

apartments of successive Danish kings. Whatever they most prized appears as fresh and as living as if the monarch were still alive."

There are other museums in this richly-endowed town, that illustrate other phases of human existence, notably the Ethnographical collection, that proves the life of the savages in distant islands of the sea to be the same to-day as that of our forefathers in past ages. But space here compels us to leave these collections of life in the past, to enable us to take a passing glance at the life in Copenhagen of to-day. Besides these places of amusement and instruction, such as the galleries and museums, there are numerous places of resort in and around Copenhagen that are crowded, especially in the mid-summer season, by the people and their visitors.

The summer is but too short ; for even in August the nights are clear and frosty, and thick wraps are a comfort to even chilly Englishers. One of the pet places of resort is the sea-side village of Klampenborg, where the scenery is very pretty : sloping hills dotted with picturesque little villas, and away, beyond the grey leaping waves of the Sound, the not far-distant shores of Sweden. The little steamboats that run out to these pleasure-resorts are crowded on bright summer days, and the run out and home again enables one to study well the various classes who are enjoying the little trip. Some of the boats go on to Elsinore (as we spell it), and longer sea-trips may be made in small but well-found boats to Malmö, Stockholm, Lubeck, or Rüssia. In fact, Copenhagen is a good place from which to explore the Baltic and its towns and islands.

Another favourite resort in an exactly opposite direction is the Frederiksberg Palace, which may be reached by tramway. This is another of the palaces whose architecture is picturesque, and speaks of the date when Denmark was a power in Europe, and when no ship dare pass the toll of Elsinore without saluting and hauling up, and paying the dues. Many a state

paper in the seventeenth century from the King of Denmark to England is upon this subject, requesting that such a captain who has eluded the tolls may be punished on his return to England ; or stating that such ships have been found carrying war material to the enemy Sweden.

Frederiksberg (like Rosenborg and Kronborg) has the courtyard, with its broken surrounding roof of gables, and towers, and pinnacles, that remind one of some of the later Scotch castles, and the castles on the Loire.

As one notices the influence of French architects in Scotland, so one traces the influence of Scotch architecture in these Danish castles ; they all much resemble each other. At Frederiksberg there is no historic museum to occupy the traveller's time, but as he is returning to town he will pass by the gateway of the place more frequented than any other by the Copenhageners, and perhaps one of the best-arranged resorts for amusement that can be found in Europe.

Here at Tivoli crowds of all classes of Danes are to be met, from the King down to the peasant and the artisan. Amusements are provided to suit all tastes and all nationalities, for nearly every European language may be heard here.

We discovered the meaning of the curious title of "*particulier*" before we left the city : it was but their fashion of writing down those who give no profession. We but too soon left Copenhagen by steamer for Lubeck ; and ran past in the lingering northern twilight where—

"The tall white cliffs of Moen's Isle arise
From out the dark and heaving Baltic Sea,
And speak into the traveller's lingering eyes
Of England : thy ally, as she should be."

And the sight of these cliffs, so like our own white southern headlands, was our last glimpse of hospitable, pleasant Denmark.

JAMES BAKER.

THE VOICE : HOW TO KEEP IT IN HEALTH.

BY A FAMILY DOCTOR.



THE subject of my paper this month is one that should be of interest to all ; but more particularly, perhaps, to those who speak in public, or who sing either in public or in private. Yet I greatly doubt if even fifty per cent. of our vocal musicians know how the different notes are produced, or anything at all about the anatomy of the larynx. To many of our sweetest singers, indeed, the voice is a *vox et preterea nihil*.

"Why should I bother my head," I fancy I hear some one say, "about the anatomy of the larynx, as you call it? If anything is calculated to banish the romance from music, anatomy is."

But stay, I reply. There are one or two things that every speaker and singer wishes to do : one is to strengthen and sweeten the voice, another is to preserve its mellow tone, and a third to be able to keep in voice as long as he lives. Now, without some little knowledge of the working of that wonderful natural musical instrument, the larynx, it will not be so easy for him to effect what he desires in the matter of voice.

"The larynx," says the great comparative anatomist Chauveau, "is a very short tube, which gives passage to the air during respiration and is also the organ of voice."

The italicising is mine, and I take exception to this portion of the sentence. So far it is right enough ; but, for the sake of being practically useful to my readers,

I must include the lungs and thyroid gland, to say nothing of the mouth itself, as part and parcel of the organ of voice. What would the larynx be with-

out the lungs after all? Apropos of this, and just to show that even an anatomical lecture is not necessarily as dry as dust, let me give two brief anecdotes. They are both from beyond the Tweed.

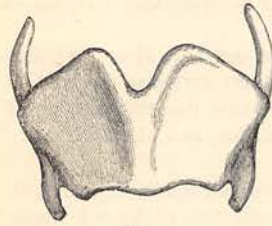


FIG. 1.

A somewhat conceited organist was officiating not long since at the Free Church of K— while Tommie M— did the bellows work. Tommie came smirking up after service, and shook hands with the city man, somewhat to that functionary's disgust.

"Man!" said Tommie, "didn't you an' me do fine the day?"

"You and me! What do you mean? I played."

"Humph!" Tommie said, "you did the fingerin' pretty weel; but whaur would ye hae been if I had stopped blowin', hey?"

In another parish, Willie S— and his little brother Johnnie were playing at hanging, after reading something in the newspaper.

"You first," said Johnnie, "you're the auldest."

"A' richt," said Willie, getting up on to the barrow. "I'll just whistle when I've had enough."



FIG. 2.

"Vera weel, so be it," replied Johnnie, as he rolled away the barrow. Willie made a round mouth to whistle almost at once. But Johnnie looked up with a cunning smile.

"A bargain's a bargain, Willie man. Just you whistle. Makin' a mouth's one thing, and whustling's another."

A servant happened to come and cut poor little Willie down just in time.

Well, then, in order to have a good voice, it is necessary not only to have a perfectly developed larynx, but to have healthy, fairly strong lungs as well.

I have in previous papers described the structure and physiology of the lungs, and need not repeat.

The larynx itself is situated at the upper end of the wind-pipe—I am purposely using simple language—it is in reality a kind of box; it is easily seen and felt in the front of the neck, going by the popular name of Adam's apple. The hard cartilage we feel is the two sides of the box. These two plates are of an oblique-angular-parallelogram-

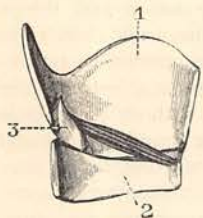


FIG. 3.

matic form (I fear that word is hardly a simple one). They are joined in front so as to form an actual shield to the easily-injured parts beneath.

A pen-and-ink sketch of this important cartilaginous shield may assist us.

It is called the thyroid cartilage. Fig. 1 represents it from a front view. To its upper horns is attached by ligaments a little bone, called the hyoid (*vide* Fig. 5); to its lower, a ring-like cartilage which moves within it, called the cricoid (Fig. 2). The narrow portion of this ring is placed in front, so that this cartilage and the thyroid, when placed in position, would have this outline

(*vide* Fig. 3) somewhat. This represents one-half of the chief part of the larynx, seen from the inside. 1. The thyroid cartilage. 2. The cricoid in position. 3. One of a pair of small cartilages placed on top of the cricoid, and to which one end of each vocal chord (4) is attached.

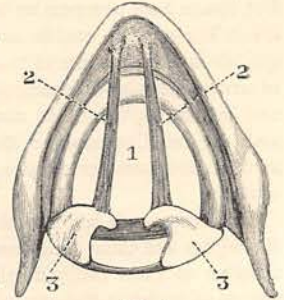


FIG. 4.

If you were to look into "the organ of voice" from above you would have represented to you a picture like Fig. 4, in which you see the aperture of the organ of voice (1), and at each side a vocal chord (2—2) attached behind to the little pitcher-shaped cartilages (3) called the arytenoid, and in front to the inside of the big shield-like thyroid.

Before going any farther it will easily be seen from their attachments that elevation of the large thyroid cartilage will stretch the chords, and therefore raise the note, just as we do the same by turning a fiddle-peg and tightening the string.

But by a wonderful set of muscles, according to the note we want to produce in singing, the aperture of the organ is lessened or widened by the elevation of this whole natural instrument; thus, in producing the musical scale, we have two sets of action at work—first the slackening or tensifying of the vibratory voice-chords, and secondly, the shortening or lengthening of the chords themselves.

You can witness in your own person the moving up and down of the thyroid, if you stand in front of a looking-glass and run up the scale and again descend, or you can feel it with your finger and thumb without getting out of your chair.

Behind all, we have the lungs, or the bellows; and in front or above, the outlet for the music, *i.e.*, the mouth.

Fig. 5 shows a side view of the organ of voice, with all the parts in position. 1. The hyoid bone. 2. The horns of it, to which the tongue-muscles are attached. 3. The thyroid cartilage. 4. Adam's apple. 5. The cricoid cartilage. 6. The upper rings of the wind-pipe. 7. The back of the larynx, behind which is the gullet.

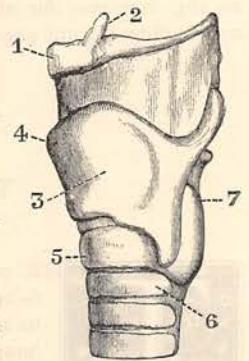


FIG. 5.

If I have awakened the slightest interest on the subject in the mind of the singer, let me refer him to books. To what books? The best encyclopædias you can find, in the best library you have access to. It is a most interesting study, and knowledge gained thereof so impresses one that he never forgets it, till the great silence falls that stills the voice—in this world—of even our sweetest singers.

Close to the larynx, and behind it, is situated a double-lobed gland, called the thyroid. It is larger in the young than in the adult, and in women than in men. It is what is called a ductless gland; it does not possess a canal that leads anywhere, so anatomists and physiologists are considerably puzzled to know the uses of it. Some have even gone so far—inhuman vivisectors—as to excise the gland from horses, to prove that they can get along just as well without it. Perhaps so; but then, horses do not sing—at least, as a rule; we human beings do, and placed where it is so close to the organ of voice, it is undoubtedly meant for some useful purpose in the economy of nature. If the larynx needed a cushion just there, fat would have done as well as a gland.

But this gland is largest in babies and women, and both can make good use of the organ of voice sometimes. Here there is food for thought.

How to keep the voice in health and form: As both the lungs and the larynx are presided over by nerves, involuntary as well as voluntary, it is evident that if the system gets out of order for a time the voice must suffer, this quite apart from huskiness or from exudations caused by cold.

For the vocal chords, and the wonderful arrangement of muscles connected with them and the larynx in general, are as likely to suffer from debility as any other part of our anatomy. This debility may be of two kinds—simple atony, or weakness from want of nerve power, without any atony or wasting of substance. The former will usually be associated with weakness of the whole muscular system, including heart and stomach; there may be difficulty in breathing, or inability to ascend heights without panting; perspiration on slight exertion; slow digestion and sleeplessness. The debility of a nervous form may be but transitory, or it may be more permanent. Every one who sings at all, knows that there are some evenings he feels all out of thew, so to speak, and has to force himself to vocal action.

This is merely sympathetic vocal debility; and, as a cure, a tea-spoonful of sal volatile in a wine-glassful of water might act as a charm. I cannot advise brandy, because, apart from other considerations, the effects die away and the repetition of the dose flushes the face, affects the eyes and even the memory, and singers know what that means. The voice is in best

form about three hours after a judicious meal, not immediately after, nor when one is hungry.

Debility of voice of a more protracted form, if due to nervousness, is best met by nervine tonics, such as the syrup of the phosphates. Various other tonics do good. But the diet should be carefully regulated, and moderate exercise, fresh air, the morning bath, and sunshine not forgotten. Alas! though, recommending sunshine to any one in this country is like prescribing carriage-drives for a poverty-struck patient.

Debility of voice from wasting of muscle is even more serious. It is caused by some error of nutrition, or by something in the system that interferes with the blood-making process. To strengthen the system and purify the blood are the indications of treatment for simple cases. The abuse of drugs of any kind, especially narcotics, must be guarded against, so must over-indulgence in alcoholic stimulants.

The diet should be most carefully regulated, easy of digestion and nutritious. If digestion is slowly performed, pepsine in some shape will do good; and if cod-liver oil can be borne, it may act as a charm. If any one group of muscles seems wasting more than another, faradisation may be tried, and friction to the parts. Small doses of the hypophosphite of soda, in conjunction with bark, do good; but the patient's own medical man should prescribe this.

In serious cases, or if alarmed at all, the patient should consult a medical man, instead of trusting to self-treatment.

Hoarseness, the result of cold or over-straining of the voice, is very common. Treat as for cold. Stay in for a day or two. Inhale the steam of hot water. Sal prunella balls, sucked, help to remove it, and a fever mixture containing nitrate of potash and chlorate of potash, in from five to ten grain doses. This, any chemist can compound for you.

That peculiar huskiness of the throat, with cough, and the constant inclination "to swallow the uvula," from which public speakers often suffer, can only be cured by perfect rest and change, attention to the general health, and the application of a solution of nitrate of silver. Or the inhalation of astringent spray (say, twenty grains of alumen exsiccatum, to an ounce of water, using Dr. Siegle's instrument).

Attention must be paid to the general health, tonics taken, and tonic baths, even in cases when loss of voice is not accompanied by any exudation.

In conclusion, I would have the reader remember that a course of dumb-bells systematically gone into, with abundant exercise in the open air, will strengthen the voice and lungs as well, and that those who mount the platform can never too carefully obey the ordinary laws of hygiene.

