# Is DIY a punk invention?

**Chapter** · March 2021

DOI: 10.4324/9780429268830-5



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# Is DIY a Punk Invention?

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## Learning processes, recording devices, and social knowledge[1]

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For a large number of music critics, musicians, historians, and academics, the punk movement in 1976–77 Great Britain marks a decisive moment in the history of popular music (see, for instance, Hebdige 2002; Ward, Stokes, and Tucker 1986; Marcus 1989; Savage 1992; Assayas 2000; Hein 2012). Even if the narratives, the key protagonists, the players, and languages can vary, most accounts of the early days and defining characteristics of the punk movement do nevertheless converge on several points.

First of all, punk is presented as a musical revolution, supposedly characterized by a return to simplicity and to the original energy of North American rock 'n' roll. As a result, overly technical styles—such as, for example, British progressive rock, long electric guitar solos, and the dinosaur bands of the 1960s–1970s—were supposedly made unfashionable and marginalized by the punk movement. This reading is still very much alive and well among music critics.

Secondly, punk is also viewed as a lifestyle driven by self-organization and autonomy. Consequently, fans of punk (be they academics or not) very often present the DIY (Do It Yourself) spirit as being characteristic of this movement, and even as constituting its foundational moment. Thanks to this spirit, they claim, any amateur was now in a position to start a band and compose one's own music ("if you know three guitar chords you can start a band"); young women were able to start bands (e.g., the Raincoats, the Slits in Great Britain) or occupy certain positions within mixed groups (e.g., Tina Waymouth in the Talking Heads in the US); fanzines flourished; independent record labels such as Rough Trade, Cherry Red, and Factory supported punk and new wave artists; etc.

The third point arises out of the preceding one: punk DIY was supposedly enabled by new, low-cost technologies. The flourishing of punk fanzines, for example, supposedly benefited from the development of photocopiers; the modest cost of electric guitars and amplifiers encouraged amateurs to take up music; affordably priced multitrack tape recorders allowed independent labels to kit themselves out; etc.

Far be it from me to question how important this moment was or how long-lasting its effects, which can still very much be felt. Punk—both as music and as

narrative—has profoundly influenced other musical currents, lifestyles, ways of listening to and playing music, and—last but not least—a large number of decision-makers in public policy and the music industry have been shaped by this ethical code and historical narrative (Castagnac and Ribac, 2018). However, many elements of this account are problematic. To mention but a few: there have always been small independent record labels (Schmidt Horning 2002)—in fact, it was such a label, Sun Records, that kick-started Elvis's career (Marcus 1975; Escott and Hawkins 1991; Tunzi 1993; Jorgensen 1998; Danchin 2004; Doyle 2005). Likewise, this supposed original rock 'n' roll, with its leather jackets and saturated guitars, sounds a lot more like the Rolling Stones' album *Sticky Fingers* (1971) than like the hillbilly that characterized Elvis's early work: country music without drums and with clear-sounding guitars and double basses (Tosches 1996). We might also note that women remained a marginal presence in punk bands, and that most of them were restricted to singing or playing bass guitar—and that many iconic English punk bands such as The Clash and The Sex Pistols included experienced musicians and were signed by major record labels. Finally, "dinosaurs" such as Genesis, Supertramp, and Yes often sold many more records after punk than before. In reality, many listeners who greeted punk music and then new wave with great enthusiasm continued (and still continue) to love "dinosaur bands," the interminable guitar solos of prog rock, the Beatles, and everything else that was supposedly swept aside by punk music. Just like all modernist narratives (Latour 1993), the tale of the punk revolution greatly exaggerates how much it constituted a tabula rasa and what its effects were.

In this chapter, I would like to explore a major component of the punk narrative: the DIY ethic. As I have outlined above, the commonly accepted narrative is that this movement encouraged *amateurs* to undertake for themselves things—media and record production, composition, and instrumental practice—that were usually the preserve of professionals. I will investigate the learning of popular music by relying on historical works devoted to figures from Anglo-American popular music; surveys carried out in the United States, in Great Britain, and in France; and some STS texts. Based on these examples, I intend to show: first, that punk and the discourses that have been connected to it for the past half-century make explicit practices that in fact very much predate it; secondly, that these ways of learning rely both on sound reproduction technologies and on peer groups within which people learn popular music numbers; thirdly, that, while these users must deal with the materiality of these technologies, said users are nevertheless capable of developing unexpected uses for them—in other words, that a given technology does not have intrinsic characteristics that favor, determine, or prohibit specific uses; and fourthly, that examining the contributions of users requires paying attention to discrete spheres and practices.

This chapter is divided into two parts. The first one consists of a brief archaeology of the DIY ethic from before the birth of rock music in the United States and the United Kingdom. The second will attempt to draw some lessons from these practices.

## How did Bing Crosby learn to play music?

In a scene in the Beatles' psychedelic film *The Magical Mystery Tour* (1967), John Lennon briefly hums the tune of "Annie Get Your Gun," a song from a musical by Irving Berlin which premiered on Broadway in 1946 and led to several screen adaptations. The same Lennon took inspiration from "Please," a song recorded by Bing Crosby in 1932, to write the words for one of the Beatles' first hits in 1962: "Please Please Me" (MacDonald 1997: 55). What these two references to the 1930s–1940s suggest is that the musical culture of the Beatles' generation was very largely influenced by discographic and cinematographic repertories that preceded the birth of rock music (Ribac 2019). In this first section, we will see that rock musicians' learning also took place in a way that is comparable to that of previous generations that gained access to sound reproduction technologies.

To illustrate this point, I would first like to examine the way in which the crooner Bing Crosby (1903–77) started to learn music. According to his memoirs (Crosby 2003) and to Gary Giddins's book (2001) on the musician's early years, the young Crosby grew up in an extremely musical environment. His father played several instruments, his mother made sure that his sisters learned to play the piano, and the family would come together every week to sing and play music, and were enthusiastic theater and concert goers. As soon as he was able to, Crosby's father acquired a cylinder phonograph (Crosby 2003: 56) and then, shortly afterwards, a gramophone. From morning to evening, the house was bathed in recorded music.

> The phonograph was always on, except after supper on Sunday, when the family gathered in the living room to sing.
>
> (Crosby, quoted in Giddins 2001: 43)

In the family record collection, the young Crosby particularly appreciated John McCormack (1884–1945), an Irish tenor who sang both popular songs and opera and who was renowned for his diction and breath control. Here is what Crosby says about him:

> I knew all his songs and I thought he was a wonderful singer with great appeal, great sincerity, and a quality in his voice like a bird.
>
> (Quoted in Giddins 2001: 37)

According to Giddins (57), the clarity of McCormack's diction encouraged Crosby's interest in elocution classes that were given in the Gonzaga Jesuit high school he attended. Another of Crosby's discographic idols was Al Jolson (1886–1950), a vaudeville star from the 1920 and 1930s who often played blackface parts and was the hero of the first Warner Brothers talking movie in 1927: *The Jazz Singer*. While he was able to listen to him—and listen to him attentively—when Jolson performed at the Spokane Auditorium Theater, where Crosby worked as an assistant, his records were also extremely important:

> For a while I tried to sing like Al. Since Dad saw to it that we kept abreast of the times musically at home, I had all of Jolson's Records.
>
> (Crosby 2003: 65)

The gramophone allowed him to discover and learn numerous songs:

> As [Bing's father] Harry's record collection increased, Bing memorized the latest songs. "I had to whistle or sing to get them out."
>
> (Giddins 2001: 43)

This catalog of recorded songs was also completed by the musical program of a Seattle radio station. We might note in passing that the radio set had been built around 1917–18 by his father and one of Bing's brothers, Ted, with the help of one of his university physics professors (Crosby 2003: 65). As was the case with many homemade radios, the Crosbys' radio allowed them not only to receive radio stations but also to converse with other users (regarding the early days of radio, see Méadel 1994; Hilmes 1997; Hilliard and Keith 1997).

Aside from records and the radio, the young Crosby got involved in local bands. He started out playing drums in a Dixieland band called The Juicy Seven at Gonzaga High School, near Washington. Then, in 1921, once he had started attending the town's Catholic Gonzaga University, he became the singer in a more experienced band, The Musicaladers (Crosby 2003: 72; Pleasants 1974: 132). This was where he met the pianist and singer Al Rinker (1907–82). The band stood out from other local groups in that it did not get its repertoire from edited musical scores, but rather, at Rinker's instigation, from records:

> I discovered that Al was a genius at listening to phonograph records, absorbing their arrangements and committing them to memory by ear…We had a small repertoire, but we stretched it by playing the same tunes in different ways. We'd change their tempo; we'd take a waltz and make a fox trot out of it...I did any singing that was done, and played the drums.
>
> (Crosby 2003: 72–3)

In order to find new pieces and enrich their experience, Al and Bing would also spend their days at the largest record store in the city of Spokane:

> Bailey's Music Company was the town's leading record store, and Al Rinker and I haunted it…Bailey's Music Company was big about letting us spend all the time we wanted to in one of its listening rooms. We'd take a couple of records in and play them, and Al would memorize the piano chords while I remembered the soloist's style and vocal tricks. Then we'd rush home or to Al's house and practice before we forgot them.
>
> (75)

This method was also applied with "real" musicians:

> When a band came through Spokane we hung around them while they rehearsed, and we sneaked into their playing engagements and soaked up every note that they played.
>
> (75)

As well as a few bookings with their band, Rinker and Crosby were given the opportunity to perform as a duo or with other musicians in vaudeville shows at the Clemmer Theater in Spokane. This is where their professional careers really started.

To summarize, while Crosby did occasionally take a few singing and piano classes during his formative years, he did not attend any music school, nor did he ever learn any music theory.

His introduction to music first took place within the domestic sphere during family sessions, by listening to shows and through intensive listening to records and to the radio, and learning a considerable number of songs. As reported by both his biographers and his own memories, records and concerts on the radio were thus his teachers, his répétiteurs, and his guides. Thanks to them, he learned to sing, to identify the structures of musical pieces and vocal harmonizations, to feel the pulse and feel comfortable within it, to integrate the phrasing, the vocabulary, and the grammar of numerous musical styles. In addition, he was able to rehearse with the records, which provided him with a fitting and professional accompaniment and he could, if need be, slow down the running speed of his gramophone in order to better understand, say, the phrasing of a vocalist or the exact notes in a trombone solo.[2]

The other framework providing a structure within which Crosby was able to practice intensively, develop his appetite for music, and choose to sing was bands. As I have mentioned above, when he played with the Musicaladers and during his partnership with Al Rinker, recorded music also had an essential role to play. Just as it had done when he was starting out, it provided a reservoir of new numbers and acted as a model to discover new ways of playing.

When we consider the different stages of this development, we realize that it was very largely informal and tacit, happening through situations that were not in themselves explicitly educational. What is more, these different phases of learning involved different locations (the domestic sphere, the rehearsal and performance spaces used by his bands) and sparked exchanges between the domestic and public spaces. Finally, when Crosby explains that his band transformed the beats and structures of pieces discovered in recordings, we understand that records served more as sources of inspiration than as models to be reproduced identically. We might think here of Michel Serres (1999) insisting on the point that imitation (for example, that of his master by the servant Scapin) teaches imitators to gauge the distance separating them from their model, or even underlines the latter's shortcomings.

This kind of learning is not just an illustration of learning by doing; it also shows us that Crosby and his generation used sound reproduction tools in an unexpected manner. Gramophones and records were in fact not sold and promoted as learning aids. The catalogs that came with gramophones and special-interest periodicals at the time tended to present these devices as objects of distraction and suggested that they allowed people to recreate and organize performances within the domestic sphere (Gelatt 1977; Maisonneuve 2009). While Edison had in fact imagined that his phonographs might be used to compensate for handicaps—dyslexia, for example—no inventor, no company seems to have anticipated that amateurs would use records in this way. Likewise, record shops were not intended either to be used as public record libraries. And yet, it was this kind of DIY that would allow the generation that was born at the beginning of the 20th century to learn music and—we will explore this in more detail shortly—to invent new ways of singing and interpreting songs.

Before exploring this aspect, we should briefly remind the reader what became of Crosby after his period of training. Bing and Al went to California to look for work. They were noticed and hired by the orchestra conductor Paul Whiteman—one of the superstars of the 1920s music world—and, in 1927, they founded a trio called The Rhythm Boys together with the pianist/singer Harry Barris (1905–62). In the early 1930s, Crosby started to perform solo, and his career, which was to last 50 years, unfolded on various stages, recording studios, as a radio show DJ and as an actor in Hollywood. Following the Second World War, he invested in Ampex, a company that made tape recorders, and then in the development of television. In 1977, the year of Crosby's death and of the rise of punk, he recorded a duet, "Little Drummer Boy / Peace on Earth" with David Bowie, who had long been a fan of his. Once more, a major figure of rock music was claiming a direct line of descent from the crooners.

## Domesticating microphones

Crosby is (considered to be) a crooner—in fact, he is the archetypal crooner, often presented as the first ever. One of the characteristics of this vocal style is to endeavor to make its lyrics understandable, and a relaxed style of singing.

> When I'm asked to describe what I do, I say "I'm not a singer; I'm a phraser." That means that I don't think of a song in terms of notes; I try to think of what it purports to say lyrically. That way it sounds more natural and anything natural is more listenable.
>
> (Crosby, quoted in Pleasants 1974: 130)

If we compare crooning to the belting of vaudeville singers like Al Jolson, the former favors an emission of sound that is less projected, less forceful than the latter. The most common explanation for this is that the microphone allowed crooners to be heard by the audience without needing to force their voices. This is what the English Wikipedia entry on Crosby explains:

> Crosby was one of the first singers to exploit the intimacy of the microphone rather than use the deep, loud vaudeville style associated with Al Jolson.[3]

However, this version of the story has the drawback that it does not account for the social process through which crooners *became* microphone singers.

Firstly, we should point out that recording studios saw the arrival of their first microphones and the electrification of recording and then listening devices in the mid-1920s. Some types of microphones had nevertheless already been in use in telephones since the last quarter of the 19th century, and a range of different systems was developed *for radio broadcasting* (Gelatt 1977; Borwick 1990; Chanan 1995; Millard 1995; Hilliard and Keith 1997; Braun 2000; Sterne 2003; Eargle 2005; Tournès 2008; Cook et al. 2009; Suisman and Strasser 2010; Taylor, Katz and Grajeda 2012; Gertner 2012; Schmidt Horning 2013).

However, the replacement of the horns of the acoustic era with microphones in recording studios did not automatically lead to their being used on stage. While amplification systems were in fact used in fairs and political meetings to support public speeches (Devine 2013), this practice was not widespread in performance venues.

Secondly, performers, technicians, and record producers had to adapt to the microphone. Indeed, the amplification of the signal enabled by an electric power supply was not entirely without its disadvantages. The first microphones could not handle high levels and probably also high frequencies very well, and would distort the sound. For vocalists who had learned to modulate their voices and to move closer or further away from the horns, as for everyone else involved, it was necessary to adjust their sensations, their sound production, and the positioning of their bodies to the "electric sensibility" of the microphones. While people rightly insist that microphones made it possible to record instruments that horns could not pick up, and to reproduce the acoustics of a room, we often forget about this process of adaptation that Sterne (2003) has documented so well for the early days of the acoustic era. Once they had been through this first phase of adaptation, some singers understood that they could now explore new techniques (Johnson 2000). Singing softly close to the microphone produced interesting effects: they could sing and articulate in a more relaxed manner than allowed for by bel canto or belting, and thus a particular kind of phrasing became possible.

Thirdly, the vocal style of crooners did not just come from the way they learned to use microphones. As illustrated by Crosby's love of McCormack, "renowned for his diction and breath control," some songs recorded during the acoustic era had already hinted at a relaxed vocality in which texts were very comprehensible.

In the recordings of opera stars such as Adelina Patti (1843–1919) and Nellie Melba (1861–1931), which were carried out at the instigation of the producer Fred Gaisberg (Northrop Moore 1999) using mechanical gramophones, the sound production was already controlled, the lyrics highly articulated. Freed from the constraint of having to project their voices at the audience, some performers and producers had thus started to develop other ways of singing in the studios. In these acoustic era records, Rudy Vallée and Crosby's generation discovered these

new techniques and pushed their development further thanks to microphones. Without denying the contribution the crooners made, we nevertheless see here that Crosby's natural style predates electrification or, to put it differently, that it is not the mechanical result (so to speak!) of the introduction of microphones and electrification.

Fourthly, the relaxed use of microphones on stage was not inspired solely by recording studios, but also by the radio. Probably even earlier. A recent, fascinating piece of work has shown that the crooner Rudy Vallée (1901–86) in fact developed and promoted crooning during the radio programs he DJed in the mid-1920s (McCracken 2015)—programs which quickly drew a considerable number of listeners. By sifting through the large amount of mail sent to Vallée, McCracken discovered that his fans attributed all of the characteristics of crooning to his voice (both spoken and sung): closeness, warmth, the feeling that Rudy's voice really expressed what was going on inside him and that it was taking up a place in the intimacy of their own homes.

## The migration of microphones onto the stage

Adapting a technical object to one's own needs and appropriating it is one thing. Carrying it over into a different space to use it differently, and combining it with other objects, is another. The crooners' other major innovation was their use of microphones and of an onstage amplification system. While this migration is still not well enough documented, a handful of remarkable pioneering pieces of work (Johnson 2000; Lockheart 2003) and some older texts on popular music (in particular, Pleasants 1974) nevertheless allow us to form an impression of this process.

The first point we should emphasize is that, in North American popular music of the 1920s, in particular in major orchestras with brass sections, the singers would not reveal the themes at the beginning of the pieces—they usually tended to perform in the middle of songs and only with limited accompaniment. Vocalists could only release their full potential when singing with smaller ensembles in which the other instruments did not cover their voices.

In order to compensate for this sound handicap, some singers, who would soon be referred to as crooners, used megaphones when they were performing with medium-sized or large ensembles. The megaphone then allowed them not only to ensure the audience heard them better, but also to sing differently. This was the case, for example, of Rudy Vallée, who:

> used a megaphone to carry over into the dance hall or large auditorium the "crooning" techniques of radio singing.
>
> (Pleasants 1974: 134)

For Pleasants, it was the vocal techniques developed for the radio that were transferred and adapted onto the stage. Furthermore, if we recall that the conical shape of the megaphone was identical to that of the horns of gramophones

(which served both for recording and for amplification), we understand that Vallée also exported onto the stage an object that was typical of recording and radio studios.

In addition, we should also note that Vallée justified his use of the megaphone using arguments that were almost identical to those of the "phraser" Crosby: he wished to give words the place they deserved.

> My use of the megaphone came through absolute necessity as although my voice is very loud when I speak or shout, yet when I use it musically it is not penetrating or strong, and the megaphone simply *projects the sounds in the direction* in which I am singing. What I did was simply to risk the censure of public opinion by using it *on every song*, and singing many songs through it, because I believe that one of the biggest defects in most people who sing songs is that they get melody out but not the words.
>
> (Vallée quoted in Pleasants 1974: 136, emphasis in original)

In 1930, Vallée decided to improve the amplification of his voice on stage a little, so he cobbled together a system that included a microphone and an amplification system—a public address system—that was placed onstage.

> It sounds like a Goldbert contraption but it works.[4] I borrowed an old carbon mike from NBC, hooked up a homemade amplifier with some radios, and I've got a sort of electric megaphone.[5] I had the legs sawed off the radios so they don't look so strange.
>
> (Quoted in Pleasants 1974: 134)[6]

Vallée's DIY efforts are interesting in more ways than one. Using a radio microphone on stage aimed to improve the system that had already been developed with the megaphone. This point reveals that the amplification of the crooners' voices on stage did not arise out of a simple "progression" according to which the studio microphone might almost mechanically become a stage microphone, but rather that this was the result of a more complex process.

When he explains that he wants to pay as much attention to the words as to the notes in his songs, Vallée confirms that his DIY work is intimately connected to a particular aim. The point here is not so much to understand whether the aim was the cause of the DIY or vice versa, but rather to comprehend the close articulation between these two moments. To put it differently: technology needs an aim in order to make sense, and reciprocally, the aim cannot be achieved without materials, without specific technical arrangements.

Finally, the fact that Vallée had the feet sawed off the radios he used as amplifiers shows that this translation required the partial transformation of certain objects.[7] We are confirming here what Sterne (2003) showed when he studied the beginnings of sound reproduction. In the same way as performance (its instruments, arrangements, spaces, and bodies) had to change for the purposes of

recording, the tools of sound reproduction had to be transformed in order to find their place within the equipment on stage.

## Do microphones have a gender and a race?

According to McCracken (2015), Rudy Vallée was the first crooner to become a star, mainly thanks to his radio shows. Listeners' letters are full of praise of Vallée's voice (both spoken and sung). His listenership was extremely varied, in terms of social class background, race, and gender, and this diversity was doubtless facilitated by the fact that the listeners could freely imagine what Vallée might look like (Douglas 2004).

Nevertheless, this enthusiasm for Vallée's "microphoned" voice was not unanimous. In fact, his use of the microphone was condemned by many artists, in particular by those who resorted to belting, and he was accused of being a cheat, proof that people who used a microphone did not know how to sing. Many of his detractors viewed his light operatta tenor's voice and his use of a microphone as betraying a lack of masculinity (McCracken 2015). As Johnson (2000) has shown remarkably with his example of the early days of Australian jazz, while many men refused to use a microphone, many women quickly took up this technology and learned to modulate their voices, to phrase their lines differently, to develop the lower parts of their vocal range. Amplification also allowed them to stand up to the powerful sounds of trombones, trumpets, drum kits—to be more visible and audible.

At the turn of the 1930s, McCracken shows, vehement campaigns were launched against Vallée, with his falsetto and his use of the microphone being presented as signs of a lack of virility or even as symptoms of his homosexuality. A masculine voice had to be low. Alongside this requirement, some people also started to categorize musical genres increasingly strictly in terms of the (supposed) race of their performers and audiences; blues became Black, folk music and hillbilly (soon to be known as country) became White and rural (Peterson 1997). The charts supported this normalizing trend by counting sales according to these classifications (country, race music, etc.), and the music press increasingly resorted to this labeling. This was also the period that saw the difference between art music and folk music being increasingly theorized—a process that has been documented in particular by Gelbart (2007) and Hagstrom Miller (2010).

The reason these campaigns to differentiate musical styles by race and gender were so intense was because, until the 1920s, music had in fact constituted an area where segregations were less marked than in other social spheres. As Charters (2008) has shown through the example of the birth of jazz, even in New Orleans, where racial segregation was quite ferocious, various communities could perfectly well play the same type of music, while some venues allowed (supposedly) Black, mixed race, and White musicians to come together. Likewise, in extremely popular songs such as "Mississippi Delta Blues" or the "Blue Yodels" series by country music archetype Jimmie Rodgers (1897–1933), blues chord charts and Swiss yodels were combined. Still in the same vein, we mentioned above that singers like McCormack would sing Irish ballads just as readily as opera arias,

and that this mix was in no way surprising to audiences.[8] The moral and political reordering that took place in the post-1929 crisis period did not prevent all Americans from continuing to listen to all sorts of music, in particular on the radio, but each musical style was now more clearly delineated, associated with a particular race, and the range of the voice had to conform to the singer's gender, in particular if he/she was White.

Coming out of this context of the late 1920s, in the early 1930s, Crosby, who voted for and funded the Republican Party all his life, asserted his figure as a good family man, White and with Irish roots, always relaxed and in control of himself. His calm baritone, which contrasted with Rudy Vallée's tenor, played a part in naturalizing the sound of masculinity. Listening to his light, sometimes high voice in his early recordings, and the ethereal vocal harmonies of the Rhythm Boys, we understand that he had to transform his voice himself in order not to sound more "effeminate." Perhaps his insistence on the words of his songs ("I'm a phraser") can be understood as a way of asserting his masculinity, in accordance with the adage that, as pointed out in the title of McCracken's book, *Real Men Don't Sing*. Tenor crooners like Rudy Vallée were not just marginalized in the early 1930s; they also ended up largely disappearing from collective North American memory. During his rise, and then for posterity, Bing Crosby—who incidentally is much loved by the author of the present lines—became the first crooner and a microphone pioneer. While some deep-voiced female crooners like Doris Day (1922–2019) remained popular in the 1940s–1960s, the Rat Pack of the 1950s–60s made crooning even more synonymous with masculinity—a kind of crooning that was admittedly less well-behaved than Crosby's, but just as virilist.[9] For their part, pioneers and virtuosi of the microphone and crooning such as Billie Holiday (1915–59) and Ella Fitzgerald (1917–96) were classified as Black American female singers, compartmentalized into blues and jazz. In the film *High Society* (Charles Walters, 1956), Crosby installs Sinatra as his heir and presents Louis Armstrong and his orchestra (which includes a White drummer) as the incarnation…of jazz. While Crosby always confessed his love for this kind of music and his unfailing friendship for Armstrong, cultural segregation is nevertheless at the heart of the film. As in the clubs, Black musicians are only tolerated on stage, and play jazz (supposedly "Black" music) for a White audience.

While, as early as the 1930s, all styles of popular music and performers adopted microphones and amplification, these technologies were increasingly monopolized by men, and virilized just as crooning had been. We could doubtless draw a parallel between this process and the way in which, from the late 19th century, technology became synonymous with masculinity in the United States (Casey 1997; Oldenziel 2004).

## Rock 'n' pop

Read the monumental biography of Elvis Presley (1935–77) by Peter Guralnick and you will see that his learning followed the same paths as that of the crooners: a mix made up of collective practices, intensive listening to media and local

performances. Just like millions of Americans, the young Elvis spent his Saturday evenings with his family listening together to the *Grand Ole Opry*, a radio show that had been broadcast since 1925 and was mainly devoted to country music (Guralnick 1994: 23), and he sang gospel at church (27). When the family settled in Tulepo, Elvis went to school with his guitar (25) and demonstrated to his peers the songs he'd learned through records, the radio, and his friends. Just like Crosby, the young teenager also attended all sorts of gigs in town, in particular blues concerts, and took a few guitar lessons (40).

What applies to Crosby's or Elvis's (North American) generations also applies to the Beatles' generation, born in the 1940s in the United Kingdom. The description of the Beatles' formative years is similar to Crosby's in numerous ways. The meeting and partnership of Paul McCartney (1942–) and John Lennon (1940–80) in Liverpool at the turn of the 1960s is irresistibly reminiscent of the pair formed by Bing Crosby and Al Rinker. Just like with Bing and Al, the friendship between John and Paul was founded on the love of a same genre of music (Elvis, Bill Haley, Eddie Cochran, Carl Perkins, Buddy Holly, etc.). Then, they started to practice together, to play in bands with friends from school or from the neighborhood, and even to dip into records (and the shops that sold them):

> When we didn't have any money at all, we used to go to music shops to listen to the singles. We memorised the techniques. Then we'd come back with these techniques and write songs. We were a band based on using the techniques that inspired us.
>
> (John Lennon, answering producer Kim Fowley's question: "John, what was the Beatles' secret, how did it work?," quoted in Babiuk 2001: 249)

Here too, they did it themselves with what they had. Here, for example, is how the Beatles' first bass player found strings for his electric bass:

> Stuart lent me his bass…He used to have piano string on it, because you couldn't get bass strings.
>
> (Paul McCartney, quoted in Babiuk 2001: 47)

And this DIY even goes hand in hand with the famous and emblematic three chords of punk:

> I could play a couple of songs upside down provided they only had three chords.
>
> (Paul McCartney, who is left-handed, describing what he would play with an instrument for right-handers, quoted in Babiuk 2001: 13)

DIY solutions, cobbling things together, and learning using the tools of sound reproduction were also at work in the career of Geoff Emerick (1945–2018),

the Beatles' sound engineer. In his autobiography, he describes how, during his childhood and adolescence, he was first given a crystal radio receiver and then a toy gramophone and finally a tape recorder and a microphone with which he would record sounds, copy fragments of records, stick fragments together—in short, he would merrily cobble things together in his bedroom (Emerick and Massey 2007: 18–19, 25–26). We know the rest of the story: defying all the sound recording rules as defined in the Abbey Road studio manuals, the very same Emerick placed microphones in front of Ringo Starr's tom drums during the recording session for the Beatles' *Revolver* (1966) album. Thanks to this close-up, listeners then got the impression that the drum kit was coming into their bedroom or—which amounts to the same—that their ears had been positioned in the middle of the drummer's kit. As we know, the Beatles' crew—the members of the band, its producer, sound engineers, the Abbey Road technicians—as well as the crews of countless other pop bands profoundly changed the way pop music was composed, recorded in a studio, produced, and broadcast. In a manner comparable to that of the crooners, learning at home with recorded music and practicing in a band went hand in hand with a series of major innovations.

## Theories of practice

In 1980, at the apex of the "punk revolution," a North American sociologist published *On Becoming a Rock Musician*. Stith Bennett accompanied, observed, and interviewed (almost exclusively male) rock bands in rehearsal rooms, concert venues, and during tours in Colorado and Southern France. He also quizzed members of these bands on how they learned rock music, given that none of them had been through any music teaching institutions. Bennett strictly limited his research to "local rock musicians" who had not published any records, who had no connections to the music industry, and who, even if they performed in concerts, only did so within a limited geographical area. This study shows that *records are the fundamental pathway into rock music*. As with previous generations, the musicians on Bennett's panel copied songs recorded in their bedrooms and then founded bands based on a common love for specific types of music. Bennett shows that by reproducing records, popular music musicians do not just absorb the vocabularies they love, but also become familiar with the spatial, temporal, and technological modes of organization of recorded music. In so doing, rock musicians have a tendency to import into their performances certain tools, ways of making music, and logics that come from the world of studios. To describe this assimilation, Bennett has coined the concept of recording consciousness.

In 2001, Lucy Green carried out a study into learning rock music in Great Britain, which also showed that rock, soul, and pop musicians had learned to play by imitating records. This point was confirmed by a survey that I carried out in France in 2005–7 among amateur rock, hip hop, and techno musicians at the time of the generalization of IT tools and of the internet (Ribac 2005, 2012). While the tools, resources, and meeting points had been expanded, the forms of initiation,

socialization, and DIY were comparable to those of the Crosby, Presley, and McCartney generations and to the practices documented by Bennett and Green.

## Thinking in continuities

The quick trip we have made through the United States, Great Britain, and France shows that, ever since sound reproduction and broadcasting tools have been accessible, amateurs have been using them to discover music, learn to play an instrument, sing, compose, come together, and invent new worlds together. While every generation invents its own specific ways, the fact remains that the forms taken by learning, socialization, and deployment in the public space are quite similar, including in countries that have different cultures. When these practices are echoed in some way, they establish themselves and thus reconfigure how music is listened to, practiced, circulated—and even its economy. If we use the term DIY to refer to the fact that amateurs (be they individual or collective) mobilize existing resources (a record shop or a gramophone) in an original manner, cobble together cheap but effective technical installations, and help each other, then the music learning and innovations of the crooners (for example, the DIY that allowed them to sing on stage with a microphone and a loudspeaker) and of the following generations do indeed constitute DIY. In other words, the practices that were theorized and claimed by the punk movement already existed, even before rock music was born. Even the fact of constituting bands, which, following Bennett (1980), I have myself presented as a specificity of rock music (Ribac 2004), predates this genre. Consequently, instead of presenting each new style as a tabula rasa and a revolution, we should take into account the continuities just as much as the differences when trying to understand the specificities of a new style.

## Amateurs and technologies

The example of the crooners' learning also shows us that amateurs often make good use of objects, media, and networks in ways that are neither recommended nor promoted by the companies related to them—or the professionals. A given technology (a photocopier or a gramophone) can thus give rise to uses that had not been envisaged by its designers or the companies that marketed it. In other words, if the materiality of the photocopier or the gramophone is imposed on us—we need electricity, ink, or records to use them—their structure does not determine what we can (or cannot) do with them. If amateurs like Crosby or the punks invented new uses for technologies, it is precisely because another path is always possible, and probably also because not being familiar with an object can allow you to imagine something different. The amateur's "ignorance" can therefore be an advantage.

If the "DIY learning" of popular music has long remained unseen, this is probably due to the fact that it happens in the domestic sphere, often away from the gaze of others, and that it involves ordinary people, especially as this learning

takes place in situations that are not explicitly educational and are very largely informal. Crosby and Rinker, McCartney and Lennon, and punks at the end of the 1970s learned music without thinking to themselves, "By singing with this record, I'm learning the foxtrot" or "I'm learning rock 'n' roll." While their artistic innovations are well-documented, we would do well, firstly, to connect them to the discrete forms that came before them and, secondly, to view them as arising out of social dynamics, and not as being the product of genius only. For we should not forget that these artists learned, cobbled things together, and practiced their music in the same way as other members of their generation, and in a similar way to those who came before them. The trajectory they followed before attaining glory is identical to that of thousands of other amateurs. In these terms, the main contribution made by the punk movement, and which the narrative around it solidifies, is certainly to have made explicit practices which, as we have seen, already existed. By asserting the capacity of amateurs to constitute collectives, to cobble things together, to self-organize and mutualize this knowledge, punk showed that these practices emanated from the social world, that they were the product of collective intelligence.

Since the rise of the internet and the intense knowledge sharing that it has enabled, DIY and the collective and collaborative dimension of knowledge have become even more manifest. These practices confirm the numerous works carried out in the STS on the importance of users in the adaptation of technologies (for instance, Akrich 1992; Bijker and Law 1992; Gardey 2001; Oudshoorn and Pinch 2003; Callon, Lascoumes, and Barthe 2009; Oldenziel and Härd 2013), on the fact that one same piece of equipment can have many different uses (for instance, Starr and Griesemer 1989; Edgerton 2011; Oldenziel and Härd 2013), including in the domestic sphere (Silverstone and Hirsch 1994). From this perspective, the specific contribution made by researchers from (or influenced by) the STS working on music has been to show that users (re)shape technologies and musical practices, not just through political mobilization, consumer groups, and forums, but also via more discrete and less explicitly coordinated practices (DeNora 2000; Hennion, Maisonneuve, and Gomart 2000; Ribac 2004; Eisenberg 2005; Maisonneuve 2009; Hennion 2015; see also Frith 1992). We therefore still have a lot of work left to do to understand how these practices and tacit forms of knowledge are constituted, broadcast, and spread. Recent works by Collins (2010) and Collins and Evans (2007) that attempt to localize and trace these tacit forms of knowledge in the social world, and no longer in an upper, invisible level of knowledge (Polanyi 1983), very certainly indicate the path to follow.

## Enchanted worlds?

When I carried out my own survey in France in 2005–2007, the young women on the panel described to me learning processes that were similar in every point to those of the young men. I remember particularly how a young male electro DJ and a young female trip hop singer from the western *banlieue* of Paris described to me in particularly similar terms how, using a tape recorder, a tape Walkman,

and a microphone, they had (re)invented multitrack recording in their bedrooms. They would record one track with one device, then rerecord at the same time as they were playing the previous track, and so on. What astonishing domestic DIY! However, while the informal learning processes of women and men were the same, their respective roles in the bands were much more stereotyped. The women were mainly limited to singing and writing text, the young boys would monopolize technical objects (software, synthesizers, etc.). When I examined the trajectories of those bands that wanted to go professional, the women were very much in the minority, and seldom noticed by programmers, producers, and labels (Ribac 2014).

In a similar way, the survey showed that the reason the members of the panel who came from ethnic minorities mainly practiced rap music was that, unlike other members of the panel, they barely had any sound reproduction devices at their disposal in their bedrooms, nor did they own any guitars during their adolescence. At the time the survey was carried out, most of them did not have a computer or an internet connection. Since they were unable to produce their instrumentals using software, download them from the web, or accompany themselves with an instrument, they would lay their flows over music broadcast over the television, from open-doored cars in their housing estates, or over accompaniments that were vocally improvised by their peers in the hallways of high-rise buildings. They were thus not rapping because they were Black or Arab, but rather because, being poor, their bodies, their voices were their only means of expression. To sum up this point, while my survey allowed me to document the great ingenuity of budding musicians and the variety of forms of sociability enabled by the internet and the digitalization of music, it also showed that the DIY spirit does not prevent discrimination towards women and ethnic minorities or social inequalities from being enacted and reproduced. From this perspective, the situation is the same today as it was in the days of punk music: neither the internet nor the DIY ethic can mechanically guarantee equality of opportunity. To summarize and conclude: glory be to punk for having made explicit the genius of the social world and of ordinary people, but let us take care to remember that those who came before us were already doing things very well. We do not need to be modern to understand and appreciate the role played by novelty.

## Notes

1 The subject of this chapter was first developed during a keynote lecture I gave during the KISMIF conference in Porto (Portugal) in July 2015, and then during a conference held at the Conservatoire du Grand Chalon (France) in April 2017. I would here like to thank Paula Guerra and Aude Patru for their invitations and their trust. Text translated by Kate Mcnaughton.

2 During conversations at the Centre for the History and Analysis of Recorded Music (CHARM) conference in 2008 and at the *Le son de l'Anthropocène* seminar at the IRCAM in November 2018, the historian of phonographs George Brock-Nannestad showed me that the first gramophones were just as easy to handle as the record players of the 1950s–60s. I thus owe to him my understanding that the learning processes of the crooners' generation and of those that followed were very largely similar.

3 https://en.wikipedia.org/wiki/Bing_Crosby#Success_as_a_solo_singer. Consulted on 28 March 2020.
4 Rube Goldberg was a North American cartoonist. Many of his drawings depicted extremely complicated machines that allowed you to do very simple things. Rather than a *Goldbert contraption*, the common English saying is a *Goldberg Machine*.
5 The microphone system described by Vallée was widespread in the 1920s.
6 The mention of Pleasants's book and the quotes from Vallée are included in Lockheart 2003, one of the most comprehensive academic articles on the early days of microphone singers.
7 This move from one space to the other recalls the moment when electric bass players started to use large Ampeg amplifiers that had originally been designed to provide sound for cinema screens. Usually hidden behind the screens, they were set up behind the bands and played a part in the technologization of rock stages (see Théberge 2001: 3–25).
8 In fact, we find traces of this blend of genres in '50s Hollywood musicals like *Annie Get Your Gun* (George Sidney, 1950) or *Kiss Me Kate* (George Sidney, 1953), which brought together singers from Broadway and from the opera.
9 The Rat Pack included Frank Sinatra, the TV host Dean Martin, Sammy Davis Jr., Joey Bishop, and Peter Lawford.

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