INTERVIEW

Daniel Schmidt: composition and the design of American gamelan

by Peter Adler and Jody Diamond

Daniel W. Schmidt is a composer and an instrument builder who has been involved in gamelan since 1970. He lives and works in Berkeley, California, and is the director of The Berkeley Gamelan. His innovative instruments are found across the country. He has taught at several universities and colleges, including U.C. Berkeley, and is presently an instructor at Sonoma State University, where he is building his first complete brass gamelan.

This interview was conducted on several dates during the Fall of 1984, in Berkeley and Oakland, California. Daniel Schmidt describes his compositional history, his self-devised tuning system, and his views on the character and future of new gamelan outside of Indonesia.

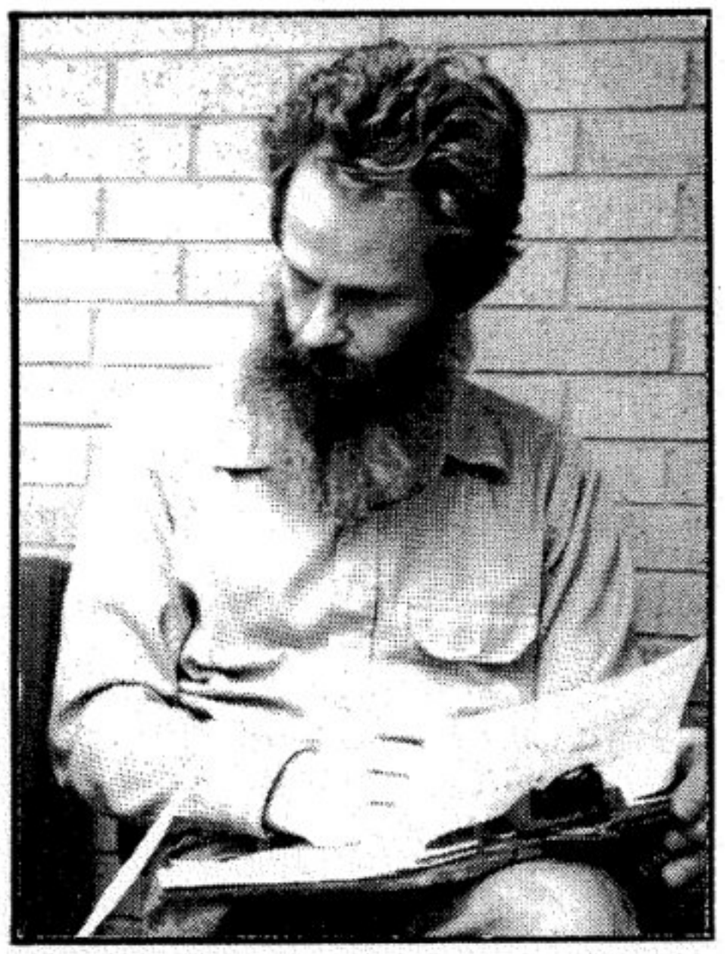
Balungan: What got you interested in gamelan?

Daniel Schmidt: I admired the integration of all facets of Javanese art, what I call the musicosocial interface of music, dance and drama, as opposed to the separation of these arts we have in the west.

After I received my degree in electronic composition from California Institute of the Arts, where I'd studied with Morton Subotnick, I moved to Berkeley and started a three year compositional program. I had enough money to work on my own producing essentially tape pieces using techniques such as musique concrete, live electronics; basically a series of studies defining myself as a composer.

I met Lou Harrison at the Center for World Music in 1975 in Berkeley. He was holding a seminar in tunings at the Center and out of that we organized a concert of new compositions for gamelan. Simultaneously I was designing and building my first gamelan instruments. The local community was really supportive of our endeavor at the time, and the concert was very well received.

Within six months I saw that I was in the right place at the right time. I had written several gamelan pieces by this time and I could see that I was well suited both as a composer and instrument builder to integrate these two arts into a cohesive unit, thereby focusing my resources. It was a difficult decision to discontinue all of the work on the tape pieces, but I ceased work in that genre.

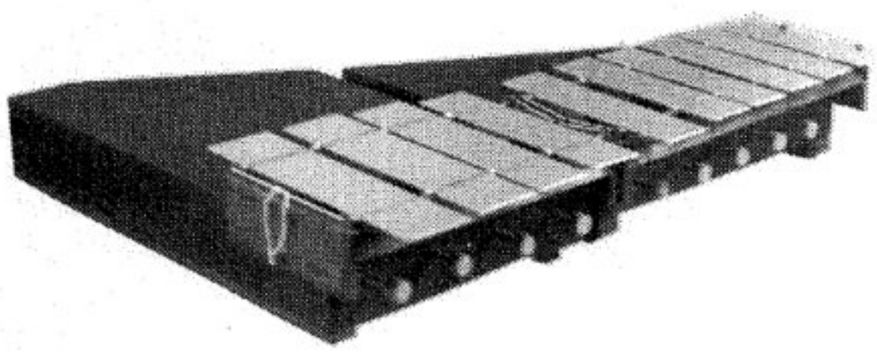


B: Did you manage to integrate your previous experience into your new music?

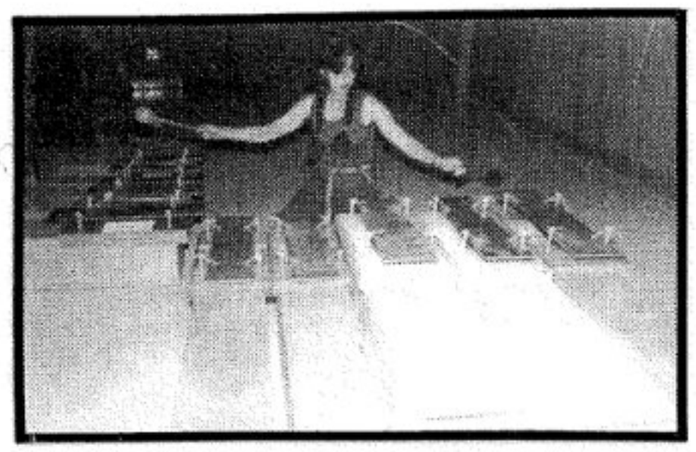
DS: Yes, I see everything I've done since 1973 as part of the same process. What I did was to apply the techniques I'd used in the earlier tape pieces -- compositional elements such as overdubbing, phasing, accumulation, and proceduralism. These have become important elements in my compositions for gamelan.

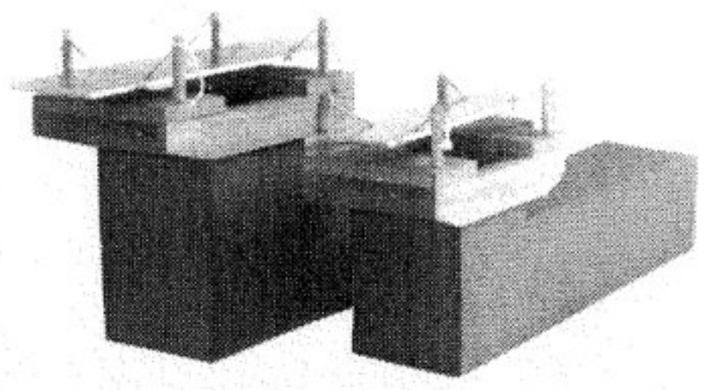
Some conceptual art and related music tries to make the process obvious to the audience, but I wanted to be more subtle. Incidentally, I want to point out that , compositionally, I have no interest in minimalism. I can't draw directly from Reich or Glass. What made more sense to me was to find a middle ground between my compositional world -- aleatoric, pointillist, minimalist, procedural -- and the Javanese traditions. I thought of it as embarking on a private approach to gamelan writing.

B: Which of your pieces do you think stand as good examples of American gamelan?



1. slentem





2. resonated key-gongs

DS: Two pieces: **Ghosts** (1981), and **Faint Impressions** (1982). **Ghosts** was was one of my first successful integrations of my newer forms into older Western approaches. It has melodic development, classical structural elements like statement and recapitualtion, theme and countertheme, solos and duets; the finale combines the elements in a sort of Romantic flourish. On top of that, it uses structural proceduralism. Like that method of accumulation; a traditional composer might state a melody and break it into motives, but I build fragments into a melody.

Faint Impressions I mention because it's entirely mine. There are musical gestures in there I have yet to figure out how to duplicate. I turn back to study the score, and its like looking at someone else's music. It's not derivative from either East or West.

B: Do you think its possible to create a "non-rhythmic" gamelan piece?

DS: Oh, yes; **Faint Impressions** for instance. Gamelan doesn't have to be bound by that strict four-beat structure. It's possible to have slow melodic gestures that aren't perceivable as rhythmic gestures. I liken it to a tapestry. You don't notice a tapestry being made of threads. **Abies Magnifica** (1984) accellerates the rhythm using techniques related to kotekan and imbal until it's imperceivable as a rhythm; you can have slow sweeping events that are apparently unrelated to the fact that the musicians are playing as fast as hell.

You can liberate yourself from the automatic suggestions of the tradition. I might see it differently if I were working with Javanese instruments and not my own. As a composer, I hear a sound while I'm writing; as a builder, I make an instrument to produce that sound. I can look at a seemingly infinite sound spectrum, so I need have no constraints connected with the Indonesian tradition. On the other hand, my compositional elements come out of existing traditions, East and West. One of the most important factors in my decision-making process is a retention of gamelan as a musicosocial phenomenon. Regardless of how infinite I see the musical possibilities to be, I want it to function as a gamelan [group].

By the way, I've never been to Java, although I'd like to go. But I'm not trying to imitate the Javanese social structure. When we play gamelan in America, there's more going on than just music. The physical structure of the instruments makes us sit on the floor. It's ensemble music, it requires cooperation; there's no room for the superstar musician. I had to go through a lot of soul-searching before I decided to keep those features. Playing on the floor also affected my instrument development.

B: What is the relationship between your instruments and the Indonesian instruments?

DS: My instruments have no tradition behind them. They're the product of one creative mind integrating composition and instrument building. But because I desire to retain certain aspects of gamelan, certain of my decisions are affected.

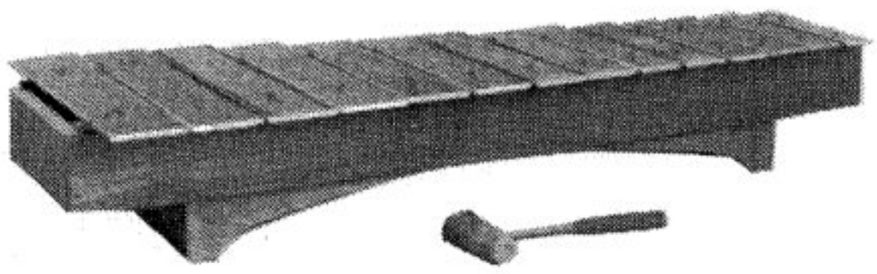
Pitched percussion, ensemble playing, and sitting on the floor, as well as certain playing techniques like damping, are the ways that I have tried to be like the traditional gamelan. After that point I venture forth into my own choices of timbre, broadening the possiblities beyond what is normally found in an Indonesian ensemble.

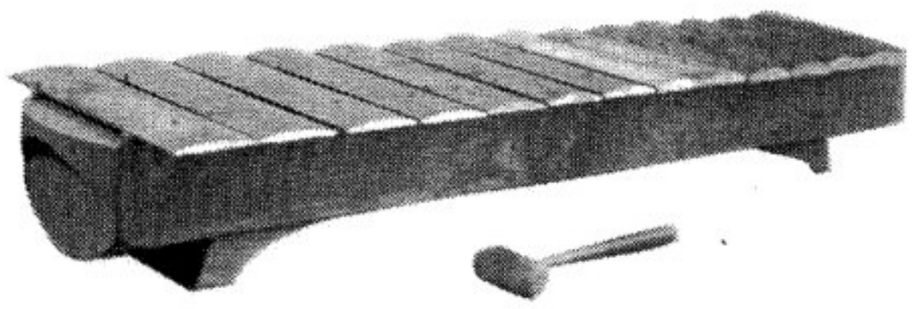
The first American gamelan instruments were made of aluminum. I'm now exploring the sound of different metals, such as brass and bronze alloys, and the timbral qualities of differnt thicknesses of those metals. I'm trying to reconsider and reconstruct the timbral relationships of the instruments across the whole range of the gamelan.

My current challenge is to build instruments that can fulfill Indonesian roles, since there is a need and an interest in playing gamelan that way. Yet my real interest is in developing extensions outside of those roles.

B: What instruments are the result of these new extensions?

DS: The tubes, because they are of thick-walled aluminum tubing, which has a timbre that is new to gamelan. The gong system that I've designed, which is virtually





3. aluminum demung (left), brass demung (right)

"chromatic", spanning several octaves, enables me to combine tones that create new timbres in the lower range. Certain combinations can approximate the sound of Javanese gongs, but there is a range of sounds beyond that as well. The key to this is the tuning system: I am precisely tuning low pitches to adjacent harmonics.

B: Tell me about your tuning system.

DS: I wanted to use just intonation, but it was also important to keep the character of the Javanese slendro and pelog tunings. I examined many Javanese tunings and discovered that the structure of the scales closely matched adjacent tones in the harmonic series.

I chose the lowest note of the gamelan to be the lowest gong tone, and drew the rest of the pitches from the harmonic series of that tone. By octave displacement, I gained a scalar system that spans six octaves.

Pelog, the Javanese name for the seven tone tuning, is drawn from a 60 Hz gong, and consists of the following harmonics: 10, 11, 12, 14, 15, 16, 18. These become the pelog pitches 1, 2, 3, 4, 5, 6, and 7, with the gong at pitch 6. The five tone slendro tuning, which the Javanese number 1 2 3 5 6, is based on a pitch 2 gong that is 40 Hz; the harmonics are 14, 16, 18, 21, and 24. (When divided by 2, these are sequential tones in the harmonic series.)

The two scales overlap so that pitches 6 and 3 are the same, and slendro 5 equals pelog 4. I've replicated the Javanese tunings, but at the same time created a system with eleven tones in the octave which gives great compositional freedom. The completed system consists of harmonics 10, 11, 12, 13, 14, 15, 16, 17, 18 in pelog (60 Hz), and the remaining slendro pitches are harmonics 14 and 16 of the other gong (40 Hz).

B: Why have you written for only a very small range of instruments, never voice or winds, and only a few pieces for rebab (Javanese bowed lute)?

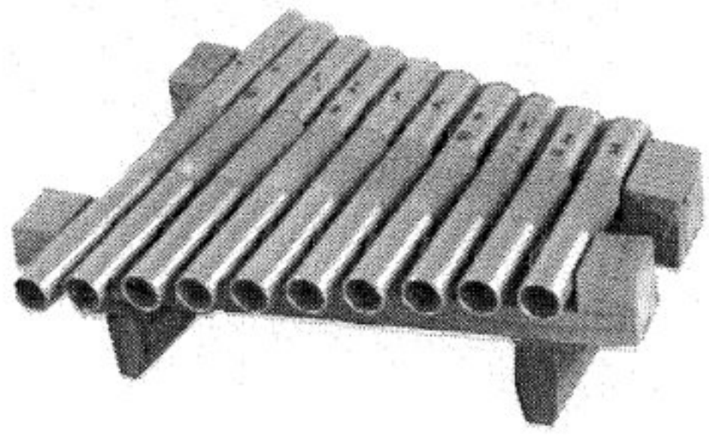
DS: At this point, strings are not that important to my compositions. My occasional use of rebab is, again, not an effort to imitate the Javanese tradition. A Western singer is of no value to me now; I'm not interested in text. If I were to use a vocalist, I'd need an extended vocal technique like Kathy Berberian's. I've made some experiments with unusual bowing techniques, but I'm not satisfied yet. I still have a long way to go in exploring the dynamic and timbral range I have now.

I haven't found the meeting point between Javanese, Western, and New Music yet, so I'm limiting myself to my chosen artistic realm. I'm not comfortable drawing from exisiting trends, and all these alternate directions look to me as if they would change the social relationship of gamelan. I'm not a virtuoso of Javanese musicianship by any means; I'm capable, but I've never reached the position of specialist. I'm still experiencing the communal element of the music. While I was at the Center for World Music, I was involved with Karnatak (South Indian) music, in which a premium was put on personal expression; so the gestalt of my experience with these two idioms is that of polar opposites yielding the same awareness.

Morton Subotnick once said in a lecture, "If you really love your endeavor, it will be a piece of art." Underlying my work is the desire to bring a musical experience to people — or, rather, to set up a context in which such an experience is possible. If I try to guide people to a specific end, I'd be limiting myself. If I love my endeavor, the depth of that endeavor will touch people.

B: What is the potential for new gamelan composers?

DS: I think American-built gamelan are ideal vehicles for composers -- they have to consider the alternatives to the traditional musical organizations. It is so hard now



4. aluminum tubes

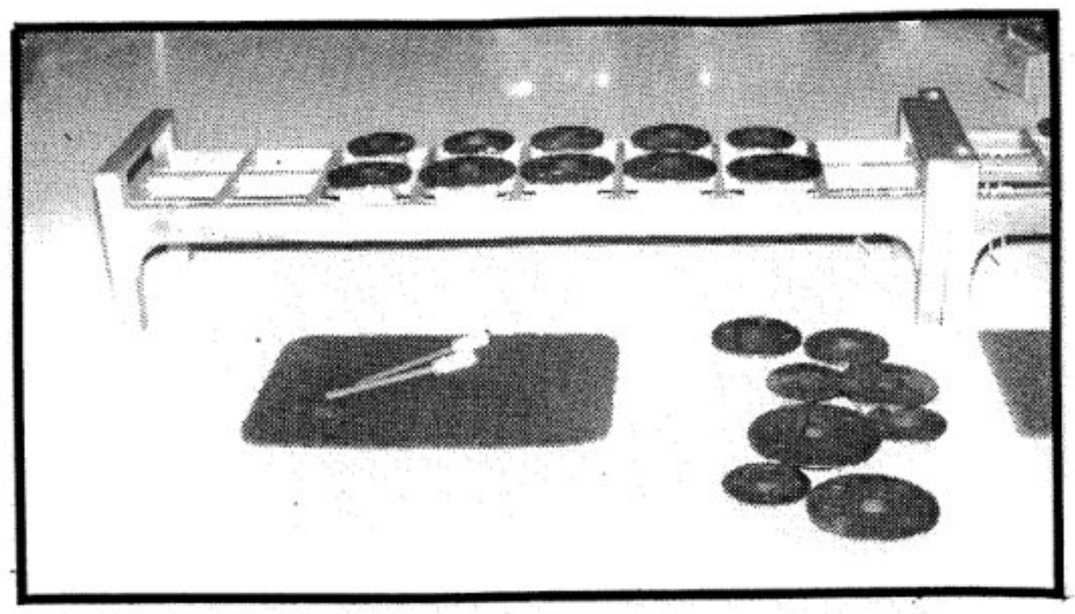
to gain access to any of the traditional groups; the role of composer/builder/leader becomes a really attractive alternative.

B: What is your view of gamelan in the new music community?

DS: There hasn't been enough growth yet of gamelan outside Indonesia. We're just now starting to develop the kind of international communications network we need.

Five years ago, I was invited to a festival in West Berlin, with all my instruments and some members of my performing group **The Berkeley Gamelan.** It was really too early in the developmental process. We are only now beginning to develop artistic merit. We've got to allow time for development and forego the instant gratification of "making it." We have to be allies rather than scramble over each other to be the first cult star.

Our common goal will be the development of American gamelan. I'd prefer to be known a contributor to a large movement. The future of new gamelan outside of Indonesia will depend on the number of participants and the quality of their work.



5. brass bonang

Peter Adler graduated from the composition program at U.C. Berkeley, and is a member of The Berkeley Gamelan.

ABOUT THE INSTRUMENTS

In gamelan built in the West, several instruments are referred to by the names of the Javanese instruments that were the builder's inspiration. Since the American-built gamelan also functions as a traditional ensemble at times, this has been a convenient link between the tradition of Java and the innovation of the West.

The Javanese gamelan is a closely related group of instruments with a wide range of timbres: drums, flutes, bowed strings, plucked strings, voices, trough- and individually- resonated metallophones, and suspended gongs of various sizes. Gamelan built by Western designers have included different combinations of these timbral groups. The classic Javanese gamelan is usually made of bronze or iron with wood cases; there are other gamelan, in Bali and elsewhere, of wood and of bamboo. American builders have concentrated largely on aluminum, partly due to the easy and economical avalability of aluminum in the west, as well as iron.

The first gamelan built outside of Indonesia have tended to focus on a particular family of gamelan instruments: the resonated bars. (Another article could explore the reasons for this emphasis.) In the Javanese gamelan, there are four of these instruments, covering as many octaves, that carry the melodic framework known as **balungan.** The lowest is the **slentem**, which has individually resonated keys, like the gender. The next higher is the **demung**, then the **saron**; the highest pitched of these three trough-resonated instruments is called **peking** or **saron panerus.**

Another Javanese name that has transferred to American gamelan is that of the **bonang** and **bonang panerus.** In Java these are small bronze or iron gongs suspended horizontally on stretched cords; American gamelan tend to have circular, rectangular, or octagonal plates of aluminum, or iron plates with a raised boss; these are suspended either on short wooden pegs or on strings.

There are several terms in Indonesia for the various sizes of gongs, but the single word **gong**, being already familiar to Westerners, has come to be used collectively for all resonated-key instruments that are intended to fill the function of, or approximate the timbre of, actual gongs as they would be found in the Indonesian gamelan.

Daniel Schmidt is one of the most active builders of American gamelan; the photographs in this article show some, but not all, of instruments that he has built. His other instruments include a **gender** with brass keys, drums of various material including PVC plastic pipe of large diameter, key-gongs with very large, tall resonators, and several designs of stringed instruments.

The two octave aluminum slentem (photo 1), played with yarn-over-handball mallets, has an individual tunable resonator for each key. The round knob below each key is attached to a stopper that can be moved to change the length of the resonator so it can be matched to the particular pitched bar placed over it. This allows individual keys to be converted for different tunings.

The resonated key gongs are from a two octave set (photo 2) containing the pitches of both the slendro and pelog tunings, and are one of Schmidt's most acoustically innovative designs. They are constructed of aluminum bars, with pine cradles and particle board resonators, although the latter are currently being made of Finnish birch plywood. This original design uses rectangular quarter-wave resonators, which also have movable stoppers. The tone produced by these gongs is a sine wave; the strong, pure tones can be combined to produce rich and unusual timbres.

The two octave aluminum demung (photo 3, left), in convertible tuning, has an alder case, and is played with balsa or yarn-wound mallets. The keys are all 1/4 inch thick, which reflects the earlier American approach of uniform thickness in all keys. Schmidt has since built instruments in which the higher keys are thicker, which gives a greater evenness of sound across the range of the instrument.

The two-octave brass demung (photo 3, right) in convertible tuning, has a hand-carved alder case, and is played with basswood mallets. This is the first two-octave instrument Schmidt built by machining brass. Probably the first of its kind, it significantly broadens the sound spectrum of new gamelan instruments.

The two octave tuned aluminum tubes (photo 4), have an alder frame, and are played with yarn-over-wood mallets. The center of each tube is rough-brushed to provide more friction for the mallets. This design was one of Schmidt's first experiments, and it is a timbre unique to his gamelan instruments. The Berkeley Gamelan has a set of four, two pair that are one octave apart.

One of Schmidt's newer instruments is the two octave bonang with brass discs (photo 5) suspended on cords in a wooden frame. Each disc is individually suspended to accomodate the convertible tuning; the instrument is played with two cylindrical rope-wound mallets. Earlier bonang were made from aluminum discs mounted on three pegs; the brass instrument is far more resonant, and the aesthetics of the wood working have developed considerably.

8. Balungan