

Beginnings: 1890-1900

The story of the sound recording industry is mostly a story of musical entertainment on phonograph discs for the whole period from the invention of the phonograph in 1877 to about the 1950s, when new technologies emerged. The major players in the industry were Victor, Columbia and HMV (which originally stood for His Master's Voice) until the end of World War II, and are still important today. These three companies all got their start in the 1890s, when the phonograph was still young. Thomas Edison's 1877 invention of the phonograph was followed by many imitators, most notably the "graphophone," which became the basis of the Columbia company. Both inventions used a cylinder record which captured sound in a groove. Just as the graphophone of 1887 borrowed many ideas from Edison, so too did Edison's "improved phonograph" of 1888 borrow back from the graphophone. Soon both machines were for sale or lease to the public. The primary market was intended to be businessman, lawyers, court reporters, and others who currently used stenography to capture important thoughts or compose letters. Although the sound recorder as a business machine has its own history, it is the entertainment uses of sound recording that made the biggest impact.

The First Peak, 1900-1925

Business phonographs (and graphophones) were selling very poorly in the early years and the phonograph industry was near bankruptcy. But in 1899, someone had the bright idea to build a coin-operated phonograph, record some songs on cylinders, and put the machines into the arcades, which were quite popular at the time. The public loved it. The various companies making phonographs quickly went into the cylinder business, and some of them redesigned their players so that they were cheaper and simpler, hoping that people would buy them for their homes. The idea of a truly inexpensive machine that could play back (but not record) music was the inspiration for an even more successful technology--the disc record or "gramophone." Edison himself had considered a disc phonograph, but it was Emile Berliner who really got the ball rolling. Part of the reason for a disc instead of a cylinder was that Berliner thought it would be easy to stamp out large numbers of copies of disc recordings. In 1893 he began selling his cheap gramophone player and seven-inch disc records made of hard rubber. Emile Berliner in 1896 hooked up with Eldridge Johnson, a machinist from Camden, New Jersey who designed an improved gramophone player for the Berliner company. In a short time, the two joined forces to create what would become the Victor Talking Machine Company. Victor in the early 1900s became one of the largest manufacturers of "talking machines" and records. In 1889, Berliner had arranged for the establishment of a branch of his company in London. Although officially known as the Gramophone Company, it was better known by its brand of records, called His Master's Voice, or HMV, and by Nipper the dog, which later became the mascot for Victor. Meanwhile, the cylinder phonograph business had been in such a shambles that the original owners of the various companies lost control of their businesses to shrewd businessmen. The Columbia company had started life leasing business phonographs in Washington, D.C., but was soon making home cylinder graphophones from a factory in Bridgeport, Connecticut. The company's leader, Edward Easton, was not sure whether cylinders or discs would ultimately succeed, so soon Columbia was manufacturing both. Soon, three companies (Edison, Victor, and Columbia) were the Big Three in the record and record player businesses in the United States, while HMV and the various subsidiaries set up

by Edison and Columbia dominated the market in Europe. They were selling about 3 million records a year by 1900 in the U.S. alone. The success of the record industry during the next two decades was phenomenal. Soon, the record industry was one of the most important in the world.

Depression and Consolidation 1925-1940

Unfortunately, the boom in talking machines was drawing to a close. Even before the general downturn in consumer spending in the 1930s, the recording industry was in decline. At first, the culprit seemed like excessive competition. Over 150 companies were making records or record players by about 1920, and they were all trying to undercut each other's prices. But the radio also acted as competition. Radio broadcasting began in some parts of the United States around 1922. During the 1920s, regular broadcasts began in many areas of the U.S. and Europe. Radio networks appeared, which linked together stations and promised to bring in massive advertising revenue. The companies running these networks spent lavish amounts of money to create special programming that was more spectacular than what was available on records. Despite the poor sound quality of the early radios, people were attracted to the programs and bought fewer records. The downturn was disastrous. The size of the industry in the U.S. alone declined by about one half in the early 1920s, then stabilized for the rest of the decade. Manufacturers introduced an improved form of record in the late 1920s called the "electrical recording," hoping to lure customers back. This used microphones and electronic amplifiers in the studio to make the records, but could be played back on the old horn talking machines. Some manufacturers also introduced combination radio-phonographs. While these new technologies helped a little, when the Great Depression came the record companies were too weak to survive on their own. The phonograph division of the Thomas A. Edison company was the first to go, folding in 1929. Victor was bought by the Radio Corporation of America, and Columbia was purchased, appropriately enough, by the Columbia Broadcasting System. Most of the other names in the industry simply disappeared. In the 1930s, records continued to be sold in relatively small numbers. Classical music enthusiasts continued to buy records, but they were not a huge market. The radio broadcasters bought a fair number of records. There were new opportunities, too. When the talking motion pictures arrived, for a few years they actually used discs before switching to a system that put the "soundtrack" right on the edge of the film. In fact, the motion picture industry was where the real action was in the sound recording industry in the 1930s. Sales of recording equipment to motion picture producers sponsored research in improved technologies. The first stereophonic recordings released to the public were part of a motion picture, Walt Disney's *Fantasia*. It was only in the late 1930s that the number of record discs sold began to climb back toward the highs of the 1920s. This was partly due to the gradually improving economy, particularly in the United States. It was also due to the growing number of jukeboxes in use. Jukeboxes consumed large numbers of records because they were usually changed every week or so. But the industry was still in trouble.

The War Years and Afterward, 1941-1955

The coming of World War II was a worldwide tragedy but a boon for the record industry. Suddenly the governments and armed services of many nations had an interest in purchasing and using sound recording equipment. The entertainment industries of

Hollywood and elsewhere were called into service to record music for the entertainment of troops. In the United States, the military sponsored the recording of both ordinary 10-inch discs (the standard consumer disc since about 1900) and "V-discs" for this purpose. V-discs were large, 16-inch diameter discs made of flexible vinyl plastic. They were similar to the discs then being used by radio broadcasters to record programs. They held 15 minutes or so of recorded sound and could be shipped overseas without fear of breaking. The U.S. army also experimented with other forms of recording, such as magnetic recording on wire, for the use of journalists. Although these devices did not have any real impact on the record industry at the time, they were a sign of things to come. While the troops were being fully entertained, consumers experienced a drought. Angered by the way radio used records without any payment to musicians, band leader Fred Waring filed suit in Pennsylvania to force the broadcasting industry to pay royalties. At the time, radio broadcasters paid a small royalty to the copyright owners every time a song was broadcast, but not to the musicians who had created the recording. Waring set off a battle that would take years to resolve. Even more dramatic was "Pettillo's War." James Pettillo (president of the American Federation of Musicians) in 1942 began demanding compensation to musicians for records being played on the radio or on jukeboxes. When the record companies refused, Pettillo called for a general strike-- no records (except for those intended for the war effort) were made between the summer of 1942 and November, 1944. With the end of the war, many in the record industry hoped for a renewed interest in music listening at home. Great technological changes were underway. During the 1930s and early 1940s, the German companies AEG and I.G. Farben had steadily improved the technology of magnetic recorders. These were "liberated" from Germany by the Allies in 1945 and became the basis of remarkable studio tape recorders. The use of these recorders would soon revolutionize the making of records and movie soundtracks. What consumers saw in the stores was also changing. A few manufacturers in the late 1930s had offered what they called "high fidelity" electronic equipment. A relatively new English company, Decca, began selling high fidelity discs after World War II. Then, in 1948 and 1949, the Victor and Columbia companies introduced the new 45-rpm disc for singles and the Long Playing record for albums. These new high fidelity discs marked a new era in the home record player.

Show Tunes and Rock and Roll!

High fidelity was all the rage in the 1950s. The LP was a surprise hit--no one had expected that it would catch on as well as it did. It was much more expensive than the 45-rpm disc (or the older 10-inch disc, which survived until about 1955), and it was not intended for singles, which had been the main product of the music industry since its beginnings. LP sales were helped by the hi-fi movement, which emphasized listening to classical music (usually on LP), but also by the success of Broadway show tune and movie soundtrack albums. There was also some manipulation by the record companies, who discovered that when a song became a "hit" on the radio, if they simply refused to issue that song on a 45-rpm disc, the public would be forced to buy a whole album if they wanted to get that song. And while 45-rpm singles typically cost a dollar or less, albums were four dollars or more. Interestingly, technologies that were invented in order to attain "high fidelity" sound quality became the focus of music where "truth" to the original performance was irrelevant. Before the introduction of the tape recorder in the studio, musicians had to perform "live" in the studio to make a recording. High fidelity equipment was aimed at reproducing the exact sound of this studio performance in the home. With the introduction of the tape recorder, suddenly it was practical to edit sound

after the fact. If a soloist missed a note, a recording engineer could literally cut out that part of the tape and replace it with a better note. It was also possible with tape recorders to make recordings that could not possibly be captured "live." The musical team of Les Paul and Mary Ford often made recordings where they made recordings on top of existing recordings, resulting for example in a recording where Mary Ford apparently accompanied herself. When multitrack tape recorders were introduced, it was possible to do much more along these lines. Now it became more common for the various instruments, vocals, and solos to be recorded separately at different times, then "mixed" together later. Again, the trend was moving away from an artist or a group performing a whole piece that was recorded exactly as it actually sounded. Popular music (rather than classical) drove this forward. While classical musicians were constrained by tradition, popular music was free to experiment. In the studio, special effects and gimmicks were used freely. This was also true in the new rock and roll music, where studio effects like echo and reverb became the norm. When rock entered its "psychedelic" phase in the late 1960s, musicians pulled out all the stops and began using every technological trick available to them to create exotic new sounds. Two channel "stereophonic" recordings were developed as early as the 1930s as a way to create the illusion of reality--they were a "high fidelity" innovation. But by the 1960s the stereo effect was also being manipulated simply for the sake of producing a pleasing result, regardless of whether it was "true" to the original sound. On heavily "produced" records like the Beatles Sgt. Pepper album, the music was only remotely related to anything that could be performed live by the Beatles themselves.

Portable Music

A major trend of the postwar era was toward music portability. There were portable phonographs available from the very beginning, and small portable radios were common from the 1940s on. Of course, it depends on how you define "portable." The "portable" record players of the post-1945 era were usually just smallish models equipped with a handle. You still had to have a wall outlet to plug them into. True portability began with the commercialization of the transistor. This tiny electronic device replaced the vacuum tube, which sucked down electricity at such a prodigious rate that it demanded large batteries. Small, efficient transistor radios appeared around 1955 and became top sellers, especially after prices came down to the point where young people could own them. Transistor phonographs were available, but they were not as popular as transistor tape recorders. Although their sound quality was pretty lousy, transistor tape recorders became a big hit with teenagers in the U.S. and Europe. People typically used them to re-record music from the radio or from records (their own or their friends'). When the Phillips Company in Europe introduced the Compact Cassette in 1962, it was initially rather expensive (about \$75 for a battery-operated "Carry-Corder"). However, many other manufactures adopted the new tape format, and Asian firms soon introduced cut-rate models. By the end of the 1960s, battery operated portables were by far the best selling form of the tape recorder. The record industry paid little attention to the potential market for tape. Many record companies had introduced recorded reel-to-reel tapes beginning in the early 1950s. Some, like RCA-Victor, promoted both inexpensive home tape recorders and the tapes to plug on them. But recorded reel-to-reel tapes were

poor sellers compared to the LP, and cost at least a dollar more. The recorded reel-to-reel was an expensive failure for the record industry (although it did find a niche market among high fidelity aficionados). That's why the success of the 8-track tape was a bit of a surprise. The 8-track system was intended to be heard in the automobile--not surprisingly it was invented in the United States, where the car culture is strong. Home players could also be had, but manufacturers suspected that the tapes would be most appealing to commuters--and they were right. Introduced in 1965 by Ford, the 8-track sold in large numbers in the late 1960s and early 1970s until it took nearly a third of the market for recorded music. Ultimately the 8-track would fail, but it paved the way for music on cassettes. As cassette technology improved, it graduated from being a child's toy to being part of the home stereo system. Innovations such as Dolby B noise reduction and "metal" tape were created just for the cassette, and soon it took on the high-tech appeal that the LP had. At the same time, it retained the portability of music. The importance of this combination became clear in 1978 with the introduction of the Walkman tape player, which also combined high fidelity and portability. Along with the "boom box" type of radio/tape player combination, the Walkman (and its imitators) helped the cassette displace the LP as the dominant form of home music technology by about 1990. Record companies began cutting back on their LP releases to concentrate on the cassette, while only the most popular releases were available on LP. The combined effects of the introduction of high fidelity, the booming world economy, and the popularity of rock music stimulated huge growth for the record and electronics industry. The sale of records in the U.S. alone grew from about \$600 million in 1960 to \$1.2 billion by 1970. While RCA-Victor, Columbia, and EMI thrived, so too did a number of new labels, such as Capitol, Atlantic, Motown, and Elektra. There was also a tendency, beginning in the 1960s, for conglomerates to form that included both motion picture and recording arms, since the two often complemented each other. Sales of music through the mail took off, with Columbia House emerging and the dominant firm in the U.S. By the 1980s, Music Television (MTV) had emerged, linking TV and records through the exhibition of music videos. RCA by the 1980s was floundering, and after it was purchased by General Electric the RCA record division was sold to the German company Bertelsmann.

The Digital Era

The LP lives on, sort of, as the medium for disc jockeys, and a few rock groups insisted on releasing their music on LP records well into the 1990s. But both the LP and the cassette were pushed aside by the Compact Disc. The Phillips company, which had earlier introduced the cassette, had developed a laser disc for video recording in the late 1970s. Phillips teamed up with Sony, which had developed a digital tape recorder for making "master" recordings at about the same time. The new discs were created by re-recording ordinary studio tapes onto the digital tape, then using the digital tape to burn laser discs. A copy of the master laser disc was then used to press plastic duplicates, which were coated with shiny aluminum, encased in protective layers, and packaged for sale. Unlike the LP or the original Phillips video laser discs, which were quite large, the audio-only laser discs were "compact," and hence the name Compact Disc.

The CD was introduced to the public in 1982. Partly because of the high initial cost (a player cost over \$2000, and the discs themselves cost \$12-16), sales were limited. By about 1985, however, it was possible to buy a player for \$350 or less, and prices were around \$150 a few years later. Many consumers resented being pressured to abandon the collections of LP records they had accumulated over the years. However, the CD eventually won over the hearts of most consumers.

Sony also became a record company in the 1980s through the purchase of CBS Records (formerly Columbia). Sony followed this up in 1989 with the purchase of Columbia Pictures Entertainment.

In the studio, digital technology was making an important impact. Where the role of digital recorders was initially quite limited, soon it became easy and relatively inexpensive to use digital devices to compose, perform, record, edit, and mix songs. Previously, musical instruments had been separate from recording machines, and both had been separate from computers, but new technologies combined all three. Where tape recorders had made it possible for individual musicians to play multiple instruments or record multiple vocal parts, or even become "one man bands," digital technology accelerated the tendency to do so. Many "bands" were really just one or two people manipulating drum machines and synthesizers, or re-recording bits and pieces of existing music.

If digital recording was a success in the studio, it was initially a failure as a consumer technology. The first consumer digital recorders were introduced in the late 1970s. They were essentially modified Betamax VCRs, and the cost was quite high. Digital recording re-appeared in 1990 with the introduction of Digital Audio Tape, and later with the Digital Compact Cassette, and again with the Sony Minidisc. Opposed by a recording industry fearful of music piracy, these formats failed to appeal to consumers.

Through the end of the 1990s, it appeared that the next home recording medium would undoubtedly be a recordable form of CD. It took many years for these to be introduced, and many more years for them to come down in price. Only in the early years of the 21st century did the price of a CD burner and the blank discs compete with a cassette deck.

By that time, however, the whole idea of storing sound on physical "records" was being called into question. Home computer users began sharing digitized music in a number of different formats in the late 1990s. The MP3 standard began to catch on, and Napster software appeared to make it possible for users to access each other's songs via the World Wide Web. The recording industry freaked and shut down Napster, but the appeal of Internet-distributed music remained. It is not clear at this time whether the physical record--tape, disc, or what have you--will survive at all.

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