# 3 — VOCAL RANGE AND VOICE TYPE

# Vocal range

'Vocal range', or just 'range', refers to how high and how low you can sing (for example, you can almost always scream higher than you can sing). An undeveloped voice usually has a small range, say an octave or less. A trained voice has a range of at least an octave and a half. If your range is wider and you can sing easily over more than an octave and a half, you're said to have a large range. We also speak of a voice as having its own high, middle, and low range.

# Voice type

The most commonly used categories for the various types of voice are:

- High: soprano (women) and tenor (men)
- Medium: mezzo-soprano (women) and baritone (men)
- Low: alto (women) and bass (men)

VOICE

YOUR

Part

It's helpful to realize that these divisions into voice types don't have much to do with pop and jazz and don't say much about the range of a voice. They originate in the classical tradition, where they're used to indicate the range of notes (high, middle, low) where a voice has the most color and expressive power. For example, a mezzo-soprano can have the same vocal range as a soprano, that is, both can sing the same notes, but the mezzo-soprano's voice will have the most power and expressiveness in the middle while the soprano's high range will be the strongest. Especially in opera, a voice type is associated with certain character traits. This designation says something about the timbre, another word for color. Some common classical designations are lyric soprano, dramatic soprano, coloratura soprano, heldentenor and countertenor. Each of these voices has its own more or less fixed repertoire of pieces especially suited to that type of voice. So if you sing classical music, it's important to have an idea of what voice type you are. This isn't always clear from the beginning, since your voice naturally changes as you train it, and because this is sometimes a question of taste and interpretation.

# Pop and jazz

This division of voices into types doesn't exist in pop and jazz music, since voice teaching in pop/jazz is less oriented to training a given color or quality of a voice. If you hear a pop or jazz singer saying she's a soprano or alto, she usually means she has a high or low voice. In principle, everyone in pop/jazz tries to get his or her own sound. You can interpret an existing song in your own way and even choose to sing it in a completely different style. Tempo, feel, and key can be changed as you please. You even have the freedom to change the perspective of the singer's lyrics, say from a man's to a woman's point of view. Of course, whether all these changes are successful will depend on the good taste, expression, and power of persuasion of the person interpreting the song.

# Heavy or light?

In pop and jazz music there is usually a distinction between heavy and light voices. A heavy voice can produce more volume but is often less flexible, and will take more time and effort to develop. A light voice is more flexible and therefore easier to train. Because of their color, light voices are perceived as singing higher than heavy voices, even if two singers are singing a piece in the same key. Examples of heavy voices are Whitney Houston, Tina Turner, and Alanis Morissette. Madonna, Kate Bush, Prince, and Michael Jackson are in the category of light voices. In the jazz world, I would call Sarah Vaughan and Mark Murphy heavy or heavier voices, and Nat 'King' Cole and Silje Nergaard among the lighter ones.

# How high and how low?

In general, pop and jazz music is sung at a lower pitch than classical music, especially by women. Chorus parts are also usually lower in pop and jazz music than in classical music. A classical soprano can sing to about C6. (The C in the middle of the piano, or 'middle C', is C4. The inside of the cover has an illustration of a piano keyboard with the names of the notes and the octaves.) You rarely hear this 'high C' in pop and jazz music, not even with high voices. If I were to make a very rough division, I'd say that in pop and jazz music, low female voices with training can sing up to about (a little under or over) C5 and can sing down to about E3 or F3. High voices can sing easily above C5, to something like G5, and get down to about A3. Given that most females don't have exceptionally high or low voices, their limit in the high ranges is somewhere between C5 and G5, and in the low range between A3 and F3. The reason that women in pop and jazz music sing lower is because there's a certain sound they're trying for. In general women try to avoid a sound in which their high register (called falsetto or head voice) dominates (see Chapter 14 for a more detailed explanation of registers), and the higher you sing the harder that becomes.

Men sing on average an octave lower than women, and like women, they usually don't have exceptionally low or high voices. However, unlike with women, the falsetto is admired with men, like Prince, George Michael, and Bobby McFerrin. Training the falsetto very well (and not every singer can do this) greatly expands a voice's available means of expression. A male singer who has good control over this register can often sing just as high as an average female singer.

# Developing your voice

Of course it's also useful to make a distinction between heavy and light voices, and between high(er) and low(er) voices in pop, jazz, rock, and R&B. Ultimately, it's important for the development of every voice to discover where the most expressive power, volume, and resilience lay. For example, if you have a large range, it's important to develop your voice throughout the entire range and sing music that uses both the high and the low parts of your voice.

# Your voice changes

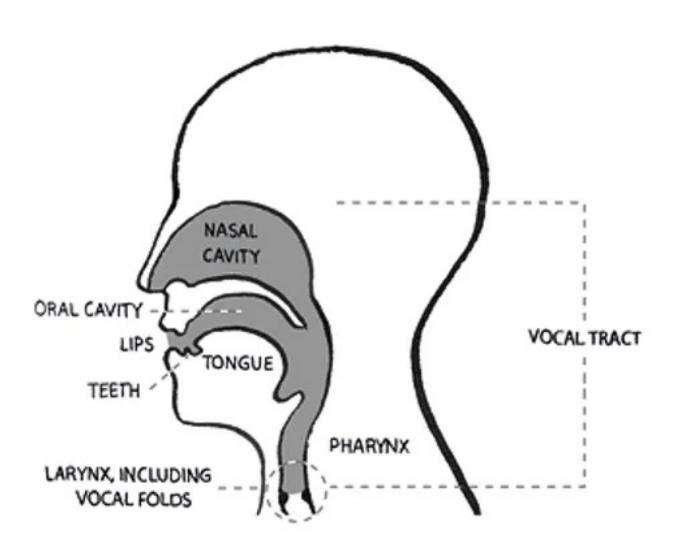
Your voice changes over time, both as your technique develops, and also as you get older. If you're a classical singer this may mean that you need to learn a whole new repertoire. As a pop or jazz singer, you can just sing the song in a different key. Singing a song a whole or half step down can make a lot of difference. So if a song doesn't feel right any more, it's worth trying another key, if necessary with help from your teacher.

# Some hard science

There are two physical factors that largely determine the range and timbre of your voice:

- 1. The size of the *vocal tract* is the dominant factor in the timbre of your voice. The vocal tract is the part of your body that the breath passes through after going past the vocal folds. It is made up of the pharynx (the throat; the cavity behind the nasal cavities and mouth, and above the larynx), oral cavity, and nasal cavity. Their size and shape partly determine what kind of voice you have. *The longer the vocal tract, the lower the voice*.
- 2. Thickness and length of the vocal folds also influence the timbre and range of your voice. The vocal folds of a man are between 17 and 21 mm long, and those of a woman are between 11 and 15 mm. The longer your vocal folds, the lower you can sing (just like the contrabass has the longest strings in the violin family). Vocal folds that are thicker will sound better in their low range.

With men, it's the length of the vocal tract that mainly determines the voice type. This varies between 25 cm for low voices and 19 cm for high voices. With women, the vocal tract is between 19 and 15 cm long. However, a woman's voice type is primarily determined by the structure of her vocal folds.

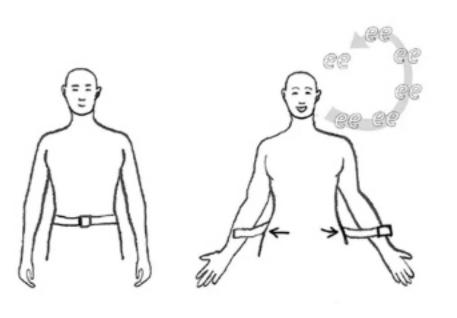


#### 2. Sliding ('glissando') exercises

Every note needs a different amount of air pressure, depending on its pitch and volume. The higher and louder you sing, the more air pressure you need and the more important it is to be able to control the movement of your diaphragm. Exercises using slides work really well for training this.

'Slide' from the middle of your voice a little bit up and then back, as if you're imitating a siren. Sing on a syllable like 'zah' or 'loo' (see example 2). The advantage of the vowel 'ah' is that it's easier to very consciously let your tongue relax and your jaw drop open. When singing on 'oo' make sure that you make the sound by rounding your lips. Check yourself in a mirror.

While your voice slides up, try to send your awareness down: imagine your lower body getting broader the higher your voice goes. It may feel like you're trying to use your belly to press your belt away.



#### Tips

- Try this exercise with a real belt or scarf around your waist. It's much easier to feel.
- If you sing the exercises on a 'vv' sound, it's even easier to feel the air pressure.
- Keep trying to find the right intensity for this exercise: if you do too much your muscles will tense up, and if you do too little the exercise won't have any effect.
- Always try to consciously sing with an open throat, meaning you keep some room in your throat. Imagine that you feel like you have to yawn or that you've accidentally got a very hot potato at the back of your throat. This open throat is more important the higher you go, and the larger the intervals you're singing. As I explained earlier, this yawning position brings the larynx to a low position, which will give you a warm, rich sound.
- While you're singing a rising line, you can bend your knees slowly. When the line goes back down, straighten your legs and come back up. It doesn't have to be a big movement, but it should be one fluid movement.

#### 3. Stepwise exercises

Exercise 2 can also be done with stepwise motion instead of with slides. The goal here is the same: to try and keep your diaphragm low enough when singing leaps and high notes. The larger the intervals, the more difficult it will be.

#### Some general tips

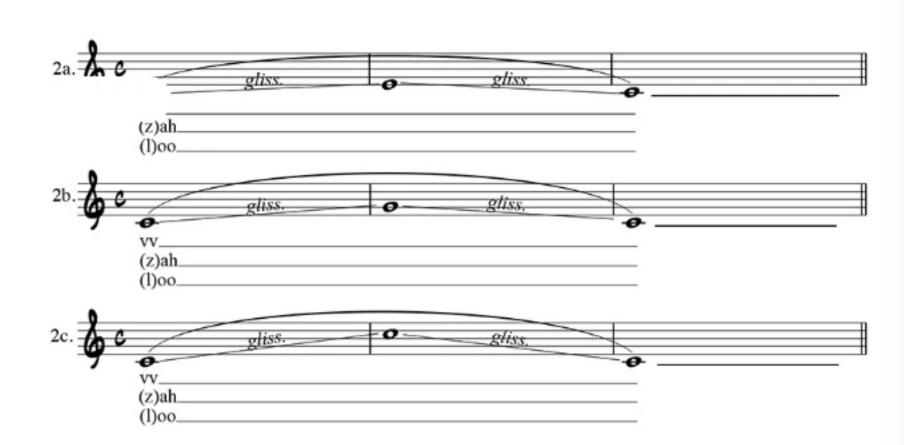
- Always start in the mid-range of your voice. Then repeat the exercise going down by a half step (semitone) each time. Any two keys next to each other on the keyboard (whether black or white) are always a half step apart, so always start one key lower than the previous time. When you can't sing any lower, go back to the note you started on and repeat the exercise going up by half steps from your starting note.
- You can also start at the very bottom of your range and move up one semitone at a time. Don't sing too loudly, and keep the tempo slow.
- Always rest for a couple of counts in between, then slowly take in a low breath before singing the next exercise. If you drop your jaw at the end of an exercise, that will help you to inhale low the next time.
- You won't get much out of these exercises if you
  just go up by half steps mindlessly and quickly.
  You'll make more progress if you can do them very
  consciously.

#### 4. Lip trill exercises

These exercises are a good way to observe and to train your air pressure.

If you close your lips and make a long 'brrrrr' sound, your lips will start to vibrate. To get the idea, think of a horse snorting or a child imitating the sound of a car. If that doesn't work, imagine yourself jumping on a scooter and driving away. Pretend to grab the handlebars, give it some gas, and 'brrr', away you go. It always works! Sometimes it takes a little effort to get the pressure right, so that your lips keep vibrating steadily and without interruption (especially if this makes you laugh!). Once it works, you can clearly feel the tension in your breathing muscles. If you release this tension your lips will immediately stop vibrating. This makes it an excellent exercise for working on your breath support. You shouldn't feel any tension around your throat with this exercise. Start by sliding up and down like a siren while making the lip trills. Start with small intervals in the middle range of your voice, then keep going higher and lower. Then repeat exercises 1 through 3, replacing the vowels with lip trills. If you really want to challenge yourself, you can try to sing a song, or just a few lines from a song, on a lip trill. A good one is Yesterday by the Beatles (see Breathing in practice: three Yesterday exercises).

#### 2. Sliding ('glissando') exercises



#### 3. Stepwise exercises



## Nasality

Nasality is a timbre that begins in the vocal tract, made by the position of the soft palate and uvula (at the top and back of your mouth). If your soft palate and uvula are raised, then they close off the connection between the oral and nasal cavities. If you let them hang down, this connection is opened and some of the air is exhaled through your nose as well as your mouth. Because of this certain overtone frequencies, regardless of the pitch you're singing, are weakened and others are reinforced (and scientists are not certain exactly which frequencies they are yet). We call the sound this creates a nasal sound.

Some singers are known for a nasal sound, among them Madonna (especially her earliest CDs), Neil Young and David Bowie. If you sing nasally (some people say you're singing 'through your nose'), your voice can lose volume and sound somewhat whiny. Too much nasality can make your singing come across as drawling and dull. Of course this is a matter of taste. If you use nasality sparingly and consciously, it can be a great means of expression.

Nasal singing also has certain technical advantages, since you're relaxing the muscles that support the larynx. You can use this effect for certain singing exercises and certain vocal problems (see Chapter 15). If you want to work on excessive nasality and/or if you have too little control over it, then you'll have to learn to raise your soft palate and uvula.

#### Exercises

TECHNIQUE

SINGING

- If you purse your lips (pout) as if to make an 'aw' sound and inhale, then you'll feel your soft palate going up. Imagine a cool stream of air being sucked in. Hold this position and relax. Try to observe what's happening with your soft palate.
- Without making sound, switch between an 'ah' and an 'oh' sound. Feel the movement your soft palate makes.
- Sing a short run, like five notes up and down, on 'ae', pinching your nose shut. If you sing with a very 'l be clearly audible and you'll feel
- 4. Now do exercise 3 again, singing through your mouth (you'll have to raise your soft palate to do this). If it helps, you can inhale on 'aw' before singing, and try to keep the resulting raised position of the soft palate while you sing. If you do this right, you won't feel any vibrations in your nose. The difference should feel very clear to you.
- Now do exercise 3, switching between nasal and non-nasal. This will help you get an idea of how nasally you sing, and you'll learn how to tell the difference. If you're not sure if you're doing it right, record yourself.
- 6. You can also do the above exercises with phrases from a song that is giving you problems. Always do them in three steps:
  - 1. the way you're used to;
  - nasally (or very nasally);
  - without nasality.

With steps 2 and 3, keep holding your nose closed to check. Once you begin to get your nasality under control, you can close only one nostril.

Some singers have more trouble singing nasally in their high range, because that's where they automatically raise their soft palate. Other singers *only* sing nasally in the high range. If in doubt, record yourself again!

#### Twang

The width of the throat (pharynx) and the position of the larynx also influence the sound. If the larynx is high it creates a strong formant which we use in singing with 'twang'. There's more information about twang in Chapter 15.

# 14 — REGISTERS, REGISTER BREAK AND BLENDING

Working with sound and registers has an important place in my teaching. If you have problems with sounds and registers, your means of expression are severely limited, and often these problems are also the cause of serious vocal problems. It's very hard to learn how to manage sound and registers from a book. There's a lot of theory, there are endless exercises for it, and there are also different ways to approach it. In this chapter I'll tell you how I work with it and how I see it.

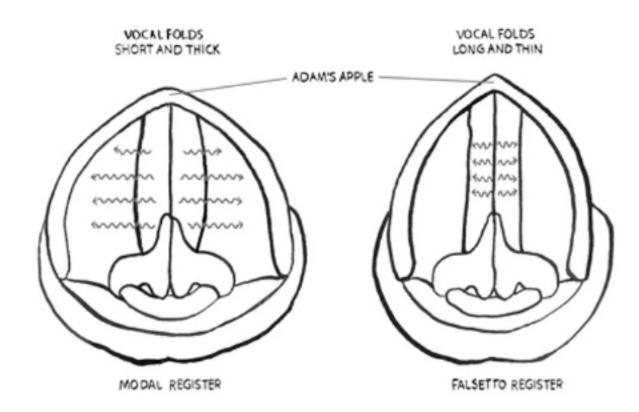
# What do we mean by a register?

'A register is a group of notes produced in the same way'. This definition comes from a physiological approach, in which we describe how the vocal folds vibrate. Physiologically, we usually distinguish between two different registers: the modal register and falsetto register. Many people use the older terms 'chest voice' (modal) and 'head voice' (falsetto). The vocal folds vibrate differently in each of these two registers. In the falsetto register, the vocal folds are long and thin and vibrate mainly at the edges. In the modal register, the vocal folds are short and thick and they vibrate over their whole width.

There are other ways to define a register. If you start from the sound of the voice, instead of from the way the vocal folds are vibrating, you can distinguish more registers. Because the voice can make so many different sounds, also depending on the style you're singing, it makes sense that there are other divisions based on the sound of the voice. Depending on the method, people distinguish between three to five registers, with names like voix mixte, middle voice, and the chest, whistle, low, high, and falsetto registers, vocal fry register and glottal fry register. There are even more methods that refer to registers with thick, thin, closed and open vocal folds, and methods where instead of registers, they talk about vocal functions. I will mainly use the terms modal register and falsetto register here, because in the context of this book, they're the clearest.

#### Cross-section of vocal folds (seen from above)

Winkel



This chapter provides an overview of some common general and technical problems. For every problem, I suggest some solutions and/or refer to other chapters in this book. Take time to find out which suggestions result in improvement for you.

#### Articulation

- Too slack articulation. Your words can't be understood, or you're making too little use of the means for expression that the lyrics offer.
- Too tense articulation. You're over-articulating, which impairs your sound and volume and puts too much tension on your throat. (Your performance can come across as artificial if you exaggerate your articulation too much.)
- Tense and/or stiff tongue. This causes problems in articulation, as well as in register transitions, regulating the air flow, and speed. See Chapter 12.
- Problems pronouncing particular sounds, mispronouncing a 'th', too thick an 'l', etc.
- Problems with pronouncing certain languages.
   For 4 and 5: see Chapter 16, 'Pronunciation and articulation' for exercises and tips on tackling these problems. If the problem is persistent, or if you have very specific problems (such as a lisp), see a speech therapist.

#### Breathing too high

- You may be very nervous. Try to release some of the tension. You'll have to find out for yourself what works best for you: relaxation exercises, physical exercise or distraction.
- Are your clothes too tight?
- Are you trying to do too much too soon?
- Are you almost always breathing too high? Begin with the exercises for 'Becoming aware of your breathing' in Chapter 8.
- Are you releasing your abdominal muscles enough when you inhale between two phrases? Holding on to the abdominal muscles often makes your breathing creep upwards while you sing. See Chapter 8 at 'Inhaling quickly and silently'.

## Constricting/pressing

#### There is too much tension on your throat

- It could be because you don't trust your breathing.
   Work on that first (see Part 2, 'Breathing'), and then on relaxing your tongue and lower jaw
   (Chapter 12) and then on an open throat (also Chapter 12).
- Until your breathing technique is a little better, you may need to sing your songs in a lower key.
- Are you trying to do too much, or do you want to go too fast? Volume and emotion can't come from your throat!
- How are you blending your registers: are you sometimes closing off your throat to avoid going into another register? Or is the song too high? Do the exercises from Chapters 14 and 15.
- Pick an easier piece, not too emotional and with a smaller range, and do the exercises from Chapters 14 and 15.
- Have you warmed up your voice enough?

## Feeling out of breath

- You may be taking in too much air. Your shoulders should stay in place when you breathe, and you definitely should not pull them up. If your belly and lower ribs move outwards in all directions, that's all you need for a good breath.
- Let the breath flow while you're singing don't hold it.
- Is your diaphragm flexible enough? You may be focusing too much on keeping your diaphragm low so you're constantly holding your belly and lower ribs out. This can make your diaphragm tense. Do the Yesterday exercises in Chapter 8.
- If you're still getting used to low breathing, you
  may have a vaguely out-of-breath feeling high in
  your chest. That's because you're used to feeling
  everything happening up there and now that the
  breathing movements are lower, that sensation is
  missing.
- You may be too preoccupied with regulating/controlling your breathing.

#### Flexibility

- Too small a range. Your range will increase by itself as you work on your technique, in particular breathing and register transitions. You do have to sing the exercises over your whole range, in both the high and low ranges of your voice, even if it doesn't sound very good there yet.
- 2. Inability to sing fast. This often has to do with an insufficiently developed coordination between the muscles for breathing and for articulation. This coordination will improve with lots of practice. Build it up gradually: begin with light exercises and slowly increase your speed. The exercises for placement/resonance in Chapter 13 can help, and so can the articulation exercises in Chapter 16.

# Hoarseness/breathy tone

- Is your air flow even? See Part 2, 'Breathing'.
- Imagine holding your breath in while you're singing, and don't 'give too much away'.
- While you're singing, direct your attention to the clear, focused part of your sound and melt completely into that part.

9

TROUBLESHOOTING

- How are your vocal onsets? See the exercises for placement/resonance in Chapter 13.
- Do you have a cold or have your strained your voice? See Chapter 43.
- Are you articulating enough? See Chapter 16, 'Pronunciation and articulation'.
- If you really can't sing with any other sound, have a doctor examine your voice.

## Jaw problems

- Stiff jaw and/or mouth not opening far enough.
   These problems will affect how well your text is understood, as well your volume and timbre possibilities.
- Jaw jutting too far forwards. Your lower jaw show hinge 'backwards' when you open your mouth. See Chapter 12 for jaw exercises.

# Nasality/low palate

It's boring for your audience if you only sing with a nasal sound, and your voice can also lose its carrying power. If you're using a nasal sound to disguise other problems, look in Chapter 13 under 'Nasality' and read Chapter 15 for exercises.

# PRACTICE MODE CONSCIOUS CONTROL ANALYSIS REFLECTION PERFORMANCE MODE UNCONSCIOUS CONTROL LETTING GO FLOW SKILLS EMOTION / STORY TELLING

WORKING METHOD

AREAS OF ATTENTION

# Accompaniment while practicing

It can be nice to have musical accompaniment when you're practicing. Lots of singers are in the habit of singing along with a recording of the piece that they are practicing. However, this has three disadvantages:

- 1. You can't hear yourself very well.
- It's difficult to sing your own variations, or to make different phrasings or timings.
- You can only practice the song in the same tempo and at the same pitch as the original.

If this isn't a problem for you, because you really want to stick to the original style of performance, then a possible solution would be to find a recording of the original accompaniment without the voice track. Such recordings are usually for sale as sing-along or karaoke CD's, in mp3 format or on DVD. You can also find them on the Internet (YouTube). With a lot of these

ble to transpose them to a key

If you would like to sing the song starting at a different pitch and/or in a different tempo, or with a different groove, then computer accompaniment programs like Band-in-a-Box and Ireal Pro can help (look in this chapter under 'A computer, tablet or smartphone'). If you play together with other people, or you're having singing lessons, you can also ask your teacher or fellow musicians to record an accompaniment for you. However you decide to do it, it's a good idea to alternate practicing with and without accompaniment.

## **Practicing together**

If you sing with someone in a band, or you have singing lessons together, or you sing in a choir, it can be fun and informative to practice together as well. You can then warm up and do exercises together and help each other. You can also sing through songs together, or take turns while one listens and the other one sings. In addition, it can be nice to sing in two-part harmony and/or to try out backing vocals. Not everyone can muster up enough discipline to practice on their own. Practicing together can be an agreeable solution.

# Mental practicing

This is a way of practicing a song or exercise without actually singing. You imagine everything in great detail: your breath, your vocal onset, the melody, the sound and the volume, the phrasing, the lyrics, the emotions and so forth. Many professional musicians do this for example when they are travelling. It's really good for your concentration and your musical imagination, and for this reason makes a good supplement to 'normal' practicing.

## Overcoming setbacks

As a teacher, I regularly come across students who can't seem to manage to practice enough. If that's also a problem for you and you keep putting off practicing, then it really makes sense to take a good look at the reasons. From my experience, the cause of the problem is usually one of the following issues:

- 1. You don't know what you need to practice.
- You know what you need to practice, but you don't know how to go about it.
- Your expectations are so high, and you're so critical of yourself, that you don't dare to sing.
- You're frightened that someone else will hear you and laugh at you.
- You enjoy singing with other people, but practicing at home is not your thing.
- 6. You have just enough time to go to a singing lesson once a week, or a rehearsal or maybe even choir practice, but the rest of your week is completely full with other activities.

In this book, you will find plenty of solutions for the first two problems. If you take singing lessons or are in a choir, you can ask your teacher or choir director for advice. One possible solution to all these problems would be to practice together with someone else, so that you can motivate and inspire each other. If you have no time or interest in practicing (be honest with yourself), but you still want to sing, then find a singing activity that doesn't involve homework. There are all kinds of choirs and workshops that don't expect any preparation from their participants. Of course, as your musical ambitions grow, more will be expected of you, even in the area of self-study!

adjusted, so that you don't have to force your voice when you're singing.

#### In-ear monitors

In-ear monitors are worn in your ear. These are small, usually wireless earphones that also block off background noise. Sometimes they're made to measure. The advantage of in-ear monitors is that everybody on stage has their own sound mix with enough volume, and the monitor sound is very good, with no background noise. In-ear monitors also eliminate the problem of feedback. The fact that you don't hear any background noise can also be a disadvantage: you don't hear the audience's reaction or those of your fellow musicians. There's work being done to develop a solution in the form of a half-open system.

#### PA system

There are many situations where a compact PA system with separate guitar and bass amplifiers is just not up to the job of adequately amplifying the band. It might be because the space in which you're singing is too large or because you're performing outdoors. In those situations, you need to use a proper PA system. A large PA offers more channels than a compact PA system, more possibilities to connect effects processors and monitors, a more extensive equalizer, and much more volume. These extensive PA systems are usually just rented, either by yourself or by the organizer, and they often include a technician to operate the system. This is agreed on in advance. These more extensive PA systems amplify all the instruments on stage. Microphones are set up in front of the drums, and sounds from the guitar and bass amplifiers are passed through the PA system, usually by placing one or more microphones in front of those amplifiers. If the keyboard is connected to its own amplifier, a microphone is also placed in front of it. Sometimes these amplifiers aren't further amplified' by means of a microphone, but the signal is taken directly out of the individual amplifiers into the PA system. Some instruments, keyboards for example, can also be directly fed into the PA system. In these cases, the signal runs through a DI.

#### DI

Amplifiers and instruments generally have a high ohm. Because the signal goes through a very long cable, the signal is first converted from high ohm into low ohm. That makes the signal less sensitive to interference. That's important if you stop to think about how many electrical devices there are on stage. The conversion from high ohm to low ohm is done by a socalled DI (or direct injection). With stereo equipment, you need one for each channel. As a singer, you'll only use a DI when the signal from your microphone first goes through an effects processor before it's sent to the mixing board. This is the case when you're in control of your own effects processor, and it's set up next to you on stage. Normally, your sound is adjusted during the sound check; that's when the technician adds reverb and other possible effects to your sound through the mixing board.

When using an extensive PA system, more monitors will be needed on stage, because on a large stage all the instruments are amplified, the sound is less direct, and the volume is very loud. The exact number of monitors depends on the number of instruments and the setup of the band. Generally, this is evaluated (and adjusted if necessary) during the sound check. If you play a lot with the same band, you usually have a fixed way of setting up and a clear preference. Put this on a list with technical preferences (called a technical rider), and on a stage plan that you send to the organizer in advance, or put it on your website.

# Which equipment should you buy?

As a singer, which equipment you buy depends a lot on what you do. Do you often rehearse with a band? Do you perform? Where do you rehearse and/or perform? What are your ambitions? How big is your budget?

If I were to recommend the best equipment to invest in – assuming that you perform regularly, maybe with a band – then I would recommend you acquire the following pieces of equipment (in this order):

#### Microphone, cable, microphone transformer, stand

The most important purchase is a microphone, with a cable that's long enough. Buy a microphone transformer while you're at it (see 'Buying a microphone' in Chapter 30). A sturdy microphone stand, preferably with a boom, isn't just a luxury. It keeps you from putting your microphone down in hazardous or dirty places.

#### 2. Powered monitors

The second good investment could be two lightweight powered monitors, each with a 100 W capacity, and two lightweight folding stands. Floor monitors that can also be placed on stands are very practical. Then you can use the monitors in several different ways; you can put them on stands during rehearsals, so that everybody can hear you. For a better sound, you can send the signal from the microphone through the mixing board via an effects processor, but even if you plug the microphone directly into the monitor – with the help of a microphone transformer – you have a pretty good sound for rehearsals. Used this way, powered monitors are also suitable for performances in smaller halls. Then they're not being used as monitors, but as the main speakers.

If there are performances where you need to use a monitor, then you can use them as monitors with your own compact PA system. If you're using the PA system of the hall where you're performing, take your monitors along just in case: I know from experience that there are often no monitors, no matter what's been promised, or they're broken, or the quality is very poor. Once concert halls begin investing in sound equipment, they usually start with a mixing board, microphones and good main speakers, directed at the audience. They might wait to buy a few monitors later on, because at first they don't seem that important. But for singers, monitors are of crucial importance: the quality of the monitors is largely responsible for determining if you go home with a sore throat or not. The pleasure of performing is really diminished when you've got a poor monitor sound! A poor monitor sound can mean that you force your voice, which can be very bad for your voice. So, if the sound system available isn't of very high quality, they can really be a saving grace. It means you can always sing with your own sound, just like guitarists who always take along their own amplifiers.

#### 3. Reverb

If you plan to continue buying sound equipment, the next logical step is to acquire an effects processor, with at the very least a nice reverb. You'll almost never perform without reverb, and in my experience when you're using somebody else's sound equipment, it often has no reverb, or else the reverb's not very good, no matter what they've promised you. This can really ruin your whole sound, no matter how beautifully you sing.

#### 4. Mixing board with speakers

The next step in your investment plan is to purchase a mixing board with speakers. Consider how many channels you'll need, and make sure it has enough microphone inputs. If you plan to connect a lot of effects units, there should be plenty of auxiliary inputs. Be sure it has at least a three-part equalizer (high, midrange and low) and has monitor outputs. The mixing board and speakers shouldn't be too heavy: you'll probably end up lugging them around a lot, even when you're tired. Lightweight equipment is worth the extra investment.