

## THE B.A.S.

The Boston Audio Society  
P.O. Box 7  
Boston, Mass. 02215

## SPEAKER

September  
1973

The Boston Audio Society does not endorse or criticize products, dealers, or services. Opinions expressed herein reflect the views of their authors and are for the information of members.

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September meeting. The next meeting of the B.A.S. will take place at 6:00 p. m. on Sunday Sept 16 in Room 314 of B.U.'s Sherman Union at 775 Commonwealth Ave. Enter the basement corridor from Commonwealth or from the rear service road, and use the elevator to ascend to the third floor.

In accordance with the BAS Constitution, this meeting will be the Annual General Meeting. The business meeting will include the Treasurer's report, voting on several issues (see below), and the nomination and election of officers. (Voting is by one vote per dues-paying member. Members for the 1972-73 fiscal year are still eligible; new members for the 1973-74 year become eligible to vote after their dues are paid.) The meeting will also include brief discussions of the three major BAS projects which we expect to implement during the next two months: the BAS library, the BAS record rating service, and a compilation of members' experience with service agencies and equipment. At the meeting, members will have an opportunity to sign up to receive a catalog from Dixie or from Lafayette Radio.

Following intermission, Andrew Petite will introduce and discuss Advent's new low-price loudspeaker. It incorporates some innovations, most notable a plastic cabinet, said to be not merely a low-price substitute for wood, but actually to be superior to wood.

Dues. As the BAS membership year runs from Oct. 1 to Sept. 30, dues for the coming year will be collected at the meeting. The dues will be \$12 (unless voted down; see below). The treasurer prefers payment in the form of a check payable to the Boston Audio Society. If you will not be able to attend the meeting, please mail your check. We are including a renewal form (except to those members who have already paid for the 1973-74 term); in order to ensure that you continue to receive the newsletter, please fill out and return the renewal with your check, either at the meeting or by mail.

Executive Committee Report. The Executive Committee met on September 2 and reached several conclusions which you will be asked to approve by vote at the September meeting. If you will not be able to attend the meeting, you may vote by proxy (on both the issues and the election), either through the mail or by giving a signed statement of your preferences to another member to bring.

(1) Dues. When the BAS was formed, it was not clear what form its principal activities would take, nor was it clear what the Society's expenses would be. So, by consensus, the dues were experimentally set at "ten dollars per

year, subject to revision as necessary" (Bylaws). A year's experience has clarified the situation. The Society's membership continues to grow, but most members' involvement centers around two elements: the BAS publications and the monthly meetings. Every member receives and reads the publications and we have an increasing fraction of members who joined only (or primarily) to obtain the monthly mailing. On the average only about half the members attend any particular monthly meeting and fewer participate in any particular special activity (group purchases, factory tours, equipment clinics).

As the monthly mailing is the largest BAS activity, it is also the most expensive. The production and mailing costs have been running at an annual rate of about \$500/year. This may rise further during the coming year, for two reasons. (1) The postal service anticipates a 25% increase in rates early in 1974 (not yet definite). (2) Our printing cost is rising. Various parts of the mailing have been printed by four different methods, listed in order of increasing cost: mimeograph from direct-cut stencil, mimeo from thermally-cut stencil, photo-offset, and Xeroxing. Part of the job can continue to be done via direct-cut stencil, but part of it requires another route for efficient production. The thermal stencil maker which we have been using has become unreliable and may become unavailable, so if we cannot gain access to another thermal or electric stencil-maker we will have to use the more expensive processes every month.

Other costs can also be anticipated. The treasury has had to partially subsidize the refreshments at meetings since donations have not covered the cost. This deficit will rise if we resume having BU Food Service provide refreshments. Also there will be some expense engendered by the new BAS library, both for some of its contents (reference books, AES Journal, discographies, etc.) and for incidental operating expenses.

Membership renewals at the present dues rate would not cover present and anticipated expenses through September 1974. Therefore the Executive Committee has voted to raise the dues to \$12 for the 1973-74 term. You will be asked to approve this increase at the next meeting.

(2) Amendments to the Constitution and Bylaws. As we gain more members who join principally to obtain our publications, the percentage of members attending each meeting necessarily decreases. So the possibility has arisen that at some meeting we might find we lack a quorum ("one fourth of the total membership"). Therefore it is recommended that the quorum definition in Article VIII of the BAS Constitution and Articles II (Sections 2 and 3), IX, and XII of the Bylaws be amended by changing the words "the total membership" to read "the number of members residing in New England" in each instance. Passage of these amendments will require a two-thirds vote.

(3) Honoraria. The Bylaws provide that at the end of his term of office each elected officer shall receive from the treasury an honorarium not to exceed one dollar per member, in recognition of his/her efforts on behalf of the Society. The depleted state of the treasury prevents award of the full amount specified, so the Executive Committee has voted an honorarium equal to 50 cents per member. Since this token of appreciation was voted and approved by the membership last fall, its award now is completely automatic under the Bylaws.

However, two officers requested that it be re-approved by the members in a pro forma vote, so you will be asked to vote on it at the September meeting.

Laurie Coté, chairman of the Program Committee, organized four of our meetings and has worked on several other activities, so the Executive Committee has elected to award him an honorarium equal to that given to the officers in appreciation for efforts in behalf of the Society.

Elections. No nominations have yet been received. Each of the present elected officers is willing to be re-elected for a second term (Peter Mitchell; president; Alvin Foster, recording secretary; Joyce Brinton, corresponding secretary; James Brinton, treasurer). However each of the present officers is also willing to be replaced by another member and would be willing to help the new officer.

Under our Bylaws the formal duties of the officers can be summarized as follows: President -- preside at meetings and act as the Society's spokesman. Recording Secretary -- prepare reports on all meetings and maintain files of the Society's publications and correspondence. Corresponding Secretary -- handle correspondence, and prepare and mail the monthly meeting notice. Treasurer -- collect dues, disburse funds, keep financial records. These formal duties can be informally shuffled: for example, the recording secretary has handled most of the general correspondence, including inquiries and membership applications, while the convenience and accuracy of the tape recorder have led the president to do the meeting reports.

In addition to the formal duties the officers have accepted broad additional responsibilities. The corresp. secretary, treasurer, and president have been de facto both the Editorial Committee and the Publications Committee, writing the newsletter, writing or soliciting articles and then editing them, final-typing the newsletter, cutting stencils, printing, collating, stapling, folding, addressing, stamping, and mailing the monthly 8-to-15-page publication. The recording secretary and the president, together with Laurie Coté, have been de facto the Program Committee, soliciting guest speakers, arranging to obtain the use of a meeting room each month, transporting and setting up equipment, and cleaning up the detritus (used cups, cigarette butts, etc) littering the room after the members have departed. The corresponding secretary and the treasurer have also been de facto the Refreshments Committee, buying, preparing, transporting, and serving refreshments at nearly every meeting. And of course the five active members of the Executive Committee (the four officers plus Laurie Coté) have been centrally involved in most of the Society's other activities.

Thus while candidates for election to office are invited, what is more earnestly needed is candidates for responsibility. The work of the BAS should be shared by more than five members. Volunteers, anyone?

B. A. S. Library. Victor Anderson and Carl Covell have volunteered to establish and operate the BAS library. To minimize the drain on the treasury, the operating theory will be that most of the materials which members would like access to are already in the possession of other members and need not be bought. You may have materials which you would like to donate. You probably have materials which you don't want to donate but which you would be willing to let other members look at or borrow. (Examples: books on both music and

sound, catalogs, discount-house price list, back issues of magazines, discographies of recommended recordings, service manuals, schematics, and test equipment.) To help Victor and Carl get the library started, please make a list of the things you have available. Don't bring in a pile of material; the library isn't ready for it. Just bring lists of (A) what you would donate and (B) what you want to keep but will permit borrowing of.

Questionnaire. This mailing includes a questionnaire on servicing, from which we hope to compile recommendations that you can draw on the next time your system needs service. Is hi-fi equipment servicing really inadequate? Is it overpriced, slow, and incompetent, or is that reputation undeserved? Are there any service facilities which are consistently excellent, and are there any which should be carefully avoided? If enough members supply enough information via this questionnaire, we may be able to put together a statistically meaningful picture of local equipment servicing. The questionnaire is anonymous and confidential. Please fill it out and mail it to our P. O. Box or bring it to the next meeting.

A shop's personnel and policies evolve with time. A favorable report of Tandberg-trained Rohr Vatsveen's work at Audio Lab would be irrelevant now that he is gone. Similarly, negative reports of Tech Hi-Fi's service in their early days would not tell us whether Tech now places as high a priority on service as the appearance of their new MIT branch suggests. So list recent service jobs only -- since, say, January 1970. (Can anyone provide data on the quality of AR's service since the new management took over in January 1973 ?) If you have taken several things to the same place, list and evaluate the jobs separately; the data may reveal, for example, a shop that is good at electronics but lousy at mechanical repairs and adjustments.

Adventures in Sound. Victor Campos returns! And with an expanded broadcast schedule -- three days a week during October! In each of his programs Victor Campos will broadcast master tapes, with all compression and limiting removed from the broadcast process, and with Dolby A noise suppression used all the way to the transmitter, decoded just prior to broadcast (so a Dolby unit is not required at home to hear the broadcasts properly). These programs exploit the potential range of FM and may expose inadequacies in your antenna or tuner. The first three Adventures in Sound will be specials, each four hours long, and each will be rebroadcast on Monday evening as well as Sunday afternoon, on WGBH.

Sept. 30 (2:30 - 6:30 pm) and Oct. 1 (8:00 pm - 12:00) - The revelatory Marilyn Horne/Leonard Bernstein/DGG recording of Bizet's "Carmen."

Oct. 8 (12:00 - 4:00 pm) and Oct. 9 (8:00 pm - 12:00) -- The legendary Beecham recording of Handel's "Messiah" with super soloists (Jennifer Vyvyan, Jon Vickers, and Giorgio Tozzi).

Oct. 15 & 16 - The new Vanguard recording of Rossini's comic opera "La Pietra del Paragone" (The Touchstone), Newell Jenkins cond.

The early starting time on Oct. 8 is to make room at 4:00 pm for the long-awaited Charles Eliot Norton lectures by Leonard Bernstein, with pre-taped illustrative exam examples played by the BSO.

During October Victor Campos will also provide Adventures in Sound on Saturdays, from 7:00 -8:30 pm on WGBH (just before the live BSO broadcasts). He will feature smaller-scaled musical performances than on Sundays -- possibly including Mozart symphonies and Beethoven quartets.

Philharmonia Concert. Boston's other professional symphony orchestra, the Boston Philharmonia, is on its way back to life now that it has found a home at the Boston Center for the Arts. Their April concert revealed the astonishingly good acoustics of the National Theater. Their second concert at the National will be on Sunday October 7 at 8:00 pm, a benefit concert to begin raising money for the restoration of the hall. Michael Tilson Thomas will conduct the orchestra and the Cantata Singers in Stravinsky's "Abraham and Isaac" (1964), Beethoven's cantata op. 112 "A Calm Sea; A Prosperous Voyage," Haydn's Symphony #81 in G, and a fourth work to be chosen. Plainly the Philharmonia is continuing its policy of playing unhackneyed repertoire. As he did in April, Al Southwick will record the concert for possible later broadcast. The National is at 533 Tremont, near Clarendon, in the area of the South End which is being broadly restored.

Used Equipment. Marantz 717 stereo preamp, \$175. Ampex 1450 auto-reverse tape deck, \$150. Scott 355 AM-FM tuner/preamp, \$120. Sony 277-4 4-channel deck, \$250. Ampex and Sony decks set for low-noise tape. Viking 86 deck with quarter and half-track playback heads. Tom Horrall, 456-8715 evenings, 491-1850 ext. 207 days.

August meeting. About 50 members met on August 19 in the Melville Lounge at 700 Commonwealth. Laurie Coté reported that Marty Gasman's accident had delayed the BAS group order of Revox recorders. Peter Mitchell and Jim Brinton called attention to the Musical Heritage Society, a mail-order firm producing records borrowed from many European labels; their catalog lists over 1000 classical recordings not included in Schwann. Dennis Boyer recommended Scott's Liquid Gold for restoring luster to wood finishes such as speaker and equipment cabinets. Tom Horrall pointed out that the Thorens TD-160C turntable is not provided with sufficiently long screws to permit mounting the Shure V-15 Type III cartridge properly. Bill Shelton commented favorably on the performance of the Teac 450 cassette deck. Al Southwick confirmed that the erratically poor sound of the BSO Tanglewood broadcasts this summer has been due to Ma Bell, and he encouraged critical letters to N. E. Telephone and to the state Dept. of Public Utilities as well as to WGBH. Jim Brinton also suggested letters to WGBH and Victor Campos hoping for the resumption of "Adventures in Sound," a popular desire.

Mark Davis, an advanced student in acoustics and psychoacoustics at M.I.T., set up an array of sophisticated test gear and gave a lecture/demonstration which, at its conclusion, Andrew Petite of Advent called "the best presentation I've ever seen on audio." Mark began by defining some terms and explaining the operation of the oscilloscope. He showed that tones having the same music pitch (G above middle C) but having audibly different timbres exhibited correspondingly different waveforms on the scope. By feeding the various-sounding tones (still at the same pitch, 400 Hz) through narrow-band filters he showed that while the sine-wave is a single-frequency tone, other timbres such as triangular and square waveforms contain signals also at 1200 Hz, 2000 Hz, etc, multiples of the basic 400 Hz, frequency used. When the "harmonics" were filtered out, the various timbres suddenly all sounded (and

looked) alike and identical to the sine-wave test tone. Doubtless all audiophiles have read that musical tones always contain a "fundamental" sine-wave tone plus "harmonic" sine-wave tones at higher (multiple) frequencies, but seeing and hearing the phenomenon is more impressive than reading about it.

While the change in waveform due to different harmonic content is readily audible, a waveform can also be altered by phase shift -- which causes some frequencies to be processed through a device slightly earlier or later than others. Mark asserted that phase shift in any single source of sound is inaudible. He sent harmonically-rich tones at 40 Hz, 400 Hz, and 3 kHz (the latter to disprove Leonard Feldman's complaint about tone-control phase shift in the September High Fidelity) through a 30-band filter set whose frequency response is flat except for 1.5 db ripples, but whose phase shift is enormous -- much worse than any likely hi-fi component. A-B comparisons showed drastic waveform distortion due to the phase shift, but the only audible difference was a very subtle change in timbre due to the 1.5 db response: ripples, with no audible effect attributable to the phase shift.

Mark then clarified the distinction between phase shift in a single component or source, which is inaudible, versus phase-cancellations or phase differences between multiple signal paths. When two or more related signals which have been differently phase-shifted are heard together, audible frequency-response and stereo-localization errors can be produced. This can occur in speakers, in multi-track tape: recorders, and in four-channel matrix systems.

Using a 10 kHz square wave, whose harmonics are at 30 kHz, 50 kHz, etc., a wideband amplifier was A/B'd with one cutting off sharply at 20 kHz. Members heard little or no difference, suggesting that ultra-wideband amplifier design provides little audible advantage. Mark played test tones enabling each member to determine the upper-frequency limit of his hearing. The psychoacoustic problem that perceived musical pitch depends not only on frequency but also on loudness was noticed and discussed.

In order to demonstrate the ear's sensitivity to frequency-response aberrations, Mark used a pink-noise generator and the filter set. A/B comparisons showed that the change due to a response which was flat but 1 db down in level at all frequencies above 500 Hz was plainly audible, suggesting that audio components must be flat to within better than  $\pm 0.5$  db over most of the audio range in order to be audibly perfect. A frequency-response error does not have to cover a broad range if it is a sufficiently large peak or valley; a notch 10 db deep and only 300 Hz wide centered at 1400 Hz was obvious and even a 2 db notch was detectable once one knew what to look for in the noise spectrum.

Very narrow peaks and valleys would not be audible; the ear tends to average out frequency-response errors much less than one-third of an octave wide. So Mark introduced one of the most useful tools in audio: the real-time spectrum analyzer, which divides up the complete audio range (20 Hz - 20 kHz) into 30 bands each one-third of an octave wide; measures the energy level in each band; and instantly displays in graphical form the entire frequency "spectrum" of the sound. A variety of recorded musical examples played into the analyzer demonstrated that most music contains relatively little energy above 5 kHz, except that when percussive sounds appear the energy spectrum becomes

approximately flat up to beyond 10 kHz. The lathe rumble engraved into many records was also evident.

Using a calibrated microphone and sine-wave test tones, frequency-response measurements were made on an AR-6 and a Smaller Advent speaker. Peaks and valleys of 10 to 15 db were found in the lower midrange, separated in frequency by about one tenth of an octave, due entirely to room reflections. These were inaudible. With pink noise and the spectrum analyzer, the effective response curves of the speakers were both found to be quite good, smooth and flat within a few db, the principal difference between there being a 2 or 3 db shift in midrange balance (clearly audible). The AR-6 tweeter was then turned from maximum down about half-way to create a drastic difference between the speakers. Their responses were measured with the analyzer and the difference in measured response was set on the controls of an equalizer. Then the Smaller Advent was A/B'd with the altered and equalized AR-6 (equalized to produce a similar 1/3rd-octave frequency response), and on various samples of music the two speakers sounded quite similar. As Mark Davis pointed out, this indicates that among a broad range of loudspeakers with low distortion and similar dispersion patterns, the principal determinant of a speaker 's sound is its frequency response as measured on a 1/3rd-octave basis. This is true despite the mass of nearly meaningless verbiage a which is published in speaker ads describing novel approaches to speaker design and manufacture.

It is interesting to note that a number of noted speaker designers attended the June BAS meeting (to hear Dr Heil), but not the August meeting. Ironically they would have been better advised to attend Mark Davis' presentation; they might have learned a thing or two.

## B.A.S. QUESTIONNAIRE ON SERVICING

This questionnaire is anonymous, and the results will be compiled for use by other members. Describe servicing jobs since Jan. 1970 only. If you have more than four cases to describe, add columns on the reverse of this page or add a second page.

	1	2	3	4
List each piece of gear that has needed service (make, model, type of component)				
What was wrong with it?				
IN or OUT of warranty?				
What service facility did you take it to? (name, location)				
Factory (F), dealer (D), or independent (IND) service shop?				
Was the service (1) overpriced? (2) reasonable? (3) a bargain?				
Was the speed of servicing (1) excessively slow? (2) reasonable? (3) quick?				
Was the quality of the work (1) excellent? (2) adequate? (3) careless?				
Did they fix the problem?				
Did they also do a general tuneup and checkout?				
What is this service facility's principal deficiency?				
Other comments?				



MEMBERSHIP RENEWAL  
BOSTON AUDIO SOCIETY  
1 Oct. 1973 - 30 Sept. 1974

Enclosed is a check for my membership dues.

NAME\_\_\_\_\_

ADDRESS\_\_\_\_\_

\_\_\_\_\_ZIP\_\_\_\_\_

TELEPHONE\_\_\_\_\_

Is this the same address as last year? Yes\_\_\_\_No\_\_\_\_

MEMBERS' ADDRESSES WILL BE KEPT CONFIDENTIAL

This form will be cut along this line after receipt.

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BAS LIBRARY MATERIALS LISTS AND SUGGESTIONS

I request that the following materials be made available through the BAS  
library:\_\_\_\_\_

I would donate these materials to the BAS library:\_\_\_\_\_

I own and plan to keep the following materials, of which I would permit short-  
term borrowing by members:\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NAME\_\_\_\_\_