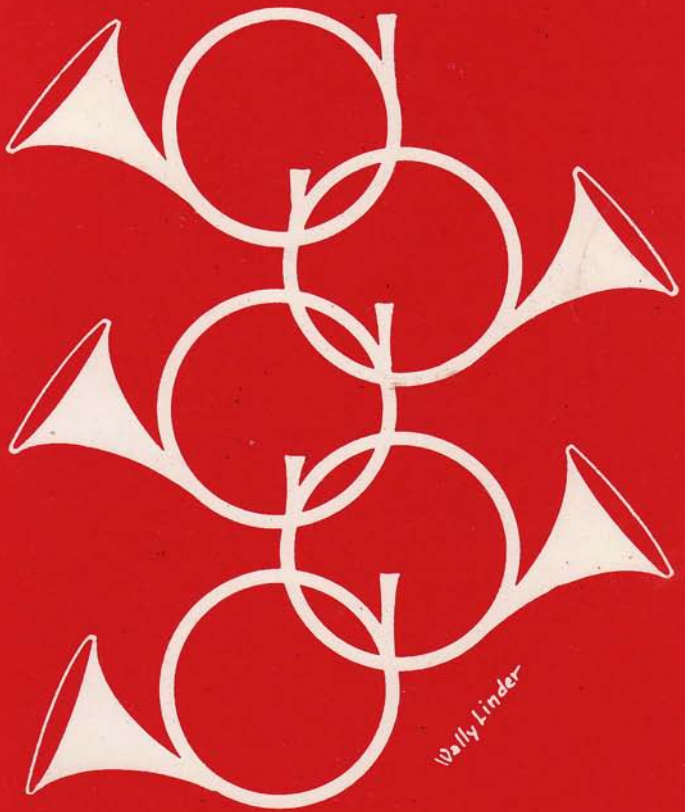
The Horn Call



Journal of the

International Horn Society

Internationale Horngesellschaft

La Société Internationale des Cornistes

Spring 1974

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Editorial copy should be typewritten and double-spaced. If you have musical notation for inclusion, it must be on white paper with black ink, and each line must be no more than 5 inches wide. A total of 7½ inches high can be placed on one of our pages.

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Advertising rates on request.

"The purpose of this Society shall be to establish contact between horn players of the world for the exchange and publication of ideas and research into all fields pertaining to the horn."
[*Article II from the CONSTITUTION of the* International Horn Society.)

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LETTERS TO THE EDITOR

Editor's note: The editorial board of the Society wants to encourage members to express their opinions concerning any subject of interest through this *Letters to the Editor* column. We suggest that the letters be no more than 300 words in length and we necessarily reserve the right to edit all letters.

All letters should include the full name and adress of the writer.

Photographs of appropriate subjects are also of interest. Credit will be given to the photographer and the photograph returned to the sender.

BRIEFE AN DEN REDAKTEUR

Anmerkung des Redakteurs: Die Redaktion der Horngesellschaft möchte alle Mitglieder aufforden, ihre Meinungen und Gedanken zu allen interessanten Themen in der Kolumne 'Briefe an den Redakteur' auszudrücken. Wir schlagen vor, dass die Briefe nicht länger als 300 Wörter sein sollten und wir behalten uns notwendigerweise das Recht vor, alle Briefe zu redigieren.

Alle Briefe sollen den Namen und die Anschrift des Schreibers tragen.

Wir interessieren uns auch für Photographien passender Gegenstände. Dem Photographen wird eine Anerkennung zuteil und er erhält die Aufnahmen zurück.

CARTAS AL EDITOR

Nota del editor: La junta editorial de la Sociedad desea animar miembros a expresar sus opiniones tocante tópicos de interés por esta columna — *Cartas al editor*. Les sugerimos que estas cartas no contengan más de 300 palabras de contenido; y además, necesariamente reservamos el derecho de redactar todas las cartas.

Las cartas deben incluir el nombre, apellido, y dirección del escritor.

Fotos de tópicos apropriados también nos interesan. Acreditamos al fotógrafo y devolvemos la foto al enviador.

LETTRES AU REDACTEUR

Sous cette rubrique, le Comité de Rédaction désire encourager les Membres de la Société à exprimer leurs opinions sur tout sujet d'interêt ayant trait au cor.

En règle générale, ces lettres ne devront pas depasser 300 mots. Le Rédaction se reserve le droit d'y apporter des remaniements mineurs.

Toute lettre devra comporter les nom, prénom usuel et adresse de l'auteur.

Les Photographies de sujets appropriés sont également susceptibles d'être publiées. Le nom du photographe sera mentionné et le cliché retourné à l'expéditeur.

LETTERE AL REDATTORE

Osservazione dal redattore: Il comitato editore della Società desidera incoraggiare i suoi membri a voler esprimere i loro pareri con rispetto a qualsiasi soggetto interessante circa a detta colonna "Lettere al Redattore."

E a suggerire che le lettere scritte non siano di una lunghezza di più di 300 parole e necessariamente vogliamo riservare i diritte di redattore a tutte le lettere.

Accluso nelle lettere si dovreble leggere il nome intero e l' indirizzo dello scrittore.

Fotografie di soggetti adatti sono anche d'interesse. Credito sará dato al fotografo e la fotografia sará restituita al mittente.

Sir:

I recently played the R. Strauss Concerto for Horn No. 1 in E-flat, Op. 11 with the U.S. Military Academy Band at West Point, New York. The date of performance was 24 January 1974, Col. Schempf conducting, and the arrangement for band was by John Anderson.

MSG Abby Mayer,
Cornwall, N.Y.

P.S. I am playing the new Reynolds Contempora FE-03 solid brass double horn.

Sir:

The enclosed is I think the most distinguished program of music for horn that has ever been attempted around here, and it seems to me surely deserving of mention in The Horn Call. I had never expected to hear a concert of horn music which, in presentation and in performance, stood on its own, without any apologies or bid for favoritism, in comparison with a similar recital on any other instrument. The poise as you know is faultless, and the music was presented with that calm assurance that is the mark of Barry Tuckwell. The Musgrave work, a bonus in the previously announced program, is a most exciting piece with huge technical and rhythmical difficulties, despatched with equal aplomb. And the astonishing part was that, even though the numbers are not more widely spaced than on a violin or piano recital, there was no visible sign of wear on the performer's part at the end of the program—nor audible either.

Wendell Hoss
Glendale, California

Claremont Music Festival

Mabel Shaw Bridges Hall of Music
Sunday evening, July 15, 1973, at 8:15

BARRY TUCKWELL, HORN

PETER HEWITT, PIANO

DANZI (1763-1826) — Sonata in E♭ for Horn and Piano, Opus 28 (c. 1800)

Adagio; Allegro
Larghetto
Allegretto

MUSGRAVE (born 1928) — Music for Horn and Piano (1967)

BEETHOVEN (1770-1827) — Sonata in F for Horn and Piano, Opus 17 (1800)

Allegro moderato
Poco Adagio, quasi Andante
Rondo

INTERMISSION

HINDEMITH (1895-1963) — Sonata for Horn and Piano (1939)

Moderately fast
With quiet motion
Allegro

All proceeds from this concert go toward the Festival's Scholarship Fund

Sir:

Thank you so much for the 1972/73 Membership Directory which arrived yesterday. I thought the enclosed picture of the orchestra [horn section] in which I play, the "Scottish Philharmonic," might amuse my fellow Horn Club members. The players in the photo are *right to left;* Richard Thomas, 1st horn (Alexander double); Frances Known, 2nd (Knopf Compensating); Robert Clayton, 3rd (Alexander double); and 4th is yours truly (Holton/Farkas double.) The photo was taken before a "Madame Butterfly" performance in July for Scottish Opera (who are our employers.)

If I may be permitted a word about my own recent activities. I have recently performed Mozart II and am to play Strauss I in Edinburgh. In August/September I took part in two performances of the Brahms Trio, and am at present preparing a recital programme for General Schools Concerts in Edinburgh.

I left College in July and in addition to the Scottish Philharmonic (not full time unfortunately!) I play in the Reid Orchestra (financed by Edinburgh University) and teach. You might also be interested to know that we (the Reid Orchestra horn section) plan to give several quartet concerts in and around Edinburgh.

With very best wishes from Scotland,

Neil Mantle,
Edinburgh, Scotland.

P.S. Re the photos. Why not start an "Insane Horn Sections" competition!

Editor's note: With some reservations about the wisdom of the course of action—why not, indeed?

Sir:

Thank you for the copy of the "Horn Call" which you sent to me during the summer. I was pleased and touched to find that you had given such a prominent place to the little note of appreciation, over his signature, which Dad sent to the Society after he was made an Honorary Member.

I note that occasionally you mention events, past and future, which might interest your members. Perhaps Dad's Memorial Concert may be of interest. I realize that you should have had this sooner, but directly after the Concert I went to England for an extended stay and am just now catching up with my "sins of omission."

Anton Horner and Mason Jones are names to conjure with. In addition the April Phila. Orchestra Notes (see enclosed) carried an announcement of the Concert, so we had a large and appreciative audience.

Your May issue of the "Horn Call" was excellent and interesting even to a layman such as I. May I wish you continued success with your publication.

Sincerely yours,
Louise M. Horner
Wynnewood, Pennsylvania.

You are cordially invited to attend the

ANTON HORNER MEMORIAL CONCERT

on Sunday afternoon, April 29, 1973
at 4:00 P.M.

Old First Reformed Church
United Church of Christ
Fourth and Race Streets, Philadelphia

Mason Jones, First Horn, Philadelphia Orchestra
and
The Curtis Institute of Music Horn Ensemble

Robert Bruce Whiting, Organ

The program includes compositions by Stradella, Telemann, Brahms, Krueger, Hübler. A brief lecture on the History of the Horn by Mr. Jones and a Memorial Tribute to Anton Horner by Rev. H. Daehler Hayes.

Informal Reception 5:00 P.M.

Sir:

Thought this might make good copy, as it was good horn playing and good fun . . .

"'The Pueblo Indians of Quarai saw their first Spanish conquistadore when Coronado's "entrada" passed by the village in 1540. In 1630 they were building a church under the guidance of Franciscan monks. After repeated attacks by the Mescalero Apaches, they finally abandoned their home in 1672. Three hundred and one years later, their home was invaded by the Albuquerque Horn Quartet, playing for an outdoor wedding themes from "Tannhauser" by Wagner arranged by Pottag, and the "Hunting Chorus" by Brahms, arranged by Livingston Gearhart from the Trumpet Sessions collection.

The impressive acoustics of the ancient ruins even allowed the outdoor use of the Telemann Concerto for Horn, recorder and harpsichord in F, performed as the processional by Elliott Higgins. Besides the acoustics, the setting and audience appeal of this unusual concert hall were so remarkable that the Quartet —Steve Brinniger, Joel Scott, Tad Shinnick, Elliott Higgins—recommend hiring Franciscan monks as architects for new concert halls.'"

Sincerely,
Elliot L. Higgins
Cleveland Heights, Ohio

Sir:

In the "Horn Call" Autumn 1973 there were articles on the subject of the "Stopped Horn" by Marvin C. Howe and by Professor Malcolm C. Henderson. In my opinion their views on the physical process occurring in the horn are partially inexact. I don't want to discuss the two articles but hope my results will

help to clarify the phenomenon of the change of pitch by hand-stopping the horn.

I propose to you to print in the "Horn Call" my article which appeared in the "Brass Bulletin" No. 3/1972, page 22-38. It is a summary of my lecture at the "7th International Congress on Acoustics" in Budapest in 1971. The editor, Jean-Pierre Mathez, Moudon, Switzerland, gave permission for a reprint.

I was an amateur horn player for many years and as a hobby have dedicated much time to experiments on the acoustic of the horn. I am a member of the International Horn Society and know Barry Tuckwell, Philip Farkas, Wendel Hoss, William Robinson and John R. Barrows personally. I met them at the "Horn Workshop" in Tallahassee in June 1970 where I gave a lecture on the subject of the"Stopped Horn."

Yours sincerely,
Willi Aebi, Dr. Ing.
Burgdorf, Switzerland

Sir:

C.P. Earnest's explanation of horn stopping in the Autum issue of *Horn Call* is, I believe, the correct one.

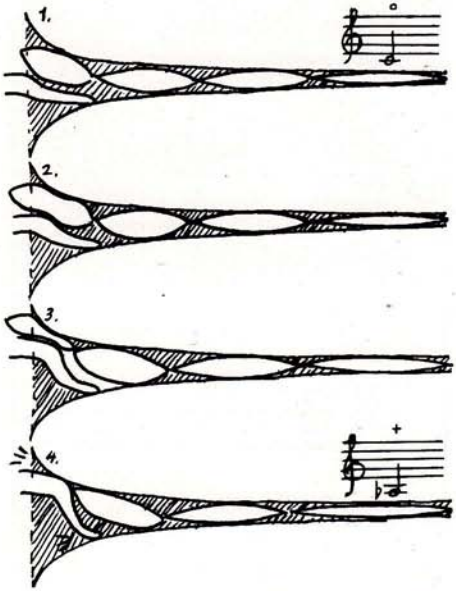
I have held a similar theory for years and have hoped that someone could devise a demonstration of wave interference which would prove it.

I have drawn a crude diagram which shows what I believe happens when middle C is gradually lowered to the stopped A-flat by hand closure.

No. 1 is middle C, or, the third overtone of the C harmonic series.

No. 2 is a *flattened* C. The hand depressing the last wave causes the inside node to approach nearer to the bell. All the internal waves are now longer and a flat C is produced.

No. 3 carries this further. The tone is stuffy because of the poor reinforcement from the distorted last wave.



No. 4 is the stopped a-flat. The first inside node has now come down to the heel of the hand and the knuckles. The distorted wave has been entirely destroyed leaving only *three* wave lengths to produce in the horn of just the right length to produce a stopped a-flat which is now the *second* overtone of the D-flat harmonic series.

As to why the internal node moves toward the bell, I suggest that the hand, upon closing, reduces the effective return of the wave oscillation from outside the bell. This causes an imbalance of pressures between the waves. The internal wave is thus able to over-

come somewhat the weakened incoming wave and therefore reach a node point nearer to the bell.

Many players know of another observable fact: that a loose stopping of the horn produces a partial harmonic series ½ tone *lower,* i.e., based on b-natural. (I had this confusing problem in high school before learning the techniques of good hand closure.)

There is evidence that this method of stopping to produce echo effects is more widely used in France. A notable example is in the *Villanelle* by P. Dukas. In the original Leduc Edition, Dukas specifically instructs the player to "Bouche" ½ tone *au-dessus* — above!

This is pretty trick to manage and not, really, too successful. All performances that I have heard were done using the more conventional method of stopping.

However, there are moments in Debussy, Ravel, and Saint-Saens where the "au-dessus" method can produce a unique and beautiful effect.

Horn Call is an excellent and very useful publication. It fills a great need.

Wayne Barrington
University of Texas
Austin, Texas

Sir:

I would like to comment briefly on the letter by Penelope Paine . . . concerning the efficacy of horn playing as a rat control measure. In my work as a wildlife biologist I have often wondered about such things. I tried my horn on some captive deer a couple of years ago and was surprised to see no response, either to high or low notes.

Very truly yours,
Guy Connolly,
Hopland, California

Sir:

I've intended since Bloomington to send you a copy of this photograph. I took it during the summer of 1969 during an all too brief visit with Mr. Morley-Pegge at his home. The cat was a very favorite pet which he named "CATTY." He was as gracious and warm a person as this photograph indicates.

There might be friends of his who would like a copy of this photograph. I will be pleased to furnish those interested.

best regards,
Wilfred Lind
Burry-Lind Company
4010 West 65th Street
Minneapolis, Minnesota 55435

Fanfare for Seeing published „The Horn Call" Stateman 1973!

Many thanks and many regards

Yours

Kurt Janetzky.

24. 3. 1974

Sir:

I would like to ask the assistance of the readers of the *Horn Call* in helping me locate an apparently rare piece of music. Several years ago I heard a recording of this music, Leopold Mozart's *Sinfonia da Caccia* for four horns, strings and shotgun, performed by hornists Barboteu, Coursier, Dunbar and Berges, with the Paillard Chamber Orchestra. (MHS CC-3). As you can see by its "instrumentation," it is a rather unusual quartet. Having heard the recording, I have searched the catalogs of numerous publishers (including Robert King and Musica Rara) and have not located the piece. I feel that this piece has excellent possibilities as recital material, and it is for that reason that I am intent upon finding it. If any readers have seen it in print or would have suggestions as to where I might further inquire, please contact me. Thank you.

Sincerely,
Jeanette I. Ferkel
Box 34157
Bob Jones University
Greenville, S.C. 29614

Editor's note: Your editor suggested that Miss Ferkel write directly to Georges Barboteu; any other help will be appreciated—and the membership would doubtless be pleased if the piece can be unearthed and made generally available.

Sir:

I intend to write to Mr. Leuba as you suggest. Referring to the second paragraph of my letter of the 24/8/73, I am still curious to know if any other member of the Horn Society has tried recording all or any of these Duos playing both parts, as I have done. Perhaps you might pass my query on.

Yours sincerely,

Gerard J. Larchet.

LETTERS TO THE EDITOR — Finale . . .

It is the usual practice to print letters to the editor with the name of the writer set in type, but a signature like that of Gerard Larchet, of Dublin, really merits being printed. Mr. Larchet had first written, asking about recordings of the Mozart Duos, and your editor referred him to Christopher Leuba, the Society's record reviewer. Mr. Larchet still wants to know if others have tried recording both parts of the duos.

Sir:

For a variety of reasons many horn players cannot attend the big annual conference organized by the International Horn Society and so Horn Call readers might be interested in what we are doing in Michigan to stimulate interest and enthusiasm.

We recently had our third annual Horn Fandango with Ifor James as guest artist. For both the previous two, Barry Tuckwell had been the featured soloist. They are organised in co-operation with Dr. Douglas Campbell, Horn Professor at Michigan State University and each year we are managing to broaden its scope and bring in students and professors from other colleges to perform as well as attend the clinic and concerts. We get about 300 High School and College students coming for the day which is quite a strenuous one for all concerned.

We had cause for concern this time because Ifor James had only a month prior to his visiting us been shot in the back in Brazil and was lucky to be alive let alone playing with the bullet still in him. He was a tremendous success and set a wonderful atmosphere for the whole day.

A brief word on the evening program. New York Horn players will be interested to see the name of Norman Greenberg. He is our new Dean of General Studies here at Western and is well in the musical swim playing with the Kalamazoo Symphony as well as assisting our Faculty Brass and Woodwind quintets when required. It is very nice having him here with us. The Eric Rogers arrangement of 'Johnny Comes Marching Home' is for 6 Horns, Wagner Tuba, Tuba and Percussion and is tremendous. It was written for the occasion and another first performance was Lad Busby's 'Maneater.' One of England's leading Trombone players he wrote it for himself as a solo and then subsequently arranged it for Horns & Latin American Rhythm. It was performed appropriately by six of my girl students and two more danced. The high spot of course was the Gordon Jacobs Concerto which came at the end of a very long day for our bullet laden soloist and brought the house down. If that doesn't inspire them nothing will but in fact he is already invited back again.

Apart from Ifor's visit and Barry's two appearances, our students in the last two years have had opportunities to hear clinics from Dave Krehbiel, Dale Clevenger with his section, Paul Ingraham, Alan Civil and James Brown with the promise of more to come. If one can turn the students on it makes teaching that much easier and it is a very nice way of getting ones friends to visit. They are even unusually polite too.

I hope that this may be of interest to others and encourage many more Colleges to combine together to promote these ventures.

Yours sincerely,
Neill Sanders.
Western Michigan University
Kalamazoo, Michigan

ANNUAL FRENCH HORN FANDANGO

. . . a day-long event for French horn students and music educators sponsored jointly by Michigan Universities

Western Michigan University's Department of Music cordially invites all French horn players and music educators to attend a day devoted to the French horn.

Wednesday, November 14, 1973

10:00 a.m.	Registration in Kanley Chapel
10:30	Lecture-Recital in Kanley Chapel Ifor James and John McCabe
11:30	Open Forum in Kanley Chapel Ifor James
12:00	Lunch Break
2:00 p.m.	Convocation in Kanley Chapel Ifor James, John McCabe and the Western Brass Quintet
4:00	High School Horn Choir Rehearsal in Oakland Recital Hall
5:00	University Horn Choir Rehearsal in Oakland Recital Hall
8:00	CONCERT in Oakland Recital Hall

For the afternoon Convocation, we will join WMU's 350 music majors to hear Ifor James perform *The Castle of Arianrhod* which was written especially for this tour by John McCabe. The Western Brass Quintet will perform McCabe's *Rounds for Brass* and if time permits, John McCabe will also perform a short piano piece.

For the evening concert, Ifor James will perform Gordon Jacob's *Concerto for Horn* with accompaniment from the string section of the University Symphony Orchestra, Herbert Butler, conductor. The combined horn choirs of Western Michigan University, Michigan State University and the University of Michigan will perform, as will a group of Michigan horn professors from several universities.

The evening concert will also feature a performance by the High School Horn Choir. Last year's choir at Michigan State University was so very successful, we would like to continue this as a traditional activity. Band directors and private teachers are therefore invited to nominate candidates. After the performers are selected, music will be mailed to the schools to allow time to prepare for the rehearsal and performance. The High School Horn Choir will again be conducted by Professor Douglas Campbell of Michigan State University. Only students selected to play in the Horn Choir need to bring their horns on November 14.

We hope you will join us for this third annual FRENCH HORN FANDANGO. The total cost for the clinic, convocation and concert is only $2. Tickets for the concert alone are also $2.

Clinic and Convocation participants should park at metered spaces in Parking Structure Number 1 on West Michigan Avenue near the University Student Center. Kanley Chapel is west of the parking structure on West Michigan Avenue. Those attending the evening concert may park anywhere on the East Campus near Oakland Recital Hall (Oakland Drive and Oliver Street) without penalty.

From the Editor's Desk

Your editor recently watched a National Geographic Society special film on television, in which a nomadic African tribe struggled for survival during a prolonged drought, and at one point the narrator remarked "even the little children become acquainted with and accept the idea of death." In *The Man on the Flying Trapeze,* William Saroyan says something to the effect that each of us on the day he is born begins to run a race — and that the one who first passes from this life, in effect wins that race. Until now, the *In Memoriam* articles in this journal have all signalled the passing of men who had been granted very long lives, so that our sense of loss was somewhat diminshed by gratitude that we had known them so long. In this issue, there is tribute to yet another great human being and superb horn player, John Barrows; and our sense of loss is the greater because he was taken from us so soon. I have thought it better to place President Barry Tuckwell's letter here, rather than in the "Letters to the Editor" section; a tribute from John Barrows' great friend, Alec Wilder, and some additional material will be found in the main body of the journal.

Dear Jim,

I was very sorry to receive a cable this morning from Bill Robinson informing me of the death of John Barrows. He was someone we will all miss profoundly and I feel it would be in order for me, as President, to make some statement on behalf of the I.H.S.

Everyone who knew John Barrows will have been profoundly shocked to hear of his death. It was my privilege to know him over the past few years, and he was a man I respected as a horn player, musician, and above all as a wonderful human being. Everyone whom I have met who knew John loved him deeply, and his influence on his students, musically and socially, was immense. He will be missed by us all.

Yours sincerely,
Barry Tuckwell,
President.

• • • •

Mailing has been a vexing problem again; journals have been mailed to all whose names have come to me, and there is still a goodly pile of them awaiting further developments, in the corner of our dining-room. Even the Canadian Postal Service managed to time its strike so as to preclude our getting the personnel of the Canadian orchestras for this issue. Perhaps we should revert to Pony Express or carrier pigeon.

• • • •

We seem to have a wholesome controversy going over the matter of hand-stopping. At least one City Editor of a large daily newspaper of my acquaintance firmly believes that controversy is the life-blood of any periodical; the editor of The Horn Call does not feel qualified, from his position of very limited experience, to comment on that thesis, but at least in this issue our readers will find solid acoustical experiments to ponder, in the main body of the journal as well as in Letters to the Editor.

• • • •

The report from the Claremont physiological experiments is still preliminary; Dr. Horvath is understandably reluctant to rush into print until he has had had time for a thorough study and analysis of the data. There seems to be little doubt that we brass players do subject our cardiac and pulmonary systems to extraordinary stresses, and there seems to be further indication that the psychological stresses of public performance may increase the severity of the physical problems. Whether these stresses are seriously detrimental, or are much like those of any athlete, and wholesome when properly prepared for, seems to be an open question as yet. Ah well, as one of my trombone-playing friends said at the end of a particularly taxing session in a brass ensemble, "What a great way to go!"

• • • •

Concert Review

Chicago was awarded the opportunity of hearing what the program claimed was the American premiere of the Concerto Bucolico for Horn and Orchestra by the Hungarian composer Istvan Lang (born 1933). The performance took place in Orchestra Hall on Sunday, November 4, 1973, and featured horn virtuoso Ferenc Tarjani with Geza Oberfrank conducting the Budapest Symphony Orchestra.

It was a shame that Mr. Tarjani could not have played a more standard solo along with the Lang work because the concerto Bucolico (written in 1970, dedicated to Mr. Tarjani and scored for piano, harp, timpani, percussion and strings) was not the kind of piece one would wish to hear an unfamiliar soloist perform. The work was atonal, in one movement, and the solo part seemed to be a series of interjected spasms of contrasting nature spread over a three-octave-plus range. Most of the standard effects were in evidence: Flutter and double tonguing, hand stopping, glissandi and quarter tones which were produced by opening and closing the hand in the bell rather than by sharp or flat fingerings. The few lyric spots were played with a light vibrato and everything was handled with ease by the soloist who played from the manuscript, standing up. Thomas Willis, reviewing the concert for the Chicago Tribune, said that "Tarjani showed himself the complete master of his instrument in tonal variety, technique, range, and agility."

Messrs. Brouk and Mourek of our horn section were able to talk with Tarjani before the concert, through an interpreter, and discovered that the Richard Strauss Concerto No. 2 was also in his tour repertoire. After hearing the Lang work we all wished he had done the Strauss instead! He also told them that he was playing on a silver Alexander B-flat/F-alto descant horn. The program gave a brief sketch of Mr. Tarjani's career which has included winning first prize in the Geneva horn competition, second prize in Munich (1962 and 1964) and, as a member of the Hungarian Wind Quintet, first prize in the Budapest Chamber Music Competition in 1965. Although the program did not say so he is apparently also the first horn of the Budapest Symphony Orchestra. We hope that we will have an opportunity to hear this soloist again but in a more musically rewarding solo work.

Norman Schweikert,
Chicago Symphony Orchestra

New Zealand, Music, and the Horn

by

Irving Rosenthal

The tiny two green islands which make up the country called New Zealand lie 1200 miles due east of the Australian continent, in the furthermost areas of the South Pacific Ocean. Scenically, it is an unusally lovely place and the weather, being quite temperate is almost ideal for human habitation . . . to say nothing about the proliferation of sheep and cattle. New Zealand is therefore primarily an agricultural country and produces and exports vast quantities of dairy products, wool, meat, and fruit. It produces very little in the way of music or culture; most of that has to be *imported.*

Let me emphatically state that this is not because there is any kind of lack of talent or musical interest but simply because there is a real lack of musical opportunity and any kind of institution that can offer even a modicum of training and experience worth bothering about. This is a rather sad commentary on the breed of politician N.A. produces and also the kind of educational administrator now ruling the schools. True enough, these people make all kinds of lovely noises about what they are going to do for the arts, but in actuality, on the nitty-gritty level, little is being accomplished. New Zealand is an impoverished country when it comes to the performing arts; in the past fifty years, *one* new theatre has been built and that in Christchurch. There are no other even being planned.

They do have Conservatoriums of Music and Schools of Music attached to the various Universities but none of them can or will offer to the serious student opportunities for training and experience that can bring him above the level of the very mediocre. There are good teachers for the piano, the violin and viola, and even cello. But, the bass player does not exist; they do not breed bass players here and neither do they breed horn players. There are no teachers for these instruments; even brass teachers are extremely hard to find. For instance, at the Conservatorium of Music in Auckland, there is no one to even teach the common trumpet or trombone! The quality of talent that I have found was extraordinarily good but most of the young players either quit studying before they were finished products or left the country to go overseas where they could find adequate teaching and experience possibilities. It is a sad, sad, story but very true.

There is just one full-time professional orchestra in New Zealand which is located in Wellington, the capitol city and is part of the New Zealand Broadcasting Corporation. The orchestra does two tours a year but most of the important concerts are done in Wellington and the rest of the country must hear them on the air waves or not at all. They carry five horns in the section; two principal horns but no assistant first. The horns come from vastly different schools and countries; two

are local products, one hails from the U.S.A. and another from South America with another from Eireland. I must be honest and say that the horns are the weakest section of the orchestra and this is not just due to stylistic differences or instruments. There is always a seeming lack of good intonation, something which should be taken for granted, and a lack of ensemble. The various instruments used are two new Paxman double horns, an Alexander, a Knopf and a Dutch creation which I found to be surprisingly good. It was a five-valved affair made by the Schenckelar firm in Holland. The over-all morale of the orchestra is at a very low ebb due to the fact that the NZBC does not really feel that a symphony is actually necessary and just tolerates the fact that an orchestra is an unfortunate necessity. The NZBC Symphony Orchestra is the musical mainstay of the country but they are a real expense to operate even though they are understaffed and overworked. Besides, they always seem to unearth conductors of such undistinguished accomplishments that one cannot help wonder how cheaply these conductors do work. As the saying goes . . . (probably originated in the garment district of N.Y.C.) "Cheap is Cheap!" No orchestra can really do more than become one of the many mediocrities in the world with this kind of treatment!

There are other orchestras in New Zealand located in other cities such as Auckland, the largest and wealthiest city in N.Z., and one in Christchurch but none of these orchestras are worth considering as such since they do not operate regularly and are no better than a high school aggregation in the U.S.A. The hornists in these groups are mostly of student calibre and it is rather pitiful to see how in some cases, the blind lead the blind. I think a major reason for the lack of any real musical culture in the country lies in the fact that there exists a brass band movement that is seriously considered to be of musical value. Oddly enough, the New Zealand brass bands are very skilled and play well. However, the kind of music usually played is about as modern as an Offenbach Can-Can and not anywhere near as exciting. The band is a direct descendent of the English brass bands which were, in the more isolated communities, the only musical outlet. Unfortunately, this tradition dies very, very, slowly in New Zealand. Brass bands do not use horns and that is one reason that there are no local hornists of any quality in New Zealand. The structure of the band is almost considered to be a sacred institution and not to be tampered with in any way. It is not unlike a man today dressed in 'mod' clothes and wearing spats on his elevator shoes! Musically, the situation is pretty depressing and not likely to get any better if no new people are allowed into this situation to infuse some new blood into the arts there. The young students and young players are ready for anything new and exciting and can absorb new ideas very well and quickly. But, what can they do when the Administration of a major music school does not see fit to employ a brass instrument teacher?

I realize that I am being very critical of the whole New Zealand scene and can perhaps be accused of eating a great deal of sour apples. However, I am being critical and yet honest because I still feel that there is much that can be done there. But, until they rid themselves of a few unimaginative musical 'leaders,' nothing much will happen in N.Z. and the good players that might develop there will leave for other countries, most notably to Australia, and England. New Zealand is a country that looks so lovely and in music, sounds so tepid and lifeless. It should not be so and I hope, in time, things musical will change.

Music in 'Down Under' Land

by

Irving Rosenthal

Australia is no longer identifiable by the presence of kangaroos, koala bears, rough-looking sheep shearers swilling beer in out-back pubs, or even their excellent tennis players. A major transition has been happening there, especially in the past decade or so that is remarkable for the quiet speed at which it has been taking place. Australia has merged from a bucolic cocoon into a vital cultural centre. When one thinks of Australia now, the word Opera flashes by and to some lesser extent, ballet as well. Witness the fame of the great singer Joan Sutherland and a whole host of other excellent Australian singers who have made an international name for themselves on the stages of the world's opera houses. Now, with the opening of the Sydney Opera House claiming the attention of the entire world, Australia can no longer be considered a back-water country of dubious cultural accomplishments. The Sydney Opera House is a reality and an architectural triumph and will elicit a good deal of commentary for some time to come. It has overshadowed the boomerang as Australia's national trademark.

What is generally not known is that in Australia, the Australian Broadcasting Commission (which is a Government operated corporation) is the largest single entrepreneur for serious music in the world. The ABC operates six full-time symphony orchestras; one in each of the capitol cities in each of the States. These orchestras vary in size according to the population and have each increased in actual services and number of employed musicians in the past few years. The ABC has also engaged the finest artists available for tours to each of the cities. Besides the activities of the ABC, there also are two smaller orchestras in Sydney and Melbourne respectively, run by the Elizabethan Trust to service the Australian Opera Company and the Australian Ballet, both of which are first class organizations and of a standard not below the European mean.

New concert halls and opera-house type theatres are being built;

the latest one just opened for business in Perth, Western Australia and just before that, the new Festival Theatre in Adelaide, South Australia. Both of these theatres are excellent in every way and will provide a great stimulus to music-making in the future. Chamber music has always done well here due to the indefatigable efforts of the Musica Viva Society which has drawn the best talents here to Australia from all corners of the earth. But, the most encouraging sign is that concerts are very well attended and with active Government support, music will eventually be a great potent force in Australian life.

Of course, there is always television as well which is modeled after the American version except for the ABC which is not commercial. There are four channels, three of which regularly show American TV programmes as well as many that are produced here in Australia. There is, then, a small segment of musicians who do commercials and some recordings as well; Rock is still going strong here. The University of Adelaide has its own Woodwind Quintet which plays regularly and whose members also teach on the Staff of the Conservatorium of Music.

It is a fairly healthy musical climate; there is a lot of music being made and the ABC does broadcast a great deal of serious music on the radio. However, I find that the greatest weakness lies in the field of teaching, on the artist level particularly. Oddly enough, there are few really excellent brass teachers and the style of playing here is very disparate. Mostly, I would say that there are holdovers from the old brass band days. Trumpet players tend to be good technicians but lack the energy and sheen of American brass players. The trombones are fairly good but tuba players are still using the old brass band E-flat tuba which is nothing more than a euphonium with the mumps. C tubas are almost unheard of as yet.

In the horn department, the prevalent style is the older English style of playing very reminiscent of Dennis Brain. In general, it is a reticent kind of playing; nothing really big ever happens. The instruments used vary quite a bit with the Paxman being very popular and mostly B flat horns in use. I struck a very fine model being used in Adelaide by the first and second horns of the South Australian Symphony; a Paxman compensating horn with five valves that was more or less designed by the section leader, Mr. Stan Fry. In general, the tone produced by most of the Australian players tends to be of a lighter quality and lacks the power of the American players. When the Cleveland Orchestra toured through Australia much was said about the playing of the horns but no one has gone out and tried to emulate that style as yet. The glaring exception is that very famous expatriate hornist, Barry Tuckwell who left Australia twenty years ago to make himself a name in England and internationally as well.

To conclude, I must say that Australia has some of the answers in

regard to supporting good music on a national scale. They are writing some interesting music and the schools are now integrating music into their curricula more than ever before. I expect to see a great deal happening here; it cannot fail to happen! They have money and interest and now concert halls. People here seem to be genuinely interested in the local product of ballet and opera and with the new breed of political animal being created here (witness the Prime Minister Gough Whitlam and the Premier of South Australia who are cultural 'nuts'), I have no doubt that eventually Australia will make a large contribution to the musical culture of the world.

Irving Rosenthal was born in New York City and raised in Los Angeles, Calif. where he received his early musical training in solfege and French horn with prominent teachers in that area. He was accepted into the Juilliard School of Music in New York where he continued his studies in horn, theory and conducting (under Dean Dixon and Leon Barzin) and also composition and arranging and earned a Diploma in both French horn and Conducting. Mr. Rosenthal also attended the University of Southern California (B.M. in Theory) and then Teachers College Columbia University where he obtained an M.A. in Music Education.

After spending a few years touring with such organizations as the Sadlers Wells Ballet and the American Ballet Theatre, Mr. Rosenthal left for Australia where, for nearly four years he was active as a hornplayer with the Sydney Symphony Orchestra and as an arranger for the Australian Broadcasting Corp. and for other various T.V. programs. He also was the musical director of many musical shows that were produced in the theatres of both Sydney and Melbourne.

John R. Barrows

In Memoriam
John R. Barrows
February 12, 19/3 - January 11, 1974

Alec Wilder

When a great person dies more than a life has ended. The dauntless spirit of nobility and grace, of refinement and virtue has been assaulted. Were a shrine defiled, were a natural wonder to crumble, it could not be a greater loss.

Some great men out of shyness or innate dignity are known only to a small segment of humanity. Their greatness is no less for this anonymity.

Less than six months ago John Barrows died.

If the reader has ever been professionally involved in music he will know that John Barrows was a truly-great musician and a miraculous French horn player. But he may not know that also he was a great man.

When any dear friend dies the loss to the survivors is great no matter what manner of man died. But when that friend is also a great person the loss is, I believe, more profound. For the ultimate quest of humanity has lost in the death of a great person part of its strength and valiance. This, though it may read as a desecration, is of greater meaning even than love.

John Barrows was my friend, my mentor and the source of my musical survival. But for him I don't believe that I would be writing this tribute to him. I'd have died long ago. I believe he was a member of the hierarchy of persons to whom profound mysteries have been revealed and who convey in extraordinary fashion their spiritual realization.

No matter what the circumstances or for whom I was ostensibly composing, everything I've ever written since I met John Barrows was written for him. I have been honored for forty years by his acceptance, his concern, his enthusiasm and by his adamant insistence that I continue to create.

But that didn't make him a great man. It only provided me with my life's blood. His greatness was evidenced by his proving that the impossible was possible, by possessing such exquisite taste in music as to cast a spiritual glow wherever and whenever he performed or whenever he spoke of music. When he taught students he emanated this same miraculous distillation of man's essentially raw and base nature and to such an extent that the student found himself in the presence of virtually religious revelation.

I don't believe he ever knew how great he was. I think he did know that he possessed an extraordinary performing talent but, like all truly great men, I believe he would have considered it sacrilegious to speculate on his being more than a passionate man in search of the truth in whatever form it might reveal itself.

He would never have used the word "sacrilegious" since he constantly announced his rejection of all religion.

Of course I've always found the most skeptical people in religious matters to be more often than not the most profoundly virtuous and

the closest to selflessness.

John Barrows was a highly complex man, as well as a person of almost childlike simplicity. He was extremely shy, modest, gentlemanly, angry, adamant in his convictions, eloquent in what his close friends used to call his "lectures," ready to laugh immoderately when relaxed and even unexpectedly when the musical situation seemed to call for beetle-browed solemnity.

He was also a very private man who, though he spoke with complete self revelation in certain areas, nevertheless always withheld himself from intimacy in other areas not out of distrust but out of profound shyness.

Those many who have heard him proclaim his passionate affection for whom or what he believed or his equally passionate fury and contempt for the false, the bawdry and the mediocre may question my conviction of his basic shyness. So I must repeat once more that John Barrows was a very complex man.

I loved him and needed him and I honestly don't know how to function creatively or with any measure of hope or belief now that he's gone.

Tribute to John Barrows

Capital Times
Madison, Wisconsin
January 14, 1974

Death, after a lingering illness, has stilled the music of one of the nation's most talented French horn players — John Barrows, a distinguished professor of music at the University of Wisconsin's School of Music, and a widely acclaimed instrumentalist.

John Barrows played with several prominent American musical organizations including the Minneapolis Symphony, the New York City Opera orchestra, the New York City Ballet orchestra, the Casals Festival orchestra, Radio City Music Hall orchestra, and was a leading member of the Madison Symphony Orchestra.

He joined the University faculty in 1961 and almost immediately became a favorite of Madison concert goers.

John Barrows belonged in the same musicl stratosphere as the incomparable late Dennis Brain. This community has lost a great artist.

Memorial Resolution of the Faculty of the University of Wisconsin on the Death of Professor John R. Barrows

Memorial Committee
Glenn Bowen
Robert Cole, Chairman
Robert Monschein

John Barrows died January 11, 1974, just over a month before his sixty-first birthday. Professor Barrows was born February 12, 1913 in Glendale, California. His family moved to Montana shortly thereafter, and he spent his early days there. His first instrument was euphonium. A desire for more varied musical experience during high school years in San Diego led him to study cello, and later, horn.

Barrows' teaching career spanned his entire adult life, through his work at Yale, N.Y.U., Columbia, and Wisconsin. When he came to this University in 1961, the School of Music was entering a period of growth. Barrows helped to shape that growth by attracting a gifted

group of horn students. His reputation as a performer would have enabled him to accept only the most advanced of these, turning the others over to an assistant, but this was not his way. He enjoyed working with students at all levels, provided the goal was making music, not merely displaying technique.

John Barrows was concerned about the limited repertoire for horn. As was true with anything that concerned him, he did something about it. Through his own efforts and those of his students, a considerable body of horn music, previously unknown or but rarely heard, is now avilable. Also, a number of newly composed works for the instrument were written because John or one of his students was there to play them. Any one of his students can give you a list.

As a performer, John Barrows was a legend. He had an almost uncanny ability to get at the heart of the music. Alec Wilder said that when he heard his music played by Barrows, it somehow came back sounding better than he had thought it could or should. His breadth in this area was equal to his depth. He was at home in the NBC or Minneapolis Orchestra, the New York Woodwind or Brass Quintet, or as soloist with a string quartet, wind ensemble, or symphony orchestra. A list of those with whom he made music includes Pablo Casals, Rudolf Serkin, Mitropoulos, Toscanini, Stokowski, Bernstein, Kolisch, Alexander Schneider, Stravinsky . . . and if J.B. were looking over our shoulder at this moment he would probably say: "Don't forget Woody Herman and Judy Holliday." His tastes were catholic, and he devoted equal care to the performance of a Mozart concerto in a formal concert, or to an improvisation on a blues pattern in a friend's living room. One regrets that his full breadth as a performer is not revealed on recordings. Fortunately a few good performances are preserved; among the best are those with the New York Woodwind Quintet, and those in which he is accompanied by his wife, Tait Sanford Barrows.

While his life was incredibly rich in accomplishment, its close at this time is premature — he had so much more to give. Vernon Duke's comment on George Gershwin seems appropriate here: "Death can be kind and it can be just, but it had no business taking him at this time."

Those who knew John Barrows will remember him with admiration, wonder, and affection.

o o o o

Nancy Becknell, who has been John Barrows' colleague at the University of Wisconsin writes that a John Barrows Memorial Scholarship has been established there; contributors should write to the School of Music Scholarship Fund, and designate the Barrows Memorial. (School of Music, The University of Wisconsin-Madison, Humanities Building, 455 North Park Street, Madison, Wisconsin, 53706.)

Mrs. Becknell also requests that I add one more teaching assignment filled by Mr. Barrows: His years on the faculty of the New College Festival, at Sarasota, Florida. As she said, it is impossible to include everything he did.

Physical Stress In Horn Playing

— Richard Dunn
Santa Barbara, Calif.

(This is the first in a series of articles concerning the results of research in progress by Dr. Steven M. Horvath, Director of the Institute of Environmental Stress, University of California at Santa Barbara, and others.)

In 1971 an article called "Electrocardiography and Lung Function in Brass Instrument Players"[1] reported the results of tests conducted on 45 student brass players. That research was an investigation into the possible health hazards of brass playing, prompted by earlier studies and some statistical information which indicated that professional brass players may have a shorter life expectancy than general population averages. This article began with the following technical summary:

> "Electrocardiograms during rest and brass instrument playing, pulmonary function, and peak intraoral pressures were determined for 45 young male brass instrument players. The pulmonary function results revealed significantly larger vital capacities, residual volumes, total lung capacities, and expiratory flow rates. Peak intraoral pressures were higher in the brass instrument players than those previously reported for other wind instrument players, with trumpeters exhibiting the highest pressures. The ECGs obtained during instrument playing indicated a sinus bradycardia at the start of playing following by a tachycardia, similar to the response to the Valsalva maneuver. Cardiac arrhythmias during instrument playing were prevalent in these musicians, with premature atrial and ventricular contractions occurring predominantly during inspiration."

The article concludes with the inference:

> "The significantly younger age at death observed in wind instrument musicians *may* be attributable in part to the many years of instrument playing and their inability to adapt to the severe circulatory stresses." (Emphasis supplied.)

It is important for the reader to observe that this is simply an inference drawn from the research and should not be regarded at this time as a matter-of-fact conclusion. Above all, really reliable statistics concerning shortness of life-span in brass players would depend on a study of medical case histories, and we would be interested to know the differences between the various brass instruments, the difference between the

"screech" trumpeters in jazz work and the symphonic trumpeter, the difference between the orchestral first hornist and the fourth hornist, and so forth. There is much need for further research and much interest in it from our profession. It is fortunate that Dr. Horvath and his associates have taken an interest in our physical health and unfortunate that funds for such research are rather difficult to come by.

In 1972 I became involved with this investigation and served as a subject for continuing tests. One of the measurements of physical stress we undertook was conducted on several horn and trumpet players in the Santa Barbara Symphony. We provided urine samples before and after rehearsals and concerts and the samples were delivered to the laboratory with coded labels to ensure objectivity. The chemical analysis did indeed show stress — greater in performance than in rehearsals. These results will not be detailed here, however, as the number of measurements was not considered sufficient for scientific reporting. The results do show that more extensive testing of this type is well warranted.

With the approach of the Fifth International Workshop at Claremont, California, arrangements were made to take a test unit to Claremont in order to conduct an investigation on horn players alone — but with the wide variety of ages and technical accomplishment and both sexes. Seventy-five subjects (50 males and 25 females) participated in an electrocardiographic study, and pulmonary function tests were performed on forty-seven (35 males and 12 females), 44 of whom also participated in the ECG study. The tests were made under controlled conditions with only the technician and subject present in each case. In the ECG test each player played the same musical examples under the same instructions. Blood pressure readings were taken both before and after the test.

ECG data was subsequently analyzed by three experienced individuals including two cardiologists. Subjects were categorized by sex, professional status and three age groups. An additional three-group categorization was made on the basis of the observed ECG changes. The analysis and classification of all of the data obtained was a matter of some 400 hours work and it is at present just short of completion. Because of this it would be inappropriate, at the present writing, to attempt to offer the results in detail. It can be said, however, that ECG changes were demonstrated by seventy-one percent of those tested and that the incidence of changes was somewhat greater in females than in males. What the test clearly shows is that there is a physical stress in horn playing just as there is stress in other forms of exertion. Athletes undergo stresses which can be measured in similar ways and we can all experience cardiovascular changes under the influence of alcohol, nicotine or exertion. A rather close analogy to the particular form of stress which is present in brass playing is the not unfamiliar stress of straining at the toilet. When we increase interthoracic

air pressure the implication is that the venous return to the heart and lungs is inibited and the result is certain changes in ECG measurements. To the medical layman such changes tend to sound alarming, but they do not connote pathologicl problems. In a very general way they may be considered "unhealthy" but we cannot automatically conclude that brass playing will shorten our lives. The specific results of the Claremont tests will be presented in the next issue of *Horn Call* along with an interpretation of the results and their implications. Perhaps it will be possible to supply hornists with guidelines as to how stresses can be mitigated.

Meanwhile it is clear to all of us who have the responsibility of demanding performances that the *psychological* stress of performance can be very considerable. Speaking purely as an individual I believe that the stress of performance is *much* greater than the routine physical stress of practice. This opinion is certainly shared by many of my colleagues and is also substantiated by some studies which have been made. Hopefully funds can be found to enable the present research team to conduct adequate tests in performance conditions. This would be most valuable to all of us, but the requirements of technical instrumentation are considerable and therefore also costly. To paraphrase Dr. Horvath, it seems that no one is much interested in the health of musicians; let us hope that this will change when people begin to realize how much we go through to bring great music into their lives.

Technical articles are in preparation for the *Journal of Occupational Medicine* ("Some Physiological Observations on French Horn Musicians") and the *American Journal of Cardiologists* ("Wandering Atrial Pacemaker [An example of 'Occupational Arrhythmia']".

[1] In *Arch Environ Health,* Vol. 23, Nov. 1971. By Alan Tucker, Maurice Faulkner and Steven Horvath.

MEET THE WIENER WALDHORNVEREIN!
(English translation by John Brownlee)

In the November edition of 'The Horn Call' (Vol II, No. 1, p. 23) under the title 'Austrian Hunting Music' there was a comprehensive report on this area of European musical history which is, in terms of its development, very interesting to the hornplayer. One may perhaps remember that the great upsurge of Austrian hunting music in the last quarter of the previous century (started and caused by the famous Makart procession) brought with it the increasing popularity of a choir of four or more valved-horns and also the founding of several such societies. From these more or less shortlived societies one group has been able, even if under varying names, to assert itself with success. . .the Wiener Waldhornverein. That the group as a whole and some of its members individually have joined the International Horn Society may be taken as the occasion to give a more detailed report of this commendable institution.

As indicated above, one can talk about a tradition of almost one hundred years, even if the actual founding with the name 'Association for the Furthering of Waldhorn Music' goes back only to 1931. (We refer once again to the essay by Dr. Ernst Paul that we quoted at the beginning.) At that time it enjoyed success under the leadership of Professor Karl Stiegler, the world-famous solo-horn of the Vienna Opera. The membership at this time numbers more than fifty practising musicians and consists of hornplayers from the major Vienna professional orchestras —the Vienna Philharmonic, the Vienna State Opera, the orchestra of the Vienna Volksoper, the Vienna Symphony, the Niederösterreichisches Tonkünstlerorchester (Symphony Orchestra of Lower Austria), the Austrian Radio Symphony Orchestra— as well as of amateurs from hunting circles and other professions. Its aim was and is to further all kinds of music for multiple horns. As well as many original compositions for the Parforcehorn in E-flat (Fanfares, Marches, Dance and Song movements) and many Concert Pieces, naturally bearing the stamp of the period (both principally from the aforementioned flowering of the epoch at the turn of the century) the group also performs newer works, not forgetting compositions from within the ranks of its members. In original compositions as well as in arrangements of well-known folksongs, dances and similar material, the attempt is made to introduce to the ensemble new literature in a form that is particularly suited to the horn. In particular one must mention the large and valuable library of Professor Gottfried Freiberg, the well-known solo-horn of the Vienna Philharmonic who was also famous in the United States. In addition to his own compositions this includes the music he inherited from his uncle, Karl Stiegler. Thanks to the generous cooperation of the widow of Prof. Frieberg this wealth of music is at all times at the disposal of the Wiener Waldhornverein.

At this point may we extend a friendly invitation for an exchange of music in which the Wiener Waldhornverein would be very interested to take an active part.

The musical activity of the Association extends from the weekly rehearsals and the large concert which is held almost every year to smaller activities which are to

a large extent dedicated to hunts and which are performed on natural hunting-horns. Our record 'In Honour of St. Hubert, a hunt in the Vienna Woods' (Decca Stereo SDD 235) may well be considered the highlight of the group's activities. As the title indicates the listener experiences in music the progress of a hunt in the Vienna Woods. After beginning with an open-air service the hunt is accompanied by original calls from Austrian hunting ceremonies played almost entirely on historical hunting-horns. The game is laid out according to size and appropriate horn-calls are played ('Die Wildstrecke wird gelegt und verblasen'). A small concert is arranged and finally the day comes to an end in the atmosphere of the"Evening Prayer' from 'Hansel and Gretel' by Humperdinck.

Perhaps the most valued task of the Wiener Waldhornverein is to maintain the sound of the Vienna F-horn—and in respect to horn tone this record can convey to the music-lover its sound quality. The Vienna horn, the only instrument in the world to do so, has best preserved the typical romantic horn tone. It is of course held in high regard for its tone but is often criticised for its intractability. (Vide the interesting article by the chairman of our association, Dr. Siegfried Schwarzl, on 'Das Wiener F-horn und seine Zukunftsaufgaben' in the magazine 'Das Orchester' 18th year, Vol 5, 1970, from Verlag Schott's Söhne, Mainz). But since development does not stand still—a new path has been explored from within the group itself. A Vienna designer (a pupil of Stiegler and himself a member of the group), a Vienna instrument maker and the horn section of the Austrian Radio Symphony Orchestra have together designed a new version of a Vienna Double horn which attempts to combine the mellow tone of the Vienna F-horn with the easier technique of the rotary valve. This horn has been used satisfactorily now for two years in the Radio Symphony Orchestra. Of course it has to be improved even further and it is in this respect that this article could fulfill its purpose best if it succeeded in encouraging here a healthy correspondence of opinions and experience and in so doing brought our beautiful instrument one step nearer to perfection.

Erhard Seyfried
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1180 Wien

DER WIENER WALDHORNVEREIN STELLT SICH VOR

—Erhard Seyfried

Dan Novemberheft*des vergangenen Jahres brachte unter dem Titel "Österreichische Jagdmusik" einen ausführlichen Bericht über diese für den Hornisten entwicklungsgeschichtlich sehr interessante Sparte der europäischen Musikgeschichte. Vielleicht ist auch noch in Erinnerung geblieben, dass der grosse Aufschwung der österreichischen Jagdmusik im letzten Viertel des vorigen Jahrhunderts—veranlasst durch den berühmten Makart-Festzug—die Pflege des vier-und mehrstimmigen Ventilhornchores zu wachsender Beliebtheit, und die Gründung mehrerer derartiger Vereinigungen mit sich gebracht hat. Von diesen mehr oder weniger kurzlebigen Ensembles hat

*The Horn Call, Volume II, No. 1/Saite 23

sich bis zum heutigen Tag—wenn auch unter verschiedenen Namen—eine Körperschaft mit Erfolg behaupten können: der Wiener Waldhornverein. Sein Beitritt als ganzer Verein und auch einzelner seiner Mitglieder zur "Internationalen Horngesellschaft" darf wohl zum Anlass genommen werden, über diese verdienstvolle Vereinigung etwas ausführlicher zu berichten.

Wie schon oben angedeutet, kann man von einer fast hundertjährigen Tradition sprechen, wenn auch die eigentliche Gründung mit dem Namen "Verein zur Pflege der Waldhornmusik" auf das Jahr 1931 zurückgeht—wir verweisen hier nochmals auf den eingangs zitierten Aufsatz von Dr. Ernst Paul—und unter der Leitung des weltberühmten Solohornisten der Wiener Oper, Prof. Karl Stiegler, erfolgte.

Sein derzeitiger Mitgliedstand beträgt mehr als 50 ausübende Musiker, und setzt sich zusammen aus Hornisten der grossen Wiener Berufsorchester (Wr. Philharmoniker, Staatsoper, Volksoper, Wr. Symphoniker, Wr. Tonkünstlerorchester, ORF-Symphonieorchester), sowie aus Liebhabern aus Jagd—und anderen Berufskreisen. Sein Ziel war und ist die Pflege jeder Art von Musik für den mehrstimmigen Hornsatz: Neben vielen Originalkompositionen für das Parforcehorn in Es (Fanfaren, Märsche, Tanz – und Liedsätze), sowie zahlreiche, zum Teil natürlich dem Zeitgeschmack Rechnung tragende Vortragstücke, —beides vorwiegend aus der Epoche der erwähnten Blütezeit ker Jahrhundertwende stammend—gelangen auch neuere Werke zur Ausführung, wobei auf Kompositionen aus den eigenen Reihen des Vereines nicht vergessen werden soll. Letztere sind bemüht, sowohl in Originalkompositionen, als auch in Bearbeitungen bekannter Volkslieder, Tänze, etc. in ausgesprochen horngerechter Fassung dem Hornensemble neue Literatur zu bringen. Besonders sei aber auf das grosse und wertvolle Archiv des leider früh verstorbenen und auch in den Vereinigten Staaten bestens bekannten Solohornisten der Wiener Philharmoniker, Prof. Gottfried Freiberg hingeweisen, das neben seinen eigenen Werken das Notenerbe seines Onkels, Karl Stiegler, beinhaltet. Durch das freundliche Entgegenkommen der Witwe Prof. Friebergs, steht dieser Schatz dem Verein jederzeit zur Verfügung.

An dieser Stelle sei auch die Einladung zu einem freundschaftlichen Notenaustausch ausgesprochen, an dessen reger Beteiligung dem Verein sehr gelegen wäre.

Die musikalische Tätigkeit des Vereines erstreckt sich über die wöchentliche Probenarbeit und die fast jedes Jahr abgehaltene grosse Konzertveranstaltung auf zahlreiche, meist in kleinerem Rahmen stehende Mitwirkungen, die zu einem nicht gerinen Teil der Jagd gewidmet sind, und auch auf Jagdhörnern ausgeführt werden. Als musikalischer Höhepunkt der Vereinstätigkeit darf wohl die 1970 bei der Firma Decca erschienene Schallplatte bezeichnet werden: "In honour of St. Hubert, a hunt in the Vienna Woods" (Stereo SDD 235). Wie schon der Titel andeutet, erlebt der Hörer hier den musikalischen Ablauf einer Jagd im Wienerwald. Beginnend mit dem Gottesdienst in freier Natur, wird die Jagd mit den originalen Signalen aus dem österreichischen Jagdzeremoniell bagleitet, "die Wildstrecke gelegt und verblasen"—

fast durchwegs mit historischen Jagdhörnern–, ein kleines Konzert veranstaltet, schliesslich der Tag mit dem stimmungsvollen Abendsegen aus Humperdincks "Hänsel und Gretel" beschlossen.

Insbesondere in tonlicher Hinsicht soll diese Platte dem Musikfreund ein Klangerlebnis vermitteln, das auf die vielleicht vornehmste Aufgabe des Wiener Waldhornvereines aufmerksam machen will: die Erhaltung des Wiener F-Horn Klanges. Sein Klangcharakter hat–als einziges Instrument in der Welt–den typisch romantischen Hornton am schönsten bewahrt!

Da die Entwicklung nicht stehen bleibt, das Wiener Horn zwar wegen seines Tones hoch geschätzt, wegen seiner schwereren Spielbarkeit jedoch oft getadelt wird (siehe hierzu den interessanten Aufsatz unseres Vereinsvorstandes Dr. Siegfried Schwarzl "Das Wiener F-Horn und seine Zukunftsaufgaben" in der Zeitschrift "Das Orchester" 18. Jg., Heft 5, 1970; Verlag Schott's Söhne, Mainz), ist in den Reihen des Vereines ein neuer Weg beschritten worden. In Zusammenarbeit mit einem Wiener Dipl. Ing.,– übrigens Stiegler-Schüler und Vereinsmitglied–einem Wiener Instrumententbauer und der horngruppe des ORF-Symphonieorchesters, wurde ein neuer Typ eines Wiener Doppelhornes entworfen, der bereits seit 2 Jahren zur vollen Zufriedenheit von der ganzen Horngruppe des ORF-Orchesters benützt wird, und die Weichheit des Wiener Horntones mit der leichteren Technik des Drehventils zu vereinen trachtet. Natürlich soll es noch weiter verbessert werden. Darum würde dieser Bericht seinen Zweck am besten erfüllen, wenn es gelänge, auch hier einen regen Meinungs–und Erfahrungsaustausch zu entfachen, und unser schönes Instrument einen Schritt weiter auf dem Wege zur Vollkommenheit zu bringen!

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Horn Warm Up: A Head Trip

Ronald Wise

Warming up is an idea commonly given lip service to by most players and teachers. Like other widely held beliefs, I feel that it needs to be more critically examined, especially since many teachers regularly ask and even require of their students that they subscribe to a warm up routine — usually the teacher's!

Before tackling the subject of how to warm up, it is necessary to clarify the term itself. I suspect that there is considerable confusion between a daily practice routine and a warm up routine.

A daily practice routine is followed for the purpose of covering certain fundatmental techniques that are necessary for developing the skills of horn playing.

On the other hand, the objective of warming up is simply to get ready to play at ones' maximum level: that is, to be ready to practice, to rehearse, to perform before an audience, or to make a recording.

Astute students no doubt have observed the apparent contradiction between what their teachers say and do. The student is expected to follow a warm up routine while the teacher constantly impresses the student by evidently not warming up. In this situation the teacher is able to do something that probably has little to do with his greater skills as a player. Unconsciously, the teacher accepts the idea that his students should follow a warm up routine, not realizing, as he demonstrates daily, that it can be done rather quickly and easily, and even more importantly, that it can and should be taught. It is a subject as important for success as any other element of horn playing.

Sooner or later in his development, every horn player is thrust into a situation where he has to play immediately without a chance to warm up. While the batting average of success in this situation may vary from person to person, my feeling is that a majority of players do very well. If this is so, then the observant player must become intrigued with the contrast between what he has accomplished and what he has always done in the past.

Warming up, in my experience, consists of two interrelated things: first, reactivating the deep breathing skills and, second, recapturing that "good," responsive feeling of the lip and embouchure complex.

Playing the horn involves many complex physiological and psychological elements which work together in a high degree of coordination to produce a skillful performance.

The key psychological element is the feeling of confidence. If this is absent, the player has to think and feel himself into a state of confidence. This is done by constantly thinking confidently about himself and his ability to warm up easily and quickly. Reinforcement by daily practice is

the necessary other half of the cycle. Negative feelings resulting from failures are best dealt with by immediately trying again to achieve success.

Slowly inhaling and slowly exhaling several deep breaths, without the horn, in a playing posture is sufficient to warm up the breathing. If it seems to help, at the same time the upper lip can be massaged by the tongue. Then several wide smiles and grimaces will warm up the facial muscles.

Now, the horn and mouthpiece go up and on the lips. The final step consists of forming the embouchure, taking a deep breath, pretending to play, and *thinking* of recapturing that "good," responsive feeling of the embouchure. Then a few notes can be played in all registers and the player should be ready to play after a routine that lasted less than one minute.

At this point, the player has achieved a state of readiness to play with his total endurance capacity untouched. He is ready to play with all his powers at his command — not already partly tired out.

Learning to do this, or something like this, is beneficial in several ways. Perhaps the most important benefit is that the player is prepared to cope with all professional performance situations quickly and easily. Second, many hours of wasted time and shortened endurance are eliminated. The time can be better devoted to constructive practice. Third, the confidence gained from this approach will in turn contribute to a greater feeling of all around confidence and should result in a more musical performance.

I believe we do our students a disservice by insisting on a long and often strenuous warm up routine. It is better to say little or nothing about the subject to beginning students because instinctively they are able to get ready to play. I suggest that warming up would best be discussed with intermediate students, if and when the subject and time seem appropriate. *Introduced at the proper time and then practiced, this approach to warming up should be valuable to the horn player for the rest of his career.*

Ronald Wise teaches horn, brass and woodwind ensembles, and theory at California State University in Northridge. He studied horn with Arcady Yegudkin at Eastman and John Barrows at Yale, and is an active member of the Los Angeles Horn Club.

TUNING THE DOUBLE HORN

A Practical Approach

Stephen L. Seiffert
London, Ontario
Canada

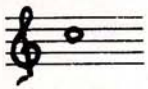
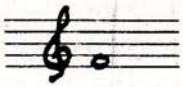
One of the biggest problems facing a young horn player and his non-horn playing band director is the tuning of the double horn. The double horn has eight or more slides which must be properly adjusted before the instrument can be played in tune with itself or with other instruments.

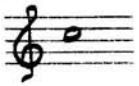
Experienced horn players tune their horns by trial and error, adjusting the slides when they notice discrepancies in intonation. The process takes quite a while and the slide positions continue to fluctuate until the player achieves a satisfactory compromise.

There are two factors in this compromise: 1) Due to the basic nature of brass instruments it is necessary to rely on the notes of the natural harmonic series for a great number of pitches. The notes of this series are frequently at odds with the equal tempered scale and therefore an equal tempered brass instrument is not possible. 2) The valve system in use today consists of a set of dependent valves which serve to add tubing to the basic instrument. This additive process works well when the valves are used separately, but when they are combined, a problem develops. Valve slide lengths are in a fixed proportion to the length of the whole instrument. When the instrument is lengthened through the use of another valve, this proportion is lost.

Since the experienced horn player has worked out the compromises on his instrument it is usually possible for him to pick up another instrument and tune it in much the same way his own instrument is tuned using his ear alone. Most students' horns are tuned in this manner. But what of the horn student who is not in regular contact with an experienced player?

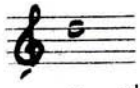
The following is a procedure for tuning the double horn which can be done by anyone who can play the horn (even in a modest way), and is simple enough for a Junior High School student to understand.

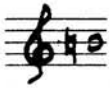
Step 1) Tune the open B♭ horn to a reliable pitch source by matching the horn to the source on either  if the source is a piano, or  if the source is a B♭ tuning bar or electronic tuner. *Be sure to adjust only the main tuning slide when doing this.*

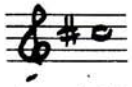
Step 2) Match the pitch of the F horn to the pitch of the B♭ horn by playing  on the two horns and adjusting the F horn tuning slide until the two pitches match. (Note: On horns with B♭ turning slides it may be necessary to pull out this slide before it will be possible to match the two horns. When this is necessary, Step 1 should be repeated.)

Step 3) Play  open on the F horn and then with first valve on the F horn, adjusting the first F horn valve slide until the two pitches match.

Step 4) Match the pitch of the B♭ horn first valve to the pitch of the F horn first valve by playing  on the two horns and adjusting the first B♭ horn valve slide until the two pitches match.

Step 5) Play  open on the F horn and then with first and second valves on the B♭ horn, adjusting the second B♭ horn valve slide until the two pitches match.

Step 6) Match the pitch of the F horn second valve to the pitch of the B♭ horn second valve by playing  on the two horns and adjusting the second F horn valve slide until the two pitches match.

Step 7) Play  with second valve on the F horn and then with second and third valves on the B♭ horn, adjusting the third B♭ horn valve slide until the two pitches match.

Step 8) Match the pitch of the F horn third valve to the pitch of the B♭ horn third valve by playing  on the two horns and adjusting the third F horn valve slide until the two pitches match.

It is important when matching pitches with two different fingerings to avoid compensating for the difference in resistance of the two tube lengths by altering the pitch when the resistance changes. The best way to do this is to play a steady tone and change the fingering back and forth about twice a second. Using this approach, any discrepancy between the

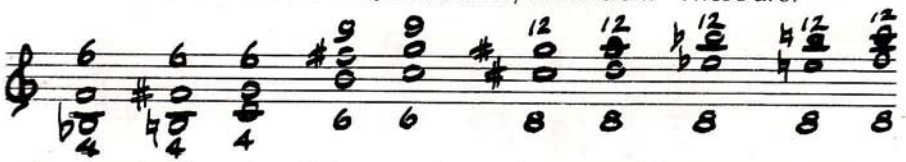
resulting pitches will be due to the tube length and not tube resistance.

When the experienced horn player tries this tuning he will no doubt find that in some ways it does not suit his needs. Its usefulness, however, lies in the fact that any horn player, regardless of experience, can tune his horn in a few minutes. If this is not sufficient reason for adopting this method, there is also ample acoustical justification for its use.

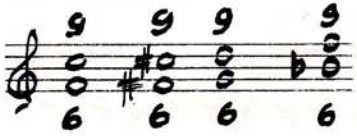
ACOUSTICAL JUSTIFICATION

Despite the fact that wind instruments are basically tuned to Equal Temperament, harmonic intervals produced by these instruments are most satisfactory when tuned in Just Intonation. This is particularly true of the intervals of the fourth and fifth. Out of tune thirds and sixths do not produce *beats* nor do seconds and sevenths. Furthermore, because the fourth is the inversion of the fifth, it is not important in the determination of a tuning system.

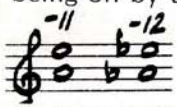
Within the range of the horn where tuning is critical, small g to c‴, there are 23 fifths. (Below small g the notes are so flexible that the player must tune them with his ear.) Of those, 10 will be Just fifths no matter how the instrument is tuned because they are played on harmonics which are at a ratio of 3:2 and therefore are Just fifths by definition.[1] These are:



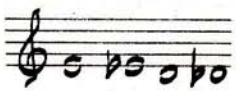
In adjusting the valve slides as we have, four more fifths have been made Just, since the valved notes now correspond to notes on the harmonic series which have a 3:2 ratio. These are:



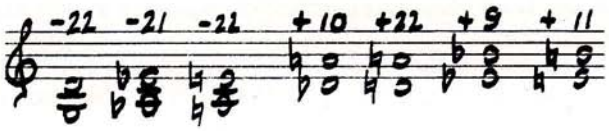
Two other fifths are very close to Just, only being off by the error created by the use of valves in pairs. These are:



The remaining fifths are those which contain notes which are normally taken on the fifth partial:



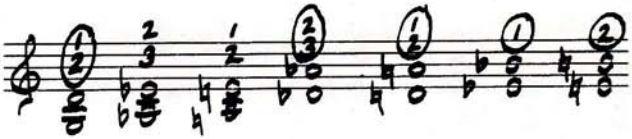
In relation to Equal Temperament the fifth partial is very low, fourteen cents below what it should be for the Equal Tempered scale. The fifths containing these notes are:



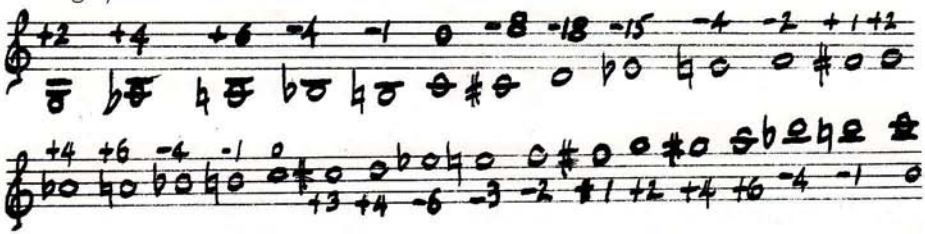
These fifths all suffer from the low fifth partial, those with the fifth partial notes on the top being too narrow, and those with the fifth partial on the bottom being too wide. These discrepancies are indicated in cents in the chart above. It can be seen that some of these fifths are no worse than the A-E and A♭-E♭ fifths cited above. This is due to the fact that in these cases the discrepancies resulting from the use of valves partially compensate for the flatness of the fifth partial.

Out of the 23 fifths then, there are 14 Just fifths, five fairly close to being Just, with only four being quite far from Just intonation. Any attempt to correct the four out of tune fifths will, of course, result in disturbing the acceptable ones. One possible way of controlling the fifths which contain fifth partial notes would be to take these notes as sixth or fourth partials (using different fingerings).

Using the following fingerings it would be possible to produce Just fifths in each case:[3]



For those who are not impressed by the justification of tuning by fifths, the relation of the Equal Tempered scale to the scale produced by this tuning system is shown below.[4]



In relation to Equal Temperament the compromise produced by this tuning method is quite acceptable except for those notes which are normally taken on the fifth partial.[5] A possible solution to the problem of these notes was mentioned above, but the fact remains that further adjustment of the valve slides will not change the flatness of the fifth partial notes. It will be necessary for the player to make substantial adjustments

of the pitch of these notes as he plays no matter what the position of the valve slides.

If one is willing to accept the necessity of raising the pitch of the fifth partial notes and the principle of compromise necessary when tuning a brass instrument, the tuning system proposed above becomes quite workable and extremely practical because of its ease of application.

[1]This assumes, of course, that the partials produced on the horn agree exactly with the harmonic series.

[2]Numbers indicate partials.

[3]Circled numbers indicate B♭ horn fingerings.

[4]Numbers indicate cents above or below the Equal Tempered scale.

[5]Because of this flatness, tuning on e′ when playing in an orchestra should be avoided. It would be much better to tune on e″.

Stopped Horn

— Willi Aebi
Burgdorf, Switzerland

In the "Horn Call" Autumn 1973 the phenomenon of hand-stopping the bell of the horn is treated by Marvin C. Howe and by professor Malcolm C. Henderson. I refrain from discussing these two articles but would like to confront them with the results of my acoustical researches on the horn which I made as a hobby during several years. In 1968 I found the explanation for the phenomenon of the change of pitch caused by hand-stopping the bell.

My results were published in the "Schweizerische Bauzeitung" in September 1969. In June 1970 I presented them in a lecture on the occasion of the "Horn Workshop" in Tallahassee. After having completed the results on the base of further experiments I gave a lecture on the "7th International Congress on Acoustics" in Budapest in August 1971 which was published in the periodical "Brass Bulletin" edited by Jean-Pierre Mathez in Moudon, Switzerland in German, French and English. Jean-Pierre Mathez has granted permission to place this latter article at the disposal of the "Horn Call" for print.

The physical process occuring in the horn as well as in all the other wind instruments when the instrument is played is usually not clear for the musician. During the last years scientists, as for example the physicist Arthur H. Benade in the USA, have successfully investigated this process. The publications on their results are not easily comprehensible for the non-scientist, i.e. the horn player. We have tried to give a simple, generally comprehensible explanation of the vibrations in the horn in the essay "The Inner Acoustic of the Horn." To facilitate the reading of the whole essay, we found it useful to give a preliminary explanation of the phenomenon of the stopped horn.

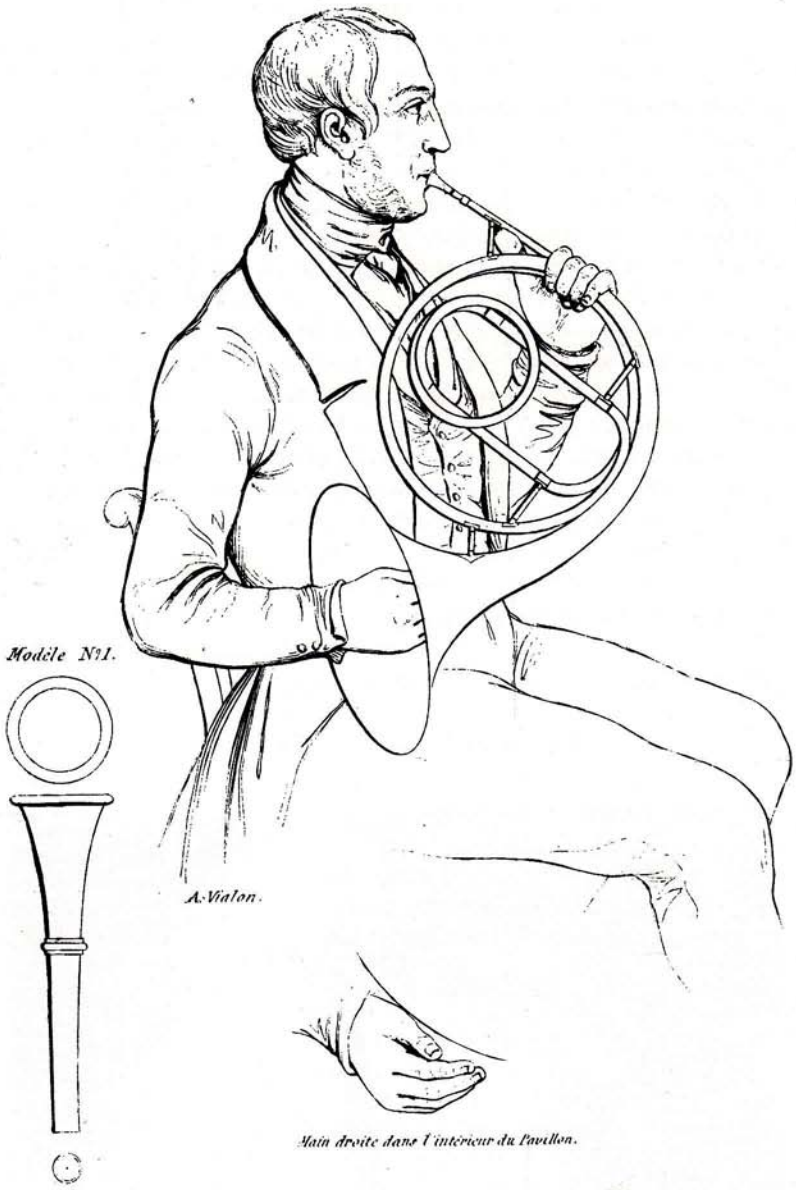
The sound of the horn is produced by the lips of the horn player and generates a standing sound wave in the instrument. In the bell the standing sound wave is changed into a moving sound wave which is propagated through the ambient air in all directions at a velocity of 343.8 m/sec.

As the name says, the standing sound waves stand still in a fixed place. All air particles vibrate to and fro in the same rhythm and are compressed and decompressed at the point of minimum vibration (vibration node). The variation of pressure (sound pressure) may be measured with a microphone by means of an appropiate electrical equipment. The curve in figure 1 shows the variation of the sound pressure along the longitudinal axis when the 8th harmonic is played. Figure 2 shows the variation of this curve in the bell: drawn-out line when the tube is open, dashed line when using a mute, and line in dots and dashes when the horn is fully hand-stopped. In

the open horn and in the muted horn the pitch is the same and the maxima of pressure (pressure loops) stay in the same place. When using a mute the sound pressure decreases more rapidly towards the bell, reaches a minimum of pressure (the lowest point of the curve) and rises again to a maximum at the bottom of the mute. This rise of sound pressure was found by our experiements and led to the explanation of the phenomenon of hand-stopping. Full-stopping the horn with the hand causes the following shifts towards the mouthpiece: $\Delta l''$ for the last maximum of sound pressure, $\Delta l'$ or the new pressure minimum, Δl for the pressure maximum in the palm of the hand, corresponding to the pressure maximum at the bottom of the mute. The acoustical length which determines the pitch is shortened by this distance and therefore the pitch rises accordingly. On the F-horn the distance Δl is equal to the length of the second valve, and if this second valve is depressed the corresponding piece of tube cancels out the shortening Δl, and we have again pitch F. It is possible to stop partially and then the pitch is lowered by half a tone and more. Obviously, in this case the widening of the bell is cancelled out and the tube is lengthened accordingly. E.g. the pitch on the partially hand-stopped horn is D or E-flat or E, on the open horn and on the muted horn it is F, and on the fully hand-stopped horn it is F-sharp. In all these cases we have the vibration pattern of the same member of the harmonic series, i.e. 8th. By loosening the stopping hand and retracting it out of the bell the pitch rises continuously up to g, the next higher member of the harmonic series, i.e. the 9th.

And now we can proceed to the essay

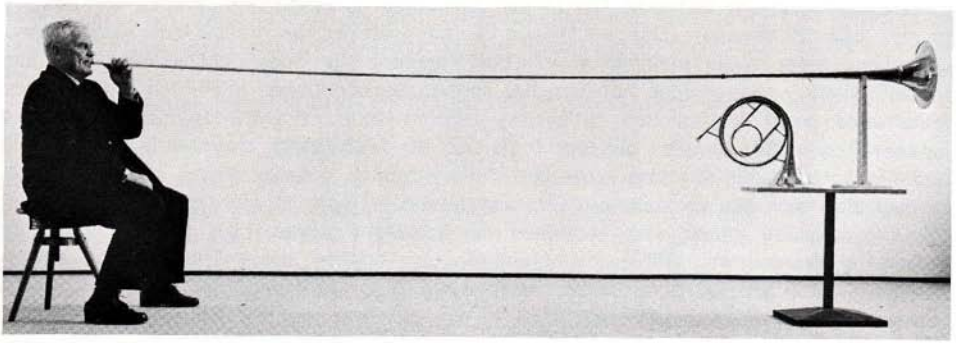
The Inner Acoustic of the Horn



Aus "Méthode pour le Cor" par Gallay, Professeur au Conservatoire, Premier Cor solo de la Musique particulière du Roi et de l'Opéra Italien. Verlag Schonenberger, Paris, um 1845.

DIE INNERE AKUSTIK DES WALDHORNES

W. AEBI, Burgdorf (Schweiz)



Das Waldhorn, von Schumann als die Seele des Orchesters bezeichnet, hat seit seiner Einführung im Orchester um 1660 durch Lully zwei wesentliche technische Aenderungen erfahren, die beide in der Art der musikalischen Verwendung deutlich zum Ausdruck kommen.

1. Epoche

Das Corno da caccia bei Bach und Händel, das heutige Jagdhorn, wurde offen, ohne Hand im Schallbecher geblasen.

2. Epoche

Um 1750 erfand der Dresdener Hornist Josef Hampel das Stopfen mit der rechten Hand im Schallbecher. Schliesst die Hand die Schallöffnung nur teilweise, dann vertieft sich der Ton bis zu einer ganzen Stufe und mehr. Schliesst die Hand die Oeffnung gänzlich ab, dann springt der Ton um eine halbe Stufe nach oben. Auf Grund dieser Vermehrung der möglichen Töne erfuhr das Horn reiche Verwendung durch die Klassiker Haydn, Mozart und Beethoven, durch die Romantiker Weber und Schubert, und in ihrer frühen Schaffensperiode auch durch Wagner, Schumann und Brahms. Diese Epoche wird als das goldene Zeitalter des Hornes bezeichnet. Die Tonverschiebung mit der rechten Hand konnte bisher physikalisch nicht erklärt werden. Unsere Experimente haben die Lösung des Rätsels gebracht.

3. Epoche

Nach 1820 wurde das Ventil erfunden und eingeführt, welches den Blechinstrumenten die Möglichkeit der Erzeugung aller chromatischen Töne brachte.

Die Akustik, schon den Griechen des Altertums eine Wissenschaft, erfuhr seit 1800 eine grosse Entwicklung, die in einer umfangreichen Fachliteratur in Erscheinung tritt. Die vielen theoretischen und mathematischen Abhandlungen sowie die Analogien aus der Elektrizitätslehre sind dem Laien meist unverständlich. Mit unseren Experimenten suchten wir, ausgehend von einfachen Vorstellungen, die Schwingungsvorgänge im Rohr der Blasinstrumente zu ergründen und sie für den Hornisten und den Instrumentenmacher verständlich darzustellen.

Schall, wie er vom Gehörsinn wahrgenommen wird, beruht auf Druck- und Bewegungsschwankungen der Luft, die sich bei 20° mit einer Geschwindigkeit von 343,8 m/sec

fortbewegen. Dies ist **die fortlaufende Schallwelle.** Folgen sich die Druckstösse in regelmässigen Abständen, dann erklingt ein Ton, dessen Höhe von der Frequenz der Impulse abhängt. Der Normalton a', nach welchem die Instrumente gestimmt werden, hat 440 Schwingungen in der Sekunde. Die in der Zeiteinheit zurückgelegte Strecke von 343,8 m enthält 440 Schallwellen. Das akustische Grundgesetz in der freien Luft besagt, dass die Länge einer Welle multipliziert mit der Frequenz die Schallgeschwindigkeit ergibt. In der Akustik unterscheidet man von der soeben beschriebenen laufenden die **stehende Schallwelle**. Nach der üblichen Auffassung entsteht sie durch Ueberlagerung gegenläufig fortschreitender Schallwellen gleicher Frequenz. Sie ist dadurch charakterisiert, dass die Luftteilchen an ihrem Ort eine stationäre Schwingung in gleicher Phase ausführen. D. h. sie befinden sich immer gleichzeitig in der Mittellage oder in einer der Endlagen. Die Schwingungsweite nimmt vom Maximum im Schwingungsbauch bis zum Minimum im Schwingungsknoten ab. Während der Schwingung erleidet jedes Teilchen von seinen Nachbarn einen wechselnden Druck, welcher die Beschleunigung bzw. die Verzögerung bewirkt. Die Druckkräfte addieren sich in der Längsachse der Schallwelle bis zum nächsten Schwingungsknoten und erzeugen darin maximale Druckschwankung. Es bestehen Druckschwankungen an jeder Stelle der Schallwelle. Man bezeichnet sie als Schalldruck. In den Schwingungsknoten erreicht der Schalldruck ein Maximum, weshalb man diese Stellen auch Druckbäuche nennt.

A. Akustische Messungen des Horns

Der Schalldruck und seine Veränderung lässt sich mit einem Mikrophon messen und über eine geeignete elektrische Apparatur auf einem Registrierstreifen als Kurve festhalten. Fig. 1 zeigt den Verlauf des Schalldruckes in der Längsachse eines F-Hornes beim 8. Naturton. Die arkadenförmige Kurve weist 8 Maxima auf, in welchen die Schwingungsknoten liegen. In den nach unten gerichteten Spitzen befinden sich die Schalldruckminima oder die Schwingungsbäuche. Der Abstand zweier benachbarter Minima entspricht der halben Schallwelle. Die Länge dieser Strecke doppelt genommen und mit der Frequenz multipliziert gibt eine Zahl, mit der Dimension einer Geschwindigkeit die von der Schallgeschwindigkeit abweicht. Sie ist immer zwischen zwei Punkten auf der Abszissenachse eingeschrieben. Wir werden bei Fig. 4 auf diese Abweichung zurückkommen.

Die Schalldruckkurve Fig. 1 zeigt in den am Mundstück anliegen Lippen einen Schwingungsknoten K_1 und im Schallbecher einen Schwingungsbauch B 8 in unbestimmter Lage. Steckt man den die Tonhöhe nicht verändernden Dämpfer in den Schallbecher, dann zeichnet sich in der gestrichelten Kurve ein Druckminimum (Schwingungsbauch) ab, und anschliessend steigt der Schalldruck im Dämpferboden wieder bis zum Maximum K 9 an.

In Fig. 2 sind diese beiden Kurven ergänzt durch eine strichpunktierte Linie, welche den Verlauf des Schalldruckes beim gänzlichen Stopfen mit der Hand angibt. In der Handfläche bildet sich ein Druckmaximum, das, um die Länge $\triangle^1$ vom Maximum im Dämpferboden entfernt, gegen das Mundstück hin verschoben ist. Die akustische Länge des Hornes wird um diese Strecke verkürzt, weshalb der Ton ansteigt. Beim F-Horn macht der Anstieg etwa eine halbe Tonstufe aus. Das 2. Ventil verlängert das Horn wiederum soviel, dass die Tonhöhe des offenen Hornes erklingt.

Durch das gänzliche Stopfen verändert sich der Charakter des Klanges ; er ist leise, gedämpft wie ein Echo. Das unvollständige Einführen der Hand, bei welchem sich der Ton senkt, bewirkt eine Verlängerung der schwingenden Luftsäule.

Fig. 3 zeigt für die Naturtöne 2 bis 12, durch kleine Kreise markiert, die Lage der Schwingungsbäuche in der Achse des Hornes. Das Produkt aus dem doppelten Abstand

zweier benachbarter Bäuche und der Frequenz des Tones gibt eine Zahl, die vom Mundstück zum Schallbecher hin zunimmt. In Fig. 4 sind diese Zahlen in entsprechendem Abstand vom Mundstück durch Punkte angegeben. Die Messungen nach Fig. 1 sind als Kreuze eingetragen. Durch die Schar der Punkte ist gefühlsmässig eine mittlere Kurve gezeichnet. Zum Vergleich ist die Schallgeschwindigkeit in der freien Luft durch eine gestrichelte Linie markiert. Die Abweichung der ansteigenden Kurve, der Produkter 2 mal Abstand zweier benachbarter Schwingungsbäuche mal Frequenz, von der horizontalen Linie der Schallgeschwindigkeit in der freien Luft ist physikalisch nicht geklärt.

B. Kommentar für den Hornisten

Um dem Praktiker die physikalisch-akustischen Erscheinungen näher zu bringen, heben wir hier nachfolgend die wichtigsten Vorgänge heraus, wobei wir aus dem vorangehenden Vortrag einige Feststellungen wiederholen.

Die Entdeckung des Dresdener Hornisten Josef Hampel, um 1750, wonach die stopfende Hand im Schallbecher den Ton bei beschränktem Einführen vertieft und bei gänzlichem Stopfen um einen Halbton erhöht, wirkte sich hinsichtlich der Verwendung des Instrumentes durch die Komponisten epochemachend aus. Dadurch wurde es möglich, das Horn nicht nur mit den Naturtönen einzusetzen, sondern chromatisch. Allerdings musste man eine erhebliche Veränderung der Klangfarbe der gestopften Töne in Kauf nehmen. Das Phänomen dieser Tonverschiebung blieb bis in die heutigen Tage hinein physikalisch ungeklärt. Morley Pegge schreibt in seinem ausgezeichneten Buch **The French Horn** (London 1960) auf Seite 132 : « For all their laboratory paraphernalia none of the acousticians has offered a convincing explanation of the rise of pitch that occurs when we « stop » a note. » (Bei all den vielen Laboratoriumseinrichtungen war noch kein Akustiker imstande, uns zu erklären, weshalb der Ton beim gänzlichen Stopfen ansteigt.) Unsere Versuche haben 220 Jahre nach der Entdeckung des Phänomens die physikalische Erklärung gebracht.

In Fig. 2 zeigen die gezeichneten Kurven des Schalldruckes 3 verschiedene Schwingungssituationen.

1. Beim offenen Horn schwingen die Luftteilchen im Ende des Schallbechers mit maximaler Schwingungsweite und minimalem Schalldruck ; man spricht von einem Schwingungsbauch oder einem Druckknoten. Die Schallwelle wird hier von einer Schwingung reflektiert, was man als weiche Reflexion bezeichnet. Der Druckverlauf ist in Fig. 2 durch eine ausgezogene Linie dargestellt. Im Ende des Schallbechers sinkt der Schalldruck in unbestimmter Lage gänzlich ab.

2. Durch einen richtig dimensionierten Dämpfer wird die Tonhöhe nicht verändert. Die Schalldruckkurve des gedämpften Tones (gestrichelte Linie) weist im Gegensatz zur Kurve des offenen Tones (ausgezogene Linie) im Schallbecher ein Minimum wie im innern des Hornes auf und nach diesem Minimum steigt der Druck zu einem zusätzlichen Maximum im Dämpferboden an. An der abschliessenden Wand können die Luftteilchen nicht schwingen, sie erleiden maximale Druckschwankung (Druckbauch oder Schwingungsknoten) und die Schallwelle wird hier in einer harten Reflexion ins Horn zurück reflektiert. Die Lage der stehenden Wellen im Innern des Hornes ist beim gedämpften Ton gleich wie beim offenen Ton.

3. Schliesst man mit der Hand den Schallbecher gänzlich ab, dann entsteht in der Handfläche eine harte Reflexion wie im Dämpferboden (strichpunktierte Linie). Das Schalldruckmaximum in der Handfläche ist gegenüber dem Schalldruckmaximum im Dämpferboden um die Strecke $\triangle^1$ in das Horn hinein geschoben. Die schwingende Luftsäule wird um diese Länge verkürzt, weshalb der Ton um einen entsprechenden Betrag ansteigt. Beim F-Horn macht der Ansteig einen Halbton aus und durch das Einschalten des 2.

Ventils wird die schwingende Luftsäule um die Strecke $\triangle^1$ verlängert, womit sich wiederum die Stimmung des offenen Hornes oder des Hornes mit Dämpfer ergibt. Der gestopfte Ton klingt wie ein Echo. Dieser Klangeffekt wird oft von Komponisten benutzt, um Echowirkung zu erzeugen. Beim F-Horn muss die gestopfte Stelle mit Echowirkung auf E-Horn, ½ Ton tiefer, transponiert werden. Bei Verwendung des Dämpfers bleibt die Stimmung gleich wie beim offenen Horn.

4. Neben den 3 vorstehend beschriebenen Situationen hat der Hornist die Möglichkeit, die Hand im Schallbecher nur beschränkt einzuschieben, womit die Stimmung bis zu einem Ganzton und mehr absinkt. Der physikalische Grund liegt darin, dass durch die Hand die Erweiterung der Stürze ausgeschaltet und so das Rohr verlängert wird. Die Distanz zwischen zwei benachbarten Schwingungsbäuchen, sie entspricht der Hälfte einer ganzen Schallwelle, vergrössert sich. Das akustische Grundgesetzt besagt, dass das Produkt aus Wellenlänge und Frequenz immer die Schallgeschwindigkeit ergibt. Wird die Welle länger, wie in vorliegendem Fall beim unvollständigen Stopfen, dann muss die Frequenz der Schwingung und damit die Tonhöhe absinken. Diese Manipulation mit der Hand erlaubt, die Töne der Naturtonskala zu verschieben. Die Komponisten der Klassik und der Romantik benutzten diese Möglichkeit um das Naturhorn chromatisch zu verwenden, wobei auch die Erhöhung des Tones durch gänzliches Stopfen angewendet wurde. Allerdings wird bei dieser Spielart der Klang stark verändert, was man heute im Konzert als mangelhaft empfinden würde. Man hatte aber seinerzeit keine andere Möglichkeit, die Zwischentöne der Naturtonreihe zu erzeugen. Beispielsweise sind in den Hornpassagen im **Fidelio** von Beethoven in der Arie der Leonore im 1. Aufzug von 70 Tönen 30 gestopft. Dank der nach 1820 eingeführten Ventile ist heute der Hornist nicht mehr darauf angewiesen, diese Zwischentöne durch Stopfen mit der Hand zu erzeugen. Aber auch heute korrigiert der Hornist kleine Differenzen der Stimmung mit der Hand. Er kann ebenfalls durch Aenderung des Ansatzes, durch Veränderung der Spannung der Lippen die Tonhöhe beeinflussen.

5. Zum Problem der reinen Intonation. Die Tonreinheit der Blechbläser ist aus 2 Gründen unsicher. Vorerst ist zu bedenken, dass das Orchester nicht den Kompromiss der temperierten Stimmung praktiziert. Das Ohr des Orchestermusikers empfindet in harmonischer Stimmung. Der gleiche Ton, d. h. ein Ton mit gleicher Bezeichnung im Notensystem, liegt bei verschiedenen harmonischen Tonarten nicht genau in der gleichen Höhe. Weiter ist das System der 3 Ventile mangelhaft, wenn mehrere Ventile bei einem Griff kombiniert werden. Das erste Ventil vertieft um einen Ganzton, das 2. um einen Halbton und das 3. um eine kleine Terz. 1. und 2. Ventil kombiniert gibt nicht ganz eine kleine Terz, 2. und 3. Ventil nicht ganz eine grosse Terz und 1. und 3. Ventil nicht ganz eine Quarte. Der Ganztonschritt vom 8. zum 9. Naturton ist entsprechend dem Verhältnis der Schwingungszahlen grösser als der Ganztonschritt vom 9. zum 10. Naturton. Der Hornist muss diese Fehler nach dem Gehör entweder durch den Ansatz oder durch entsprechende Verschiebung der Hand im Schallbecher ausgleichen. Deshalb benötigt der Hornist ein feines musikalisches Gehör und eine gute Tonvorstellung, denn sein Ohr muss bereits auf den genau richtigen Ton eingestellt sein, bevor er erklingt.

Wer sich näher mit diesem Problem befassen will, dem sei das ausgezeichnete wissenschaftliche Buch von Martin Vogel, **Die Intonation der Blechbläser** (Düsseldorf 1961. Band I der Orpheus Schriftenreihe zu Grundfragen der Musik. Herausgegeben von der Gesellschaft zur Förderung der systematischen Musikwissenschaft), empfohlen.

L'ACOUSTIQUE INTERNE DU COR

Dr WILLI AEBI, Berthoud (Suisse)

Exposé écrit à l'occasion du 7e Congrès international d'acoustique, Budapest 1971.

Le cor a subi deux modifications techniques essentielles depuis son introduction dans l'orchestre par Lully, vers 1660, modifications qui se sont traduites chacune par un langage musical particulier.

1re époque : Le corno da Caccia chez Bach et Haendel — l'actuel cor de chasse — se jouait ouvert, sans mettre la main dans le pavillon.

2e époque : Vers 1750, le corniste de Dresde, Joseph Hampel introduisit la technique des sons bouchés au moyen d'un jeu de main dans le pavillon de l'instrument. Si la main ne bouche que partiellement l'ouverture du pavillon, le son descend d'un ton et plus. Si la main bouche complètement l'ouverture, le son montera d'un demi-ton. A la suite de cette augmentation considérable du nombre des sons, l'instrument connut une période extrêmement riche de par l'usage qu'en firent les classiques, Haydn, Mozart et Beethoven, puis les romantiques Weber et Schubert, puis — dans leurs premières œuvres — les Wagner, Schumann et Brahms. Cette période est considérée comme l'âge d'or du cor. Les changements de sons obtenus ainsi par la technique du « bouché » avec la main, sont restés inexpliqués physiquement, jusqu'à nos jours. Nos expériences nous ont permis de résoudre ce problème.

3e époque : Après 1820, avec l'invention et l'introduction des pistons (barillets), les cuivres deviennent entièrement chromatiques.

L'acoustique, déjà considérée comme science par les Grecs, a connu, depuis 1800, un développement spectaculaire qui s'est concrétisé par d'innombrables ouvrages. Les nombreux développements théoriques et mathématiques, ainsi que les analogies tirées des connaissances acquises en électricité sont, le plus souvent, incompréhensibles pour le profane.

Nos expériences tentaient, en partant de représentations simples, de suivre et d'analyser le phénomène de la vibration dans les tuyaux des instruments à vent et de le rendre compréhensible aux cornistes et aux facteurs d'instruments.

Le son, tel qu'il est perçu par l'ouïe, provient d'une pression et de mouvements oscillatoires (vibratoires) de l'air qui se déplacent à la vitesse de 343,8 m/sec. par une température de 20°. Ceci est l'**onde sonore continue**. Si les pulsions se suivent à intervalles réguliers, il se forme un son dont la hauteur dépend de leurs fréquences. Le **la** du diapason d'après lequel s'accordent les instrumentistes, est formé de 440 vibrations (pulsions) à la seconde. Sur cette distance de 343,8 m. parcourue durant cette unité de temps, il y a 440 ondes sonores. La loi fondamentale d'acoustique à l'air libre nous apprend que la longueur d'une onde multipliée par la fréquence donne la vitesse du son. En acoustique, on différencie entre l'onde sonore continue et l'**onde sonore statique.** D'après la conception habituelle, elle se crée par superposition d'ondes sonores de fréquences égales progressant à contre-courant. Elle se caractérise par le fait que les particules d'air provoquent en même temps une vibration stationnaire, c'est-à-dire qu'ils se trouvent toujours au même moment dans une position médiane ou terminale. L'amplitude d'une vibration se mesure à partir de la cote maximale de son ventre jusqu'à la cote minimale de son nœud. Pendant la vibration, toutes les parties des avoisinantes reçoivent une pression changeante qui provoque l'accélération ou la décélération. Les forces de pression s'additionnent le long de l'axe horizontal de l'onde sonore jusqu'au nœud de vibration suivant et produisent des fluctuations de pression maximales. Il se produit des fluctuations de pression sur toutes les parties de l'onde sonore. C'est la pression du son. La pression du son atteint à son maximum dans les nœuds de vibrations, c'est la raison pour laquelle on nomme ces endroits des ventres de pression.

A. Mensurations acoustiques du cor

La pression du son et ses fluctuations se laissent mesurer au moyen d'un microphone. On peut également les enregistrer graphiquement sur bande au moyen d'appareils électriques appropriés. La **figure 1** montre le déroulement de la pression du son le long de l'axe d'un cor en fa, sur la 8e harmonique. Sur l'espèce d'arcade que forme le graphique, on relève 8 maxima dans lesquels se trouvent les nœuds de vibration. Dans les pointes orientées vers le bas se trouvent les pressions de son minima, ou ventre de vibrations. La distance qui sépare deux minima voisins correspond à une demi-onde sonore. La longueur de cette distance multipliée par deux et multipliée par la fréquence donne un chiffre qui se différencie de celui de la vitesse du son. Ce chiffre est toujours indiqué entre deux points de l'axe d'abcisse. Nous reviendrons à cette différence avec la figure 4.

Le graphique de la ligne de pression du son (**Fig. 1**), montre un nœud de vibration (K^1), à la hauteur du contact des lèvres avec l'embouchure et un ventre de vibration (B^8) placé de façon indéfinie dans le pavillon. Si l'on place une sourdine qui ne déforme pas la hauteur des sons dans le pavillon, il y aura une pression minima (ventre de vibration) en moins, en suite de quoi la pression du son montera jusqu'au fond de la sourdine, jusqu'au maximum (K^9).

Dans la **figure 2**, ces deux graphiques sont complétés par une ligne de trait-pointillé qui indique le tracé de la pression du son lorsqu'on bouche complètement la sortie du pavillon avec la main. Dans la paume de la main se forme une pression minima, qui, distante de la longueur $\triangle^1$ du maximum placé au fond de la sourdine, se déplace en direction de l'embouchure. La longueur acoustique du cor est ainsi raccourcie de cette distance, d'où un son ascendant. Sur le cor en fa, cette ascension est d'environ un demi-ton. Le 2e piston abaissant le cor de la même distance, on obtient donc la même hauteur qu'avec le cor ouvert.

En bouchant complètement avec la main, le timbre du son change ; il est doux, atténué comme un écho. En n'introduisant que partiellement la main — ce qui fait baisser le ton — on produit un rallongement de la colonne d'air.

La **figure 3** montre la place qu'occupent les ventres de vibrations dans l'axe du cor pour les harmoniques 2 à 12 (marqué par des petits ronds). La somme de deux fois la distance de deux ventres voisins, fois la fréquence des sons, donne un chiffre qui grossit à mesure, de l'embouchure au pavillon. Sur la **figure 4**, ces chiffres sont portés à la distance correspondante depuis l'embouchure par des points. Les mesures, d'après la Fig. 1, sont indiqués au moyen de croix. Un trait a été tiré au jugé à travers la constellation de points. Afin de comparer, nous avons tiré un pointillé qui indique la vitesse du son à travers l'air libre. Les fluctuations de la ligne ascendante (la somme de deux fois la distance de deux ventres de vibrations voisins, fois la fréquence) par rapport à la ligne horizontale de la vitesse du son à travers l'air libre, n'est physiquement pas expliqué.

B. Commentaire pour le corniste

Afin de rendre les phénomènes physico-acoustiques plus accessibles au musicien pratiquant, nous allons développer certains éléments essentiels du précédent exposé et redéfinir quelques constatations.

En découvrant le phénomène des sons ascendants ou descendants suivant la manière de boucher le cor avec la main dans le pavillon, le corniste de Dresde Joseph Hampel provoqua dès 1750 une véritable révolution. Les compositeurs firent largement usage de ce nouveau procédé. Il était désormais possible de sortir des limites des sons naturels pour entrer dans le chromatisme. Toutefois, il fallut accepter un changement radical

de la sonorité et du timbre de l'instrument. Le phénomène proprement dit était resté physiquement inexpliqué jusqu'à nos jours ! Morley Pegge écrit, dans son remarquable ouvrage **The French Horn** (London 1960), page 132 : « For all their laboratory paraphernalia none of the acousticians has offered a convincing explanation of the rise of pith that occurs when we « stop » a note ». (Malgré toutes les installations que l'on trouve dans les nombreux laboratoires, il n'a pas encore été possible à un seul acousticien de nous expliquer pourquoi le son monte lorsqu'on « bouche » complètement le cor.) Nos expériences nous ont permis d'éclaircir ce phénomène 220 ans après la découverte du système.

En **Fig. 2**, les graphistes de la pression du son nous montrent 3 situations de vibrations différentes.

1. Le cor ouvert : les particules d'air vibrent à la fin du pavillon avec une amplitude maximale et une pression de son minimale ; on parle d'un ventre de vibration ou d'un nœud de pression. L'onde sonore est réfléchie par vibration que l'on qualifie de réflexion tendre. Le tracé de la pression est indiqué par une ligne dans la Fig. 2. Au bout du pavillon, la pression du son baisse complètement en un endroit indéfini.

2. Avec une sourdine aux dimensions exactes, on n'altère pas la hauteur des sons. Le tracé de la pression des sons avec une sourdine (ligne traitillée), à l'encontre de celui du son ouvert (ligne continue), indique une pression minimale dans le pavillon comme à l'intérieur du cor. Après ce minimum, la pression augmente jusqu'à un maximum supplémentaire au niveau du fond de la sourdine. Les particules d'air ne peuvent pas vibrer au fond de la sourdine, ils subissent des fluctuations de pression maximale (ventres de pression ou nœud de vibration) et l'onde sonore est ici brutalement réfléchie à l'intérieur du cor. La position des ondes statiques, à l'intérieur du cor, est pareille, que le son soit ouvert ou avec sourdine.

3. Si l'on bouche complètement le pavillon avec la main, il s'ensuit une brutale réflexion au niveau de la paume de la main, comme sur le fond de la sourdine (ligne trait-pointillée). La pression maximale du son sur la paume est — par rapport à celle que l'on trouve au fond de la sourdine — décalée de la distance $\triangle^1$ vers l'intérieur du cor. La colonne d'air est ainsi raccourcie d'autant, raison pour laquelle le son monte. Avec le cor en fa cela représente un demi-ton. En actionnant le 2e piston, on rallonge cette colonne d'air de la distance $\triangle^1$, obtenant ainsi la même hauteur de note qu'avec le cor ouvert. Le son bouché sonne faiblement, comme un écho. Cet effet est souvent employé par les compositeurs. Le cor en fa transpose un demi ton plus bas pour obtenir l'effet d'écho. En employant la sourdine, la tonalité reste la même que sans sourdine.

4. A part ces 3 situations, le corniste a encore la possibilité de ne boucher que partiellement le pavillon, faisant ainsi baisser le son jusqu'à un ton et plus. L'explication physique se dégage du fait que la main détruit l'évasement du pavillon, prolongeant ainsi le tuyau. La distance entre deux ventres de vibrations voisins (la moitié d'une onde sonore) s'agrandit. La loi acoustique fondamentale nous apprend que la somme des longueurs d'ondes et la fréquence indiquent la vitesse du son. Si l'onde devient plus longue — ainsi que cela se produit en ne bouchant que partiellement le cor — la fréquence de vibration (et par conséquence la hauteur du son) doit baisser. Cette manipulation permet de dévier des sons de l'échelle harmonique naturelle. Les compositeurs classiques et romantiques exploitèrent cette nouvelle possibilité afin d'avoir le chromatisme avec le cor naturel, tout en faisant usage du système ascendant (boucher complètement). Cette sonorité — passablement altérée ! — serait aujourd'hui considérée comme défectueuse et ne remplirait pas les exigences du concert. A l'époque, il n'y avait pas d'autres solutions pour extraire les sons intermédiaires. Un exemple : dans Fidelio de

Beethoven, les passages de cor dans l'air de Leonore (1er acte) comprennent 30 sons bouchés sur 70. Grâce à l'invention et à l'introduction des pistons (après 1820), le corniste d'aujourd'hui n'est plus obligé d'obtenir les sons intermédiaires en bouchant avec la main, mais il **corrige** son intonation. Il la corrige également avec la tension labiale.

5. Au sujet des problèmes d'intonation. La pureté d'intonation des cuivres reste incertaine pour deux raisons. D'abord, il faut savoir que l'orchestre ne pratique pas le compromis du système tempéré. L'oreille du musicien d'orchestre perçoit l'intonation harmonique. Le même son — c'est-à-dire noté au même endroit sur la portée — ne se trouve pas exactement à la même hauteur selon les tonalités ou les harmonies employées. De plus, le système des 3 pistons devient insuffisant lorsque les doigtés sont combinés. Le 1er piston baisse d'un ton entier, le 2e d'un demi ton et le 3e d'une tierce mineure. Le 1er plus le 2e piston combinés ne donnent pourtant pas exactement la tierce mineure. Le 2e plus le 3e pas exactement la tierce majeure. Le ton entier du degré situé entre la 8e et la 9e harmonique est — par rapport au nombre de vibrations — plus grand que celui situé entre la 9e et la 10e harmonique. Le corniste doit percevoir ces différences avec son oreille et corriger, soit avec la main, soit avec les lèvres, d'où la nécessité absolue de bénéficier d'une bonne ouïe et d'une bonne représentation intérieure des sons (afin d'anticiper l'écoute de ce qu'il va jouer).
Pour ceux qui se sentent attirés par ces problèmes, je ne peux que recommander le remarquable ouvrage scientifique de Martin Vogel, « **Die Intonation der Blechbläser** » (L'intonation chez les cuivres), volume I de la Collection Orpheus pour les questions fondamentales de la musique. (Publié en allemand seulement par la Gesellschaft zur Förderung der systematischen Musikwissenschaft, Düsseldorf, 1961.)

THE INNER ACOUSTICS OF THE HORN

Dr. WILLI AEBI, Burdorf (Switzerland)

A paper written ont the occasion
of the 7th International Congress on Acoustics,
Budapest 1971.

Since its introduction into the orchestra by Lully, around 1660, the horn has experienced two radical changes, both of which express themselves clearly in the musical use to which the horn was put.

First Epoch

Bach's and Handel's corno da caccia. today's hunting horn, was blown open, without the hand in the bell.

Second Epoch

Around 1750 the Dresden hornist, Josef Hampel, invented the stopping of the bell with the right hand. If the hand stops the opening of the bell only partially, the pitch goes down by es much as a whole tone or more. If the hand closes the opening completely, the tone jumps a half step upwards. On the basis of this multiplication of the possible notes, the horn was used liberally by the Classical composers Haydn, Mozart, and Beethoven, by the Romantics Weber and Schubert, and in the early periods of Wagner, Schumann, and Brahms, as well. This epoch has been called the Golden Age

of the horn. Up until now, the variation in pitch caused by the right hand has not been able to be explained physically. Our experiments have brought the solution to the puzzle.

Third Epoch

After 1820, the valve, invented shortly before, was introduced, bringing to all brass instruments the possibilty of producing the entire chromatic scale.

Acoustics, already a science during Greek antiquity, became highly developed from 1800 onwards, as is testified to by a rich collection of professional literature. The numerous theoretical and mathematical treatises, as well as the analogies from electricity, are generally incomprehensible to the man in the street. With our experiments, we tried to investigate the processes of vibration in the tubing of brass intsruments, using simple constructions as a point of departure, and to present them to hornists and instrument makers in an understandable form.

Sound as perceived by the sense of hearing is based on variations in air pressure and motion ; at a temperature of 20° Centigrade it moves through the air at a speed of 343.8 meters per second. This is the **moving sound wave.** If the pressure impulses follow each other at regular intervals, a tone is produced, the pitch of which is in relation to the frequency of the impulses. The normal tone **a'**, to which orchestral instruments are tuned, has 440 vibrations per second ; the distance of 343.8 meters traversed during this unit of time contains 440 sound waves. The basic acoustical rule of free air states that the lenght of a wave multiplied by the frequency gives the speed of sound.

In acoustics, one differentiates between the moving sound wave, described above, and the **standing sound wave.** According to the current conception, it originates in the superposition of sound waves of the same frequency traveling in different directions. It is distinguished by air particules performing a stationary vibration in their place in the same phase. That is to say, they are always to be found at the same time in a median or terminal position. The amplitude of a vibration decreases from its maximum at the antinode to its minimal point at the node. During vibration, every particle receives a changing pressure from its neighbor, provoking acceleration or deceleration, respectively. The pressure forces accumulate in the horizontal axis of the sound wave until the next vibration node, where they exert the maximum variation in pressure. There are pressure variations at every point of the sound wave. These are called sound pressure. Sound pressure is at its greatest in the vibration nodes, for which reason these places are also called pressure loops.

A. Acoustical measurements of a horn

Sound pressure and its fluctuation can be measured with a microphone, passed through the proper electrical equipment, and registered on a moving strip of paper as a curve.

Fig. 1 shows the development of sound pressure in the horizontal axis of an F horn (8th tone of the harmonic series). The arcade-like curve displays 8 maxima, where the vibration nodes are found. In the downward-oriented points are found the pressure minima or vibration loops. The distance between two neighboring minima corresponds to half a sound wave. This distance taken twice and multiplied by the frequency gives a number differing from the speed of sound. This number is always inscribed between two points on the abcissa. We will return to this deviation in Figure 4

The sound pressure curve in Figure 1 shows a vibration node K^1 where the lips touch

the moulthpiece, and a vibration loop B^8 at an indeterminate point within the bell. If a (non-transposing) mute is inserted in the bell, a minimum pressure point (vibration loop) appears with the dashed curve, and following this the sound pressure in the bottom of the mute rises again until the maximum K^9.

In **Fig. 2** these two curves are supplemented by a line in dots and dashes representing the course of the sound pressure with complete stopping. A maximum pressure point is formed in the palm of the hand at a distance of Δ^1 from the maximum pressure point in the bottom of the mute, and shifted in the direction of the mouthpiece. The acoustical lenght of the horn is shortened by this distance, for which reason the pitch rises. With the F horn, this pitch rise corresponds to about half a tone. The second valve lengthens the horn, in its turn, by the same amount. so that the pitch of the open horn is sounded. When the horn is stopped completely, its tonal character is changed ; it is soft, muted like an echo. Incomplete hand stopping, by means of which the pitch is lowered, causes a lengthening of the vibrating air column.

Fig. 3 shows the position of the vibration loops in the axis of the horn for the 2nd through 12th notes of the harmonic series, designated by tiny circles. The product of the double distance of two neighboring vibration loops and the frequency gives a number which increases from the mouthpiece to the bell end. In **Fig. 4** these numbers are given in their corresponding distances from the mouthpiece. The measurements from Figure 1 are shown as x's. A curve has been drawn through the forest of points. For purposes of comparison a line, in dashes, shows the speed of sound in free air. The difference between the ascending curve — the product of twice the distance of two neighboring vibration loops and the frequency — and the horizontal line, representing the speed of sound in free air, has not yet been physically explained.

B. Commentary for the hornist

In order to render the physico-acoustical phenomena more accessible to the practical musician, we wish to emphasize the most important processes in the following remarks, whereby some of the preceding findings will be repeated.

The discovery of the Dresden hornist Josef Hampel, around 1750, according to which the hand lowers the tone when it is partially inserted into the bell and raises the pitch by half a tone when it stops the bell completely, had a revolutionary effect on composers' treatment of the horn. Through his discovery, it became possible to employ the horn chromatically instead of remaining restricted to the notes of the harmonic series. Of course, there was a price to be paid in the radical change of tone color of the stopped tones. The phenomenon of the change of pitch remained unexplained up to the present day. Morley Pegge writes in his excellent book, **The French Horn** (London 1960), p. 132 : « For all their laboratory paraphernalia none of the acousticians has offered a convincing explanation of the rise of pitch that occurs when we « stop » a note ». Our experiments have brought the physical explanation of the phenomenon, 220 years after its discovery.

In **Fig. 2** the sound pressure curves show us three different vibratory situations.
1. With an open horn, the air particles in the end of the bell vibrate with maximal vibration amplitude and minimal sound pressure ; we speak of a vibration loop or a pressure node. The sound wave is reflected here by a vibration which is termed a soft reflection. The course of the pressure is presented in Figure 2 by a drawn-out line. At an indeterminate point in the bell opening, the sound pressure falls off completely.

2. With a properly proportioned mute, pitch is not affected. In comparison with the curve of the open tones (normal line), the sound pressure curve of the muted tones (dashed line) shows a minimal pressure point in the bell, just as it does at various points within the horn itself, after which the pressure increases to a maximal point at the bottom of the mute. The bottom of the mute acts like a wall at which the air particles cannot vibrate ; they undergo maximal pressure variation (pressure loop or vibration node), and the sound wave is reflected at this point in a hard reflection back into the horn. The position of the standing waves inside the horn is the same with a muted tone as with an open tone.

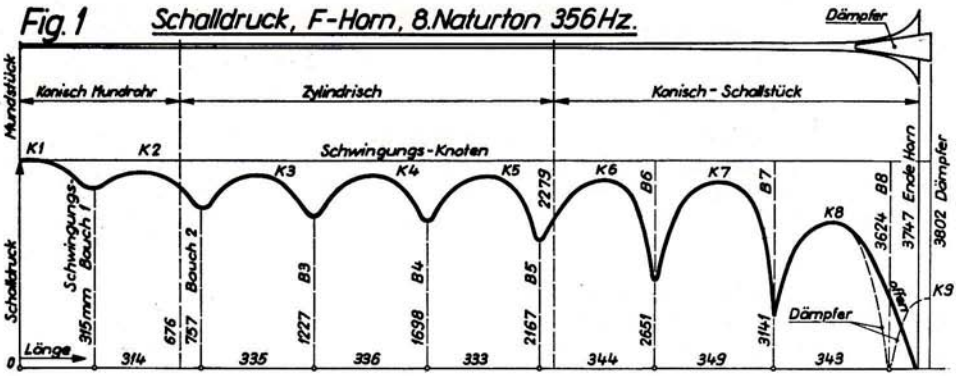
3. When the hand stops the bell completely, a hard reflection occurs on the palm of the hand (line in dots and dashes), just as with the mute bottom. As opposed to muted tones, the point of maximum sound pressure in the palm of the hand is shifted into the horn by the distance $\triangle^1$. The vibration air column is shortened by this distance, resulting in a corresponding rise in pitch. With an F horn, this pitch rise is equal to half a tone. When the second valve is depressed, the vibrating air column is lengthened by amount $\triangle^1$, resulting in the original pitch of the open or muted horn. The stopped tone sounds like an echo. Composers are fond of this effect. On the F horn, a stopped passage with echo effect must be transposed half a tone lower, to E horn. If a mute is used, the pitch remains of course the same as with the open horn.

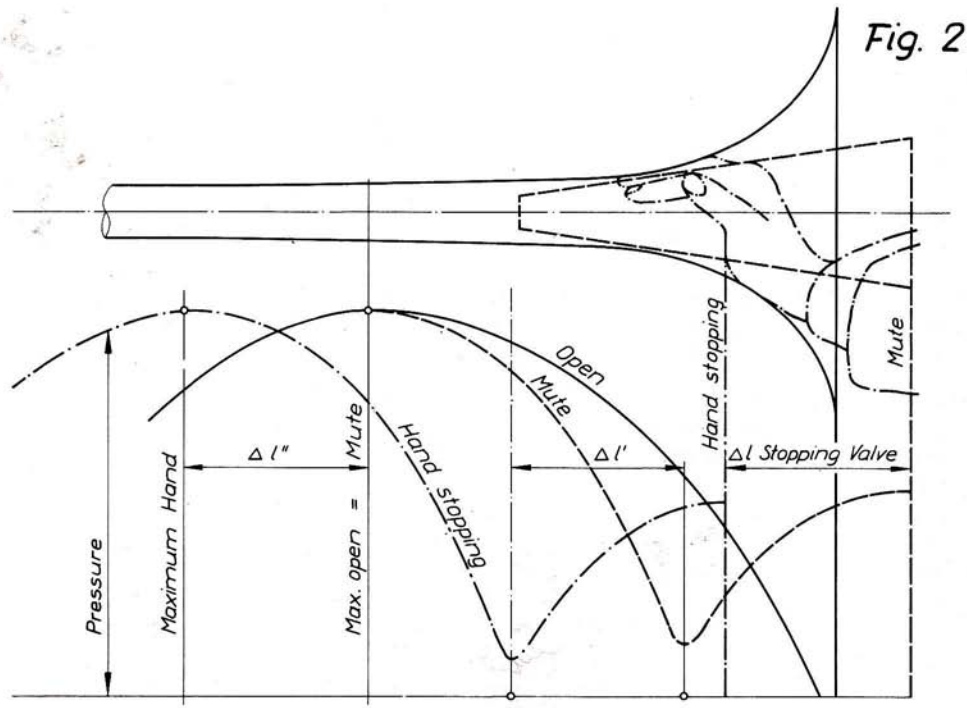
4. Besides these three situations, the hornist has the possibility of introducing his hand only partially into the bell, resulting in a pitch drop up to a full tone. The physical explanation of this is that the widening of the bell is cancelled out by the hand, thus lengthening the tubing. The distance between two neighboring vibration loops, corresponding to half of an entire sound wave, is increased. It is an acoustical law that the product of the wave lenght and the frequency always results in the speed of sound. If the wave becomes longer, as in the present case of incomplete stopping, then the frequency of vibration must decrease, and with it the pitch. This manipulation with the right hand allows a shifting of the tones of the harmonic series. Classical and Romantic composers used this possibility in order to employ the horn chromatically ; they also used full stopping to raise the pitch. Of course, with this manner of playing the tone is changed so much that we would be critical of it in the concert hall today. In those days, however, there was no other possibility of bridging the gap between the available notes of the harmonic series. For example, out of 70 tones in the horn passages of Leonore's aria in the 1st act of Beethoven's **Fidelio**, 30 are stopped. Thanks to valves, introduced after 1820, the hornist of today does not have to resort to hand stopping to produce such intermediate notes. But still today, the hornist corrects small pitch differences with his hand. He can also influence pitch by changes of lip tension.

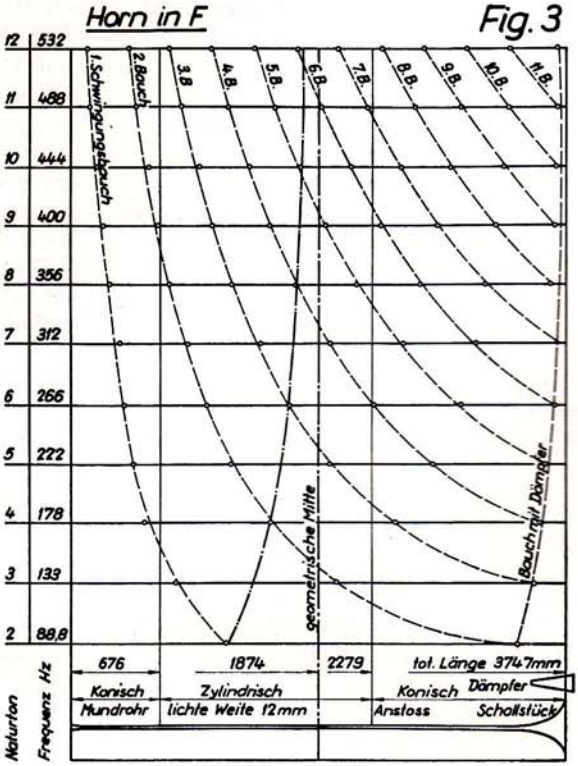
5. The problem of just intonation. Brass players' intonation is uncertain, and for two reasons. First of all, we must realize that the orchestra does not practice the compromise of the well-tempered scale. An orchestral musician's ear hears according to the harmonic scale. A given note in the scale does not lie at exactly the same pitch in various harmonic keys. Furthermore, the system of three valves leaves something to be desired when several valves are combined in a single fingering. The first valve lowers the pitch by a whole tone, the second by half a tone, the third by a minor third. The first and second, combined, do not quite result in a minor third, second and third not in a major third, and first and third not in a perfect fourth. The whole tone step from the 8th to the 9th tone of the harmonic series, according to the vibratory ratio, is larger than the whole tone step from the 9th to the 10th tones. The

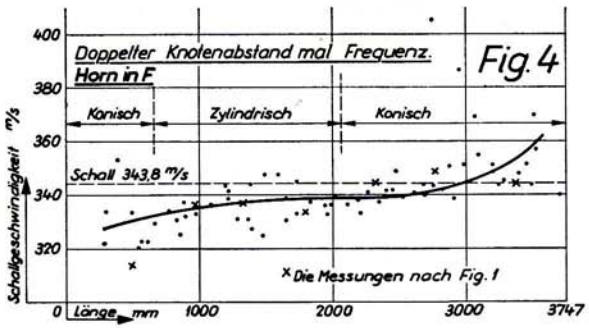
hornist must correct these deficiencies by ear, either by a different embouchure setting or by shift of the hand in the bell. For this reason, the hornist needs a fine-tuned musical ear and a good feeling for pitch : his ear must already be adjusted to the exact pitch before it is sounded.

For those who would like to come to closer terms with this problem, we would recommend the excellent scientific study by Martin Vogel, **Die Intonation der Blechbläser** (Düsseldorf 1961. Volume 1 of the Orpheus Schriftenreihe zu Grundfragen der Musik. Edited by the Gesellschaft zur Förderung der systematischen Musikwissenschaft).









Traduction des termes / Traduction :
Voir page suivante, glossaire
See next page, glossary

Glossar	Glossary	Glossaire
FIGUR 1		
Schalldruck	sound pressure	pression du son
F-Horn	F horn	cor en fa
8. Naturton	8th tone of the harmonic series	8e harmonique
konisches Mundrohr	conical mouthpipe	branche d'embouchure conique
zylindrisch	cylindrical	cylindrique
konisches Schallstück	conical bell	pavillon conique
Mundstück	mouthpiece	embouchure
Dämpfer	mute	sourdine
offen	open	ouvert
Länge	length	longueur
Schwingungsknoten	vibration node	nœud de vibration
Schwingungsbauch	vibration loop	ventre de vibration
FIGUR 2		
Schalldruckmaximum	sound pressure maximum	pression de son maximale
gestopft	hand stopping	bouché
Dämpferboden	mute bottom	fond de sourdine
FIGUR 3		
Frequenz	frequency	fréquence
lichte Weite	amplitude	amplitude
Anstoss	point at which the bell joins the main tubing	naissance du pavillon
geometrische Mitte	geometrical middle	milieu géométrique

FIGUR 4

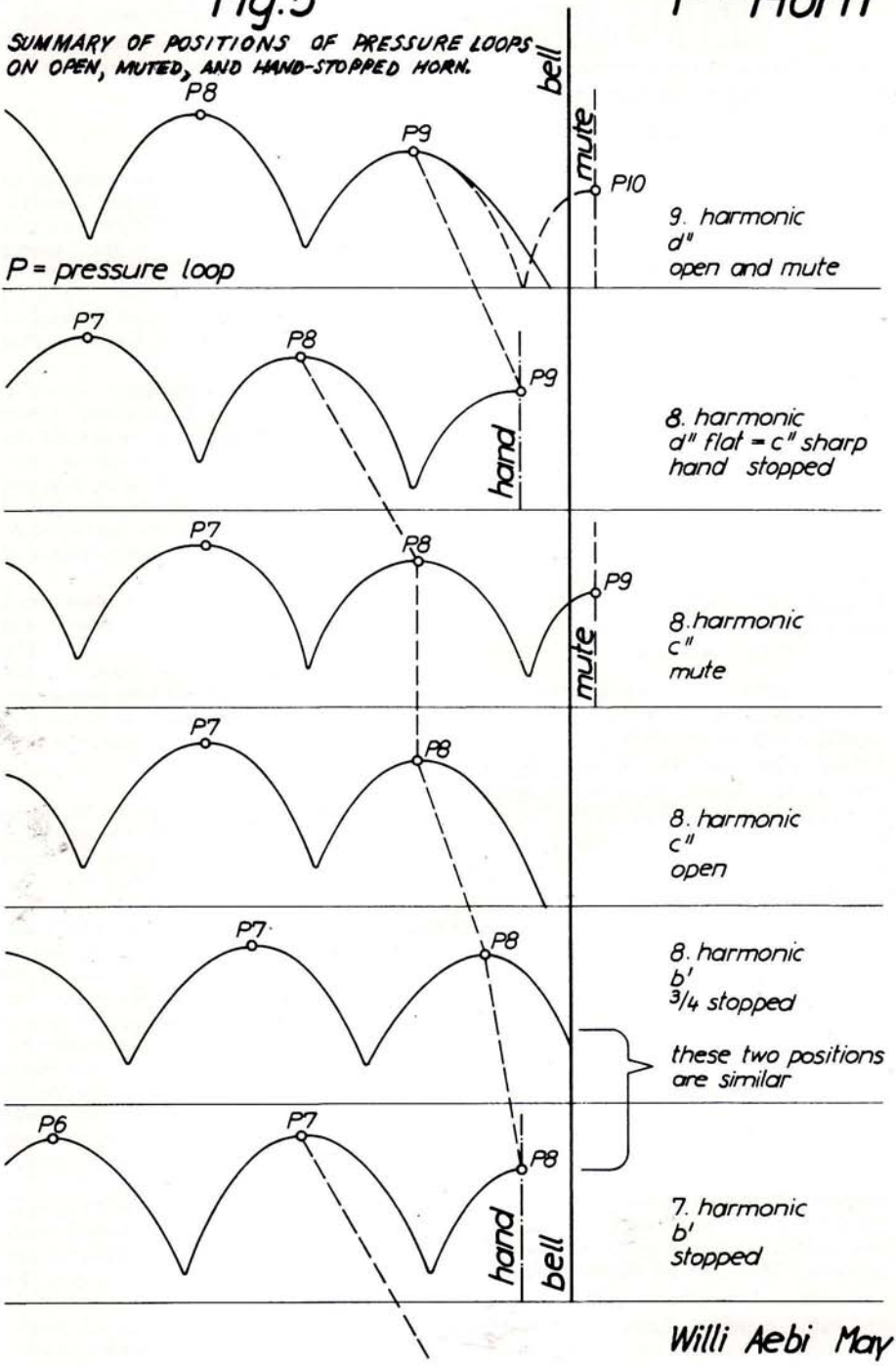
Doppelter Knotenabstand mal Frequenz / Double nodal distance multiplied by frequency / Double distance nodale multipliée par la fréquence.

Schallgeschwindigkeit	velocity of sound	vitesse du son
Messung nach	measures from	mesures d'après

Fig.5

F - Horn

SUMMARY OF POSITIONS OF PRESSURE LOOPS ON OPEN, MUTED, AND HAND-STOPPED HORN.



Willi Aebi May 1974

NEWS NOTES

Italian virtuoso Domenico Ceccarossi gave the following performances in various locations in Italy this past summer:

July 8: Di Jorio: *Nocturne* for mezzo-soprano, horn and piano; Mercadante: *Concerto* in D Minor; Mozart: *Concerto* in E-flat, K. 447.

July 25, 27: Mozart: *Concert Rondo,* K. 371 and *Quintet* in E-flat, K. 407; Mercandante: *Concerto* in D Minor

August 3, 5, 7, 9: Mozart: *Concert Rondo;* Mercadante: *Concerto*

August 10: Mozart: *Concerto* in E-flat, K. K. 447

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November 3, 1973, the Schumann *Konzertstück* was performed by the City College Community Orchestra (New Rochelle, N.Y.) under the direction of Fred Hauptman. Soloists were Barry Benjamin, Anne Slayden, Randall Ulmer, Eugene Hill. Miss Slayden, the correspondent, adds: "P.S. It was a gas!"

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Walter Hermann Sallagar has sent a brochure concerning ENSEMBLES FOR HISTORIC WIND INSTRUMENTS, to be held at Schloss Breiteneich and Schloss Carlslust, Austria. For details, write either to Herr Sallagar, Neulinggasse 42/10, A-1030 Vienna, Austria, or to Dr. Horace Fitzpatrick, Duckets House, Steeple Aston near Oxford, England. There are two sessions: July 7-21, and August 25-September 8.

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Wendell Hoss reports that the annual Los Angeles Horn Club Scholarship Contest was held recently. Judges Lester Remsen (former principal trumpet, Los Angeles Philharmonic), William Lane (first horn, Los Angeles Philharmonic) and Caswell Neal (Active member of the Horn Club and professional engineer) selected: First prize, the Max Pottag Scholarship to the Horn Workshop, Barbara Stromquist (senior, University of Southern California); second prize, subscription tickets to Los Angeles Philharmonic concerts, Barbara Bingham (freshman, University of Southern California); and honorable mention, Chris van Steenberg (University of California at Los Angeles.)

Programs come in from time to time, which your editor hopes someday to find a way to print at relatively low cost. Please do send in your news items (and programs).

• • • •

Professor Antonio Iervolino, professor of horn for the last four years at the Conservatory of Puerto Rico, has exchanged positions with Mr. Rudolph Puletz, of the Mannes College of Music and Dalcroze School of Music. Professor Iervolino has also been appointed as horn teacher and Director of Communities at the Hebrew Arts School for Music and Dance.

August 6-17 (1973) Professor Iervolino held a mini-clinic at Youngstown, Ohio, lecturing and teaching on: How to build the best embouchure; what and how to practice; basic and advance technique; different kinds of "staccato"; double tonguing and its use in triple rhythms; how to slur the overtones; lip trills or air trills? and technique of the right hand.

In addition to the general classes, each student received individual lessons and could take part in ensemble classes. The mini-course was closed with an informal session, in which were partially performed: Strauss Concerti 1 and 2; Mozart Concerti 1, 2 and 4. Organizing chairman was Mr. Gordon Campbell.

William Schaefer, head of the Wind Instrument Department at the University of Southern California, arranged a most interesting program for the students on Feb. 8: sight and sound recordings of the playing of Dennis Brain, famed virtuoso of the horn. Walter Hecht presented the audio film of Dennis Brain and Dennis Matthews in the Beethoven Sonata for horn and piano, followed by some unpublished tape recordings of Brain in various chamber ensembles, including the Hindemith Sonata for 4 Horns and a movement by Malipiero for Woodwind Quintet. The program was geared primarily for the horn students but was enjoyed by many of the students of other wind unstruments also.

The Horn Ensemble group (of 10 or more players) has been meeting regularly throughout the school year, with an occasional outdoor noontime concert on the campus; also with a practice solo recital now and then, where the students play prepared pieces, with accompaniment, just for each other.

MUSIC REVIEW

— Harold Meek

VINCENT PERSICHETTI:
Parable, for Solo Horn. Duration: 6'45.
Elkan-Vogel, Inc.: Bryn Mawr, Pennsylvania. 1973.

"Parable VIII," from a series of XIII Parables for various instruments and instrumental combinations, is for unaccompanied horn. Well within the grasp of the moderately advanced player and demanding more intellectual preparation, perhaps, than technical. It is free in form but well balanced. Highly recommended.

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ADRIEN CANAVESIO:
Cantehorn, pour Cor et Piano. Duration: 6'30.
Editions Transatlantiques: Paris. 1973.

Transparent accompaniment allows the solo line to shine forth in this miniature of contrasting tempi and color.

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FELIX LEMAIRE:
Nocture, pour Cor en Fa et Piano. Duration: 6'.

Alphonse Leduc et Cie.: Paris. 1973

A nice solo in easy range, suitable for grade 3 players.

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RENÉ BERTHELOT:
To Lucien Thévet
Variations Brèves sur un Chant Scout, pour Cor en Fa et Piano. Duration: 4'.

Alphonse Leduc et Cie.: Paris. 1973.
A set of variations on the tune, "Auld Lang Syne." Of possible use for rhythmic development. Otherwise not very exciting.

• • • •

JEAN-MICHEL DEFAYE:
To Georges Barboteu
Alpha, pour Cor en Fa et Piano. Duration: 6'30".
Alphonse Leduc et Cie.: Paris. 1973

Technical tour-de-force in the now-familiar tone cluster idiom.

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ROGER JOHNSON:
for the Los Angeles Horn Club
Shawnee Press: Delaware Water Gap, Pennsylvania. 1973.
Ritual Music, for Six Horns. duration: 8'.

Atonality, dissonance, free improvisation and some decidedly unmusical sounds characterize this short work.

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RUSSELL DANBURG:
Poeme, for Horn and Piano.
Southern Music Company; San Antonio. 1973.

Short solo, grade 4-5. Asks for a cup mute near end of the piece. During 45 professional years, this reviewer has yet to hear or see a mute of this type used in the horn.

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RUDOLPH MAYER:
Suite No. 1, for Two Horns. Duration: 4'. $2.25
Suite No. 2, for Two Horns. Duration: 5'. $2.25.
Suite No. 3, for Two Horns. Duration: 4'. $2.25.
Southern Music Company: San Antonio. 1973.

Each set of duets is well-written within a fairly easy range for most students. Interesting contrapuntal, melodic and rhythmic changes make for agreeable contrasts in each suite.

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LOUIS MICHIELS:
Rêverie, for Horn Quartet. $2.50
Southern Music Company: San Antonio. 1958.

Short one-movement work. Grade 4. Modern notation in bass clef.

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Cantos No. 2, for Double Horn Choir. $8.
Transcribed by Verne Reynolds.
Southern Music Company: San Antonio.
1973.

A major addition of valuable repertory, transcribed from three works of Giovanni Gabrieli.

Cantos No. 3, for Double Horn Choir. $8.

Four movements transcribed from works of Andrea Gabrieli, Giovanni Croce, and Hans Leo Hassler.

Cantos No. 4, for Double Horn Choir. $8.
Three works of Samuel Scheidt.

Taken as a group the foregoing collection of early brass writing fills a void in the repertory for massed horn ensemble. They should go a long way toward development of fine tone, intonation and sensitivity in chamber performance. Recommended.

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ALUN HODDINOTT:
to Jon Manchip White
Aubade and Scherzo, opus 42, for Horn and String Orchestra. Duration: 8'.
Oxford University Press: London. 1967.

A lyric *Andante* contrasts with a rondo *Scherzo.* Well-written and interesting. Recommended. First performed on october 24, 1965 by James Diack and the B.B.B.C. Welsh Orchestra, on commission by the B.B.C.

———

Concerto, opus 65, for Horn and Orchestra. Duration: 14'.
O.U.P.: London. 1972.

Commissioned by the Llandaff Festival, the work received its first performance by Ifor James and the Royal Philharmonic Orchestra on June 3, 1969. Essentially in two movements, *Romanza* and *Scherzo* with a short cadenza and epilog, *Adagio.*

———

Sonata, opus 78, no. 2, for Horn and Piano. Duration: 11'.
to Barry Tuckwell
O.U.P.; London: 1972.

First performed August 28, 1971 by Barry Tuckwell and Margaret Kitchin at St. Donat's Castle, Wales, as a commissioned work by the Vale of Glamorgan Festival (1971) in association with the Welsh Arts Council.

The composer's own notes are quoted: "The first movement opens with a long, flowing melody for horn that provides the thematic basis for the entire work and establishes both a note pattern and a tonal centre (G). The predominant character is lyrical, that of the second movement elegaic and almost improvisatory in development. The finale is a quick moving scherzo-like movement in three parts, the central part being contrasted and lyrical." (© by Alun Hoddinott and reprinted by permission of Oxford University Press.)

———

Divertimento, opus 32, for Oboe, Clarinet, Horn and Bassoon. duration: 16'.
to Glyn Jones on his 60th birthday.
O.U.P.: London. 1965.

First performance by the Portia Wind Ensemble, November, 1963. Five movements, 1) Overture, 2) Scherzo, 3) Variations, 4) Scherzo, 5) March. Excellent writing for winds with understanding of their best capabilities.

• • • •

An Intermediate Horn Book, for Horn in F and Piano.
Arranged by *Stuart Johnson.*
Oxford University Press: London. 1973.

Six pieces from Bach, Beethoven, Clementi, Le Couppey, Diabelli and Mozart. Grade 3-4. Easy for piano as well as horn. Good music to enlarge musical taste of students.

• • • •

GORDON CROSSE:
For the Unfallen (1963), opus 9, for Tenor voice, solo Horn and String Orchestra. duration: 20'.
Oxford University Press: London. 1971.

First performed at Liverpool with Royal Liverpool Philharmonic Orchestra, September 17, 1968, with soloists Gerald English and Alan Civil. Settings of four poems by Geoffrey Hill. "**** The string orchestra is largely used for atmospheric background to solo voice and horn. In addition to providing a foil to the voice, the horn helps to characterize each poem ****." (excerpt from the composer's own notes. © Copyright by Gordon Crosse, and reprinted by permission of Oxford University Press.)

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Corpus Christi Carol, opus 5, for Solo Voice, Clarinet, Horn and String Quartet. Duration: 12'.
O.U.P.: London. 1966.

Setting of anonymous 16th-century words, first performed December 18, 1964 by Barbara Elag (voice) and the Musica da Camera in London's Wigmore Hall. Clear writing for the strings, and sparing use of the solo clarinet and solo horn, allows the voice an unhindered spotlight. Instrumental interludes separate the strophes.

• • • •

PHYLLIS TATE:
A Victorian Garland, for Soprano and Contralto solo voices, Horn and Piano. Setting of three poems by Mathew Arnold. Duration: 15'.
Oxford University Press: London. 1972.

I. Morality: II. Lines Written in Kensington Gardens: III. A Memory-Picture. These are the poems. Voices float over the piano scoring while the obligato horn unobtrusively underscores and emphasizes. First performance was a B.B.C. broadcast March 30, 1966 by Clare Walmesley, Laure Sarti, Ifor James and Paul Hamberger.

Oxford University Press is to be congratulated for publishing all the foregoing works for voice and horn. It is a mostly neglected medium of composition which should be encouraged. The human voice and horn are natural allies of expression.

• • • •

KLEMENT SLAVICKÝ (1967):
Capricci, for Horn and Piano. Duration: 13'.
Supraphone Edition: Prague-Bratislava.
1969.

Three separate caprices: 1) Capriccio Drammatico, (Largo); 2) Capriccio Lirico, (molto tranquillo); 3) Capriccio Burlesco, (Vivo energico.) Pulsing with rhythm and harsh tonality, this piece fairly bursts in the third caprice. Very difficult rhythmically and with its wide interval skips. A brilliant recording by Miloš Petr and Vladimír Mencl is available on Supraphon 1-19-0943 G. The record also includes contemporary Czech works for trumpet, piano and string quartet. It was made in 1970. A very interesting commentary on the music of our Czech contemporaries. Milos Petr and Mr. Mencl perform the difficult caprices admirably.

• • • •

FRANZ SCHUBERT: arrangement by Nilo Hovey.
Symphony No. 5, first movement only.
Scored for woodwind choir. $13.
Shawnee Press: Delaware Water Gap, Pennsylvania. 1973.

Some of Schubert's finest writing skillfully arranged for large woodwind grouping. Calls for flutes, oboes, clarinets (B-flat, E-flat alto, E-flat contralto, bass contrabass) and saxophones (E-flat alto, tenor, E-flat baritone.)

ADDENDUM: Your editor in no way wishes to invade the territory of our excellent regular reviewer, Harold Meek, but a new work was directed here too late to route it to Mr. Meek. It is *Sonate,* Op. 91, by Konrad STEKL. The publisher is Ludwig Krenn, A-1150 Vienna, Austria; the work is one of the "Musik aus der Steiermark" series. The *Sonate* is in three movements (Etwas langsam-moderato; Thema und Variazioni; Allegretto), all rather short. The theme for the middle movement is an "Erinnerung an Franz Schubert," but is not a quote. The work uses a tone-row, but in such a way that the effect is of a bitter-sweet, almost-tonal style of considerable appeal; there are no serious technical problems for either player, and the piece should be a welcome addition to those used to introduce young players and audiences to twentieth-century music.

RECORDINGS

Christopher Leuba,
Contributing Editor

At this time, I wish to commend to our readers' attention the recording of Brahms' Trio, Opus 40, with Frederick Vogelgesang performing all three parts on an "overdubbed" recording. This is a remarkable interpretation by a skilled performer on all three instruments, with impeccable intonation on both violin and horn, as well as a firm concept of the music which is felt throughout the performance. This is an unnumbered "Lance Productions" record which can be ordered, $5.00, postpaid from

Mr. Frederick Vogelgesang
310 West 56th Street
New York, N.Y. 10019

A recording I previously suggested as worthy of our readers' attention, DGG LPM 18 596, with Josef Golnick as hornist on the Sviataslav Richter performance of the Rachmaninoff Conce to No. 2 for Piano has recently been reissued as DGG 138 076, and in England on a two-record set DGG 2 726 020.

I am indebted to Prof. Robert Cole of the University of Wisconsin for assistance in the preparation of the following discography of John Barrows, who was greatly admired by all of us. Readers knowing of other examples of his performances on record are invited to augment this listing.

John Barrows Discography:

COLUMBIA CML 5107
Stravinsky: Septet

COLUMBIA CS 8249
Wilder: Music from "The Sand Castle"
Orchestra: Samuel Baron, cond.

CONCERT DISC CS 201
Spohr: Nonette in F Major, Op. 31
Members of the Fine Arts Quartet and the New York Woodwind Quintet

CONCERT DISC CS 204
Mozart: Quintet in E Flat Major, K. 407
Fine Arts Quartet

CONCERT DISC CS 205
Hindemith: Kleine Kammermusik, Op. 4, No. 2
Danzi: Quintet, Op. 67, No. 2
New York Woodwind Quintet

CONCERT DISC CS 214
Beethoven: Septet in E flat Major, Op. 20
Members of the Fine Arts Quartet and the New York Woodwind Quintet

CONCERT DISC CS 216
Dahl: Allegro and Arioso for 5 Wind Instruments
Barber: Summer Music for Woodwind Quintet
New York Woodwind Quintet

CONCERT DISC CS 218
Hindemith: Octet
Members of the Fine Arts Quartet and the New York Woodwind Quintet

CONCERT DISC CS 220
Schubert: Octet for Strings and Winds, Op. 166
Fine Arts String Quartet and Members of the New York Woodwind Quintet

CONCERT DISC CS 221
Poulenc: Sextet for Piano and Winds
Riegger: Concerto for Piano and Woodwind Quintet
New York Woodwind Quintet

CONCERT DISC CS 223
Wilder: Quintets No. 3, 4 and 6
New York Woodwind Quintet

CONCERT DISC CS 229
Carter: Eight Etudes and a Fantasy for Woodwind Quintet
Fine: Partita for Woodwind Quintet (1948)
Schuller: Woodwind Quintet (1958)
New York Woodwind Quintet

COUNTERPOINT CPST 559
Beethoven: Octet, Op. 103; Sextet for Winds, Op. 71; Rondino for Winds, Op. posth.
New York Wind Ensemble, Samuel Baron, conducting.

EVEREST SDBR 3009
Stravinsky: Ebony Concerto
Woody Herman and His Orchestra

EVEREST SDBR 3080
Francaix: Quintet for Winds
Taffanel: Quintet for Winds
New York Woodwind Quintet

EVEREST SDBR 3092
Reicha: Finale from Quintet for Winds, E^b
Pierne: Pastorale
Barrows: March
Wilder: Up Tempo from Woodwind Quintet No. 1
Van Vactor: Scherzo
Sweelinck: Variations on a Folk Song
Ibert: Trois Pieces Breves
Milhaud: Le Cheminee du Roi Rene
New York Woodwind Quintet

GOLDEN CREST CR 4026
Wilder: Names From The War
Wilder: Carl Sandburg Suite for Orchestra
Augmented New York Woodwind Quintet
Augmented New York Brass Quintet

GOLDEN CREST CR 4028
Wilder: Quintet No. 2 for Woodwinds (1956)
Wilder: Suite for Woodwinds
New York Woodwind Quintet

GOLDEN CREST RE 7002
Wilder: First Sonata for Horn and Piano
Wilder: Second Sonata for Horn and Piano
Wilder: Suite for Horn and Piano
John Barrows, honr
Milton Kaye, piano

GOLDEN CREST RE 7018
Poulenc: Elegy
Wilder: Sonata for Horn, Tuba and Piano
Scriabin: Romance
John Barrows, horn
Harvey Phillips, tuba

GOLDEN CREST RE 7034
Wilder: Sonata No. 3 for French Horn and Piano
Hindemith: Sonata for Alto Horn
with Tait Sanford Barrows, piano

MERCURY MG 50210
Brahms: Trio in E flat for Piano, Violin and Horn, Opus 40
with Joseph Szigeti, violin and Mieczslaw Horszowski, piano

NONESUCH H-71030
Villa-Lobos: Quintette en Forme de Choros
Villa-Lobos: Bachianas Brasileiras
New York Woodwind Quintet

EPIC LN 3148
Lou Stein: "Jim & Andy's"
The Lou Stein Three, Four and Five

privately issued:

FLORIDA STATE UNIVERSITY HORN WORKSHOP, 1970
Hindemith: Sonata for Horn
live performance with Tait Sanford Barrows, piano

FLORIDA STATE UNIVERSITY HORN WORKSHOP, 1971
Mozart: Concerto No. 4 (2nd mvt.)
Heiden: Two Canons for Two Horns
Mozart: Two Duos from K. 487
with Michael Hoelzel

ORCHESTRAS AROUND THE WORLD

UNITED STATES ORCHESTRAS

ALBANY SYMPHONY
Peter B. Knott
Ronald Patrick
Jane Sullivan
Emory Waters

ATLANTA SYMPHONY
John Henigbaum
Thomas Witte
Brice Andrus
Christopher Scheufler

BOSTON SYMPHONY
Charles Kavaloski
Charles Yancich
Harry Shapiro
David Ohanian
Richard Mackey
Ralph Pottle

BROOKLYN PHILHARMONIA
Paul Ingraham
Michel Martin
Donald Corrado
Joe Anderer
Earl Chapin

BUFFALO PHILHARMONIC
Roy Waas
Duane Saetveit
Lowell Shaw
Fred Bradford
Milton Kicklighter

CHARLOTTE SYMPHONY
Miss Laura Schneider
Mrs. Marian C. Tennent
John B. Olsen
B.L. Watkins III

CLEVELAND ORCHESTRA
Myron Bloom
Richard Solis
Martin Morris
Albert Schmitter
Ernani Angelucci

COLUMBUS SYMPHONY
Nicholas Perrini
Leonard Rivenburg
James Jones
Mary Knepper
Ted Wills
Frances Schmidt

DAYTON PHILHARMONIC
Laurel Hinkle
Lawrence Tagg
William Cooper
Fred Moore
Fred Cook

DENVER SYMPHONY
Gary Breeding
Wilka Renwich
Robert Schauer
John Keene
Howard Waxer

DETROIT SYMPHONY
Eugene Wade
Charles Weaver
Edward Sauve
Willard Darling
Keith Vernon
Lowell Greer

EASTERN MUSIC FESTIVAL
Ralph Lockwood
Phil Tippens
Wayne Amick
Joe Thayer

EL PASO SYMPHONY
Richard Lambrecht
Tim Wadley
Orlando Calderon
Mike Marsh

FRESNO PHILHARMONIC
James Winter
Eric Gratz
Charles Schroeder
David Bakkegard
Randolph Jones

GLENDALE SYMPHONY
Robert Anderson
Todd Miller
George Hyde
Gene Sherry

HONOLULU SYMPHONY
Russell White
Larry Rogers
Willard Culley
Robert Kopsala

HOUSTON SYMPHONY
James Tankersley
Caesar LaMonaca
Leo Sacchi
Jay L. Andrus
Jan Bures
James Horrocks

HUDSON VALLEY PHILHARMONIC
J. Richard Webb
Jacqueline Baczynsky
Wm McCann
David Keehn
Constance Numbers
Patricia Walker

INDIANAPOLIS SYMPHONY
Larry Philpott
Pete Kline
John Miller
Phillip Huffman
Robert Carroll
Harry Michels

JACKSON SYMPHONY
Jerry Haynie
Jerry Cogdell
Patti Byrd
Vi Burlingame

JACKSONVILLE SYMPHONY
Cary Letsche
Kathy Cann
Robin Arnold
Milton McKnight
Mark Putnam
Penelope Britton

KNOXVILLE SYMPHONY
William Bommelje
Henry Hooker
S.J. Mundy
Kathryn Ray
Julie Hale

LOS ANGELES PHILHARMONIC
Henry Sigismonti
William Lane
Ralph Pyle
George Price
Hyman Markowitz
Robert Watt

LOUISVILLE ORCHESTRA
Kenneth Albrecht
Gary Miles
Carol Kason
Richard Bentson
Stephen Causey

LUBBOCK SYMPHONY
Anthony Brittim
John Scecina
Roy Wilson
J.L. Pherigo
Richard D. Bingham

MADISON SYMPHONY
Douglas Hill
Nancy Becknell
Robert Reynolds
Janis Swenson
Robert Culbertson

MIAMI PHILHARMONIC
Jerry Peel
Elizabeth Bobo
John Casbarro
Edmund House
Candler Schaffer

MINNESOTA ORCHESTRA
Robert Elworthy
Bruce Rardin
Frank Winsor
Charles McDonald
David Kamminga

NASHVILLE SYMPHONY
Eberhard Ramm
Robert Craine
Jay Dawson
Ted Miller
Nancy Knob

OAKLAND SYMPHONY
Stuart Gronningen
Krehe Ritter
James De Corsey
George Mealy
William Morrow

NORTH CAROLINA SYMPHONY
Wayne Amick
Mary S. Biscoe
Edward Burnham
George Mitchell
M. Kim Swatsler

OKLAHOMA CITY SYMPHONY
Nicholas E. Smith
James Sours
Michael Fox
Willis McCoy
G. Michael DeWoody

OMAHA SYMPHONY
David Kappy
Wm Sprague
Don Swaggard
Gene Hazen
Wm Lynn
Peter Salter
Robt Tilton
Lois Sutton

PHILADELPHIA ORCHESTRA
Mason Jones
Nolan Miller
Glenn Janson
John Simonelli
Herbert Pierson
Kendall Betts

PITTSBURGH SYMPHONY
Howard L. Hillyer
David Mairs
Richard Happe
Mark Denekas
Kenneth Strack
Peter Altobelli

PHOENIX SYMPHONY
Larry Conrad
Kare Overby
Gerald Calkins
Charles Ketchum
Howard Wall

RHODE ISLAND PHILHARMONIC
Nedo Pandolfi
S. Arthur Smith
Richard S. Franklin
George Lessard
Kathryn Gale Hunt
Matthew Melone
Michael Mikucki

ROCHESTER PHILHARMONIC
Morris Secon
David Angus
Daniel Gingrich
Milan Yancich

SAINT LOUIS SYMPHONY
Roland Pandolfi
Lawrence Strieby
Carl Schiebler
Kenneth Schultz
Kaid Friedel

SAINT PAUL CHAMBER ORCHESTRA
Martin Smith
Lawrence Barnhart

SAINT PAUL SYMPHONY
Carol Jensen
Tom Samsel
David Steinhorn
Carol Sirrine

SAN DIEGO SYMPHONY & OPERA
Jerry Folsom
George W. Cable
Thomas Greer
Bonnie Rogers

SPOKANE SYMPHONY
Verne Windham
Evans Lantz
Bruce Matthews
Reid Smith
James Loucks

SYRACUSE SYMPHONY
Robert Hagreen
James Blake
Stephen Lawlis
Paul Brown
Calvin Custer

TOLEDO SYMPHONY
William Griffioen
John Jacobson
Pamela Halverson
Anthony Cecere
Louis Stout
Mary Kihslinger

TRI-CITY SYMPHONY
Paul Anderson
Ginger Weichman
Nancy Buxton
Michael Fee
Floyd Sturgeon

TUCSON SYMPHONY
Richelle Reavis
Ed Meinel
Marion Burgess White
William Sampson
Ronald Sadlier

TULSA PHILHARMONIC
J. Bruce Schultz
Tom Moore
Jim Kirk
Allen Mitchell
Mark Watson
Dr. William McKee
Don Thompson
Richard A. Lammb

UTAH SYMPHONY
Don C. Peterson
James Atkinson
Edward Allen
Richard Fletcher

WICHITA SYMPHONY
David K. Martin
Janis S. Danders
Bill Nichols
Nan Funkhouser
Robert S. Moffett

This list includes U.S. Major, Metropolitan, and Community Orchestras who replied to a request for personnel. The Autumn issue will list Canadian and overseas orchestras as possible.

NOTES