coin-detectors and phonograph mechanisms granted through the 1920s and early 1930s. The ferris-wheel mechanism for the full size phonographs and the "MCP" series of remote controls (the models "MCP-1830-CSP" through "MCP-1835-CSP") were filed for patent by Bert E. Mills in 1928 and 1930/31. The first non-selective, full size phonograph, the "Mills Hi-Boy 800", and the following 12-selection phonographs named "Hi-Boy 801" and "Hi-Boy 802" (with radio) came out in the same cabinet style in 1928 and 1929. The following models, the "Mills Troubadour" series covering the models "811" (one coin), "870" (three coin), and finally the "871" with radio (three coin), were made until 1933. The last model in the "Troubadour" series was the less expensive "875 Compact" phonograph (three coin device). The "Troubadour 875 Compact" was in fact introduced in 1931, when sales were very slow at the height of the Great

Depression. The new era after the depression then started with the Everett B. Eckland styled “Mills Dance Master 876” (green/silver, one coin) of 1934, introduced late in October, 1933, and the following “Dance Master” models “877” (black/silver, one coin), “878” (open colour, one coin), “879” (green/silver, three coin), “880” (black/silver, three coin), and finally the model “881” (open colour, three coin). All of them were great, classic Mills Novelty jukeboxes.

One of the minor manufacturers, the Ristaucrat Inc. in Appleton, Wisconsin, came out with the first 12-selection “Ristaucrat Console A” in 1931. The same construction was also marketed as one of the very first 24-selection counter-top models with nice butt walnut/mahogany cabinet. A little later, in 1932, the RCA Victor coin-operated “Automatic Victrola CE-29” was announced in a letter to the company’s dealers. The letter also stated that RCA Victor was returning to the field of coin-operated musical instruments with the model “CE-29”, but in fact some of the 1927 “Automatic Orthophonic Victrola” models had been fitted with coin attachments for commercial use by dealers and probably not by the factory itself. It must, however, be mentioned that the introduction of the model was not very successful, and Raymond Rosen & Co. in Philadelphia soon announced that the company had purchased the entire factory stock of the “Model CE-29” automatic phonograph (jukebox). Finally, in this line of minor manufacturers it can be mentioned that the Deca-Disc Phonograph Co. of Waynesboro, Pennsylvania, owned by American Music Corp., produced a combination of automatic phonograph and advertising device. It was design patented by Paul D. Bodwell and Henry W. Bellows in the late 1920s, and the patent was granted in December, 1931. The combination-model was followed by the nice “Model E” coin-op phonograph (ten records, continuous play). The name ‘Deca-Disc’ was registered as a trademark back in 1922 by the company American Music Corp. headed by Paul D. Bodwell, but most of the phonograph inventory was bought by the Ristau family around 1928, and became a kind of basis for the coin-operated “Ristaucrat” phonographs of the early 1930s. The Ristau family had in fact been operating coin-op pianos and Regina phonographs for decades, but the hard times of the depression unfortunately forced the three brothers Alfred G., Harold, and Arnold E. to finally sell out patent rights for the reliable ‘Paul H. Smythe Jr.’ mechanism to David C. Rockola in the early 1930s.

The Rudolph Wurlitzer Co., established back in 1856, started out in the automatic phonograph business by introducing the 10-selection “Debutante” in 1933, a model that looked much the same as the “Ampliphone” made by the Mid-West Automatic Phonograph Co. late in 1932. It is important to mention here that The Rudolph Wurlitzer Co. had been active in the coin-op phonograph business years before (1927-1929), when the firm produced semi-automatic “Victrola” models with a 5 cent coin-box mounted on the side. Not many “Debutante” models were actually produced in 1933, and it may have been considered a trial production by

the management before it was decided to go at full steam into the business. Homer Earl Capehart was again an important man, as he introduced the 'Simplex' mechanism to the Wurlitzer company. The 'Simplex' was an old construction, but Russell I. Wilcox had filed an improved patent for the mechanism construction in 1931 (used in the "Ampliphone" model) and assigned it by mesne assignments to The Rudolph Wurlitzer (Manufacturing) Co. in 1934/35. The Rudolph Wurlitzer Co. at Wurlitzer Station in North Tonawanda, New York, became in the era to come, the 'Golden Age' of jukeboxes, a very important player with phonograph cabinets designed first by Charles Nairn Deverall, the "Model P-12" of 1935, and after that a line of wonderful cabinet designs by Paul M. Fuller, the "Model 312" of 1936 plus 16 additional patented designs for classics until 1948, when he decided to leave the Wurlitzer company. The now famous industrial designer Paul M. Fuller was born on the 5th January, 1897, and he died at the Millard Fillmore Hospital in Buffalo on the 29th March, 1951, only 54 years of age. A short biography of the remarkable designer Paul M. Fuller will follow later in this publication.

One of the major European counterparts to the American automatic phonographs of the early 1930s was manufactured in Belgium by Firma W^{we} Pierre Eich in St.-Amandsberg, a part of the city Ghent. The first two versions of the patented "Radio-Discophone" came out in 1930 and 1931, and as a matter of fact the manufacturer, Firma W^{we} Pierre Eich, received a special prize, 'Médaille de la foire de Paris 1931', for the phonographs at the autumn trade fair in the French capital. The two machines represented an interesting type of mixed radio- and phonograph-units often used in cafés in Belgium, and they initiated the production of a line of "Discophone" models leading to the "David-Discophone" and the legendary "Goliath-Discophone" models manufactured in the late 1940s and the first half of the 1950s. The company, Firma W^{we} Pierre Eich, was primarily known for production of pianos, orchestrions, and fairground organs until late in 1939, when the factory was closed as one of the last makers of electric pianos due to the coming of World War II. Most assets of the company was taken over then by the Van Hyfte Piano Co. of Ghent. Pierre Eich Sr., the founder of the Firma W^{we} Pierre Eich died in 1927, and it was one of his three sons, Pierre Jr., who developed the 48-selection "Discophone" prototype based on two patents filed on the 18th October, 1929, and 10th October, 1930. At the end of World War II Pierre Eich Jr. founded the Discophone Co. and the Eich-family again started production of automatic coin-op radio- and phonograph-units. Pierre Eich also developed a special "Cine Discophone" around 1947, which had not only 32 selections (78rpm) but also 10 film selections (8mm film). Pierre Eich Jr. died in 1951 and his brother Albert took over the production of the fantastic "Goliath Discophone". After Albert Eich's death in 1956 the jukebox production with the name Eich attached to it ceased, and none of the last 80-selection "Maestro" jukeboxes created by Albert Eich shortly before he died are known to exist today. The 48-

selection “Goliath-Discophone” developed by Pierre Eich Jr. was, if the author is not mistaken, the largest ‘modern style’ jukebox ever produced. Only 24 “David” machines, a scaled down version of the “Goliath”, were produced around 1949, but some of the 600 big “Goliath” machines produced in the period 1948-1956 can be found today in private collections and museums.

Origin of the term ‘juke-box’

Collectors and historians have often been asked why the object of their hobby is called a jukebox. In other words: Where did the word ‘jukebox’ come from? There have of course over the years been several suggestions as to the origin of the term, but no one really knows for a fact where the strange word ‘jukebox’ came from in the first place.

The most reasonable explanation is, in the opinion of the author, that the descendents of the Africans, who had been transported as slaves to the Caribbean area and the southern and eastern part of America to work the plantations, still had the old English word ‘jouk’ in their vocabulary. Part of the language they brought with them is still known today as the Gullah language, a Creole blend of Elisabethan English and African languages, used around the plantations of the costal South. However, the word the Afro-Americans knew in the first place was often spelt ‘jook’, a corrupted form used in the western, colonized part of the African continent, where the serving blacks had accepted the word as a cultured term for dancing or acting wildly (disorderly). The word was in fact a corrupted form of ‘dzug’ and ‘dzugu’ in the original, native Wolof and Bambara languages.

The word ‘jouk’ could be found as early as in the Elisabethan English, as mentioned in the British newspaper “Guardian” dated 18th March, 1974. The reign of Queen Elisabeth I (1558-1603) was notable for commercial growth and especially the flourishing of literature, music, and architecture. It is obvious, that the small tea houses or ‘joints’ for blacks only in the Deep South would be called ‘juke-joints’, if ‘juke’ was another corruption of the Elisabethan word ‘jouk’ for dancing or acting disorderly. It is even stated as a fact in “The Shorter Oxford English Dictionary” printed in 1933 that the word ‘juke’ was obsolete for ‘jouk’. The author has so far only once heard of the odd spelling ‘jute’ in old writing and the author is sure it was only a matter of bad spelling and had nothing to do with jute fibre or jute mills in the South. In the book “The Story of the Blues” by Paul Oliver, published 1969, the following sentence can be found on page 21: “...Saturday night was for good times, with the liquor flowing, the shouts and laughter of dancers rising above the noice of a juke band or gin-mill piano, and sometimes the staccato report of a revolver fired in jest - or in earnest...”. In this case ‘juke band’ surely means ‘dance band’. Another word connected to music and dance that the people of the Deep South had taken from Elisabethan English was ‘jazz’, a corruption of the word ‘jass’ that had survived in the vernacular of the houses, where usually only members of the male population came. This is mentioned in the book “The Jazz Record Book” by Charles Edward Smith *et al.* published in 1942.

If the above is correct, which he author believe it is, and the ‘juke bands’ in order to lower the overall costs were replaced by nickel-in-the-slot machines, alias

automatic phonographs, it is obvious that the coin-operated machines in the 'juke-joints' would be called 'juke-boxes'. Again, in the book "The Story of the Blues" by Paul Oliver the following sentence can be found on page 140: "...A hand-wound phonograph could now provide music for dancing more cheaply, and often with greater variety than could a single singer, a duo or even a string band. In the late thirties the inroads made in group entertainment by the record industry were bolstered by the introduction of the mechanical players, which could handle as many as fifty records at a time. They were set up in the country districts at every crossing café, and in every joint and juke. The latter gave them their name - juke-boxes began to replace live musicians everywhere; florid, chromium plated and enamelled in genuine pop art fashion, they were installed at roadside booths, even on breakfast counters...". That sentence tells more clearly than anything the origin of the word 'juke-box'. The definition of the term 'juke joint' (n) was when it was still young in the official vocabulary (1937): "a small, inexpensive establishment for eating, drinking, or dancing to the music from a jukebox".

The term 'juke-box' used mainly in the Delta area, was of course not accepted in the 'white' areas of the United States, where the colloquial term 'automatic phonograph' was used until the late 1930s. The famous band leader Glenn Miller was, if the author is not mistaken, the first to use the word 'juke-box' publicly in an interview with "Time Magazine" in 1939. Glenn Miller's use of the term might well have inspired Al Stillman to write the lyrics for "Juke Box Saturday Night" with music by Paul McGrane (from "Stars On Ice", and recorded in 1942). Since then a lot of music recordings have been made with the term 'jukebox' in the title. According to the book "The Jukebox Bluebook" by Ben C. Humphries (1st ed., 1990) the word 'jukebox' was used as slang among patrons, operators, and members of the industry in the 1930s, but the word was not actually used in advertising until AMI used the term to introduce the model "A" nicknamed 'Mother of Plastic' in the spring of 1946.

It is quite interesting to note today, that there was a discussion in the American magazine "Billboard" in the period 1941-43, whether all manufacturers should use a common term, namely 'Coinograph', for the automatic music machines. However, the new term was never accepted by the trade, and one reason might have been that it had been used as a model name forty years earlier by the slot-machine company Geo. F. Krieger & Co. in Chicago, and in addition the name had been used as the title of a newsletter published by the company RCA Victor. Also it is interesting to note, that only the term 'phonograph' was used in the film "Gang War" made in 1940 on location in Harlem, New York. The film describes the rivalry between two operators who want to control the local market. Today that one is considered a 'black' cult film in the States together with a few others of the 1940s including the film entitled "Juke Joint" made in 1947 with music by Red Calhoun.

Chapter V

The ‘Golden Age’ of jukeboxes

1936-1948

During the late 1930s the public atmosphere in America was not quite as good as it could have been, mainly due to repercussions from the serious economic depression and with a possible war at hand. The coin-op phonograph, the jukebox, was then indeed a welcomed source of entertainment and even at times a kind of demonstration of how to escape from reality. With nothing but a nickel in ones pocket, some popular music, and a little light effect, one could dream away for a brief moment in the ordinary daily life, and the jukebox could or should expect better times as a cultural phenomenon.

In the early and mid 1930s the modern-style automatic phonograph was not yet considered a housetrained piece of machinery, and today it might be right with a popular expression to call the following period the hobbledehoy stage of the jukebox. Today we know it more correctly as the ‘Golden Age’, and the latter half of the 1930s was definitely a period with circumstances important for the development of the jukebox towards the hey-days of design in the years 1941/42. Circumstances like the difficult economic situation, the war that might come, the invention of new techniques, and certainly the public yearning for musical entertainment. All considered one cannot expect that a similar breathtaking era will ever be possible in the future history of the jukebox concept.

The period prior to the ‘Golden Age’ gave birth indeed to a growing demand for music machines, and in the years 1934-36 there was a perceptible competition among the relatively few big manufacturers to operate automatic phonographs in diners, saloons, and other small locations of entertainment. The production of jukeboxes in large numbers was no longer tantamount to a safe increase in earnings. An effective marketing with a steady release of new models became more and more important for the survival of the manufacturing companies, and the production year gradually became of great importance when the owner of a saloon or diner should be talked into accepting a new piece of furniture.

Even though the manufacturers had consulted industrial designers during the development of new models for years it was not until 1938, when The J. P. Seeburg Corp. intensely started to put ‘Catalin’ plastics, a cast resin, into the wooden cabinets, it was understood how important the designers were for the expected success of the jukebox business. The first design patents of the ‘golden’ era covering jukebox cabinets were filed in 1934 by Theodore E. Samuelson. The two design patents with his name were both assigned to The John Gabel

Manufacturing Co. of Chicago, and the related models with rather good Webster amplifiers got the official names “Gabel Entertainer”, a name used by the company for many years, and “Gabel Junior De Luxe Modern”, a name which had not been used by the company before. After that came in 1935 important design patents by Charles N. Deverall, who had worked for The Rudolph Wurlitzer Co. since the early 1920s, and John William Wilson, who was also working for The John Gabel Manufacturing Co.. The design by Charles N. Deverall, as mentioned earlier, got the official name “Wurlitzer P-12”. John William Wilson, however, assigned a series of three designs to The John Gabel Manufacturing Co., and the 24-selection models are today known as the “Gabel Aristocrat”, the “Gabel Cardinal”, and the “Gabel Commander” (late 1935 through 1936). The John Gabel Manufacturing Co., by the way, used some very special yellow light bulbs in the mid 1930s with the text ‘Music by Gabel’ inside to attract the patrons. Those big Gabel light bulbs used in for example the model “Junior Elite” might be considered a kind of forerunners of the illuminated pilastres introduced in late 1936. The first jukebox with illuminated front corner plastics (after the “Electramuse” of 1926/27 with back lit panel at the top), the “Gabel Starlite” of 1936, was as far as it is known today not design patented, but it was probably designed by a team at the factory, unlike the last and special Art Deco model “Gabel Kuro” designed by Clifford Brooks Stevens in 1940. The name of the model was an amalgam of the names of John Gabel’s two sons Kurt and Robert. The John Gabel Manufacturing Co. was finally bought by David C. Rockola in 1949.

The year after Charles N. Deverall assigned the design patent for the “Model P-12” with illuminated dial to the manufacturer, the noted designer Paul M. Fuller was employed by The Rudolph Wurlitzer Co. as a kind of design consultant. Paul M. Fuller is today considered to be the most important designer in the history of jukeboxes, and it seems that the combination of the two energetic, cigar-smoking gentlemen of the same age (born in 1897), sales manager Homer Earl Capehart and designer Paul M. Fuller, kept the Wurlitzer company alive as a producer of coin-op pre-recorded music machines after the coin-operated organ and piano business died out as one of the consequences of the Depression 1929-1934. The employment of Paul M. Fuller in fact gave the company a leading position on the market during the early years of the 1940s, the hey-days, and one might state for sure that the team led by Paul M. Fuller made a line of jukeboxes superior to those of the competitors.

The automatic coin-operated phonographs had suddenly become a real financial success for several companies like The Rudolph Wurlitzer Co., The J. P. Seeburg Corp., the Rock-Ola Manufacturing Corp. (David C. Rockola delivered one of the new 12-selection Rock-Ola’s to the decks of the luxury liner Queen Mary on her maiden voyage from New York in 1936), and the Automatic Musical Instrument

Co., also called AMI. The ‘big four’ mentioned here were of course not the only ones to produce classic designs. A relatively large number of design patents are today proof of the presence of many hard-working industrial designers.

As previously mentioned The J. P. Seeburg Corp. at 1500 North Dayton Avenue, Chicago, used ‘Catalin’ plastics, cast resin, in the music machines around 1938. Two industrial designers were connected to the company, and they worked hard to create successful designs. One of them, Henry T. Roberts, also designed radios, and the other, Nels A. Miller, became a noted designer after World War II with the rather special ‘Trash Can’ models. The official names were in fact “Seeburg Symphonola P-146”, “P-147”, and “P-148”. Using the word ‘Catalin’, also known then as ‘The Gem of Modern Industry’, it is important to mention that the product name was a registered trademark of the Catalin Corp. in New York.

In connection with the designer names it is interesting to observe that David C. Rockola, the president of the Rock-Ola Manufacturing Corp., assigned all design patents to the company. No other top managers in the ‘big four’ were dedicated designers, as far as the author knows, but one of the other important industrial designers was the engineer Lloyd J. Andres, who worked near the top of AMI together with engineer Clifford H. Green until Green died in an automobile accident. The two engineers had been authorized by the management to develop a new line of improved coin-op phonographs after the depression. Lloyd J. Andres has not been mentioned as much as he deserves in literature about jukebox history. His first patented full size jukebox design of 1937 got the official name “Top Flight”, but he had prior to that designed the casing for a special remote control selector in 1936. Later he also designed some of the interesting “Singing Tower” models in the early 1940s. The “Singing Tower” models were operated by an affiliation of AMI called Singing Towers Inc. in Chicago. However, it ought to be mentioned that Henry T. Roberts, who normally worked for The J. P. Seeburg Corp., assigned one quite remarkable “Singing Tower” design patent to the Automatic Musical Instrument Co. (Lloyd J. Andres) in 1941. The talents of industrial designers became an important asset of the big jukebox manufacturers in Chicago, Grand Rapids, and North Tonawanda.

The J. P. Seeburg Corp. seriously introduced transparent plastics in the cabinets in 1938, as mentioned before, and also other new design effects like for example the use of nickel-plated castings had a certain influence on the marketing possibilities. The nickel-plated parts of the models from The Rudolph Wurlitzer Co., especially of the models “Wurlitzer 500”, “600” and the counter-top model “61”, and the introduction of colour cylinders in the model “500”, made the Wurlitzer jukeboxes very popular. Now it was not only a matter of an illuminated jukebox, but the idea of changing colours had come to stay. The other big manufacturing companies had to find new ways in order to compete, and as an example the Rock-Ola

Manufacturing Corp. started to use big areas of cast resin (‘Catalin’ plastics) in the models “Rock-Ola Standard 20” and “Deluxe 20” of 1939, and the year after in all models “Rock-Ola Master 20” and “Super 20 Luxury Lightup”. Another competitor, the Mills Novelty Co. of Chicago, produced the nice Lawrence B. Burnham styled “Throne of Music” and Everett B. Eckland styled “Empress” full-size jukeboxes in 1939-1941 with big cabinet areas of transparent plastics (different colour combinations were available). According to the manager Arthur V. Cooley, Everett B. Eckland also designed the previous Mills “Do Re Mi”, “Swing King”, “Studio”, and “Zephyr” models of 1936-1938, but unfortunately none of the designs were filed for patent. The special Art Deco design of the “Empress” model makes it in great demand among collectors today, and talking about Art Deco design of those years one cannot forget the “AMI Streamliner” designed by Lloyd J. Andres and produced by the Automatic Musical Instruments Co.. Lloyd J. Andres had several “Streamliner” designs patented, but they were never manufactured. They were together with many other remarkable automatic phonograph designs published for the first time in 1994 in the author’s limited edition book entitled “Golden Age Juke-Box Design 1934-1951”.

The special version of jukeboxes to be used in small locations, often called counter-top or miniature jukeboxes, was a well-known type around 1938/39, and the leading manufacturer, The Rudolph Wurlitzer Co., marketed the nice models “Wurlitzer 41”, “51”, “61”, “71”, and “81” until 1941/42. The Rock-Ola Manufacturing Corp. had in order to compete with them only the model “Rock-Ola CM-39” of 1939 (with a matching pedestal designed by Arthur Nagel) and later in 1941 also the model “Rock-Ola 1409”, also called “JR-12”. There were a few others of the same type on the market, but as a phenomenon they had no chance to compete with the hide-away units with remote controls, which were introduced for real in 1939 by the Automatic Musical Instruments Co. in the form of “Mighty Midget” units, and in the form of “Wall-O-Matic” and “Bar-O-Matic” remote controls introduced by The J. P. Seeburg Corp.. The small counter-top jukeboxes could not survive the hey-days of design and the competition during the years 1940-42, but the hide-away units did survive because they could be used in very small locations in the big cities. The impressive “AMI Singing Tower” models also survived the war years until the Automatic Musical Instruments Co. of Grand Rapids introduced the “AMI Model A” also called ‘Mother of Plastic’. The “Model A” was designed by the industrial designer Jean Otis Reinecke, who assigned the design patent to the AMI company in 1946.

In the year 1940 the hey-days of design really started with the full-size models “Wurlitzer 700” and “800”, and the counter-top model “Wurlitzer 41” made by the Wurlitzer company in North Tonawanda. The Victory line model “41” was the first jukebox produced with plastic pilastres in all four corners. Especially the big model “800” with three coloured pilastres, ‘Catalin’ plastics, extensive use of

nickel-plated parts, and for the first time the use of bubble tubes, was simply all one could expect from a classic jukebox in those days. The bubble tubes, which were delivered by Biolite Incorporated in New York, contained methylene chloride (CH_2Cl_2), which was animated in a glass tube by heating to a low boiling-point. The bubble tubes were first used by Biolite Inc. in 'display devices' developed and patented by the inventors Raffaele Floravanti and Alfonse Kaufman, and assigned to Biolite Inc. in 1935/36. In connection with the contact between Biolite Inc. and Paul M. Fuller at The Rudolph Wurlitzer Co. another name turn up that has much too often been neglected. The name is Edward Merle Colegrove, who initially brought about the contact between the two companies. He had at a meeting with Paul M. Fuller in the autumn of 1938 shown to him a champaign sign with bubble effect, and Paul M. Fuller mentioned that he would like to try to transfer the effect to the cabinets in the next line of jukeboxes. Development and testing took some time, but the bubble tubes were in the years to come used frequently by the Paul M. Fuller designer team as an eye appealing effect. The fact that tubes at a value of not less than $25,000 were used during the first year of the cooperation from autumn 1939 until autumn 1940/spring 1941 shows great success, and Edward Merle Colegrove was if any the reason that The Rudolph Wurlitzer Co. could use a term like 'the winner in play appeal' in sales leaflets for the new "Wurlitzer 800". The model "800" was also the first mass produced full-size jukebox to have a rounded top, a detail that turned out to be of comfort to the sales team for several years. A special flame-like effect in the pilastres of the "Wurlitzer 800" was made by using zebra striped plastics in front of the colour cylinders.

At The J. P. Seeburg Corp. in Chicago the designers did not use extreme visual effects, but some unique automatic phonographs were manufactured in 1940. The "Square Top" series, namely "Seeburg Cadet", "Commander", and "Concert Master" nicknamed 'Faces' with matching "Seeburg Top Spot" speaker unit was indeed something special, but unfortunately the phonograph series with 'Rainbo-Glo' illumination was not design patented. It is, however, quite possible that Nels A. Miller was responsible for it, just as he was responsible for the "Pla-Boy" stroller of 1939/40 styled in 'Marbl-Glo' to go with the wireless portable-compact "Wall-O-Matic", also named the "Play-Boy" remote control in 1940. The year before, in 1938/39, Henry T. Roberts had designed and patented nearly all models with 'Marbl-Glo' illumination for the company, but there are so distinct differences in details, that it seems correct to assume that Nels A. Miller designed the model line of 1940 starting out with the "Pla-Boy" stroller and the "Wall-O-Matic" remote control unit with mechanism developed by James A. Boyajian. Henry T. Roberts on the other hand design patented the following "Hitone Symphonola" series of 1941/42 equipped with the new sliding-tray mechanism invented by the brothers Carl G. Freborg and Charles A. Freborg. Nels A. Miller designed the lighting inside the "Hitone Symphonola" models and patented the

new feature. The sales department at Seeburg dubbed this model their ‘Minute Man’ model to promote the sale of defence bonds. After the “Hitone” series the production was stopped for a short period until after the war, when the new and interesting ‘Trash Can’ models were designed by Nels A. Miller, as mentioned earlier.

The model line of the years 1941/42 from the Rock-Ola Manufacturing Corp. at the former Gulbransen piano factory on 800 North Kedzie Avenue, Chicago, shows some of the most remarkable cabinet designs of the ‘Golden Age’, the “ToneColumn” series, which in fact represented big combined remote control and speaker units. The today well-known, rather famous representative of the series was the “Rock-Ola Spectravox 1801/1802” with a dial instead of push buttons. All “ToneColumn” models with selector unit could be used in connection with the newly introduced “Playmaster” hide-away mechanism. During the war year 1942 before the factory production stopped the models “Rock-Ola Commando”, “Premier 1413” and “President 1414” with top speaker unit made by the American Jensen company, were made in limited numbers. They were a natural continuation of the “ToneColumn” principle, but they now had a mechanism and amplifier in the lower part of the cabinet. The “Rock-Ola Commando” was the basic model built in two variations, the common one using glass panels and the other using ‘Catalin’ plastics, and the “Premier 1413” and “President 1414” were only made in very limited numbers. Caused by war restrictions the series had glass pilastres, and maybe due to the size and the fact that they did not look like ordinary jukeboxes with push buttons they were never considered a real success among operators. Nevertheless, it is interesting to note from the indication of the design patents as ‘sound reproducing apparatus’ that they were not meant for built-in mechanisms in the first place. The following production obviously went in another direction, and it is also confusing that David Colin Rockola a few years later used the same indication ‘sound reproducing apparatus’ for two design patents for the “Rock-Ola 1420” series.

In 1941 there were at least five totally unknown design patents by David C. Rockola for “ToneColumn” auxiliary speakers without selector units, but they were most probably never produced. The Rock-Ola Manufacturing Corp. had after that, like the other three big companies in the coin-op phonograph business, a period of three or four years where no new models were produced in large numbers.

Considering the line of jukeboxes from The Rudolph Wurlitzer Co. made during the years before the ‘war stop’ between 1943 and 1945 one can easily get the impression that nothing could stop the Paul M. Fuller team from making nice play appealing models. The team was in fact way ahead of the other designer teams in the business, and it is surprising that Paul M. Fuller never design patented the

Victory line models: the “Wurlitzer 750”, the “Wurlitzer 780” also nicknamed ‘Wagonwheel’, the “Wurlitzer 850” generally known as the ‘Peacock’, and finally the beautyful “Wurlitzer 950” of 1942 often referred to as ‘Pipes of Pan’, which was the last in direct series. The company celebrated the National Wurlitzer Days, the 5th and 6th January, 1941, by introducing the Victory line of three console and two counter-top models (“750”, “780”, “850”, “41”, and “81”). However, World War II took longer than expected, and the model “950” was not referred to as part of the Victory line. It is interesting that the previous models “Wurlitzer 700” and “800” of 1940 were not design patented, and also that the same can be said about the successive model in colonial style officially named “Victory” by the company. It may therefore be reasonable to assume that the models of those few years in the early 1940s from The Rudolph Wurlitzer Co. were designed by the team at the factory and not by one particular person (Paul M. Fuller did not want to take all the credit), although it is stated once by general sales manager Milton (Mike) G. Hammergren in “The Billboard” magazine that the Victory line was designed by Paul M. Fuller.

A new detail in the design of the “Wurlitzer 850” was that it had illuminated push buttons that turned dark when selection had been made. The feature in question was not quite easy to combine with another operational detail, namely the electric selection mechanism. In the earlier years of mechanical selection the customers could see which records had been selected, and therefore they avoided selecting the same record again. With the new electric selection mechanism the same record could be selected several times, but normally only played once. In short, the new electric selector gave the operator(s) an opportunity to earn more due to the motto that the customer would be satisfied if only he heard the tune he had paid for. The “Wurlitzer 750” was the first jukebox from the company with an electric selection mechanism. The last model in the series, the “Wurlitzer 950” of 1942, was originally produced with glass pilastres and not as the previous models with ‘Catalin’ plastics, and the use of many wooden parts in the cabinet combined with a very limited production number makes it very popular among collectors today.

As mentioned before, there was a production stop among jukebox manufacturers in the years from 1943 until 1945/46 mainly due to lack of metal and other material, and a few of the factories built military equipment instead of music machines. Another reason was of course that jukeboxes were ‘non-important’ products officially during the armament, and thus it was necessary to wait until autumn 1945 before new design patents could see the light of day.

After the war, towards the end of the ‘golden’ era, all four big companies and a few others introduced new cabinet types for automatic phonographs, and Paul M. Fuller again had several cabinet designs patented and assigned to The Rudolph Wurlitzer Co., which was still the leading firm in the business. The post-war

models were produced in large numbers followed by very effective marketing, and the models in mind were of course the famous “Wurlitzer 1015”, the following model “1080” and finally the “Wurlitzer 1100” with a well designed ‘Encore’ program selector. The last of the three models was nicknamed ‘Bullet’ or ‘Bomber Nose’ by the public and all three models were design patented by Paul M. Fuller in the period 1946-1948. With direct reference to the “Wurlitzer 1015” design there was a special cabinet named “Ambassador” produced in 1948 by the firm Ambassador Inc. in Kansas City, Missouri. It was not as could be expected designed by Paul M. Fuller, but another industrial designer Thomas A. Schwartz of Topeka was responsible for the rather nice conversion design. The “Ambassador” was the last of the cabinet types belonging to the ‘Golden Age’ in America, and the “Wurlitzer 1015” should in time be known as the one and only classic jukebox followed by the most comprehensive national advertising campaign ever. The official and now famous company logo for Wurlitzer Phonograph Music, the ‘Sign of the Musical Note’ nicknamed the ‘Johnny-One-Note’, since the early 1940s, was so widely publicized during the campaign that it was recognized by most people of the time meaning ‘Wurlitzer is Music’. The unofficial name of the ‘Sign of the Musical Note’ featuring a trumpet-playing musical note with top hat in front of a spinning record came in fact from the song "Johnny One Note" by Lorenz Hart and Richard Rodgers introduced by Wynn Murray in 1937 in the Broadway musical “Babes In Arms”. A decade later, in the late 1950s, the logo was renewed with twin trumpet-playing notes in red colour to advertise Wurlitzer Stereophonic Music. Stereo recording, by the way, was not for real used commercially until around 1958, and it ought to be mentioned that the stereo recordings using a single 45° groove with one channel recorded on each side of the groove were based on the inventions and patents of Alan Dower Blumlein (1903-1942). Another of many inventors that have never received the credit they so richly deserve.

In the period 1946-1948 the Rock-Ola Manufacturing Corp. produced three cabinet types: the “Rock-Ola 1422”, the “1426”, and finally the “1428” also named ‘Magic-Glo’, and there are in fact three design patents related to the series all officially made by David C. Rockola. Two of them can be related directly to the models “Rock-Ola 1422” and “1428”, but the last of the three relates to details on both the “1422” and the “1426”. In the design patents David C. Rockola refers as one of very few jukebox designers to old designs for radios, vending machines, and automobile head lights etc., in which he had found details of interest. David Colin (Cullen) Rockola was indeed one of the pioneers in the business, and he died 96 years of age on the 25th January, 1993. A well written biography of David C. Rockola, who was born on the 22nd January, 1897, in Virden in Manitoba, can be found in the March, 1993, issue of the American “RePlay” magazine.

In Grand Rapids a new "AMI Model B" was made in 1948 by the Automatic Musical Instruments Co. to follow the 'Mother of Plastic' designed by Jean Otis Reinecke. The next model, the "AMI Model C" was made in 1949, and it is normally not considered to belong to the 'Golden Age' of American jukeboxes. Both the "B" and the "C" model were not design patented, and the name of the manufacturing company had officially been changed to AMI Inc. in 1946. Then in the spring of 1959 the company with main offices at 1500 Union Avenue S.E. in Grand Rapids finally merged with Rowe AC Services, a division of the Automatic Canteen Co. of America. The firm Rowe AC Services in Chicago had been founded in 1926 by William Rowe, who is considered today to be the inventor of the first cigarette vending machine, and the first president of the new Rowe/AMI company structure was Clarence W. Clark of Chicago, Illinois. It is not known today if Clarence W. Clark was a 2nd generation member of the Clark-family related to the National/AMI company back in 1912, a son of Clarence U. Clark, but the author hopes this will be clarified one day. The new name Rowe/AMI was, however, not used officially in advertising until 1961/62. The main company, Automatic Canteen Co. of America, which had taken over the Rowe AC Services in the mid 1950s, was originally founded by Nathaniel A. Leverone in the late 1920s. The well known industrialist Nathaniel A. Leverone became a member of the Horatio Alger Association of Distinguished Americans in 1964, the year after the famed illustrator Albert Dorne, known from the big Wurlitzer advertising campaign of 1946/47, was awarded membership of the same association.

The last of the four big companies, The J. P. Seeburg Corp., produced as mentioned earlier three 'Trash Can' models designed by Nels A. Miller in the period 1946-1948. One of the Seeburg designs of 1946/47, the one for a 12-inch "RS2-12 Mirror Speaker", did not come from Nels A. Miller like the design for the smaller 8-inch "RS2-8 Teardrop Speaker". The wonderful 12-inch speaker was designed by Arthur W. Brockman. Nels A. Miller and the all aluminum "Symphonola P-148" jukeboxes led the company to the end of the 'Golden Age'. The 'golden' era ended in fact with the introduction of the well-known model "Seeburg M-100-A" with "Select-O-Matic" mechanism invented by Edward F. Andrews around 1941. The new model was introduced in 1948/49 as the first jukebox with 100 selections in 78rpm, but many of the "M-100-A" models were soon converted to play 45rpm records in the years to come. In connection with the use of 78rpm vs. 45rpm format in jukeboxes it is rather interesting to note the comments sent some time ago to the author by Morgan Wright, who wrote the following facts: "...Black people preferred the 78rpm format until the late fifties even in their jukeboxes, because they were living in poverty, and when the 78rpm jukeboxes in white neighborhoods were being replaced by 45rpm jukeboxes, the operators (all of whom were white) had to use the old 78rpm jukeboxes for something. They couldn't just throw them away, so they stuck them in black neighborhoods and also hillbilly juke-joints, while the people with money used the

45rpm jukeboxes. One will notice that many R&B and C&W records were still being pressed in 78rpm until as late as 1957/58, but it's very rare to find 78rpm recordings of popular white 'pop' music later than 1952/53...". Those are, whether we like it or not, true and quite interesting historic comments.

A rather special phenomenon in the history of jukeboxes was remote control via telephone lines, or more correctly music ordering by phone. The idea of big central music libraries was not something new as there had been libraries in the early years of the 20th century, but they had not been connected to restaurants, saloons, or diners. In the 1940s several music ordering systems were used around in America, for example the "Rock-Ola Mystic Music", the "Jennings Telephone Music" first known as "Magic Music" in Columbus in Ohio, the "Scotto Melody Master" mainly used in Sacramento in California, and not to forget the "Shyvers' Multiphone" system designed, introduced, and operated for more than a decade by Kenneth C. Shyvers and his wife Lois in the cities Olympia, Seattle, and Tacoma in Washington. The history of the interesting telephone line music systems will be described later in this publication.

Another line in the jukebox history led to the big audio/visual machines, which mainly the Mills Novelty Co. of Chicago tried to make popular in the 1940s. The main problem for the manufacturers of film machines had since the idea was conceived first time before 1910 been the construction of reliable reel operating mechanisms. After decades of experiments the Mills Novelty Co. finally got a reliable mechanism using RCA-projectors at the end of the 1930s, which could be used for 16mm film with sound tracks officially called 'Soundies' (one reel with 8 film clips released per week). The film for the "Mills Panoram" machines were mainly produced by RCM Productions named after the three involved men: the founder James (Jimmy) Roosevelt (head of Globe Productions Inc.), the songwriter Sam Coslow, and of course Fred L. Mills (head of the Mills Novelty Co.), and distributed by The Soundies Corp. of America. To contain the mechanism the Mills Novelty Co. needed a nice cabinet, and the industrial designer Everett B. Eckland of Oak Park, Illinois, who had been consulted by the company through the 1930s, came up with the design for it. The remote control unit, however, was design patented by Arthur H. Bouterious, who also constructed the electrical remote control system (patents filed on the 6th August, 1941). In 1942/43 there were around 10,000 machines operated nationwide, but in 1946 only about 2,000 machines were still on location due to war time restrictions and trouble with the cinema film projectionists' union. Today several of the "Mills Panoram (Model MI-1340)" machines are known among collectors and museums, and they are certainly not as unpopular today as they were among film projectionists in the mid 1940s. Everett B. Eckland also filed another design patent for an audio/visual machine in 1945, but the patent was never assigned to the Mills Novelty Co.. The machine, however, was produced by the Mills Novelty Co.

around 1947 as a “Sono-Vision” without coin-operation. There are several other registered American design patents related to audio/visual machines, but the author has so far been unable to find their exact and official model names. One company, however, that deserves to be mentioned although it was short lived from 1939 until mid 1942, is the Cinematone Corp. at 1107 North Highland Avenue in Hollywood headed by Gordon Keith Woodard. The coin-op film projectors made and operated by the company were not successful, but another venture of the company, that ought to be remembered today, is the very rare and much decired “Penny Phono” jukebox developed by William P. Falkenberg. William P. Falkenberg also invented and patented several rifle range gaming devices late in the 1930s. The unusual, compact “Penny Phono” machine used special 12-inch 20-song transcription records that played at an ever-increasing speed starting at 20rpm and ending at about 60rpm, and the jukebox was introduced to the public in September, 1939. The Cinematone Corp. had of course its own recording studio to produce the special records, as the “Penny Phono” could not play regular 78rpm records, and a very special person was head of the company’s Music Department in the years around 1940, namely Lindley A. Jones, better known today by the name Spike Jones (and his City Slickers).

Also towards the end of this chapter some other manufacturer and designer names that had a certain importance ought to be mentioned. At the end of World War II a company that originally made radar equipment and electronics went into the jukebox business. The first jukebox series from the Aireon Manufacturing Corp. at 1401 Fairfax Trafficway in Kansas City headed by Randolph C. Walker was designed and patented by Ernest F. Thomson in 1946. The box was officially named “Aireon 1200A Super De Luxe” but also nicknamed ‘Airliner’ because of the size. The following “Aireon Fiesta” series: “Fiesta Standard”, “Fiesta 1207A DeLuxe” (‘Artisan’), and “Fiesta 1208A” (‘Blond Bombshell’), was also design patented by Ernest F. Thomson, although some collectors believe the design to be classic Raymond Loewy, and the auxiliary speakers, the “Impressario”, the “Melodeon”, and the “Carilleon”, were all designed by Jay B. Doblin. All patents were assigned to the independent federal agency Reconstruction Finance Corp., which had become responsible for the production of “Aireon” coin-operated phonographs due to financial difficulties in the Aireon Manufacturing Corp. founded in 1937. A following phonograph model of 1948 officially named “Aireon 1209A Coronet”, and nicknamed ‘Canned Ham’ by the public, was unfortunately not design patented, but it is possible that the design of the cabinet is part of a functional patent not yet located in patent office files.

Another production shortly after the war was the “Packard” line made by the Packard Manufacturing Co. founded in 1932 and named after the Packard Avenue in Fort Wayne. The company was established just before America went to war in the old Marmon motor car manufacturing plant in Indianapolis, but the new

Packard company was not active in the phonograph business until the latter half of the 1940s. Another company, the Capehart Automatic Phonograph Corp., founded by Homer Earl Capehart early in 1928 had as mentioned before been active with a series of "Orchestrope" models with cabinets built by furniture manufacturers in Huntington in the late 1920s and early 1930s. The company, however, had moved into new factory facilities in Fort Wayne built by the wealthy lawyer and investor Charles M. Niezer, but had taken a net loss of about $370,000 around 1930/31. The founder, Homer Earl Capehart, had finally left the corporation now often referred to as the Capehart-Farnsworth late in 1932, and became as mentioned before connected to The Rudolph Wurlitzer Co. as general sales manager during the following seven successful years until 1939. After the war, when Homer Earl Capehart had become senator of Indiana (elected to the Senate late 1944 and served through 1962), the Packard company was revived and headed by the founder's son Thomas Charles Capehart. The new jukebox series "Packard 7 Pla-Mor" (pronounced *play more*) and "Packard Manhattan" with matching speakers was produced until the spring of 1949, and the Packard Manufacturing Co. was finally taken over by The Rudolph Wurlitzer Co. early in September, 1951. The "Packard 7 Pla-Mor" was design patented by Robert L. Ardner, and Russell E. Brandenburger Sr. was responsible for the design of the "Packard Manhattan" introduced in January, 1948. Edward E. Collison, who constructed most of the mechanical parts for "Packard" jukeboxes together with Paul U. Lannerd, had as early as 1941 assigned several nicely designed speakers and remote controls to Homer Earl Capehart, among them was the "Packard Butler" remote control unit. The design of the "Butler" is in fact also part of a complete functional patent.

The "Filben FP-300 Maestro" was another jukebox of the post-war 'golden' era, which is considered to be something special by enthusiasts today. The first models with the name "Filben" (mechanism based on the original patent filed on the 15th July, 1937, by William Michael Filben) were made according to a license contract of September, 1938, with the Rock-Ola Manufacturing Corp., but unfortunately William Michael Filben died on the 1st May, 1940, without any company name officially registered (his patent was granted on the 3rd March, 1942). The rights under the license contract, however, were then vested in his widow, Berniece Filben, and in his three minor daughters (Patricia, Rosemary, and Dolores). Later the widow assigned all rights to the newly constructed Filben Manufacturing Co. against 51% of the shares, and the production of automatic phonographs was carried out by the co-owner of the company, Leonard E. Baskfield (49% of the shares). The actual production of the mechanisms and cabinets took place at Batavia Metal Products Inc. (River Street in Batavia, Illinois) according to a contract stating that an initial amount of 10,000 such phonographs should be produced. The contract also provided for re-designing of the cabinet at the expense of Batavia Metal Products Inc., and the distribution of all Filben phonographs, including the "Mirro~cle Music" line with stow-a-way unit "FM-S2", was carried

out by the U. S. Challenge Co. in Chicago. The Challenge name is interesting, as it seems the company in question had produced wind mills and farm equipment for decades at the facilities (River Street) in Batavia, but the firm Batavia Metal Products Inc. was rather young and mainly produced shells for the army during the war. Also it is interesting, by the way, that the first Filben cabinets were named "Mirro~cle Music", an amalgamation of the two words mirror and miracle. The unconventional model "FP-300 Maestro" was then produced during a short period in 1948 (introduced 19th-22nd January 1948 at the Morrison Hotel in Chicago) and the classic American Streamline Movement design, which in passing could remind one of a classic American locomotive of the 1940s, is unfortunately not known as a design patent. The design of the "Maestro'48" (the real, official name) could like a few others of the era be part of a complete functional patent, but it has never been found. Today two versions are known: one with red plastics often referred to as the "FP-300" and another, rare one with green plastics referred to as the "F8-300". Both models can also today among jukebox collectors be referred to as "FP-305" or "FE-305". In literature it is mentioned that there were several patent disputes with the Rock-Ola Manufacturing Corp., and finally the court decision in July/August, 1948, in favor of the plaintiff (the Rock-Ola Manufacturing Corp.) had to be followed by a production stop late in the autumn 1948, and the name of the designer at Batavia Metal Products Inc. related to the fantastic "Maestro'48" is unfortunately not known to the author. However, it is interesting to note in connection with Batavia and the U.S. Challenge Co. that Samuel Kresberg, who was deeply involved in the 1946 sales promotion of the first self-contained Batavia produced jukebox, the "Challenger'47" (unfortunately a stillborn project), had been involved with Capitol Automatic Music Co. Inc. in New York in the mid thirties. Back then Samuel Kresberg developed and patented a 16-selection mechanism like the John Gabel designed mechanism with 'Programatic Dial', and his patent (filed 1934) was assigned to Capitol Automatic Music Co. Inc., and used in the 16-selection jukebox "Sweet Sixteen" made in 1934/35. The company in New York, of which Kresberg was co-founder, was mainly known for rebuilding and operating cut-down "Gabel's Entertainer" models until the late thirties. Samuel Kresberg was vice-president of Drink-O-Mat Industries Inc. in New York before he came to Batavia, but due to some disagreements between Kresberg and the owners of Batavia he left the company early in the process, and moved back again to New York and became president of Automatic Products Co. (later known as Apco Inc.) founded by himself and Albert Cole. In the mid fifties Samuel Kresberg lived in Miami in Florida.

One of the last important jukebox productions of the 'Golden Age' took place at the Mills Novelty Co., also known as Mills Industries Inc. in the late 1940s. The firm is mentioned previously, also in connection with audio/visual machines, and after the war the production of ordinary jukeboxes went on with the "Mills Constellation" models. The mechanism used in the last series of coin-operated

Mills phonographs was developed by the team headed by the technical director John P. (Midge) Ryan, and the cabinet for the “Constellation” was designed by the noted industrial designer Walter Lockwood Martling Jr., who was also responsible for some remarkable drafts for Mills speakers and remote controls in 1946/47. Finally, after the phonograph division of Mills Industries Inc. had been taken over by H. C. Evans & Co. the “Constellation” model was produced in two versions, the models “950” and “951”, of which the model “951” had a fully visible mechanism through the front glass.

Two important people, Paul M. Fuller and Albert Dorne

Paul M. Fuller: It has over the years been believed that Paul Max Fuller was born in Switzerland on the 5th January, 1897. Actually he was born on the French island Corsica (born name was Paul Furler), and then still an infant brought to Interlaken in Switzerland by his French mother, who married a Swiss citizen (Paul Fuller stated once that he was born in Interlaken on the 5th June, but celebrated birthdays on the 5th January). As a young man, on his honeymoon with his first wife Friedel Schaer, he went to Omaha in Nebraska to visit his wife's sister Louise, and Paul Furler may have thought that he could do well in the States as an architect/designer. It is believed that Paul Furler worked some time as a farm hand in Wyoming (most probably in Nebraska) while he learned the Anglo-American language, and it is also believed that Paul Fuller took the middle name Max from a friend when he applied for American citizenship. Max Hofstetter was in fact a good friend and fellow designer, who were on the ship Rotterdam from Boulogne-sur-Mer to New York with Paul and Friedel when they were on their honeymoon. According to the U.S. Naturalization forms Paul (Furler) Fuller arrived in New York on the 21st August 1920. Later Paul M. Fuller went to Chicago and worked for the firm Marshall Field & Co. (hundred years later the fourth largest general merchandise retailer in the States). At the Marshall Field & Co. Paul M. Fuller soon became the chief designer in charge of interior decorating. In the thirties he was the originator, designer, and principal owner of the popular *Black Forest* village display at the Chicago World's Fair (1933-34) and also designer of the *Sun Valley* alpine village at the New York World's Fair (1939-40). Late in 1935 (after separation from Friedel) Paul M. Fuller, by then a noted design genius, was employed as a consultant by The Rudolph Wurlitzer Company in North Tonawanda to design jukebox cabinets, and later as head of the design department. Paul M. Fuller immediately started to explore alternatives to the conservative wood-'n'-glass cabinet styles, and discovered the shimmering, translucent depth of Catalin plastic as an explosion of art and style (Catalin, a registered trademark of the Catalin Corporation in New York). Paul M. Fuller also discovered bubble tubes (described then as *liquid fire*), when Edward Merle Colegrove, sales representative for Biolite Inc. in New York, presented a new advertising sign with bubble effect to him in the autumn 1938. After proper testing, the bubble tubes were used in the cabinet for the Wurlitzer *Model 800*, and that really was the zenith of Fuller's efforts to create eye-appealing features of jukeboxes.

During the years at The Rudolph Wurlitzer Company Paul M. Fuller had a total of 17 jukebox cabinet designs patented in his own name. The classic Fuller designs started with *Model 312* (patent No. D:99,277 filed on the 8th February,1936) and ended with *Model 1100* (patent No. D:153,675 filed on the 8th September, 1947). Among the 17 designs was one for a *Model 260 Console*

Speaker and another for a very nice remote control unit for *Model 1100* (filed the same day), but those two designs were as far as it is known today never produced at The Rudolph Wurlitzer Company in North Tonawanda. Paul M. Fuller also filed an additional patent for a remote-control selector device on the 17th August, 1945 (patent No. 2,612,710 granted on the 7th October, 1952), and he also designed electric organs and keyboard covers for The Rudolph Wurlitzer Company in 1946 and 1947. Paul M. (nickname: Malt) Fuller was together with general sales manager Milton (Mike) G. Hammergren and the famed illustrator Albert Dorne responsible for the whirlwind national Wurlitzer advertising campaign around 1947, and the *dean of jukebox designers* finally left the major jukebox manufacturer in 1948 leaving behind a legacy that transcended the mere product and helped to define an age, the *Golden Age* of automatic coin-op phonographs. The last coin-op phonograph model Paul M. Fuller was involved with as designer at The Rudolph Wurlitzer Company was the Model 1250 introduced on the market early 1950.

In 1949, soon after leaving the jukebox trade and the Fairfax Hotel in Buffalo, where he resided during the years at The Rudolph Wurlitzer Company, Paul M. Fuller established his own design engineering company in Oneida, the Paul M. Fuller Company, and continued working with wonderful furniture and piano designs. Years before, in 1937, Paul M. Fuller assigned a very nice desk design to the Chicago based Clemco Desk Mfg. Co., and after his employment at The Rudolph Wurlitzer Company he was vice-president in charge of design and production of the SuperVend Sales Corp. based in Chicago. The SuperVend Corp. was acquired by a group of investors headed by Milton G. Hammergren in 1950. Paul Max Fuller suffered a fatal heart attack only 54 years of age, and died at the Millard Fillmore Hospital in Buffalo on the 29th March, 1951, and then cremated at the Forest Lawn Chapel two days later. According to the obituary in the "Buffalo Evening News" Paul M. Fuller was survived by his widow Ruby Rudd Fuller (his second wife), his son Paul Norman Fuller, and also by his brother Hans (Furler) in Zürich in Switzerland. Paul M. Fuller's first wife Friedel died in 1985 (born in December, 1896) and his son Paul Norman died in 1999 (born in September, 1927). Unfortunately, his second son Charles Frederick died only eight years of age in 1938 (born in December, 1929).

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Albert Dorne, renowned advertising artist, illustrator, founder and first president of the Famous Artists School of Westport, Connecticut, was born on the 7th February, 1904, in the slums of New York's East Side. From the time he was five years old, he wanted to be an artist, a desire that stayed with him through a childhood ravaged by tuberculosis, heart trouble, and poverty. After finishing seventh grade, Albert Dorne had to quit school to support his mother, two sisters,

and a younger brother, which put an end to his formal education. He worked days and nights at various jobs. At the age of 13 he managed four newsstands in New York, at the age of 14 he became an office boy with a movie chain, and at 15 he was a salesman for another movie chain. At the age of 16 Albert Dorne was married, and began to worry that the career he had planned in art was slipping by fast. To get started he took a job without pay in an artist's studio as a general handyman working from nine to five and simultaneously he took another job as a shipping clerk working from midnight to nine a.m.. When Albert Dorne was 16-17 years of age he became, for a brief period, a professional fighter, winning ten bouts. In his eleventh fight, he was flattened by a veteran, and he decided boxing was not the road to becoming an artist. At last, Albert Dorne began working for advertising accounts, and his art started appearing in national magazines such as "Life", "Colliers", "Saturday Evening Post", "Look", and "Liberty". At 22 he was earning $500 a week, and through the 1930s and 1940s he became the highest paid and most-in-demand advertising artist in the States. Albert Dorne made a series of colourful advertisements for The Rudolph Wurlitzer Co. in the whirlwind national advertising campaign of 1946-1948 initiated by the general sales manager Milton (Mike) G. Hammergren and the industrial designer Paul M. Fuller. All through his career, Albert Dorne was available to young artists who wanted his advice. The fact that so many aspiring artists needed help gave him an idea that culminated in the Famous Artists School founded in 1948. With the dedication he had once reserved for illustration, he developed the idea, a home study program prepared and directed by America's foremost artists. Albert Dorne built his program into one of the largest correspondence schools in the world. In the early 1960s he also founded the Famous Writers School and the Famous Photographers School. The schools had more than 50,000 students in the United States and 54 foreign countries, and in 1963 grossed $10 million a year. In 1963 Albert Dorne received the Horatio Alger Award for success in his chosen field, and became thus a member of the Horatio Alger Association of Distinguished Americans. Albert Dorne, the former president of the Society of Illustrators and member of the President's Committee for the Employment of the Handicapped, died on the 15th December, 1965 (in the University hospital, New York city). Even today his name is recognized as something very special, for example through the honorary Albert Dorne professorship in drawing at the University of Bridgeport's Department of Art (endowed in 1964).

Connections between music- and jukebox-industry

It might be considered a coincidence that the development of 100 selection 45rpm mechanisms for the jukeboxes occurred at the same time as the new music style, known today as the rock-‘n’-roll, was heard on ‘race recordings’ for the first time, but there may have been connections between the development of the new black powerful beat of the music, the record ban of 1948, and the jukebox industry’s development of new mechanisms for the small vinylite discs. Who knows for sure?

The new 100 selection “Select-O-Matic” mechanism made by The Seeburg Corp. had been on the way for seven years (developed by Edward F. Andrews back in 1941) before it was reliable for use in the Mahlon W. Kenney styled “Seeburg M-100-A” introduced late in 1948. The mechanism was at first used for 78rpm, but later most of the “M-100-A” models were converted to play 45rpm. The interesting fact in this connection is that there was a record ban for the whole of 1948. During that year there were no new 78rpm records pressed by the record companies, and most of the rocking blues recordings that came after Wynonie Harris’ “Good Rocking Tonight” were released early in 1949 although they were master taped late in 1947 or during the ban in 1948. The tune “Good Rocking Tonight” on DeLuxe label had been released as a parody on gospel by Roy Brown early in 1947 (real blues), but along came Wynonie Harris, who changed the rhythm to a gospel rhythm of rocking on the 2nd and 4th beat of the 4/4 measure, and that recording of the tune released on King label might be the one that really started the development of the rock-‘n’-roll music. All of this has been well researched by Morgan Wright in the States. The rhythm-‘n’-blues was forever changed, and during the period 1949-1951 the black artists in America tried to out-rock eachother. Today the first recording that started the rock-‘n’-roll era, which means having the perfect, powerful new beat, is said to be the “Rocket 88” released early in 1951 on Chess label by Jackie Brenston (1930-1979) & His Delta Cats (with Ike Turner on piano). Later that year Bill Haley (William John Clifton Haley, 1925-1981) also recorded the tune on Essex label, and became the first white artist to play the new rock-‘n’-roll music.

The jukebox industry, however, had a really big problem with the record ban of 1948. The industry did not know for sure, if it was going to be a total change for 33 1/3rpm, and that no 78rpm shellac records would be pressed in the years to come. As a consequence, it was considered a good idea by the manufacturers to try to make mechanisms for the smaller 45rpm vinyl records developed by RCA. The Seeburg Corp. was the first to meet the challenge due to the invention by Edward F. Andrews used in the new model “M-100-A” of 1948 (cabinet designed by Mahlon W. Kenney), and the firm could therefore take over the leading role in the industry until The Rudolph Wurlitzer Co., due to its size and long-time strength on

the music market, was able again to compete for the leading role in 1954. During that year the new "Wurlitzer 1700AF" with horizontal carousel record changer system was released by The Rudolph Wurlitzer Co., and The Seeburg Corp. had to answer back with the first American 200 selection mechanism used in the "V-200" introduced late summer of 1955.

Going back to the new music style of the late 1940s, it is interesting to note that the new music style was in place but it had no official name. The name for the music came when the noted disc jockey Alan Freed (Albert James Freed, 1921-1965) went on the air again on the 11th July, 1951, with his first Rock and Roll Party in which he actually programmed black music for a white audience. Alan Freed had been talked into returning to radio by Leo Mintz, a record store owner in Cleveland, after a position as disc jockey at a television station, and Leo Mintz even suggested that Alan Freed should try to play the rocking tunes known as 'race records' that were so popular and bought in large numbers by the jukebox operators in the Negro neighborhoods. Alan Freed is said to have coined the new phrase from the lyrics of the 1947 rhythm-'n'-blues hit "We're Gonna Rock (We're Gonna Roll)" released on Apollo label by Wild Bill Moore (William M. Moore, 1918-1983), but Wild Bill Moore also recorded the tune "Rock and Roll" on Modern label in 1949. The same tune had in fact been released on Manor label by Paul Bascomb in 1947 before the record ban, so it might have been that tune instead that gave Alan Freed the new phrase. After Alan Freed had used the new phrase in his radio shows other disc jockeys at big radio stations all over America followed suit.

Thus, it is a fact that the rock-'n'-roll term was official in 1951, and that it could celebrate its 50 Years Anniversary in 2001, the first year of the new millenium. It is also a fact that the jukebox industry that accounted for a large proportion of total record sales and played a major role in its ultimate success did right, when it adopted the vinyl 45rpm record so quickly and threw its weight behind RCA's product. The general sales manager at The Seeburg Corp., Carl T. McKelvy, had been aware right away that the vinyl record was ideally suited for the jukebox operators because it was light, small, and unbreakable. The Seeburg Corp. came out with model "M-100-B" in 1950, the first exclusively 45rpm jukebox. The other record companies including Columbia gradually moved over to 45rpm for their popular recordings (including rock-'n'-roll) instead of 33 1/3rpm discs. The other major American jukebox manufacturers, The Rock-Ola Manufacturing Corp., AMI Inc. (Automatic Musical Instruments), and of course The Rudolph Wurlitzer Co., were reluctantly compelled to follow in Seeburg's footsteps and made the decision to go full steam into 45's in 1953 with the exclusively 45rpm models "Rock-Ola 1438 Comet-Fireball", "AMI E-80", and "Wurlitzer 1650". The jukebox industry and the record companies went hand in hand on this and in

1954 a total of not less than 200 million 45's were sold in America. In the early 1950s about 60 million records were used annually by jukeboxes operators.

Chapter VI

The ‘Silver Age’ of jukeboxes

1949-1962

The ‘Silver Age’ of jukeboxes is often described as the period starting with the first 100-selection phonograph, “Seeburg M-100-A” and “-B”, designed by Mahlon W. Kenney and introduced by The J. P. Seeburg Corp. in 1948/49, and ending with the last models with visible record changing mechanism in the early 1960s. However, it is interesting to note that the first real, chrome ‘Silver Age’ boxes were introduced around 1952, one year after the death of the leading designer of the ‘Golden Age’, Paul M. (Malt) Fuller. He passed away as mentioned previously on the 29th March, 1951 only 54 years of age.

In the early years of the 1950s The J. P. Seeburg Corp. (founded in 1902) produced nice machines with pilastres and visible mechanisms, and none of them in fact had the previously used ‘Symphonola’-prefix. The first one was model “M-100-C” of 1952, known from the M.A.S.H. series on television, and after that the somewhat similar “HF-100-G” and “W-100” models of 1953. Then in 1954 a new design was tried out. The models “HF-100-R Bandshell” and “HF-100-J” had a boomerang-shaped top section, and became very popular in cafés and diners. In 1955 the Seeburg company introduced the first American 200-selection jukebox, the model “V-200” / “VL-200” with ‘Dual Music System’, the model is often nicknamed the ‘Towel Rail’. At this point in the mid 1950s the Seeburg company was hit by litigation under the Sherman Anti-Trust Act and found guilty of operating a closed network of operators and distributors which was judged to impose unreasonable restraint on other tradesmen. Anyway, none of the jukebox cabinets mentioned so far were ever design patented, but it is obvious that they represented a new line after the ‘Symphonola’ models designed by Nels A. Miller. The next industrial designer to become a well-known jukebox trend-setter for Seeburg was Carl W. Sundberg. It is quite clear that the “KD-200” and the “L”-series of 1957/58 came from his drawing-board, but his first patented design was filed in November, 1958. The cabinet for the model “222” / “220” was the first of a number of very nice patented Sundberg designs of the early 1960s. In 1956 the Seeburg family sold out the company activities to Delbert W. Coleman and the Fort Pitt Industries, and in the autumn of 1964 the Seeburg Corp. took over Williams Electronic Games Inc. from industry investors, the Commonwealth United Corp. and the XCor International Inc. (Samuel Stern and Bernard Weinberg), and in 1977 the company itself was renamed XCor International (but still known also as Seeburg Industries). It seems that the Seeburg company was sold again due to financial difficulties among the investors in 1979/80 to become

the Seeburg Division of the Stern Electronics Inc. (until March, 1984). The old firm, Williams Electronic Games Inc., was extricated at that time. The founder of the Seeburg company, Justinus Percival Sjöberg (born 20th April, 1871), immigrated to the States in 1887, aged 16, and took the name Seeburg, when he was granted American citizenship in 1892. Justus P. Seeburg died on the 21st October, 1958, in Stockholm, Sweden, 87 years of age, and was according to the official archives cremated. His ashes were then sent to the States for burial, and he was not as could be expected buried in Gothenburg (Göteborg) in Sweden where he was born. Justus P. Seeburg was according to the obituary survived by his second wife Gurli Maria (married in July, 1950), his only son Noel Marshall, and his two grandsons Justus Percival II and Noel Marshall Jr. These are only a few short notes about the history of the Seeburg family and company activities, and further information can be found in various articles and books written by collectors and historians over the past two decades.

During the same period in the early 'Silver Age' after a difficult start with the models "1432 Rocket", "1434 Super Rocket", and "1436 Fireball", the Rock-Ola Manufacturing Corp. tried to compete with the Seeburg Corp., and introduced the models, "1442" and "1446", that looked very much like the Seeburgs. They were not design patented, and the same was the case with the following nice models "1448", "1452" and "1454", which were all produced with minor changes until 1956. The three models were together with the later 'Tempo'-series the high points amongst Rock-Ola's output during the 'Silver Age'. After the 1954-56 models came the non-patented models "1455-S" and "1458", and then in 1959 came the new David C. Rockola design patented cabinet for the wall-mounted model "1464". Late in October, 1959, actually at the same time as the design patent for the wall-mounted model, came also a full phonograph patent including cabinet design for the 'Tempo'-series, the models "1468" through "1485". The full patent was filed by David C. Rockola, Ralph Petri, and Howard Sifferle, and of course assigned to the Rock-Ola Manufacturing Corp. before it was granted in March, 1963, just like other functional patents filed by David C. Rockola and employees at the factory in Chicago.

After Paul M. Fuller had left The Rudolph Wurlitzer Co., and Joseph J. Clement (designer of Wurlitzer's smallest remote-control barbox, model "2140" nicknamed "Frogbox", together with Harry C. Kline Jr. in 1947) had taken over the designing responsibility, there were many new ideas how to catch up with the 100 selections offered by Seeburg. The company introduced several complicated add-on bits to the Simplex mechanism (including the 'WurliMagic Brain' system on model "1500" to play both 78 and 45rpm records), but most of the models, from model "1250" of 1950 through model "1650A" of 1953, failed in the competition. When a new 104-selection model "1700" was introduced in 1954, the company was at a turning point, and finally in 1956, the centenary year of the company, a

new elegantly styled 200-selection model “2000 Centennial”, came out. None of the ‘Silver Age’ models from Wurlitzer were design patented, but it was difficult for competitors to copy the cabinets because they were well matched with the patented carousel mechanism, a mechanism that Wurlitzer seems to have bought rights to copy from the German Tonomat-Automaten in Neu Isenburg near Frankfurt a/Main. The company continued with the new and elegant style until late in 1957 when the less expensive model “2150” was introduced. After that the Wurlitzer jukeboxes, the models “2200” through “2250”, became less elegant in square cabinets, and the company was ready for the next decade, the 1960s, with a lot of box-shaped jukebox cabinets. However, it is important to mention here that the German branch of the company, Deutsche Wurlitzer GmbH, was founded in 1960 and that the company started full-scale production of the “Lyric” in 1961. The German “Lyric” was produced with modifications until 1973. During the 1950s and 1960s Farny Reginald Wurlitzer (born 7th December 1883, deceased 6th May 1972) headed the main company as the last of the three brothers, who had inherited the company after its founder, Franzis Rudolph Wurlitzer, born in Schilbach (Schöneck) in Saxony (born 1st February 1831, deceased 14th January 1914). The other two brothers in the second generation heading the company were Howard Eugene Wurlitzer (born 5th September 1871, deceased 30th October 1928) and Rudolph Henry Wurlitzer (born 31st December 1873, deceased 27th May 1948).

In order to continue the line of the most important jukebox manufacturers of the ‘Silver Age’ it is now time for a few more notes about AMI, The Automatic Musical Instruments Inc. in Grand Rapids, Michigan. Like the other two big manufacturers AMI was caught a little off guard when Seeburg introduced the 100-selection model in 1948/49, but it was somewhat easier to increase the number of selections on the 'Model 500 Record Changer' up to a total of 120 selections in 45rpm in the models “E-120”, “F-120”, and “G-120” of the period 1953-1956, until a new carousel mechanism was introduced for the model “G-200” of 1956. The 'Model 500 Record Changer' was originally developed, refined, and patented by Anthony M. Kasnowich. Design patent for the “G-200” was filed in September, 1955, by Melvin H. Boldt. Melvin H. Boldt then carried on with the new line of nice, eye catching “H”-, “I”-, “Jubilee”-, and “K”-cabinets of 1957-1960. The “G”-, “H”-, and also the “Jubilee”-model, were copied and produced by European license holders like BAL-AMI (Balfour Machine Engineering Co.) in England and IMA-AMI (Jensen Music Automates A/S) in Denmark. As the noted president of AMI Inc., John W. Haddock, decided to retire from the jukebox business around 1961, and the Automatic Canteen Co. of America had taken over the administration, a new industrial designer, Jack R. Mell, was consulted. He would soon come up with a strange but beautiful patented cabinet design.

One of the most remarkable manufacturers of the 'Silver Age', the United Music Corp. at 3401 North California Avenue in Chicago, came up with a line of four models in the late 1950s. The first two models, the "UPA-100" and "UPB-100", and the carousel mechanism and finally also the design for the "Ultra Compact Wall-Box" resulted in four patents by Lyndon A. Durant. Raymond Loewy is often related to the design of the United series, but the correct name on the patents is Lyndon A. Durant, who was not only the founder of the United Music Corp. in 1942, but certainly also a gifted designer. The industrial design legend Raymond Loewy was one of the architects of the 'American Streamline Movement', and his style surely influenced the design of the United jukeboxes. The models, "UPA-100", "UPB-100", "UPC-100", and "UPD-100", produced from 1957 until 1961 never became a big commercial success, as they were almost unrivalled in the capacity to radiate absolutely nothing, and the Seeburg Corp. finally bought up the company in the autumn of 1964 (also taking over Williams Electronic Games Inc. a few months earlier). It is interesting that Seeburg Corp. acquired all assets and the main plant of the company on North California Avenue, but the patents, tools, and dies on the jukeboxes (plus other production facilities) were not included in the purchase. The Seeburg Corp. had started an acquisition program back in 1958 in order to be able to provide operators with a complete game line as well as complete lines in music and vending, and in 1964/65 it seems the corporation had reached its goal.

A few of the minor American productions in the early 1950 can be added here. The Ristaucrat company owned by the three brothers Alfred G., Harold, and Arnold E. Ristau had been active in the very early 1930s, but the depression forced them to stop production and as mentioned previously to sell the Paul H. Smythe Jr. patented mechanism to the Rock-Ola Manufacturing Corp.. Then again in the period 1950-1954 the family tried to find a market for small inexpensive machines with the "Ristaucrat 45" and "S-45" counter-top jukeboxes. The Ristau models had no immediate nation-wide success, although it seems they did get a good foothold on the market like the two competitors, the "Hit Parade" designed by Jerry C. Koci and produced by Chicago Coin Machine Co. founded 1933 (taken over in 1977 by Samuel Stern and renamed Stern Electronics Inc.), and the "Music Mite" designed by Edward J. Collins in Los Angeles and produced by Williams Electronic Manufacturing Inc. in Chicago founded 1945/46 by Harry E. Williams ('the father of pinball', 1906-1983). Later the Ristau brothers even tried with a new concept and made a total of fifty "Ristaucrat" models assembled by the Atlas Manufacturing Co. for export in 1957. In the early 1960s they tried once again with a new style "Melodie Vendor" (Melodie Vendor Corp. in Appleton), but still without noticeable success, and the Ristau's ceased production of jukeboxes completely in 1964. The firm H. C. Evans & Co. at 1556 West Carroll Avenue in Chicago had taken over the phonograph division of Mills Novelty Co. in December, 1948, and continued to produce the "Constellation" model in 1951.

After that the company produced the models “Jubilee”, “Century”, “Holiday”, and “Jewel” until 1955, when the by then liquidated firm was sold to Jose Tabachnik and Abraham Grinberg in Mexico City. The machinery was then moved to Mexico to become the first real jukebox manufacturing plant in the country, not to be confused with the firm Casa Riojas, that assembled thousands of “Wurlitzer 1015” and “1100” models in the late 1940s. The product names “Holiday” and “Jewel” continued after the sale, but the design was nothing to brag about. The first really new Mexican model to follow was the “Maya”. A lot can be said about the American jukebox design of the 1950s, and the resemblance with tail-lights and fins of the cars can be found on boxes like the Seeburg “KD-200” and the Rock-Ola ‘Tempo’-series. They all represented distinct features taken from American 1950s automobile culture with a lot of fins and chrome.

Chapter VII

Jukeboxes going down but not out

1963-1985

Moving on to the early 1960s the design of coin-op music machines became quite different, and a lot of design patents were filed in order to protect the models in competition with the few other big manufacturers on the American market. Especially AMI, now by the name of Rowe/AMI, and Seeburg used the right to design patent the cabinets. At AMI the two distinct designs for "XJ Continental" and "XJ Lyric" were filed for patent in August, 1960, by Jack R. Mell, and both of them ("Continental 2" and "Lyric") were assembled or produced on license in Italy by Apparecchi Musicali Italiani in Turin (Torino). The "XJ Continental" is often referred to as the 'Radar', and both the "Lyric" and the "Continental" are much loved by collectors and enthusiasts today. After the two models designed by Jack R. Mell (patents granted in 1962), Melvin H. Boldt took over the trend-setting again at Rowe/AMI, and design patented the following models through the 1960s: "JAL-200" and "JEL-200" (1963), "JBM Tropicana" (1964), "JAN Diplomat" (1965), "Wall-ette" (remote control unit, 1965), "MM-1 Music Merchant" (1967), "CMM-1 Cadette" (1968), "MM-2 Music Master" (1968). Here it ought to be mentioned though that Rowe International Inc. became a wholly owned corporate subsidiary of Triangle Conduit & Cable Co. Inc. (Triangle Industries Inc.) in Whippany, New Jersey, in the spring of 1968. After the "Music Master" the official name of the product line was simply 'Rowe', and Melvin H. Boldt design patented the following models from 1969 until 1973: "MM-3 Music Miracle" (1969), "MM-4 Trimount" (1970) named in honour of Rowe's New England dealer team, "MM-5 President Line" (1971), the "RI-1" line, and the "TI-1" line (1973). After that Melvin H. Boldt designed the following jukeboxes around 1980/81: "R-82 Woodhue" (1980), "R-83 Claremont" (1981), and finally the "R-84 Prelude" (1981). Year in parenthesis indicates the year the patent was granted. One particular 'Rowe' design of the era, however, had other designer names attached to it: The front panel for the "CDII Cadette de Luxe Violetta" was filed for design patent by Walter L. Koch and Robert P. Franklin in 1971 and the patent was granted in 1973. Most if not all models of the 1980s clearly show the lines from the Boldt-designed boxes. Some trendy styles were the "R-85 Starlight" (1981), "R-86 Blue Magic" (1982), and the "Sapphire" series (models "R-87" through "R-92") leading to the new compact-disc era of jukeboxes that started around 1987.

At the Seeburg Corp. the following models were design patented by Carl W. Sundberg in the very early 1960s: "Q100" and "Q160" (1960) plus the "3W100

Wall-O-Matic" (remote control unit, 1960). James Cameron Gordon (sales president) and Theodore A. Dobson, however, filed the patented design for the "DS100" and "DS160" (1962). Mahlon W. Kenney (principal engineer for decades) and Carl W. Sundberg designed the next remote control unit, the "Consolette SCH-1" (1963), and Carl W. Sundberg and Theodore A. Dobson designed the full size "LPC-1" and "LPC-1R" phonograph cabinets (1963). The following model, the "LPC-480", was designed by William C. Prutting (1964), and that one is today considered among the best sound reproducing jukes of the 1960s. William G. Broman and Theodore A. Dobson were responsible for the design of the "PFEAIU Electra" and "APFEAI Fleetwood" (1965/66), and after that Carl W. Sundberg designed both the "SS-160 Stereo Showcase" (1967) and the "S-100 Phono-Jet" (1967). It is interesting, by the way, to note that the "Phono-Jet" model came out as a mirror image of the patented design. After the 1967 Seeburg models Raoul E. Rodriguez and Carl W. Sundberg designed the "LS1 Spectra" (1968), and Carl W. Sundberg alone designed the following two models, the "LS2 Gem" (1969) and "LS3 Apollo" (1970). The "Golden Jet" (1970) was designed by William G. Broman alone. In 1971 Carl W. Sundberg assigned the design patent for the Seeburg "Apollo Consolette" (a wall mounted selector unit) to another production company, the Walter E. Heller & Co., in Chicago. There might have been an ownership connection between Seeburg and the 'Heller' company, but it is not known for sure today by the author. During the following decade, the 1970s, there were a few additional patented designs from Seeburg. The "USC1 Musical Bandshell" (1971) was designed by Robert A. O'Neil alone, and the following "Marauder SX-100" (1972), the "FC1 Regency" (1973), and the "SB100 Magna Star" (1975/76), were all design patented by Robert A. O'Neil in collaboration with Michael C. Wilson. Some of the other trendy designs of the 1970s (after Carl W. Sundberg) and the 1980s were not design patented by the Seeburg company. For example the "SPS Olympian" (1972) and "SPS2 Matador", "FC1 Regency" (1973), "STD Vogue II" (1974), "STD2 Entertainer" (1975), "Sunstar" (1976), "SMC1 Disco" (1978), "SMC3 Prelude" (1984), and the compact-disc play "Crusader" (1986/87) followed by the new, nostalgic style. The "SMC3 Prelude" was the first jukebox that came out after the Seeburg Division of the Stern Electronics Inc. had been purchased in March, 1984, by the new Seeburg Phonograph Corp. formed by a group of industry investors including Noel Marshall Seeburg Jr. (3rd generation of the founding family). In the early 1990s the firm was renamed Seeburg International, also known as the Seeburg Manufacturing & Supply Co. owned by the Seeburg Satellite Broadcasting Corp. (1998).

None of the jukeboxes from the other two big jukebox companies, the Rock-Ola Manufacturing Corp. and The Rudolph Wurlitzer Co., were design patented in the 1960s and 1970s. It seems strange because there were so many models produced by both companies. It seems that the major manufacturers including Rock-Ola and

Wurlitzer were slightly behind the current design trends in the late 1960s and early 1970s. It was obvious, however, that the cabinet design was considered an important component of the complete product when sound transmission really was a factor. Plastic, that had been at first a novelty, was in the 1960s a necessary component material, but jukeboxes were moved from one location to the other, and literally had to be built to withstand the beating they were constantly subjected to during transport. At Wurlitzer it was simply a matter of building a cabinet with or without plastic that enhanced the tone, protected the mechanism, was durable, attractive, and that would blend with any location decor, and still allowed the finished jukebox to be sold at a reasonable price. In the 1960s Wurlitzer produced several box-shaped machines, for example models "2600" through "3000", the "3100 Americana", the "Satellite", and finally the "3600 SuperStar" and "3700 Americana III". The last try by Wurlitzer came in 1973/74 with the unique, limited edition revival of vintage phonograph styling, the model "1050 Nostalgia" using the electromechanical selector unit, known as 'Wurlamatic', developed by Frank B. Lumney and Ronald P. Eberhardt around 1967 (patented in September, 1972). The "1050 Nostalgia" is often referred to as the 'swan song' for the American Wurlitzer (production run of 2,000 ended in December, 1973), and the company finally stopped production with the model "3800" in 1974 leaving a legacy of wonderful music machines. At that time Deutsche Wurlitzer GmbH, a division of the company structure, had already manufactured the "C-110 Carousel" tape-playing model for the American market, and continued production of a long line of jukebox models with modifications until the mid 1980s. The models were: "Cabaret", "Atlanta", "Baltic", "Lyric", "Tarock", "X2", "Niagara", "X5", "X7", and "X9" ("X200"), "Cabarina", "Carillon", "Silhouette", "Estrella", "Barcarole", "Caravelle", "Fuego", the "Tele-Disc" model nicknamed the 'Flying Saucer', and finally the "SL200". Some of those German Wurlitzer models of the late 1970s had psychedelic colour décor to attract the attention of possible patrons and draw in nickels and dimes.

Rock-Ola Manufacturing Corp., however, never stopped production although the cabinets became very discreet, designed to blend into the background rather than be the focus of attention. During the 1960s, through the 1970s, and into the 1980s the company produced a lot of models. The "418 Rhapsody II" of 1964 was the last one of the era with visible mechanism through the front glass. After that came the following models, all with the new 'Mech-O-Matic' mechanism: "426 Grand Prix", "429 Starlet", "431 Coronado", "433 GP/Imperial", "434 Concerto", "435 Princess Deluxe", "436 Centura", "437 Ultra", and the "441 Deluxe Compact" plus a few modified models with different numbers. In the 1970s Rock-Ola produced the styles "442" (1970) through "471" (1976), and then the "Sybaris" and "Mystic" models in 1978. Those two models had similar to some of the Wurlitzer models rather psychedelic colour décor on the front. It is interesting to note here that Donald Charles Rockola, the son of David C. Rockola, developed

and filed the patent for the special "506 Tri-Vue Wallbox" in 1972. Donald C. Rockola also developed a few other, important jukebox cabinet details for the Rock-Ola company during the 1970s and 1980s. The last two patents by Donald C. Rockola (and Shuja Haque) for an album cover display kit for the model "498" of 1989 to make it a 45rpm/compact-disc combination machine, and a compact-disc holding mechanism for the new model "2000" of 1990, were both filed for patent in 1989, when the Rock-Ola Manufacturing Corp. moved into the compact-disc jukebox era. In the period from 1978 until the mid 1980s the following jukeboxes had been produced by the Rock-Ola company: "Max 477", "Techna 480", "Vista 488", "Super Sound 490", and "Encore 494" (1987). In 1987 the company even tried with something new 'old' stuff, namely the 'exciting, vintage look' of the "Wurlitzer 1050". The original model made in 1973 had not been design patented, and it is obvious that both Wurlitzer and Rock-Ola found no reason to protect the cabinet designs, as there had to be a new attraction, a new jukebox, every year with the company name on it. The "Wurlitzer 1050" design was also marketed around 1979/80 with the brand name "Sonata 1050 Nostalgia" by the Corporacion Sonata S.A. in Mexico with a sales division in Culver City, California. The Mexican company had taken over the remains of the Wurlitzer company in 1975, but the new nostalgic 100-selection jukebox was no big success. The Wurlitzer named division in Germany became part of the Nelson Group of Companies in 1985, but since then, in the late 1990s in fact, the structure of the company changed, and the main office is again situated in America, this time in Gurnee in Illinois. The other major company, the Rock-Ola Manufacturing Corp., was taken over by the Antique Apparatus Co. in September, 1992, shortly before David Colin (Cullen) Rockola died at the age of 96 years, but the product name Rock-Ola lives on into the new millennium due to a line of well-designed jukeboxes. The history of most of the modern American jukebox manufacturers can be found and studied in the great books by Frank Adams, published 1983 through 1991 by AMR Publishing in Arlington, Washington.

The history of the audio/visual jukeboxes of the 1960s is also rather interesting, and it will be described a little further in a separate section. The well-known film jukeboxes, the "Scopitone ST-16" and "Scopitone ST-36", were made in France in the very late 1950s and early 1960s. Later the version called "Scopitone 450" was produced by Tel-A-Sign Inc. in Chicago, but the machines were never as successful as could be expected. The first original patent for the "Scopitone" was filed in July, 1956, in France by the firm Cie d'Applications Mécaniques à l'Électronique au Cinéma et à l'Atomistique, also called CAMECA at 103 Boulevard Saint-Denis in Courbevoie, later located at 79 Boulevard Haussmann in Saint-Denis (both northern suburbs to Paris), and the last of the four known, registered patents by Jacques Guernet and CAMECA was granted as late as January, 1966. The basic patent, however, was filed by the Italian Teresio Dessilani on the 22nd December, 1958. The company CAMECA was in fact an

affiliation of the Compagnie Générale de T.S.F. (Télégraphie Sans Fil). The name ‘Scopitone’ was an amalgam of the two Greek words ‘scopein’ and ‘tonos’ meaning ‘to observe’ and ‘the way musical notes come together and move apart on a scale’, and the first machine, the “ST-16” was presented to the press on the 28th March, 1960, by the engineer Frédéric Mathieu, who was also the general manager of CAMECA, and after that to the public at the ‘Foire de Paris’, 14th-29th May, 1960. After the ‘Scopitone’ patents there were at least two other interesting film jukebox designs in the 1960s. The European one related to the “Cinebox” machines was filed for patent in 1964 by Angelo Bottani in Milan, Italy, and the model was probably also manufactured by Società Internazionale Fonovisione S.P.A. in Milan. The 40-selection “Cinebox” machines were also assembled on license in France, and the “Colorama” (“Cinevision”) version was marketed by Intersphere Development Corp., an affiliation of the Estey Electronics Inc., in America without immediate success. One important feature of the “Cinebox” compared to the “Scopitone” was of course an ‘Advertising Message Repeater’, a device flashing paid advertising messages from slides onto the screen whenever the machine was idle. The very first “Cinebox” based on the original patent by Raffaello Nistri was in fact presented to the press in Paris on the 25th February, 1960, by Société Internationale de Phonovision (the French subsidiary of the Italian firm), and shown to the public at the ‘Foire de Paris’ in May (same time as the “Scopitone”). The “Cinebox” was as a matter of fact invented by the company Società Internazionale Fonovisione S.P.A. in Rome (later Milan), Italy, in the autumn of 1959 (Raffaello Nistri’s patent filed on the 12th October, 1959). In America, however, Henry Albert Schwartz filed the design patent for the “Color-Sonic”, also known as the “Combi 150”, in 1966, and the patent was assigned to the company Color-Sonics Inc. alias National Co. Inc. in New York. The “Color-Sonic” machines were manufactured at the facilities of the National Co. Inc. in Melrose, Massachusetts. The other French machines of the same era, the 50-selection “Cinématic 50” for Super-8mm film, and the 28-selection “Cinématic” basic model for 16mm film clips, both made by Société Française de Radio Télévision at 72 rue Marceau in Montreuil, an eastern suburb to the French capital, and the 28-selection “Caravelle Tele Box” for 16mm film made by CIFA at 72 Boulevard du Montparnasse in the 14th district of Paris, were as far as it is known today not design patented. The idea of film jukeboxes was certainly not new. The concept can in fact be traced direct back to the Edison ‘Kinetoscope’ equipped with synchronized sound (1895) and the first real coin-operated moving picture machines patented in 1908 by Henry Konrad Sandell and in 1909 by Herbert Stephen Mills of Mills Novelty Co. in Chicago, known as the manufacturer of the famous 16mm, non-select, 8-film “Mills Panoram” of the 1940s designed by Everett B. Eckland. The ‘reverse title’ or ‘rear projection’ “Mills Panoram (Model MI-1340)” was presented to the public in Chicago in December, 1939, and the model became more popular and long-lived than other coin-op motion picture

machines of the era like the “Vis-O-Graph” made by the famous camera maker Ampro Corp. in Chicago, the “Pic-a-Tune” produced by the Phono-Kinema Co. in Los Angeles, and of course the 16mm ‘reverse title’, non-select, 10-film “Phonovision” introduced by the Phonovision Corp. of America also located in Los Angeles, a company that unfortunately had to fold very early in the process due to lack of capital. A few design patents related to those machines are known today, and especially the one filed for patent in 1941 by Abraham Shapiro and assigned to Ampro Corp. is very nice, and looks to some extent like the “Panoram”.

There were also a few other important patented European jukebox designs of the 1960s and 1970s. The first one that deserves to be mentioned here is the design for the “Chantal Panoramic” (also called “Enigma” or “Météore”) by André Alexandre Deriaz of Morat (Murten) in Switzerland. The design for the “Gramophone Automatique” (the “Chantal Panoramic”) was filed for patent on the 10th April, 1959, and extended in 1964 (ending 1969). The model is often referred to as the ‘Ice-cream Cone’ and has acquired cult status among collectors today. The “Chantal” was produced for nearly a decade until the early or mid 1960s by different companies. First of all of course by the company Derac S.A. in Morat in Switzerland headed by André Alexandre Deriaz and Jean Theodore Foufounis (represented by the firm Padorex S.A. in Lausanne), then on license by Ets. G.B.G. in Courbevoie, a western suburb to Paris in France (represented by the firm S.E.M., Société des Electrophones Météore at 8 rue de Montyon in Paris), and finally on license by the British firm Frenchy Products Co., Small Street, St. Philips in Bristol, which was also known for production of aircraft components (represented by the firm Chantal Ltd., Station Road, Kingswood in Bristol, headed by David H. C. Fry). The history of the “Chantal”, named after Jean Foufounis’ wife, is well described in the book “Swiss Jukebox Art” by Franz Urs Linder. The “Chantal” is also claimed to have been the world’s first 200-selection jukebox as it was tested in a restaurant in 1954, a year before the Seeburg Corp. introduced the model “V-200” in America.

In Germany there were a few patented designs related to jukeboxes manufactured by N.S.M. Apparatebau GmbH in the early 1970s. The two registered designers were Wilhelm Menke and Horst Friedrich, and both had two patents granted. Wilhelm Menke filed one design patent on the last day of 1968 (the “Prestige 120”) and one in September, 1970 (the “Prestige 160 B”). The two patents were granted in 1973 and 1971, respectively, and Horst Friedrich had the other two patented designs for the “Consul 130/160” series granted in 1972. The company N.S.M. Apparatebau GmbH was founded in 1952 by Herbert Nack, Gerhard W. Schulze, and Wilhelm Menke (Nack and Schulze had operated amusement machines together in Braunschweig since 1949), and the company became a well-known jukebox manufacturer due to the “Fanfare-60”, “Fanfare-100”, “Fanfare-

120", and "Fanfare-Silber" series of 1956 through 1961. The last of the models of the 'Silver Age' made by N.S.M. Apparatebau GmbH was the "Serenade" alias "Stereo Magic" (the brand name for export) in 1963. In the mid 1990s, the German N.S.M. Apparatebau GmbH was considered the largest jukebox manufacturer in the world, and Wilhelm Menke *et al.* of N.S.M. Apparatebau GmbH were granted the most recent design patent for the "Sapphire" compact-disc jukebox in February, 1999. Since then the N.S.M. Apparatebau GmbH has stopped production of jukeboxes in Bingen a/Rhein and has transferred or sold out all rights to a group of investors. The history of N.S.M. Apparatebau GmbH is like that of other European manufacturers described in detail in the great book "The Ultimate Jukebox Guide 1927-1974" by Ian Brown, Nigel Hutchins, and Gerry Mizera (published in 1994). That book really deserves to be updated and reprinted. Another valuable source of information related to the research on jukebox design is an article entitled "The Art of the Jukebox" with interesting thoughts published in 1996 by Lesley Winward in the 15th issue of the British magazine "The Record Machine". In the article the author, Lesley Winward, takes a look at the background to classic jukebox cabinet décor and design.

Chapter VIII

Replica design and new technology

1986-1998

In the latter half of the 1980s, in 1986/87 to be exact, the Deutsche Wurlitzer GmbH tried again with the Paul M. Fuller nostalgic design, marketing the "Wurlitzer 1015 OMT" (One More Time), and the new model became an immediate success. The "OMT"-model was also introduced with a new compact-disc mechanism in 1989. Late in the 1990s, the American main office of the Wurlitzer Jukebox Co. moved to Gurnee in Illinois, but the production facility was still located in Stemwede-Levern in Germany. Rock-Ola Manufacturing Corp., however, tried in 1987 as mentioned previously with a new version of the 1973 "Wurlitzer 1050" design and called it the "Rock-Ola Nostalgia 1000". Although the 160-selection model was introduced late in the autumn of 1986 as a 'truly sense-sational' model, the cabinet was still too heavy and did not have the elegance of the classic "Wurlitzer 1015" of 1946/47. In the 1990s several manufacturers in Europe and America reproduced the classic Paul M. Fuller design. N.S.M. Apparatebau GmbH in Bingen a/Rhein in Germany even used the term 'the Concorde of nostalgia jukeboxes' in the sales campaign for the "N.S.M. Nostalgia Gold", which had an extremely fast changer mechanism, but it wasand is always the cabinet design that really matters. In America official model names like "Rock-Ola Bubbler Nostalgic" (now produced by the Antique Apparatus Co., a leading exponent of the amalgamation of vintage design and hi-tech sound), "Rowe/AMI LaserStar Nostalgia" (voted the #1 compact-disc jukebox by American operators), and even "Seeburg Classic" (the models "SCCD-1" and "SCCD-2") can be found on 'nostalgic' jukeboxes. In England the manufacturing company Sound Leisure Ltd. at 39 Ings Road in Leeds (founded in 1978 by Alan J. Black and Kevin E. Moss) has been known for years for its very elegant and Paul M. Fuller inspired reproduction antique jukeboxes, especially the latest "Manhattan" and "Gazelle" series. The company amazed the public at the ATEI exhibition (held at Earls Court in London a few years ago) with a demonstration of the world's first digital satellite down loading video touch screen jukebox, and it will be interesting to follow the development of the British company in the years to come. The company received the 'Best Jukebox Award' for 1998 in Britain (the "Starlite 21" model) and for the second year in 1999. Also in England, back in 1978 by the way, David R. Wilcox filed a design patent for a phonograph cabinet that looked very much like the "Seeburg Musical Bandshell" of 1971 (assigned to the Associated Leisure Games Ltd.), and ten years later, in 1988, Bernard Hart filed a design patent for a compact-disc jukebox (assigned to the Arbiter Group Plc.). Finally, in 1990 Ivor Arbiter filed three design patents for

modern style, full size and wall-mounted compact-disc jukeboxes (all three assigned to Your Electronics Specialists Ltd.). Despite the fact, that different companies (including Rowe International Inc. with the design patented "Starlet" / "Wallstar" remote selector unit of 1992) try to find new ways of attracting patrons, it will be interesting to see for how many years the Paul M. Fuller classic design of 1946 will be able to stay on the market for popular musical entertainment. The Fuller-design seems to have started a never ending story, and today's jukebox history with the great re-birth of classic design may be just as exciting as the past. As the noted, late historian Richard M. Bueschel once wrote: "...There's one difference. You're living in it, and that makes you part of the passing parade, and a participant in the living history of the machine we covet and enjoy!...".

The author will conclude this historical survey by mentioning, that a new and rather interesting design patent was granted in England only a few years ago (in 1994). Stephen K. Joynes used the rear of a Morris Mascot (the Mini) as cabinet for a jukebox, probably well inspired by the "Songbird" jukebox introduced late in 1989 by the Carson City Manufacturing Co. in Shakopee, Minnesota (a copy of the tail section of a classic 1957 Ford Thunderbird). The historical survey continues, and it is interesting also to note here that in America the Seeburg Manufacturing & Supply Co. rocked the planet with the newest hi-tech jukebox, the "Seeburg Millennium" for the year 2000, and in Europe the British company Sound Leisure Ltd. produce an interesting line of timeless, wall-mounted, high-quality jukeboxes like the "Star Dust", "Nite Scene", and "Lime Lite" models with '21st Century Mechanism'. The mechanism was introduced in 1997 as the simplest commercial compact-disc mechanism in the world. The other manufacturers of commercial jukeboxes in both America and Europe also try of course to create a new eye-appealing style without features from the famed 'Golden Age' design of the 1940s. For example the appealing style of the Wurlitzer "Rainbow" (with the industry-first 120 compact-disc mechanism) and the Wurlitzer "Rave On", and the new style of the Rowe "Encore" and wall-mounted "Berkeley" and "Sunrise" models.

Considering the above mentioned models and designs, the following question might have been asked in the early morning hours among operators and patrons in the 'juke-joints': "Will there ever again be a really new, revolutionary era in jukebox design?" It is the author's opinion that one of the first steps towards a new design era was taken in 1998 by Christian Bökenkamp in Germany, a student since 1991 at the Berlin University of the Arts (Hochschule der Künste, Berlin). Christian Bökenkamp created a marvellous, unique 1:1 model of a wall-mounted jukebox for the theme 'Gestaltung einer Musikbox' completing his course of study in industrial design. The story continues, and it will be fun to study the developments in both the digital satellite down loading units and the new DVD-

units with space for 600 audio/video titles and 1,000 audio-only titles, and especially to study the design ideas for the cabinets in the years to come. There will undoubtedly be enough material for a new chapter in the history of jukeboxes.

Coin-operated telephone line music systems

When some of the American manufacturers of coin-operated music equipment started to develop and produce telephone line music systems in the 1940s as a counterpart to the real jukeboxes on location in the big cities, it was certainly not a new invention. About forty years earlier, in the 1890s, several coin-op systems had been operated with success in France, and of course also other countries in Europe. The famous French inventor Clément Agnès Ader (1841-1924) demonstrated 'the musical telephone' on the 9th August, 1881, at the l'Exposition Internationale d'Electricité in Paris. Clément Agnès Ader called his invention the "Théâtrophone", an amalgam of the two Greek words 'theatron' and 'phonè' meaning 'théâtre' (theatre) and 'voix' (voice), and at the time 48 listeners could hear the transmitted sounds from the Opera de Paris via lines laid through the sewers to the Palais de l'Industrie, where the demonstration took place. The commercial company, Compagnie du Théâtrophone, was established in Paris in 1890 to operate the telephone music line systems, and that was in fact the first public broadcast entertainment system. The coin-operated version was priced at 50 Centimes for 2 1/2 minutes and 1 Franc for 5 minutes listening time, and the "Théâtrophone" was soon followed in 1895 by the "Electrophone", which was a British equivalent to the French 'mother system' and operated by the Universal Telephone Co. in London. The "Electrophone" is mentioned, by the way, in the short story entitled "The Assyrian Rejuvenator" by Clifford Ashdown (pseudonym of Richard Austin Freeman, 1862-1943): "...Although the restaurant had been crowded some time before he arrived, Mr. Romney Pringle had secured his favourite seat opposite the feminine print after Gainsborough, and in the intervals of feeding listened to a selection from Mascagni through a convenient Electrophone, price sixpence in the slot...". The short story by Clifford Ashdown was published in 1902 by Ward Lock in London, and it is one of only a very few documentations in literature of the coin-op telephone line systems. Concerning the "Théâtrophone" it is interesting also to note the very nice poster entitled "Le Théâtrophone" designed by the French artist Jules Cheret (1836-1932) in 1896. It was one of a series of posters called "Les Maitre de l'Affiches" made by Jules Cheret, and today it is recognized as one of the real classic advertising posters of the era.

Following the success of the "Théâtrophone" and "Electrophone" systems, which had spread to salons, hotels, and restaurants, in most big cities in Britain and France, several interesting music libraries were established in the European capitals and big cities, like for example the Salon Jacquet at 315 rue Aristide Briand in Le Havre, a salon that had its own special token made. Those libraries were in fact based on the same principle as the telephone line systems, but they differed a little, as the phone or ordering units were only connected to a central library often located in the basement beneath the salon open to the public. Such

libraries were the true forerunners of the American telephone line music systems of the 1940s.

The music libraries all over Europe were established in the same manner as the Pathéphone and Odeon phonograph salons in Copenhagen researched by the author. The salons in Copenhagen were counterparts to the semi-automatic phonographs of the era offering none or very few selections, and Gotfred Schmedes opened the first Pathéphone Salon formed after a French model in the centre of Copenhagen in 1912. In the salon the patron could sit in a comfortable armchair and listen to Pathé records from an operator's room in the basement. In the beginning the operator(s) could play 12 records simultaneously, and the sound was led to the patron through a system of tubes. The Pathé records were special, as most collectors know, because they were played from the centre towards the edge with a rounded needle (safir), and also because they were phono-cut, which means that the safir/needle went up and down (hill-and-dale) and not sideways like it would on a normal needle-cut record (all other records produced according to Emile Berliner's patent of 1888). The Pathé records were accepted in Europe as very durable records for coin operated salon gramophones, mostly of French origin. To be able to listen to the records in the Pathéphone Salon the patron had to insert a token that he had bought at the entrance. Next to each armchair there was a set of tubes for communication with the operator in the basement and of course a coin-slot. In 1913, however, the equipment in the basement (in Copenhagen) was replaced by normal gramophones for needle-cut His Master's Voice records, and there were now about 500 different records to select from in the library. When the equipment in the basement was replaced the name of the salon changed as well, and the new name was Gramophon Concert Salon. Nearby in the centre of Copenhagen a new competitor called the Odeon Koncertsal was established early in 1913. The term Odeon (Odeum) is Greek and means 'public building for musical performances'. The Odeon records were of German origin, and competed in that way with the His Master's Voice records played only a few blocks away. The Odeon Koncertsal was registered until around 1918, and the Gramophon Concert Salon was registered until the year 1923. After that both salons were forgotten by most people, and today only very few in Copenhagen know the salons ever existed. An interesting aspect is, however, that Pathéphone salons had been established in several big cities in America long before the first one came to Copenhagen. The first salons were of course established in France, and the diameter of the token to be inserted in the slots in Copenhagen was 20 1/4 mm, equal to 3/4 of a French inch (10 Centimes coin), so one might assume that the original equipment was imported direct from France without further changes. Another French manufacturer of coin-op phonographs, Henri Jules Liorét, had been able to deliver slots for various coin diameters around 1901, so it would have been possible to have coin-slots for Danish coinage. The token to be used in the coin-slots in the Odeon Koncertsal had a diameter of 25 mm. The only reason why

the music libraries or salons with coin-slot concept could be established was of course that it was still impossible or at least not common, that ordinary, working people could buy gramophones and records. Another reason was the lack of selection in the semi- or fully automatic phonographs, and the lack of amplification of acoustic sound from most of the coin-op phonographs or salon gramophones operated in bars, cafés, and arcades.

Much later, in the late 1930s, other kinds of music libraries saw the light of day in America. Barry Ulanov wrote in an article in the "American Mercury" in October, 1940, that a system of jukeboxes were connected to central studios by phone lines, and that they gave customers a choice from thousands of numbers instead of a measly dozen or two. Also Walter Hurd wrote in the "Billboard" trade magazine that telephone music systems received considerable attention and enjoyed widespread newspaper publicity near the end of 1940. The most important and successful of these libraries was established by Kenneth C. Shyvers and his wife Lois in the city of Seattle, Washington. The "Multiphone" system allowed a total selection of 170 titles, whereas a normal coin-op automatic phonograph played only 20 or 24 selections. The "Multiphone" system was installed in cafés and diners along the bar or in each booth, and the system required two leased telephone lines, one for the "Multiphone" and another for the speakers on the wall. Kenneth C. Shyvers design patented several wall box cabinets for his system. Although the "Multiphone" units had been in business during the war years, the three known designs were all filed for patent in 1946/47. The first two versions were filed for patent on the 8th February, 1946, and the last design, which is best known to collectors today, was filed for patent on the 30th April, 1947. It is interesting that the second of the first two designs (Serial No. 126,381) used the top section of a "Packard Butler" type remote control designed years before (in 1940) by Edward E. Collison and Paul U. Lannerd. The wired music system played on Nickels and later on Dimes, and the "Shyvers' Multiphone" systems worked until the late 1950s in several cities in Washington like Seattle, Tacoma, and Olympia. The system could, however, not compete with the new, modern type of coin-operated phonographs with selection of up to 200 tunes on 45rpm records.

Another very interesting type of music library system invented and manufactured in Washington was the "Telo-Music" invented by Audry R. Kinney in Mount Vernon. Audry R. Kinney was a very able inventor, and around 1939/40, when he was in his prime, he developed both central units for bars and cafés and remote controls for telephone line music. These inventions including a complete 10-turntable central operator's unit are believed to be the forerunners, or maybe in fact the basis, of the Rock-Ola Mystic Music "3701 Master" and "3708 Super" phonographs with up to 250 selections introduced in 1940/41. The system was also in some cases connected to the "Mystic Music 3801" booth or bar boxes. The "Mystic Music 3701 Master" normally had 20 selections but during busy hours the

location owner could switch on the 'Mystic Music' system increasing the selections to 250. The later version of the "3701 Master" could be seen in a 'leading role' in the musical film entitled "Swing Hostess" of 1944 starring Iris Adrian among others. The 'Mystic Music' models had, which is well described by Russell Ofria Jr. in his articles published in the "Nickel-A-Tune" magazine in 1982, a certain influence on the design of the Rock-Ola "1501 Dial-A-Tune" remote selectors introduced late in 1940. It is also quite interesting to note, that the model used in the musical film of 1944, and pictured on a very nice lobbycard, had the Rock-Ola microphone on top, but the name 'Jennings' written across the front glass. The name 'Jennings' of course refers to the firm O. D. Jennings & Co. at 4309-39 West Lake Street in Chicago founded in 1906 by Ode D. Jennings (1874-1953). It seems that the Rock-Ola Manufacturing Corp. bought most rights to patents for the system known today as the 'Mystic Music', most probably also the patents filed by Audry R. Kinney in Mount Vernon, Washington. In 1942 a new series of 'Mystic Music' equipment was introduced, the Rock-Ola "3709 Location ToneColumn", which was a floor standing unit, like the "Spectravox 1801" and "1802" units, but with no phonograph mechanism inside the cabinet. The "3709 Location ToneColumn" is also well described in the above mentioned articles by Russell Ofria Jr., and the seven feet tall model must have been impressive to most patrons. The model had a motor driven colour dome projecting a colour-show onto the ceiling, and also a front glass panel with an animated fountain scene on it. The 'Mystic Music' system, which included a central station serving up to thirty locations, was continued by the Rock-Ola Manufacturing Corp. through the war years, but abandoned after the war. In the year 1946 only normal type phonographs were marketed with the Rock-Ola name on them.

One of the serious competitors to the Rock-Ola 'Mystic Music' system in 1940 was the AMI "Central Operating System", the "COS", also known today as wall mounted "Singing Towers". The system worked for years, operated by an affiliation of AMI called Singing Towers Inc., 3007 Washington Boulevard in Chicago, and the cabinets were all rather well designed by Lloyd J. Andres. The first design was filed for patent on the 13th April, 1939, and the following four designs were filed on the 19th and 21st February, 1940. A wonderful example of such a wall mounted "Singing Towers" can be found on page 78-79 in the book entitled "Coin-Ops On Location" published by Richard M. Bueschel and Eric D. Hatchell in 1993. That one, however, is also quite interesting, because the cabinet is a combination of two designs, the patent D:119,574 filed on the 13th April, 1939, and the patent D:121,179 filed on the 19th February, 1940. The AMI "COS" cabinets only contained coin-slot and push buttons, the microphone, and the speaker(s), and the unit was connected to a hide-away unit with 40 selections, two mechanisms with each 20 selections. In addition the location owner also had the choice of switching on the "Central Operating System", just like the Rock-Ola 'Mystic Music' system could be switched on during busy hours, and thereby

increasing the number of selections to 200 from the "COS". The systems were well developed, because the normal phonograph (with hide-away unit) could still work and provide music even if the central system failed. Automatic Musical Instruments Co. (AMI) also introduced a version with smaller wall mounted units. The 10 selection "Mighty Midget Wall Box" was designed by Lloyd J. Andres and filed for patent on the 28th May, 1938, and first used as a normal remote controller with speaker. Later, following the big, impressive wall mounted "Singing Towers" the same wall box was used with a microphone instead of the speaker, and of course with auxiliary speakers connected. It seems that also the "Senior Remote Controller", which had been patented in October, 1936, by Lloyd J. Andres, and also first introduced in 1936, was used for some time in the 1940s connected to the "COS" like the "Mighty Midget Wall Box". The microphone had been put into the top of the cabinet where the original design for the "Senior Remote Controller" had a clock pictured.

Today it is interesting to note, that also The Rudolph Wurlitzer Co. had a workable "TLMS", Telephone Line Music System, designed by La Mar E. Hayslett and Francis M. Schmidt and filed for patent on the 3rd September, 1940, but it seems the company never did market the system. The mighty Wurlitzer company must have had serious reasons not to compete with Rock-Ola and AMI in this field, but there is no record today of such reasons. It is known that Rodney Pantages Inc., Hollywood, entered the market with a nice "Maestro Your-Choice-By-Voice" system in the autumn 1940, and later also made cabinets for the system offering a program of not less than 2,000 selections that looked a little like the Filben "Mirro-cle Music" units, an amalgamation of the two words mirror and miracle. Other important competitors on the market were Personal Music Corp. in Newark, New Jersey, and Telo-Tune (Communication Equipment and Engineering Co.) in Chicago, Illinois, which should not be confused with Telo-Music and the inventor Audry R. Kinney mentioned above. Personal Music Corp. entered the market in 1940/41 with the first "Penny-A-Tune" unit based on patents by Frank Hoke (filed 1929) and William S. Farrell (filed 1941), but the company was relatively inactive for a few years during the war until it started up again in May, 1945, with new equipment and control units called "Phonette Penny Serenade" and "Phonette Melody Lane". The Telo-Tune company in Chicago, however, was active at the end of the war, and the firm mainly used control units named "Teletone Musicale" designed by George Phelps. The design for the "Musicale" unit was filed for patent by George Phelps on the 15th March, 1946. Further, the "Solotone" units made by Solotone Corp. in Los Angeles should be mentioned here. The "Solotone" remote units and the library system was developed, designed, and also patented by Forrest E. Wilson and Scott E. Allen on the 26th January, 1949. Several small, local companies also tried to get a foothold on the market, but none of them were really successful, and very few of them are even remembered today by name.

It was well put by Russell Ofria Jr. in his articles published in the "Nickel-A-Tune" magazines 1982/83, that no one could say for sure what all of the reasons were for the extinction of the 'telephone line music systems', but it seems that the systems were mainly forced out by ever increasing expenses like increasing rates for the use of the special phone lines, and special fees, licenses and taxes imposed on them by governmental agencies. Haven't we all heard that before? The 'telephone line music systems' were an interesting but short-lived feature in the history of the jukebox concept, and they deserve to be remembered.

Eye- and ear-appeal of audio/visual jukeboxes

It has been interesting work for the author over the past decade to register the musical and cultural heritage of the 1960s captured in the wonderful 16mm scoop-a-tunes, the film strips used in the second generation audio/visual jukeboxes, also nicknamed ‘see-hear jukes’, that followed the impressive American 16mm ‘reverse-title’, non-select, 8-film “Mills Panoram” machines of the 1940s. The film clips were really fantastic forerunners of what we know today as modern, promoting music videos so essential to both the music industry and the pop-rock artists, and a total of more than 1,030 titles on magnetic or optical sound 16mm film stock are known to exist.

As mentioned in a previous chapter, the main French productions of 16mm audio/visual jukeboxes, the 36-selection “Scopitone ST-16” and “Scopitone ST-36” models, took place at CAMECA with main offices in Courbevoie, later in Saint-Denis, both suburbs to Paris, and the 28-selection “Caravelle Tele-Box” was produced by CIFA at 72 Boulevard du Montparnasse in the 14th district of Paris. The 36-selection “Scopitone 450”, however, was produced a little later on license by Tel-A-Sign Inc. in Chicago, and the “Color-Sonic” machines were manufactured at the facilities in Melrose, Massachusetts, owned by the National Co. Inc., also known as Color-Sonics Inc., with main offices in New York. The highly competitive, but not so popular, 40-selection ‘reverse-title’ “Cinebox” machines were mainly assembled at the facilities owned by the firm Società Internazionale Fonovisione S.P.A. in Milan, Italy, but the “Cinebox” was also known as “Cinevision” or “Colorama” in America, and marketed in the States by Intersphere Development Corp., which at the time was an affiliation of the Estey Electronics Inc..

Added to the high-quality production of 16mm film came also special productions of Super-8mm clips until the mid or maybe even the late 1970s for the “Cinématic 50” machines produced by Société Française de Radio Télévision located in Montreuil near Vincennes a little east of the French capital, and marketed also by S.A.R.E.C. with main offices at 45 rue Lafayette in the 9th district in Paris. The first of the “Cinématic” models was a 28-selection unit for 16mm (magnetic sound), and the following 50-selection model for Super-8mm film clips was simply named “Cinématic 50”. The first “Cinématic” audio/visual models were introduced in America by Defiance Industries Inc., but the 50-selection model was mainly operated in France, and also very few, so it seems, were operated in the French speaking parts of Northern Africa, the old French colonies. It is interesting, by the way, that there are a lot of Arabic titled Super-8mm film clips around. Those film titles, the Maghreb music, were mainly found in machines operated in the suburbs of major cities in southern France, where people from Algeria settled during and especially after the armed conflict of 1954 through 1962, the war of

independence, but also a number of the "Cinématic 50" 'see-hear jukes' might have been operated for more than a decade in Northern Africa.

The name 'Scopitone' should as mentioned previously be seen as an amalgam of the two Greek words 'scopein' and 'tonos' meaning 'to observe' and 'the way musical notes come together and move apart on a scale'. The history of the audio/visual coin-operated music machines produced worldwide, but mainly in Europa and America, is really quite interesting. The concept of using film reels in coin-op music machines can be traced direct back to the Edison 'Kinetoscope' equipped with synchronized sound (in 1895), and the first real coin-op moving picture machines patented in 1908 by Henry Konrad Sandell (an immigrant Swede) and in 1909 by Herbert Stephen Mills of the Mills Novelty Co. in Chicago, manufacturer of the famous "Mills Panoram" design patented by the industrial designer Everett B. Eckland. Henry Konrad Sandell, by the way, supervised the manufacture at Mills Novelty Co. between 1904 and 1924, and was an important inventor in the coin-op music field for several decades (before joining Mills he worked at Adams Westlake Co. and later in the 1940s he was connected to A.B.T. in Chicago). The 16mm 'reverse title' or 'rear projection', non-select, 8-film "Mills Panoram (Model MI-1340)" was presented to the public in Chicago in December, 1939, and the model became much more popular and long-lived than other coin-op motion picture machines of the era like the "Vis-O-Graph" made by the famous camera maker Ampro Corp. in Chicago for the Vis-O-Graph Corp. of America and Techniprocess & Special Effects Corp. in California, the "Pic-a-Tune" introduced by the Phono-Kinema Co. in Los Angeles, and of course the non-select, 10-film, 16mm 'reverse title' "Phonovision" produced by the Phonovision Corp. of America also located in Los Angeles, a company that unfortunately folded very early in the process (in 1941) due to lack of capital. All machines, but in particular the "Mills Panoram" and the "Phonovision", made for 16mm 'Soundies' certainly did combine the eye-appeal of the motion picture and the ear-appeal of the automatic phonograph. A few design patents related to the coin-op audio/visual machines are known today, and especially the one filed in January, 1941, by Abraham Shapiro and assigned to the Ampro Corp. is very nice, and the cabinet design looks to some extent like that of the "Mills Panoram". Other cabinet designs that deserve to be mentioned again are the one filed for patent in August, 1940, by Don Heyer in Hollywood, and the one filed in April, 1940, by Sol (Dave) Freedman in Los Angeles. The names of those machines, if they were actually mass produced, are unfortunately not known to the author. After 1945 the motion picture/phonograph models competed against the television/phonograph concept developed mainly by the teamed efforts of the Emerson Radio & Phonograph Corp. and The J. P. Seeburg Corp.. The concept was refined and used also by the Sentinel Radio Corp. in Evansville, Indiana, for the "SelectaVision" models in the 1950s. Today one patented cabinet design for a television/phonograph combination machine is known. The patent was filed in

August, 1947, by Frank Principe in New York, but the model name is unfortunately not known to the author.

The first patent related to the Scopitone models in France was filed in July, 1956, by the firm Cie d'Applications Mécaniques à l'Électronique au Cinéma et à l'Atomistique, also called CAMECA, and the last of the four known, original patents filed by Jacques Guernet and CAMECA was granted as late as January, 1966. The firm CAMECA was an affiliation of the Compagnie Générale de T.S.F. (Télégraphie Sans Fil), and the first "ST-16" version was presented to the press on the 28th March, 1960, and to the public at the 'Foire de Paris', 14th-29th May, 1960, by the engineer Frédéric Mathieu, who was also the general manager of CAMECA. The "Cinebox" audio/visual, however, was first invented by Società Internazionale Fonovisione S.P.A. in Rome, later Milan, in the autumn of 1959, and introduced to the public during the same trade fair as the "Scopitone ST-16" in May, 1960. The "Cinebox" had in fact been presented to the press in Paris on the 25th February, 1960, by the French subsidiary of the Italian firm. Another, later version of the "Cinebox" was filed for design patent in 1964 by Angelo Bottani in Milan, Italy, and an important feature of the "Cinebox" machine compared to the "Scopitone" was a special 'Advertising Message Repeater', a device flashing paid advertising messages from slides onto the screen whenever the machine was idle. The "Color-Sonic" unit of the latter half of the 1960s, officially named "Combi-150", was filed for design patent in July, 1966, by Henry A. Schwartz and assigned to Color-Sonics Inc. in New York.

Much later, during the 1970s and 1980s, several companies worldwide tried to produce good, reliable coin-operated film machines, like for example the "Star II Video" equipped with a Panasonic 'Nimrod' VHS-unit produced by Streeters Manufacturing Group Ltd. in Cardiff, England, and the "Cinejukebox" marketed by David Rosen's firm, SEGA of America Inc. (SErvice GAmes), and of course the "Lazer-Juke" made by Pioneer Video in Japan, but none of those audio/visuals became really big hits among the music-vendor/jukebox operators. The "Star II Video" audio/visual machine, by the way, was marketed in America by Video Sound Inc. in Amityville, New York. Also the mid 1980s "V/MEC" jukeboxes (Video/Music Entertainment Center) produced by Rowe International Inc. ought to be included in the history of film jukeboxes with a total combination of 160 record selections and 40 video selections. The coin-op audio/visual music machines, that combined the eye-appeal of the motion picture with the ear-appeal of the automatic phonograph, have a history of their own, but they will always be part of the jukebox history.

The story of the film-jukes can be found in several essays and articles, and among them the essay entitled "The Archaeology of the Music Video: Soundies, Snader Telescriptions, and Scopitones" by Gregory Lukow published in "National Video

Festival, Los Angeles: American Film Institute, December, 1986", and the article entitled "Boxes of Sight and Sound" by Russell Ofria Jr., published in 1983 in the American "Nickel A Tune" magazine. Other sources of information are of course the book entitled "Scopitone" by Gerold F. Koehler and Linda L. Koehler, published in 1978 by the authors, and finally of course the "Scopitone Newsletter" published for many years by Fred Bingaman in Manchester, Missouri, which indeed contains a lot of valuable information about audio/visual jukeboxes. In addition it can be mentioned that a spiral-bound "16mm Scoop-a-Tunes - The inComplete History and Filmography" was published as a limited collector's first edition by the author in 2002, but a lot of valuable historic information can also be found in several websites on the modern internet.

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About the author

Gert J. Almind was born on the 28th May, 1958, in a small town in the middle of Jutland, Denmark, and it was in that same hometown, Frederiks, he first saw a wonderful “Wurlitzer 2304” jukebox in the spring of 1966. He could not forget the colourful machine with all the records inside, but did not play a jukebox until about six years later, in the summer of 1972, at a camping site near the Danish-German border. It was a “Wurlitzer 2504”, and the tune he selected then was “It Don’t Come Easy”, one of the late George Harrison’s big hits of that year with vocals by Richard Starkey alias Ringo Starr. After that more than a decade would pass before Gert J. Almind got in touch with the collector Olle Dahlbäck in Örnsköldsvik, Sweden, who had published a limited edition booklet with pictures of most jukeboxes available on the European market in the 1950s and 1960s. Olle Dahlbäck really sparked off Gert J. Almind’s interest in jukeboxes and their cultural history, and he began as a hobby to carry out research particularly on the Danish jukebox heritage. In the autumn of 1985 Gert J. Almind was the promoter of the private reference library known today as ‘Danish Jukebox Archives’, and since then he has been unable to let go of the jukebox historic studies.