

Dentistry and Music

Centre No. 16/020
Exam. No. 0019

Edna Watson

June 1969

Preface

This document demonstrates how Maurice Porter's work, and his book, "*The Embouchure*", had great value to general dental practitioners who, in their day-to-day work, endeavoured to meet the challenges of treating wind and brass musicians.

In 1969, Edna Watson, a West Cumbrian Dentist and keen amateur musician, wrote to The British Dental Association Library to enquire whether she could borrow some written material on the specialist dental treatment of musicians. She was loaned a copy of Maurice Porter's book "The Embouchure," which had been published only two years earlier, along with some other references.

In this former coal mining area of West Cumbria, there were many brass band players among Edna's patients, whom she had been treating for many years. She was generally successful in providing dental care that enabled them to continue to perform at semi-professional level. However, she had not had the benefit of Maurice Porter's expertise, until this time.

The motivation for approaching the BDA Library was that Edna had to submit a thesis as part of her coursework for a GCE "O" Level music course, which she was attending at a local evening class. The subject matter for the thesis was open to the candidates to decide on, so long as it was music related. The submitted thesis would be a subject for subsequent discussion with the external examiners.

Edna believed that it might be helpful to her, for her meeting with the examiners, if her chosen subject was something she knew more about than they did, and which would be helpful to her in her professional practice. She, therefore, chose as her thesis subject, "Dentistry and Music".

As you will see from her thesis document, much of the specialist technical information that she set out in the thesis was taken from Maurice Porter's book, and the associated articles that had been published in the British Dental Association Journals.

I am pleased to report that, with the help of Maurice Porter's material, my mother passed her "O" level music with a high grade. She also received a very personal letter from her examiner, which is incorporate in this file, about how reading the thesis had explained to the examiner, Linda Waters, why her five-year-old daughter's speech had suddenly improved after starting to play the recorder!

Shirley Watson

November 2022

Postscript

There are some amazing circumstances and coincidences that have enabled Edna Watson's thesis from 1969 to be included in this exhibition.

In 1993, her daughter, Shirley, met Maurice Porter's son, Robin, socially in London. Ever proud of his father's work on the Embouchure, Robin mentioned Maurice's book. To Robin's great surprise Shirley replied that she knew all about the book, as her mother Edna, a dentist in Cumbria, had borrowed it from the BDA Library about 25 years earlier and she herself had looked at it. The rest is history, as they say, as Robin and Shirley were married in 2008.

Letter from External Examiner, Linda Waters to Edna Watson

Dear Mrs. Watson,

What fascinating work. I was particularly interested in the connection between playing a wood wind instrument and speech therapy. My 5½ year old daughter has had speech problems for which the therapist could find no reason. (Other than laziness!) In the last three weeks she has suddenly been able to make sounds which were previously impossible. It seemed to happen without any obvious cause. However, I did buy her a recorder three weeks ago and she has spent a lot of time playing it! Your essay makes me wonder whether the use of muscles previously idle has resulted in this improvement.

Have you ever read about the dental treatment of Joan Sutherland the soprano?

Linda Waters.



BRITISH DENTAL ASSOCIATION

64 · WIMPOLE STREET
LONDON · WXXK WIM 8AL.

J. N. PEACOCK, L.D.S., Secretary
E. MURIEL SPENCER, B.A., A.L.A., Librarian

7th May, 1969.

Dear Mrs. Watson,

A receipt will be sent to you for your cheque in due course.

You now have on loan from the library a package, musical instruments and a journal, Dental Survey, and a book Porter: The embouchure. These are the property of the library and may not be defaced in any way, however we will be willing to photocopy any articles that you particularly want.

I must point out that photographs will not come out very well but diagrams should be quite clear. The cost is sixpence per page.

Yours sincerely,

J. T. Morris
p.p. Librarian.

Mrs. E. Watson,
9 Curzon Street,
Maryport,
Cumberland.

Mrs E. Watson

BRITISH DENTAL ASSOCIATION
Robert and Lilian Lindsay Library

This is your own copy.

J. Morris

With the
Librarian's Compliments

Dentistry and Music

Any dentist, whether general practitioner or specialist, cannot fail at some time in his career, to be confronted by the musician patient, who, in certain branches of music-making will certainly demand rather exacting treatment: into this class falls the singer, and the player of a wind instrument.

In twenty years of dentistry, one thing stands out above all others, and that is the very poor standard of oral hygiene in a high percentage of the general public and of some musicians in particular. I do not know personally of the dental habits of many professional musicians, but one hopes that they, at least, will have been educated at an early stage in their musical career, (particularly singers and wind-instrumentalists) to the necessity for exceptional care of their natural teeth. Of the semi-professional and amateur musicians, it has been my custom to treat, I have been astounded by the numbers who never visit a dentist until, because of the pain, there is no other alternative but

extractions of a tooth, or even of all the teeth, no thought having been given previously to the idea of being partially or fully edentulous. Even with the excellent dentistry available through schools and under the N.H.S. (completely free except for dentures, to all under 21 years), a vast number remain dentally unfit. A dentist with a musician patient, can of course provide comprehensive specialist treatment, and conversely, a patient with a musician-dentist can expect better than average interest in his particular problem.

But what of the musician young or old who does not receive any propaganda regarding special care specific to this group of musicians in question? I should like to think that all teachers and conductors do in fact make this point with their pupils, but from my own observations (not necessarily clinically) of musicians, I do not find that they themselves set a good example in the main, either from the standard of oral hygiene, or from the benefits of dental treatment!

It is almost a waste of time

to visit a dentist, if no effective oral hygiene is practised by the patient, and ideally one should aim at brushing and rinsing after each meal, but if this is not possible, at least after breakfast and last thing at night, (certainly the most important time). It is equally important how the teeth are brushed, which should always be of the upper and lower jaws separately, and always in a direction from the gum-margin towards the biting surface of the teeth. In the event of stagnation of food between teeth, a "tooth-picks" should also be utilised. If partial or complete dentures are worn, then the care of these should be equally devout: in both cases, from the point of view of improvement of the oral tissues they are better removed at night.

In recent years, vast improvements have been made in tooth conservation, and in the group of musicians we are considering a single tooth should be considered precious. It would be true to say that with two teeth remaining in either jaw, a stable partial could be constructed for almost any wind instrument.

There is no doubt that the value of the "embouchure" to the singer of wind musician is priceless, and one precautionary foresight while the natural teeth remain good, is to take accurate impressions of both upper and lower jaws and from these cast up accurate "stone" models of the mouth, marking the accurate articulation of the jaws. Thus in the event of loss by wear or accident, an accurate reference picture remains.

As a musician, the wind instrumentalist is a unique kind of executant - in common with the singer, he is all the time using breath, mouth lips and tongue. Whereas the singer has a "built-in" generator and resonator these are supplied in the instrument of the wind player, supplemented by some resonance within himself. Moreover, during his working day, his mouth and associated parts are rarely rested. Any dental treatment necessitating replacement of a tooth or teeth could easily necessitate some readjustment of the embouchure, perhaps demanding considerable skill and patience in an older instrumentalist.

Singers —

From what has previously been said, it is of paramount importance that the singer, amateur or professional, is educated to fanatical care of the natural teeth. Unfortunately by the time a potential singer has been spotted, the danger years for caries incidence or for orthodontic correction are already past. Few teenagers exhibit rampant decay above the age of fifteen years, whereas few musicians are accepted for training before the age of eighteen.

Of all musicians, it is the singer to whom appearance is so vital, and it is for the dentist to preserve and improve a singer's aesthetics at all times. In most cases, given a patient's full cooperation, it should be possible to preserve the natural teeth for the duration of a "singing life".

But what of the patient who requires dentures, partial or full? In this case of a partial restoration, adequate anchorage can be obtained round the remaining teeth. A skeleton type of metal denture, though more expensive, is preferable to any restoration in acrylic (plastic), because it is less bulky, and

because most of the pressure is distributed round the natural teeth and not on the gums. It should be emphasized that scrupulous cleanliness should be observed in cleaning both denture and natural teeth after food, so that no food particles remain to ferment and cause decay or gum damage.

Full dentures - Whatever other complaint, (as appearance, discomfort etc.) is encountered, it is always that of retention which proves the most obstinate. Anatomical differences, congenital or acquired, often have to be considered, and methods of singing vary greatly, but most authorities agree that the singing voice should be focused on the hard palate just lingual (tongue side) to the upper anterior (front) teeth. This is where upper dentures sometimes fail because they are so thick and badly contoured that they interfere with the sound pathway. The contour of the back of the ~~natural~~ ^{artificial} teeth should be of a natural shape and blend smoothly with the base material of the denture.

In one particular way, the mouths of singers are usually anatomically very well suited to retain a complete upper denture due to the heavy development of the muscles of the

Soft palate which lap over on to the hard palate. This forms an excellent cushion for the "post-dam" of the upper denture, which can be made rather extensive. (In deciding on this post-dam palatal limit, the mouth should be palpated and the line marked on the model before submitting to a dental mechanic for completion denture).

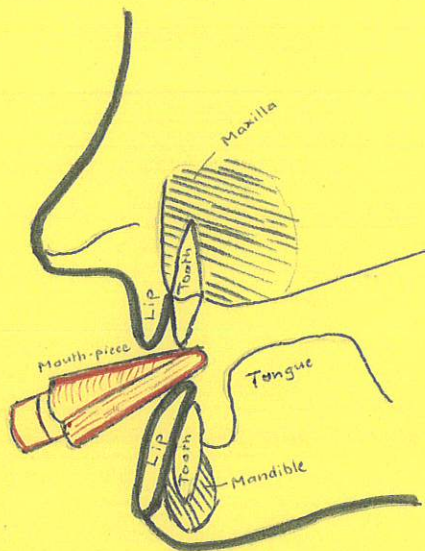
Apart from palatal musculature, there is also a definite indented raphe in the centre and often a groove in the tongue (especially in males) which helps denture wearing.

In the case of the lower denture, there is no palatal area of suction as in the upper. The tongue, and cheeks, and lip muscles cause distressing displacement, and "muscle-trimming" of the completed denture must be carried out to relieve this. Good retention can always be guaranteed temporarily by means of "denture fixation", and would certainly suffice for an amateur having to perform for limited periods.

Group I

In order of increased size
of reed, mouthpiece, and
instrument:

- E^b clarinet
- B^b and A^b clarinet
- Alto clarinet
- Bass clarinet
- Double bass clarinet
- E^b saxophone



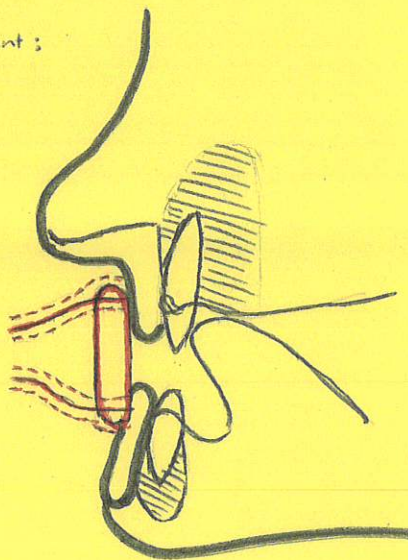
The mouth-piece rests on the upper teeth and presses heavily on the lower lip and indirectly on the lower teeth. Some players with a long upper lip and short upper front teeth put the upper lip over these teeth. Instruments are held down and nearer the body.

Dentures - the incisors have to rest on or inside the ridge. The lower denture must not move distally.

Group II

In order of increased size
of mouthpiece and instrument:

- French horn
- Trumpet
- Bugle
- Flügelhorn
- Alto horn
- Trombone
- Baritone horn
- Tuba



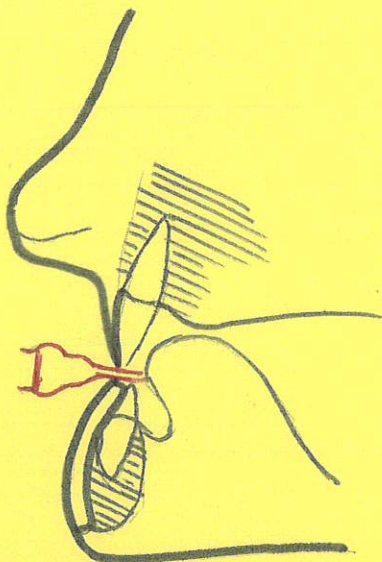
The mouth-piece is pressed against upper and lower lip and indirectly on upper and lower front teeth on the labial surface.

Dentures - teeth in front of the ridge in both upper and lower and offer resistance to distal movement. (Construct high in the fornix.) To obtain positive retention in the lower denture one can use mucu-seal method, springs or implant dentures.

Group III

In order of increased size of reeds and instrument:

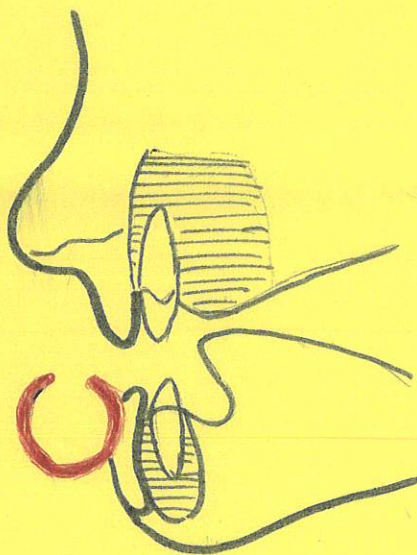
- Oboe
- English horn
- Bassoon
- Contra bassoon
- Sarrusophone



The double reed touches without pressure both lips and indirectly with light pressure the upper and lower teeth.

Dentures - the prostheses must rest normally

Group IV



Piccolo
Flute

There is no pressure on upper lip or teeth; on the lower lip the instrument presses on the plica-mento-labialis and indirectly on the lower teeth.

Dentures - same requirements of the lower as group II

Wind instrumentalists

Both orthodontics and denture prosthesis are concerned with the effects of playing wind instruments, and certain questions arise :-

- i what a dentist should know about oral and dental effects caused by wind instrumentalists
- ii will playing harm normal occlusion?
- iii can it harm certain types of malocclusion?
- iv can it help malocclusion in a child?
- v special denture techniques

An American orthodontic specialist who was also a professional bassoon player (E.R. Strayer)

See Pages 8 and 9 and 10

made a useful classification of wind instruments according to the "embouchure". By EMBOUCHURE is meant the position in which the lips are applied to the mouthpiece when playing a wind instrument, the position of the tongue, and the state of contraction of the various oral muscle groups.

Another American did extensive experiments to determine the amount of pressure exerted by the upper lip against the upper front teeth of various musicians playing different instruments. The findings of J. A. Engelman were as follows :-

In order of maximum pressure:-

- i Voluntary lip pressure
- ii Thumb sucking
- iii Instruments - Brass
Reeds
Flutes
- iv Whistling
- v Swallowing

It was also noted that brass instruments produced significantly greater lingually - directed pressure against the incisors than any other instruments.

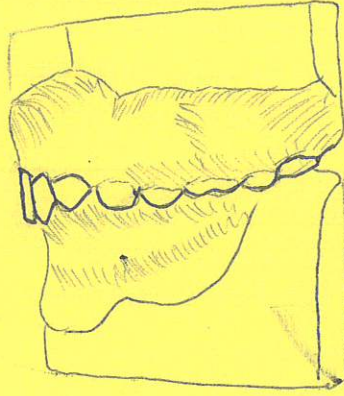
Instrumental pressure values were not significantly correlated with maximum pressure values except in the case of the flute players, suggesting that there is a relationship between flute playing and increased tone of the upper lip.

Hruby and Kessler have also done extensive investigation in America, and in this country Maurice M. Postes, L.D.S. is responsible for several authoritative publications, particularly his "The Embouchure"

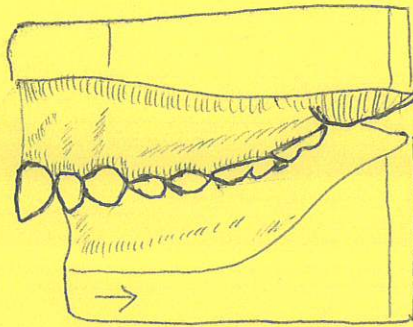
It becomes increasingly obvious from literature available, that although anatomical

Angle Classification :-

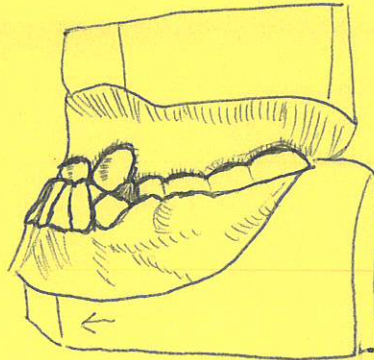
Class I
(Normal)



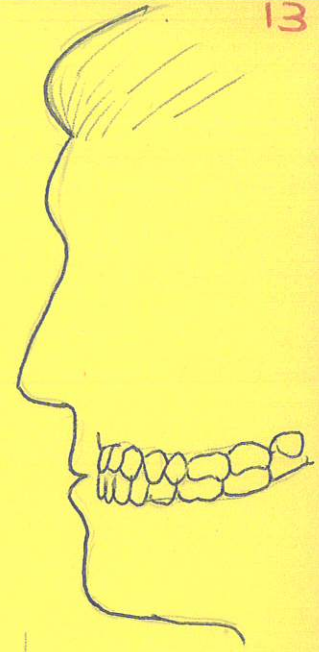
Class II
(Distal)



Class III
(Mesial)



Class I
(Normal)



Class II
(Distal)

(Thumb-sucking
Mouth-breathing
Poorly-developed, non-functional
upper lip.
Oboe or bassoon well-nigh
impossible.)



Class III
(Mesial)

(Usually congenital and
Probably inherited
It is impossible to
bring the lower
behind the upper
except artificially)



trauma can result from wind instrument playing, that this pressure can also be used to advantage to aid certain speech problems through for example, the precise control of tongue action in trumpet playing - with all of the dental and facial benefits derived from playing the correct instrument.

The "Angle" classification is used by dentists to describe the relationship of the upper and lower jaws.

See Pages 12 and 13

Class I - normal relationship (antero-posterior relationship)

Class II - mandibular teeth and arch are distal (i.e. behind) to the normal in their relation to the maxillary teeth and arch.

Class III - mandibular teeth and arch are mesial (i.e. in front) to the normal in their relation to the maxillary teeth and arch.

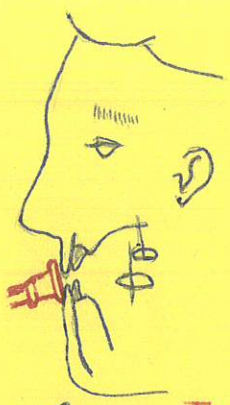
There are subdivisions of both these last two classes. In class II the incisors can protrude or retrude, and in both classes the displacement can be unilateral or bilateral.

Musical winds instruments suggested for use with specific malocclusions

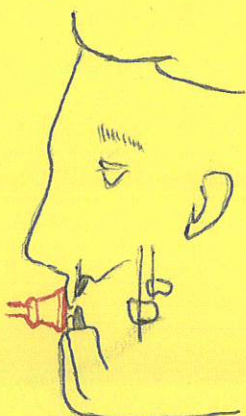
Malocclusion (Angle)	Musical wind instrument	
	Should play	Should <u>not</u> play
Class I	Any instrument properly held	Group I - when upper front teeth protrude
Class II (Receding lower jaw)	Group II - Played with lower jaw protruded so that upper and lower front teeth are in alignment Group III - but not to such good advantage Group IV	Group I Group IV - when upper lip is short
Class III (Protrusive lower jaw)	Group I Group III - but not to such good advantage Group IV - for short upper lips	Group II

Group Classification - See pages 8 and 9

Class Classification - See pages 12 and 13



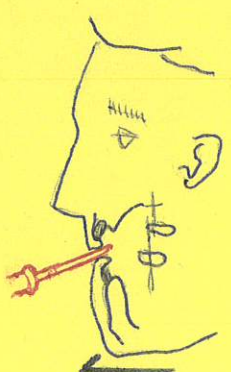
Trumpet mouthpiece



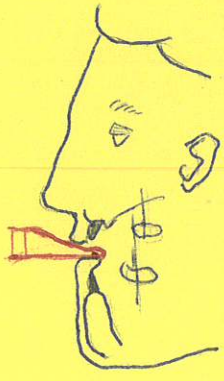
Trombone mouthpiece



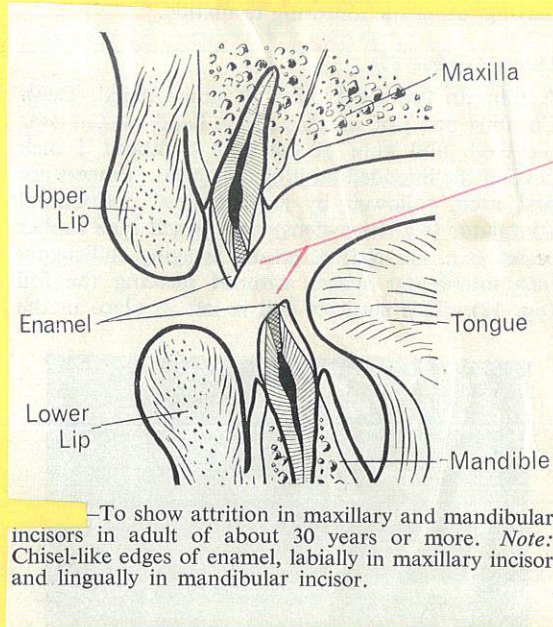
Clarinet mouthpiece



Bassoon mouthpiece



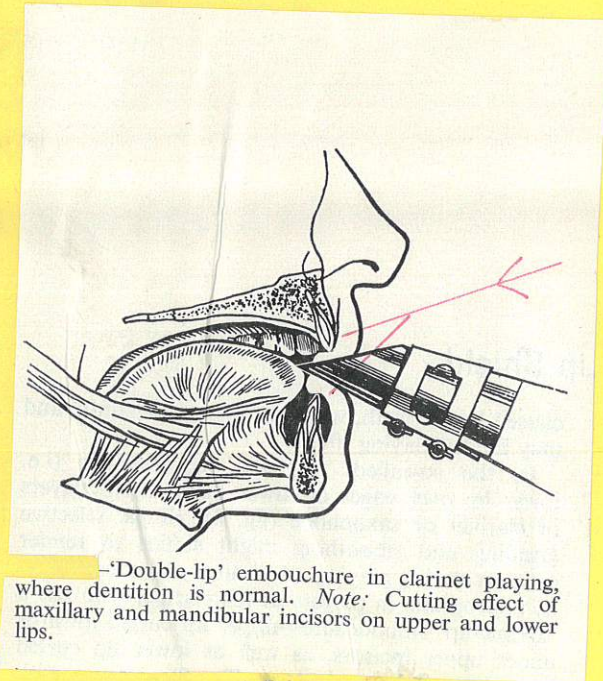
Saxophone mouthpiece



-To show attrition in maxillary and mandibular incisors in adult of about 30 years or more. *Note:* Chisel-like edges of enamel, labially in maxillary incisor and lingually in mandibular incisor.

See page 18

①



-'Double-lip' embouchure in clarinet playing, where dentition is normal. *Note:* Cutting effect of maxillary and mandibular incisors on upper and lower lips.

②



-Linear impression in lower lip due to cutting effect of mandibular incisor teeth of one of foremost clarinet soloists. Dentition is normal and incisor teeth are very regularly positioned.

③

No matter how intelligent, or how good the musical background, each case of malocclusion should be considered on its own merits when choosing an instrument. If embouchure trouble persists after a probationary period, then re-appraisal should be made of the facial type. Full cooperation between pupil, music teacher, and dentist is essential.

Dental Problems in Wind Instrument Playing

Intra-oral Mouthpieces :-

Single Reed Instruments - In all adults there becomes an increase in the attrition on the cutting edges of the upper and lower incisors. See Page 17 Fig 1
The worn parallel edges take on a chisel-like form and there is a tendency for a linear impression to form inside the lips when are curled over backwards into the mouth. See P 17 Fig 3
In the single reed instrument, the reed rests on the lower lip covering the lower teeth See P 17 Fig 2 and irregularities in tooth or jaw position can produce marked trauma. With spaced teeth the upper lip can become trapped between the teeth. See P 32 Fig 2
Double Reed Instruments - produce similar problems to the above.

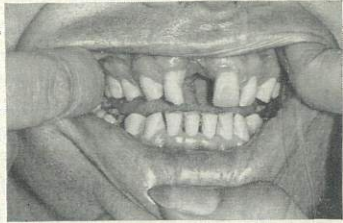
Embouchure Aids - Single reed instruments

Reed instrument players benefit considerably from the "lip shield". This is a thin ^{See} P. 22 layer of suitable material usually plastic (or gutta percha as a temporary measure) which covers the lower teeth round to the first premolars (i.e. 8 teeth) and blots out corners or edges or spaces between teeth which would otherwise impinge on the lips during playing. Only in rare cases is it a help to the brass players.

In conservation of the natural teeth, restorations should be strong enough to stand the wear and pressure on the front teeth.

In partial upper denture construction there is a tendency for the back of the denture to be displaced by the mouth ~~piece~~ tilting the front teeth behind.

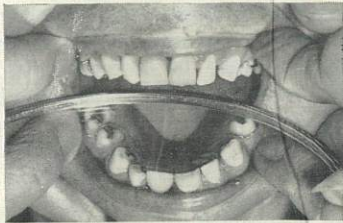
Ideally, the denture should be a skeletal plate with no palate, and with "overlap" on the premolars for retention. A partial lower denture should have regular, blunt fronts and anatomical clasps. Because of excessive salivation, there is excessive tartar formation and frequent "scaling" to remove this is necessary. In the event of a patient requiring a



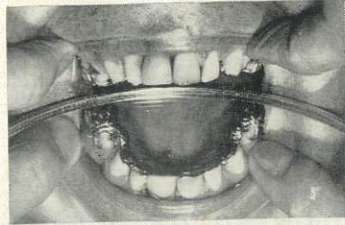
A



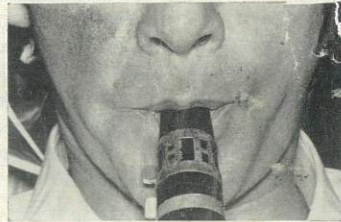
B



C



D



E



F

FIG. 22.—Special partial prosthesis for clarinet player. A, Mouth slightly open. *Note:* Length of $\overline{23}$. B, Mouth closed. *Note:* Excessive overbite. $\overline{23}$ are in contact with palatal gingivæ of $\overline{12}$. C, Temporary plastic denture for appearance. D, Special denture for playing. *Note:* Incisal and occlusal onlays; absence of artificial palate. E, Playing with special denture. *Note:* Mouth is open and raised bite of onlays is of no consequence. F, Same player as in E. Single-lip embouchure used.

A one-tooth denture for
a clarinet player.

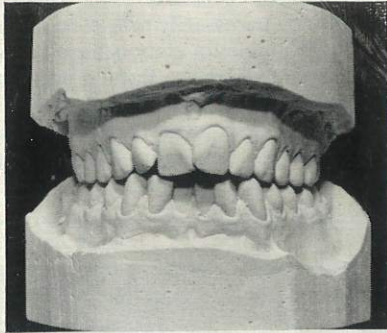


FIG. 60.—Dentition of clarinet player. Models in centric occlusion. Apparent overcrowding in pre-maxilla I|I lingually inclined.

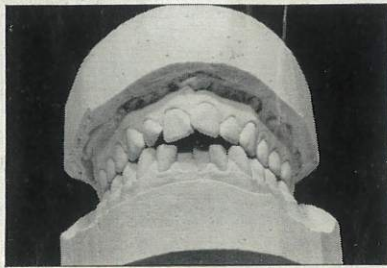


FIG. 61.—Same player as figure 60 viewed more palatally to show extent of free-way space between I|I and I|I.

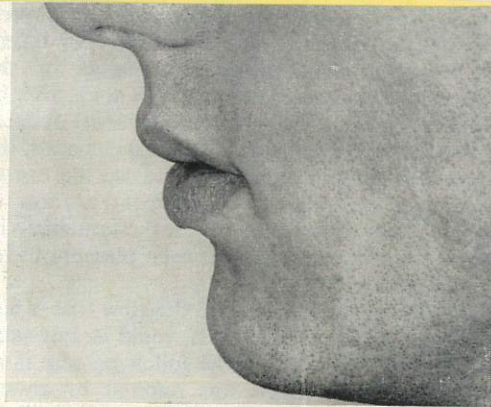


FIG. 62.—Same player as figure 60. Note: (1) Short upper lip. (2) Lower jaw and lower lip in relation to upper jaw and upper lip. These conditions would indicate a single lip embouchure.

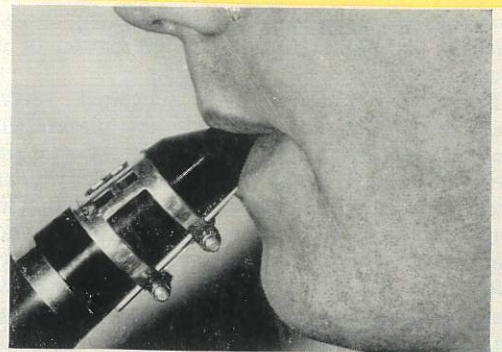


FIG. 64.—Same player as in figure 60. Note: (1) I|I rest on upper surface of mouthpiece. (2) Effect of lower (reed) surface of mouthpiece on lower lip and I|I.

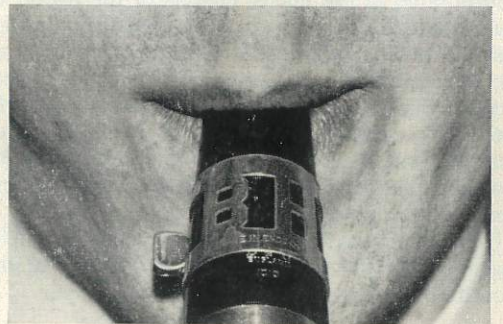


FIG. 65.—Same player as in figure 60. Mouthpiece approximately centrally placed.

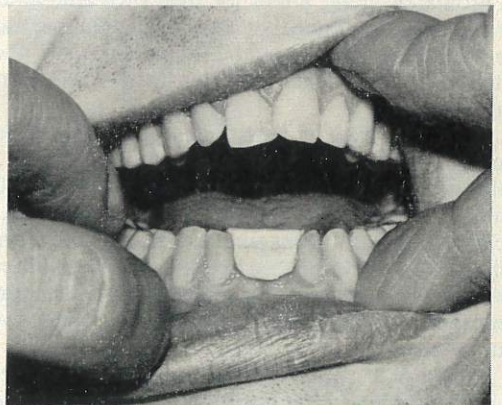
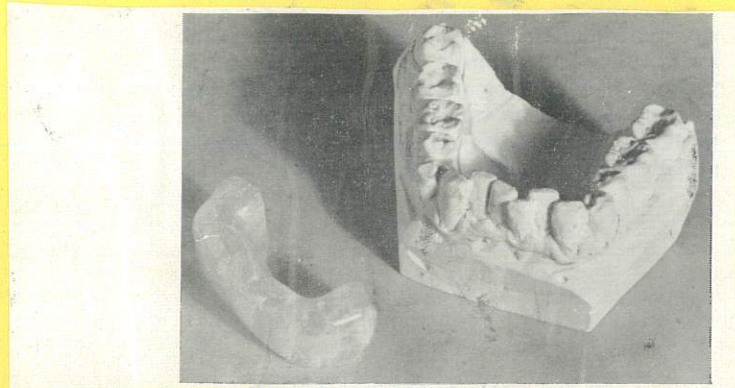


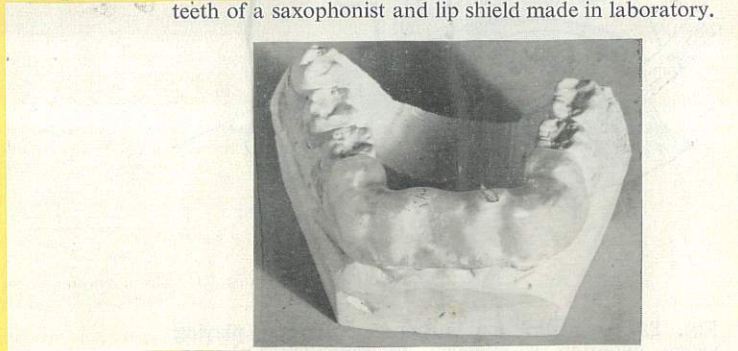
FIG. 66.—Same player as in figure 60. Temporary gutta-percha lip shield made by patient to prevent point-pressure on lower lip.

Irregularity of the natural teeth
in a clarinet player

The Lip Shield



—Model of malpositioned mandibular incisor teeth of a saxophonist and lip shield made in laboratory.



—Lip shield in clear acrylic resin, made in laboratory, fitted to fit model

See Page 19

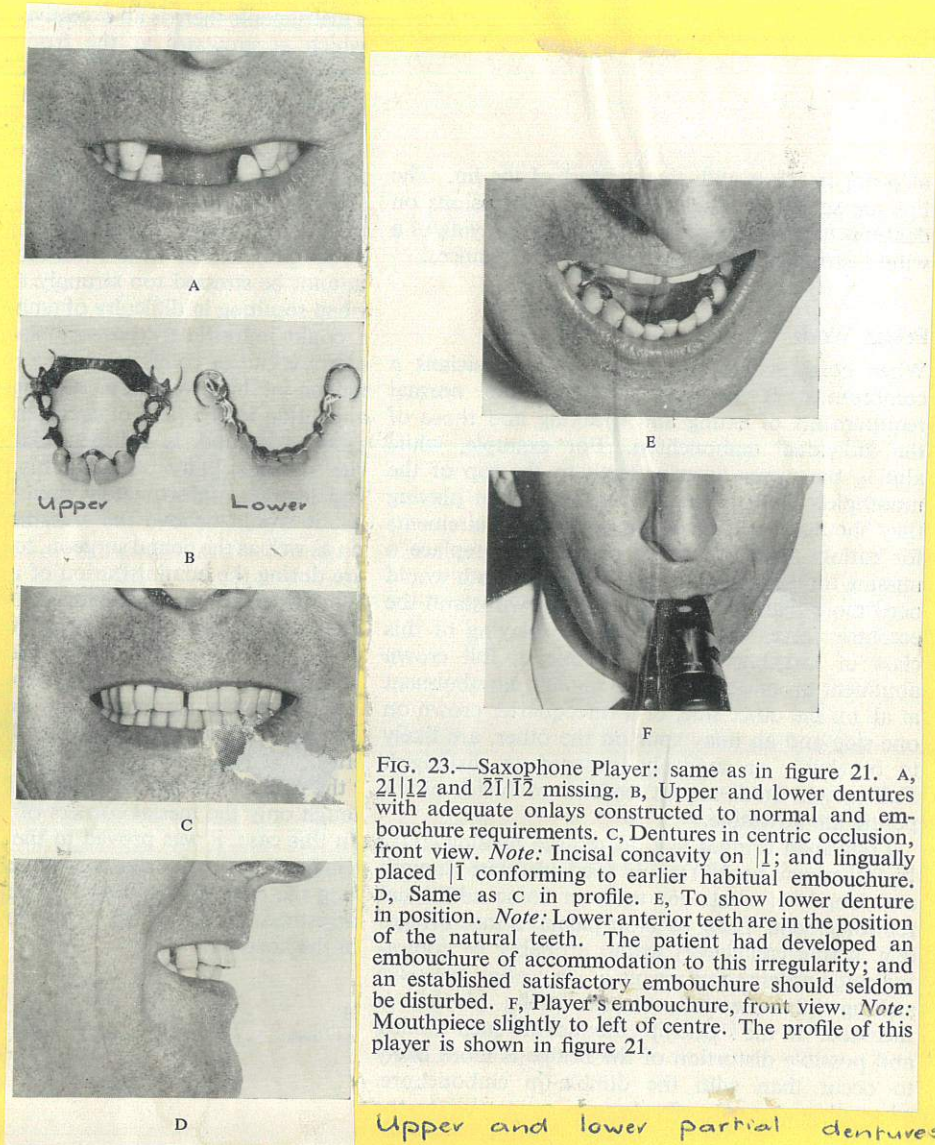


FIG. 23.—Saxophone Player: same as in figure 21. A, 21|12 and 21̄|1̄2 missing. B, Upper and lower dentures with adequate onlays constructed to normal and embouchure requirements. C, Dentures in centric occlusion, front view. Note: Incisal concavity on |1; and lingually placed |1 conforming to earlier habitual embouchure. D, Same as C in profile. E, To show lower denture in position. Note: Lower anterior teeth are in the position of the natural teeth. The patient had developed an embouchure of accommodation to this irregularity; and an established satisfactory embouchure should seldom be disturbed. F, Player's embouchure, front view. Note: Mouthpiece slightly to left of centre. The profile of this player is shown in figure 21.

Upper and lower partial dentures in a saxophone player

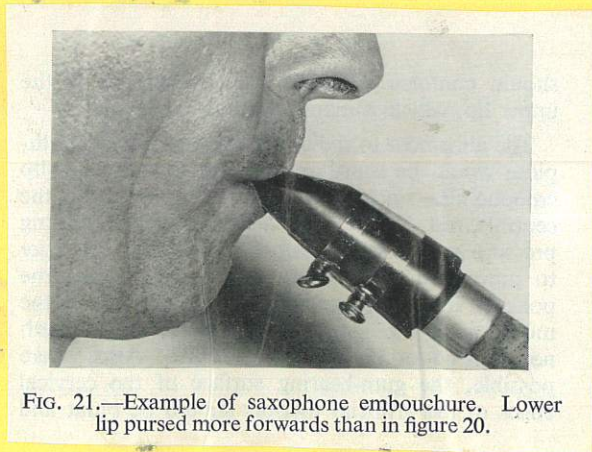


FIG. 21.—Example of saxophone embouchure. Lower lip pursed more forwards than in figure 20.



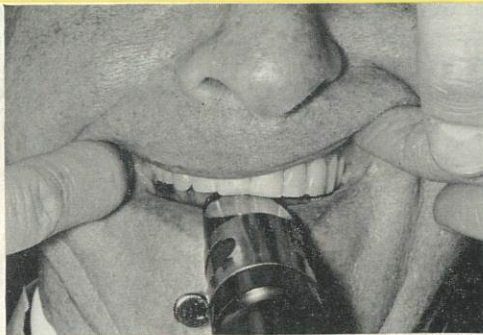
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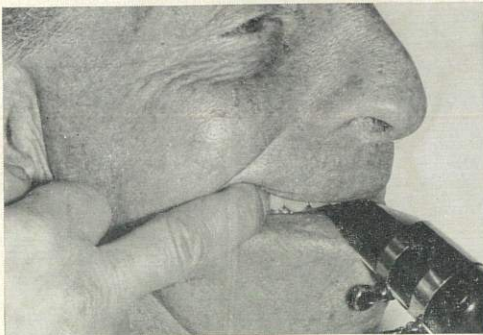
B

Full upper
denture in
a saxophone
player

FIG. 25.—Full upper denture prosthesis in a leading saxophone player. A, Taking the impression and recording embouchure bite, front view. *Note:* Wax block trimmed to upper surface of mouthpiece. B, Taking the impression and recording embouchure bite, lateral view. *Note:* Wax has been trimmed to upper lip requirements.



A



B

FIG. 26.—The finished denture. A, Incisors lightly contoured to mouthpiece, front view. B, Incisors lightly contoured to mouthpiece, lateral view. *Note:* Single lip embouchure used. Lower lip projects more forwards in saxophone than in clarinet.

general anesthetic, he should warn the anesthesiologist of the need for special care of the anterior teeth, particularly if they have been extensively restored with inlay, crown, or bridgework.

Full dentures - a rigid lower denture is almost invariably difficult. Care should be taken to accommodate the exaggerated buccal muscle pad in the premolar and molar regions. In this area, narrow teeth (lingual to buccal) should be used to allow the contracting muscles to move. The front teeth should be contoured to fit the mouth piece for each individual patient.

See P 27

An "embouchure" denture is a special form of appliance for playing only, designed to resist movement. The inclined planes are more gradual in the case of the saxophone than the clarinet.

Double Reed Instruments

In these cases $\frac{1}{2}$ " reed is held between the lips. The lips function as a washer and assist vibrations. There is less pressure on the teeth than the single reed instrument and therefore fewer dental problems. Special care should be taken where the edges of the incisors are sharp and

where the upper six anterior teeth are forward-inclining. In conservation, care to maintain smooth, blunt surfaces to minimize lip damage. Partial dentures should be of skeleton construction, and full dentures should have a minimal "overbite".

Flute

Flute-playing demands a very delicate control of muscle contraction. There are fewer dental problems because the lips are more remote from the hole in the head of the instrument. Irregularities in the lower front teeth are more likely to give lip trouble.

Brass

Since, in playing brass instruments the lips act both as a washer and as a double reed (i.e. they are the sound generator), they have to vibrate at a meticulously regular frequency for each note played, it will be found that the dental problems in these players are usually more difficult than those of woodwind players. In cornet and trumpet, the mouth piece rests equally on upper and lower lips: in the horn, it is $\frac{2}{3}$ on the upper, and $\frac{1}{3}$ on the lower. The lips should be allowed free vibration by the teeth, jaws, and mouthpiece: the

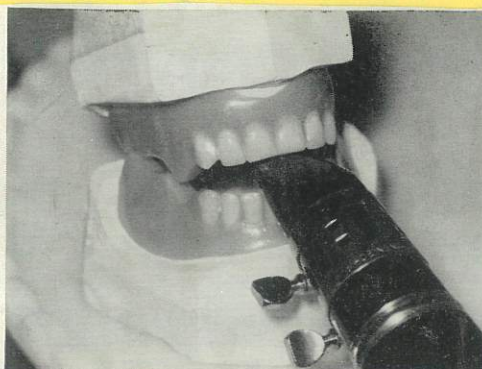
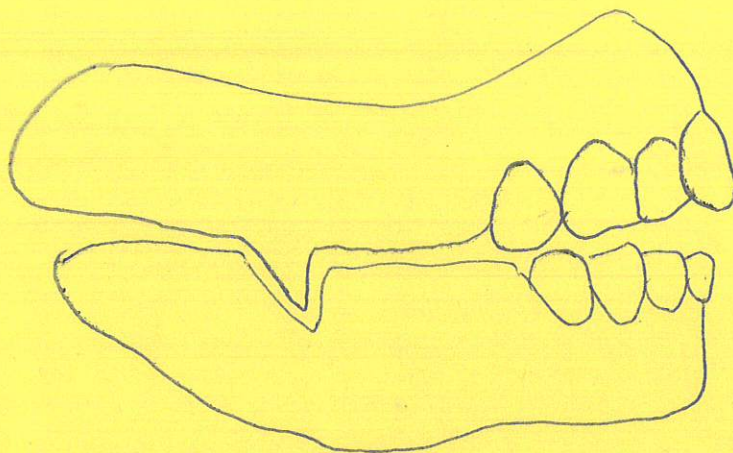


FIG. 27.—Embouchure denture. Tilting of upper and lower resisted by inclined planes.

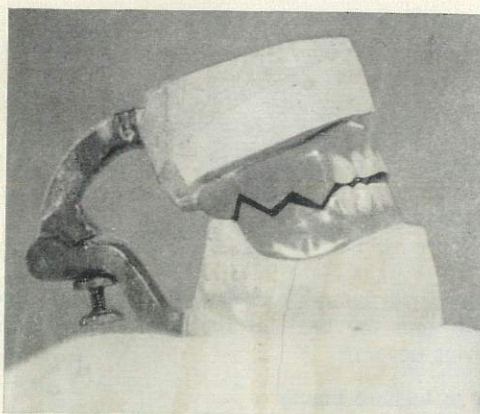


FIG. 28.—Inclined planes of denture. Steep planes for clarinet to allow for very limited forward movements of mandible.



FIG. 33.—Playing a brass instrument (cornet). *Note:* (1) Sound is generated by free edges of lips within cup of mouthpiece. (2) Musical tones are resonated by: (a) operation of pistons by fingers; (b) pressure of mouthpiece rim against lips; (c) size of aperture between lips; (d) jaw relationship.

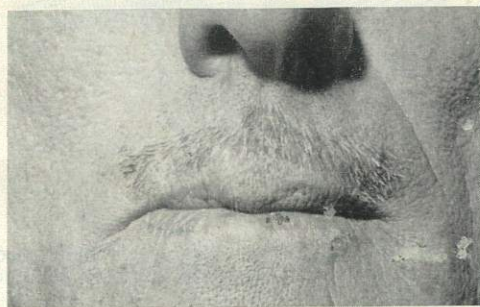


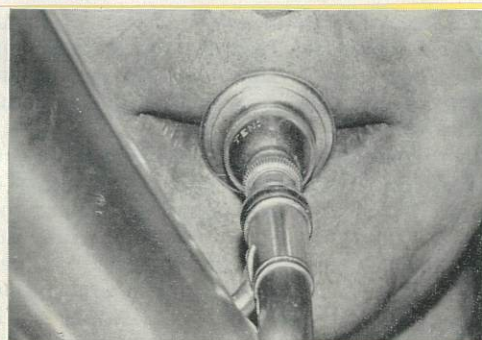
FIG. 36.—Effect of 'light-pressure' system in cornet player. Appearance indicative of obvious labial cutaneous change over many years in one of Britain's finest soloists.



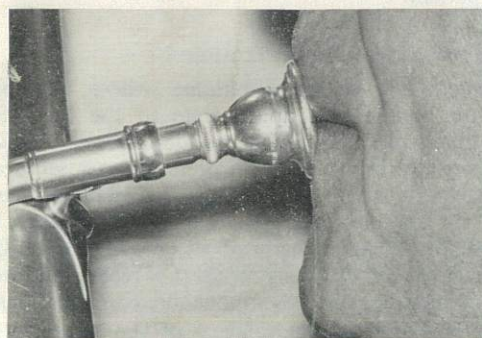
A



B



C



D

A full upper denture in a tenor horn player.

FIG. 59.—Full upper denture in tenor horn player. Larger mouthpiece of this instrument is tolerated more easily during playing than smaller mouthpiece of cornet or trumpet. A, Full upper denture in centric occlusion. Note: Space between I | I to left of centre. B, Mouth open. Note: Upper and lower incisal edges approximately

lips need to be an efficient washer to prevent the escape of air. The lower jaw must be capable of free movement.

- i Embouchure is dependant on the dentition
- ii Dental neglect may well prove a calamity for the professional musician
- iii Prompt, intelligent restorative treatment is essential

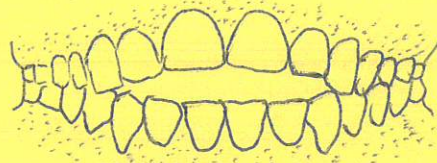
iv. Give psychological consideration

In treatment, the approach should always be conservative rather than radical, particularly in the case of the professional brass instrument player, every possible device to retain a natural tooth should be used. In denture construction, partial restorations usually have adequate anchorage on the remaining teeth, but special attention must be paid to a smooth contour in the anterior areas subject to direct pressure from the mouth piece. This is similarly so in full denture construction. It may be necessary to resort to the 'embouchure denture' or a denture incorporating special springs, carefully positioned.

A Summary of adverse dental conditions: -

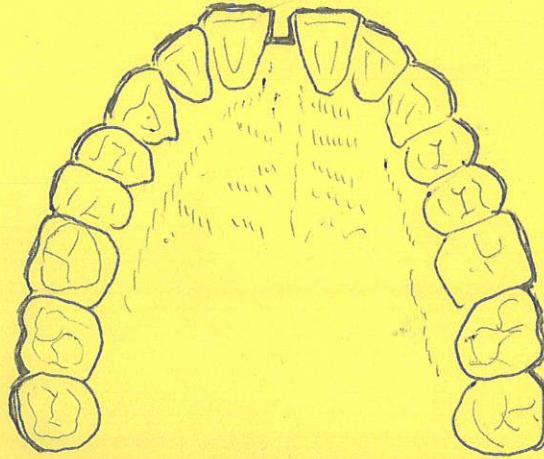
1. A protruding tooth or corner in a horizontal direction could disturb brass embouchures.
2. A vertically projecting tooth or corner could disturb single- and double-reed embouchures.
3. Sharp, even, incisors could disturb single- or double-reed embouchures by cutting into one or both lips.
4. Spaces between central incisors could trap the lip and disturb single- and double-reed players. Fig 2
5. Painful or loose incisors could disturb players of all wind instruments.
6. Labial ulcers or inflammatory gum conditions could disturb all players of wind instruments.
7. Outstanding canines could disturb flute players and those of double-reed instruments. Fig 3
8. Dentures, by being dislodged or tilted, would prevent the playing of any wind instrument.
9. Orthodontic appliances, when impinging on lips or tongue, could cause much discomfort to, or prevent, playing.
10. Any condition that results in "open-bite" could prevent lip support in players of certain instruments. Fig 1
11. Excessive overbite of anterior teeth could

①



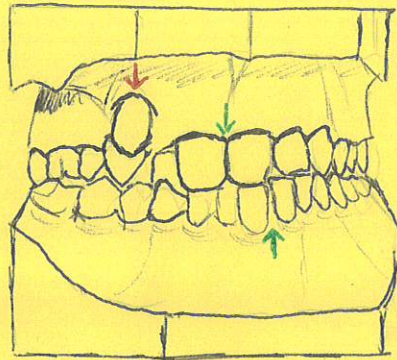
"Open-bite"

②



Space between upper central incisors

③

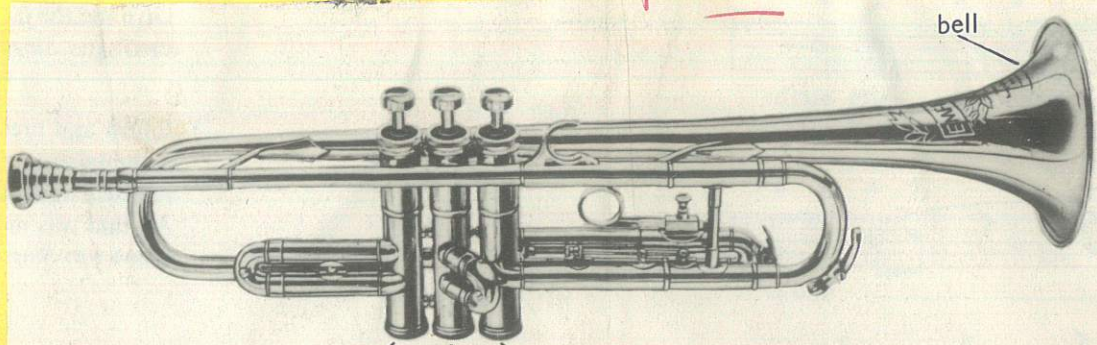


Demonstrating gross malocclusion in which the centres (↓↑) disagree. Note also the protruding canine (↓)

predispose to peri-apical or periodontal problems of those teeth in players of instruments that require an intra-oral application of the mouth-piece.

Group I





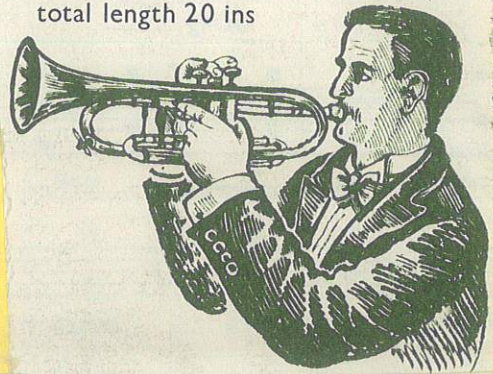
three valves or pistons



cup shaped mouthpiece 2 ins

TRUMPET

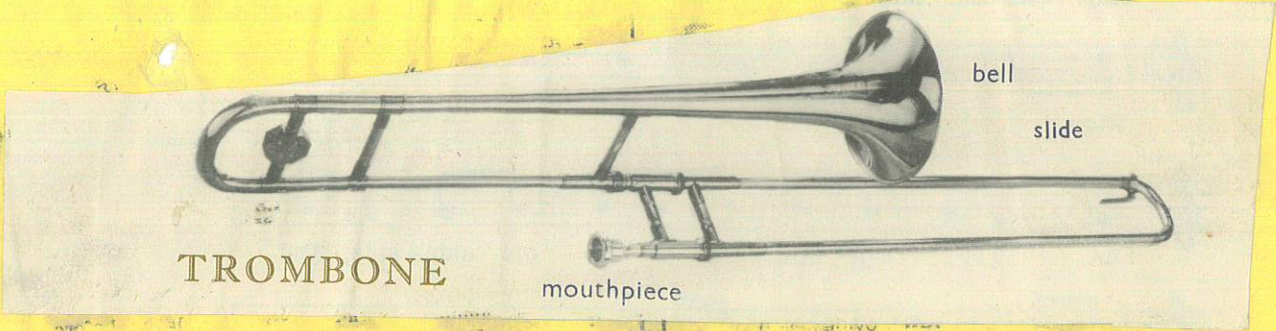
total length 20 ins



HORN



Group II



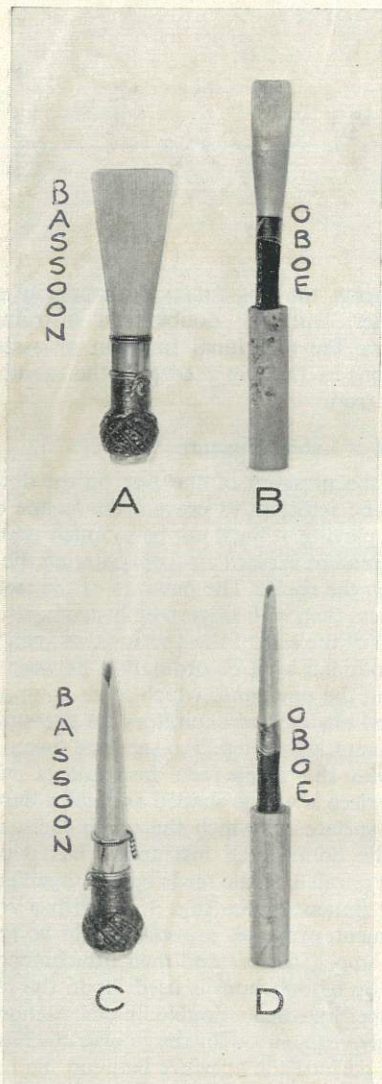
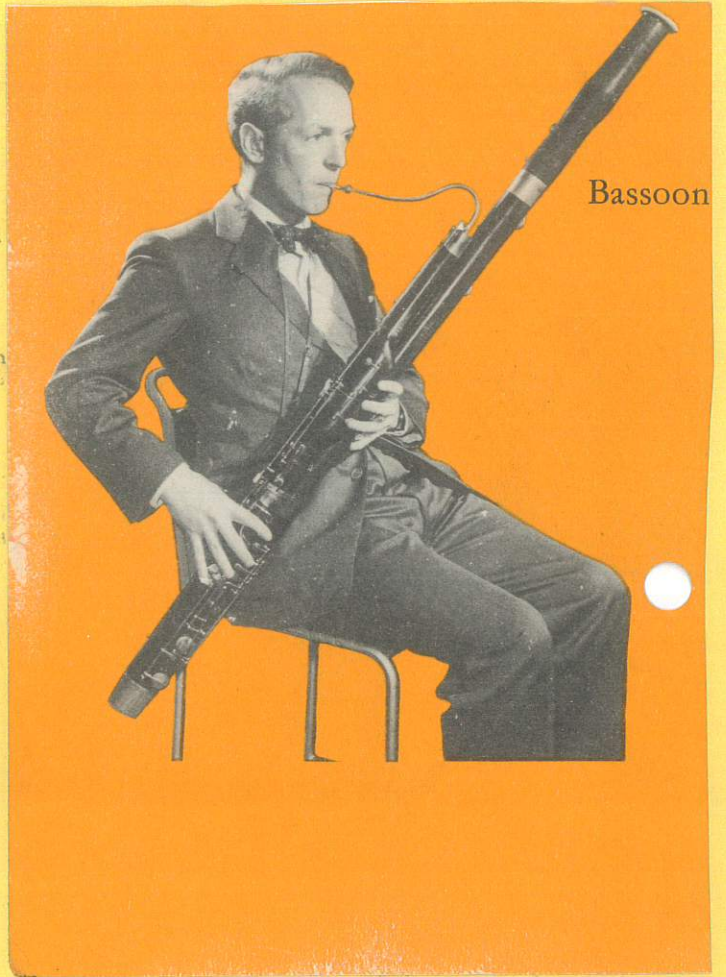
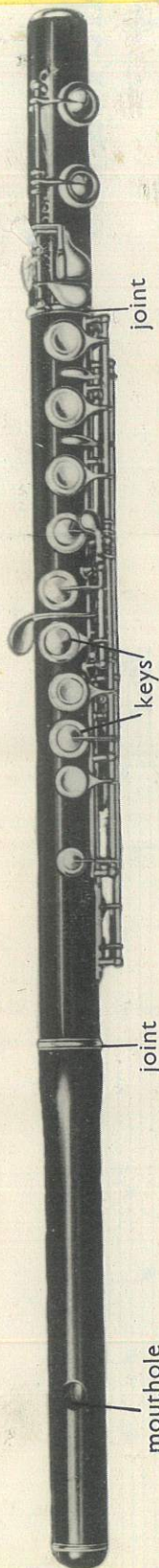
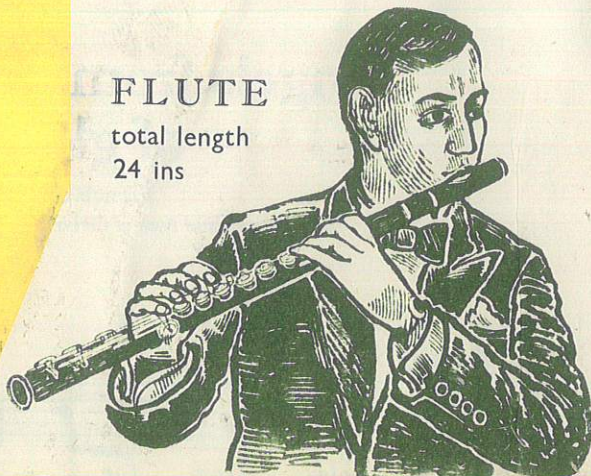


FIG. 31.—The double-reed. *Front view.* A, Large broad reed of bassoon (bound end is attached to instrument). B, Narrow small reed of oboe (cork end is attached to instrument). *Lateral view.* C, Broad flattened tube of bassoon reed. Aperture between reeds is larger than in oboe. D, Narrow flattened tube of oboe reed. Aperture between reeds is smaller than in bassoon.



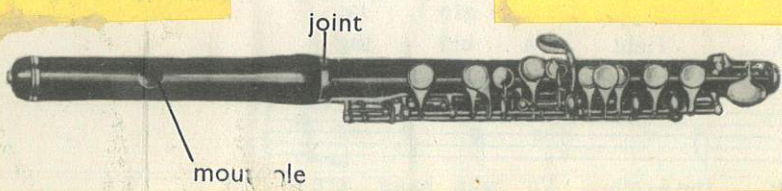
FLUTE

total length
24 ins



PICCOLO

total length 12 ins



DENTIST WITH HIS HEART IN MUSIC

Variation on a career theme,
by Wilfred Josephs



Dentist-composer Josephs at work on his fourth symphony.

WILFRED JOSEPHS is a man of two parts—dentist and composer. But more of his time these days is spent in putting crochets on manuscripts than in practising dental surgery.

At the age of 41, he's just completed his 68th work together with a whole swatch of film scores.

By choosing dentistry and relinquishing his ambition to be a doctor, he felt he could keep up his musical studies with reasonable ease.

Fortunately, he was able to maintain his dual studies with reasonable ease. In 1954 he entered London's Guildhall School of Music where he studied under Alfred Newman. At the same time he carried on a full-time dentistry job.

By 1958 he was married and had been awarded a Leverhulme Scholarship to study music in Paris. Despite this success, he was still a long way from being a successful composer. Unperformed sonatas, symphonies and concertos lay abandoned in drawers and suitcases.

But fame came, sometimes in the shape of a low-budget score for a documentary film, a tango for a TV show or 70 pages of waltz for a Hollywood musical. Then a first prize in a contest at La Scala, Milan, launched him into the concert circuit.

Now, in his Hampstead house, Wilfred Josephs is at work on an ambitious Fourth Symphony while new commissions continue to pour in.