PROFILE

Dewa Alit and Gamelan Salukat

by Oscar Smith

Abstract. In this profile, I share information about Dewa Alit and Gamelan Salukat. First, I provide a description of his philosophies, ideas about culture, and strategic vision for the group. Then I analyse the organology of three out of the four incarnations of the Salukat instruments, detailing their tuning, key configuration, use of ombak, and frame design. I also discuss the compositional implications of his instrument designs, drawing on my experiences composing for the group.

Pada profil ini, saya membagikan informasi tentang Dewa Alit dan Gamelan Salukat. Pertama, saya memberikan

Saturday 21 July 2018. Pengosekan, Bali.

Rehearsal with the Çudamani Summer Institute finished for the day; we've been practicing a tabuh kreasi from the 1980s by the late Wayan Gandera. Since our final performance will take place in the next few days, Çudamani's gamelan semarandana has been moved from the sanggar to Dewa Berata's house compound, which is located at the end of a long winding driveway with walls covered in lush green vines. As I wander back down the driveway, I hear the sounds of another gamelan. I peer through an open gate and see a rehearsal in progress. There are a few other foreigners watching the rehearsal, so I assume it's okay to enter. I'm greeted by an unfamiliar scale, and finely coordinated glissandi; I take a short video on my phone. I thought I knew my Balinese modes pretty well, so I'm confused by what I hear: They don't seem to be from a semarandana or semar pegulingan, or any ensemble I know about. The intervals seem different, even accounting for normal tuning variations between gamelan.

This moment marked the beginning of a long encounter. Shortly after, I asked around and discovered that this ensemble was Gamelan Salukat, led by Balinese composer Dewa Alit, younger brother to Dewa Berata, whose house I was departing from on this occasion. They were rehearsing one of Alit's newest pieces at the time, "Ngejuk Memedi" (see Tenzer 2018). I was studying composition, and so I was excited to finally hear Balinese "new music," having primarily heard new pieces in the older kebyar style at the Bali Arts Festival (Pesta Kesenian Bali, or PKB). This was something quite different—not a "kebyar recycling" as Dewa Rai (another brother to Alit and Berata) called it. About a week later, I went to the Ganesha Bookstore in the centre of Ubud, where I found two CDs of Alit's compositions played by Gamelan Salukat. I listened avidly to these for several months in my car back home in Australia.

deskripsi filosofi dari Dewa Alit, pandangannya tentang budaya, dan visi strategisnya untuk kelompok gamelannya. Selanjutnya, saya melakukan kajian organologis pada tiga dari empat inkarnasi instrumen Salukat, merinci pada pelarasan nada-nadanya, susunan daun atau bilah instrumen, penggunaan sistem "ombak", serta kerangka bentuk instrumennya. Saya juga membincangkan bagaimana rancangan instrumen tersebut mempengaruhi pendekatan dan teknik-teknik komposisi, dimana hal itu berdasarkan pada pengalaman saya berkarya untuk Gamelan Salukat.

Translation by I Putu Arya Deva Suryanegara

I was still confused about the instruments, though: What I heard on these two CDs—*Gamelan Evolusi* (2008) and *Genetic/Land is Talking* (2015)—didn't match what I'd heard in July 2018; I knew I could play some of the melodies of Genetik on semarandana instruments. I rewatched the phone video I'd made, and it was clear that the instruments bore little relation to those on the CDs. It captivated me so strongly that I was inspired to compose a piece for these instruments and their musicians; I knew I needed to return to Bali soon to learn everything I could about Salukat.

In the meantime, Alit sent me recordings of the instruments I saw that day, which I used to gain a preliminary understanding of the scales. That was enough for me to write a piece for Salukat in the latter half of 2018, which I titled "Waringin." I then returned to Bali in December 2018 and spent many days in Alit's composition loft room chatting with him, learning about his instruments, and proposing to record my piece with his group. I became quite obsessed with his piece, "Genetik." I was preparing for an honours project in the September semester, and decided that exploring "Genetik" could be a way to get inside the mind of this fascinating composer. In early 2019, I corresponded with Aya, Alit's wife, to plan a budget and organise rehearsals and a recording session with Salukat. In June-August 2019, I returned to Pengosekan to record "Waringin" with Salukat, and to interview Alit to learn as much as possible about "Genetik."

Shortly after arriving, I made my way to Alit's outdoor *sanggar* [studio] and inspected the instruments. Before the first scheduled rehearsal, I wanted to check that what I knew about the instruments was correct. It turned out that the recordings of the instruments I'd been



The musicians of Gamelan Salukat in rehearsal in 2018. Musicians, left to right—Name (nickname)—front row: I Komang Resa Pradana (Resa), I Kadek Putra Agustina (Deknyat), I Dewa Gede Artayasa (Baduk); second row: I Wayan Eka Sutawan (Eka), I Wayan Sumerta (Nana), Cokorda Agung Sedana (Cok Gung), I Wayan Galung Marwanaya (Awan); third row: I Made Aristana (Made), I Putu Astianawan (Liong), I Kadek Janurangga (Otok), I Wayan Okto Saputra (Gabler). Photo: Oscar Smith.

sent weren't quite complete-I didn't think to ask for the jegogan as well as both calung because I assumed they'd have the same pitches, except with the normal relation of pengumbang (slightly lower) and pengisep (slightly higher) tunings. It turns out that Salukat's gamelan in its current form included four pokok [core melody] instruments, a jegogan and calung pair in one scale but with different, overlapping ranges, and a jegogan and calung in another scale, also with different ranges. To my surprise, none of these four comprised a pair with which to create ombak, the beating effect caused by pengumbang-pengisep tuning differences. I needed to quickly reconfigure some of the melodies I had written. I also tried to play the melodies from "Genetik" that I could sing from memory after obsessive listening over the previous year—to no avail. There was no combination of modal extractions that generated the same intervals as in Genetik and the other CD. It took some very close listening and many hours of interviews with Alit to make sense of this.

From my deep engagement with Alit's musical world as a composer-cum-ethnomusicologist, the sonic and instrumental features of his gamelan slowly became clear. I learned about technical aspects of his instruments as well as the motivations behind their design, which to my knowledge had not been previously studied in great detail. I was motivated to further understand the creative ideas behind this composer and his instruments.

WHO IS DEWA ALIT?

Biography

Dewa Ketut Alit (b. 1973), is known to many international gamelan enthusiasts as a composer, gamelan musician and teacher. In 1997, Alit co-founded Gamelan Çudamani in Pengosekan with his brother Dewa Putu Berata, and was senior composer and *ugal* [lead metallophone] player of

the group for about a decade. Since then, Alit has taught overseas, primarily at the University of British Columbia and Massachusetts Institute of Technology (MIT), and also at a high school in Perth, Australia. He has composed for gamelan groups worldwide. Notably, and to a unique degree among Balinese composers, he has also composed for other ensembles of international stature, including Ensemble Modern in Germany and Talujon percussion ensemble in New York, to name a few. Alit left Çudamani in 2007 to pursue his ambitions as a composer first and foremost, and to that end he formed his own ensemble, Gamelan Salukat. Both the instruments and the music Alit writes for them are at the cutting edge of new gamelan music in Bali today.

Philosophies

Being "new" is a priority for Alit. And yet he is deeply and intimately connected with his musical and cultural heritage, with no wish to throw the baby out with the bath water. On the one hand, Alit is radical in his effort to disentangle music from religion, eschewing the widelyshared notion that Balinese gamelan music has sustained itself through its interconnection to Balinese Hinduism (Agama Tirtha Bali). On the other hand, he retains what he believes are essential aspects of traditional practice, most notably the oral pedagogical method of *maguru panggul* ["learning by the mallet"], by which all musical parts are learned orally, by memory and through repetition. Alit's notational tools are a hybrid of Balinese *aksara* [script] notation, some Western notation, and adapted aspects of cipher notation that suit his newer instruments. He hopes to keep Balinese music "the master of its own house" and also broaden the context for the appreciation of gamelan music through the presentation of "art music" concerts at venues such as Bentara Budaya Bali and through international touring. This is Alit's strategic vision:

eschewing tradition where he wants, and holding onto it when it suits him. He expresses this nuanced position in a short essay about his composition "Genetik."

Bali is extremely lucky to have a form of traditional gamelan music of such depth and meaning. This cultural wealth begs to be well-cared for and is foundational to the future sustainability of traditional music. It is part of our cultural design that gives Bali its unique reputation. Cultural preservationists must be aware that this does not happen on its own. . . . If we as Balinese grow apathetic towards the core issues involved in the development of our own artistic forms, then should we just hope that non-Balinese will take care of that which we have forgotten? (Alit 2012, translated in Steele 2013)

Alit is acutely aware of the international community of people who play gamelan, and he strives for gamelan to become cross-cultural. As a composer, he listens widely and absorbs many cross-cultural influences (see Tenzer 2018 for a more detailed discussion). At the same time, there are elements of traditional practice that he values highly.

Balinese gamelan music . . . needs to be everchanging and without borders. This mission has motivated me to design and build Gamelan Salukat



Dewa Alit at the Salukat sanggar in his house compound in Pengosekan, Bali. Photo: Ryu Ageng.

and form a sekehe [community club] to perform new music on these instruments. This strategy has enabled me to more freely realize new musical ideas in a strongly traditional environment. It is a situation analogous to contemporary Bali itself. This gives my work meaning not only because it retains a traditional identity. Much more importantly, it empowers and positions gamelan music to be the "master of its own house" until it can give birth to a musical lifestyle that is resilient against the increasingly pervasive onslaught of global capitalism. (ibid.)

The meaning of "Salukat" reveals more about his approach to tradition. The name is coined from the concatenation of salu, house, and kat, signifying regeneration and cycles of rebirth; together it means "a place for new creativities based on tradition." By conceiving of tradition in terms of rebirth, his new ideas are not stifled by the academically constructed notion of "living tradition," which emerged from earlier colonial ideologies and reify static concepts of culture rather than culture as change. Alit thinks the idea of a living tradition can still choke the development of new forms, because it has associations of "old," which is inextricably intertwined with politics, religion and *adat* [traditional customary law]. By refashioning and re-imagining the music from the ground up, with new instruments and compositional methods, Alit doesn't feel hindered in the creation of new music by connections and associations with traditional elements.

Alit's goal to "realize new musical ideas in a strongly traditional environment" refers to the maintenance of oral learning, and thereby the deep embodiment of the musical material—indispensable aspects of his idea of Balineseness (see Tenzer 2018). Aside from that, freedom prevails: all musical elements are considered fair game to be changed, including the instruments themselves.

GAMELAN SALUKAT

Personnel

Alit first commissioned the forging of keys and pencon for his new ensemble in 2006. By 2007, he had recruited a full ensemble of musicians to fulfil his creative ambitions. While it began with many musicians from Çudamani, the current membership is young men aged mostly in their 20s from the nearby Ubud area, many of whom play in other local ensembles such as Semara Ratih, Nata Swara, and Gamelan Yuganada (the latter two also focus on new music). As in many Balinese ensembles, the personnel fluctuates as the musicians marry or work and can no longer commit to rehearsals. This is not a problem, however, as Alit has told me that he thinks that the ability to execute his radical musical ideas often depends on the flexibility of young minds and the vigor of young musicians excited to pioneer new musical ideas. For example, Putu Septa and Kadek Janurangga are two young musicians in Salukat who have promising careers as composers; their membership in Alit's group is an important foundational experience for them. I have joined many a late-night drinking session where the musicians gather round, chatting and smoking, inspired by Alit's unconventional ideas about music, politics, or religion. They also have a cosmopolitan awareness having toured internationally, including a collaboration with Evan Ziporyn and Bang on a Can.

Key Layout, Tuning, and Ombak

As well as honing a distinctive compositional style, Alit has experimented with a number of different instrument designs.¹ In each version, Alit tweaked (1) the number of keys, (2) the tuning, and (3) the *ombak* [lit. wave] configurations.

As of 2022, there have been four versions of Salukat's instruments. Due to restrictions on travel during the pandemic, I am only able to provide details here for the first three versions. (See Cahyo 2022 for information on the fourth tuning.)

- **Tuning I**: The same as a semarandana, with two extra keys, similar to the tuning used by Çudamani, with a four-part ombak.
- **Tuning II**: The same as the first tuning, but with a narrower ombak range—just a "touch up."
- **Tuning III**: An entirely new scale system, with a different ombak for each scale degree.
- **Tuning IV**: The same as III, with an extra key at the bottom, and perhaps some interval adjustment.

The first and second instrument designs were relatively minor developments in terms of the general trends

Bali Aksara	0	२	7	5	Ø		P
Vocalisation	ding	dong	deng	deung	dung	dang	daing
Abbreviation	i	0	е	eu	u	а	ai
Scale degree	1	2	3	4	5	6	7
Closest western pitch	D	Еþ	F	G	А	Bþ	С

Figure 1. Balinese solfege characters for the parent scale saih pitu (lit. "set of seven;" similar to Javanese pelog). The Western pitches are close to the first two versions of Salukat's tuning.

in Balinese gamelan design, which I will outline here for context. For most of the twentieth century, the ubiquitous five-tone gong kebyar ensemble dominated the island. Many courtly seven-tone semar pegulingan ensembles as well as older ensembles such as gong gede were melted down to form kebyar's popular five-tone instruments.

In the 1980s, composer Wayan Beratha developed the hybrid semarandana instruments (of which Çudamani is an example) which are like gong kebyar in their lower octave and like semar pegulingan in their upper octave (Fig. 2) and thus are able to play the everpopular kebyar repertoire and older courtly styles being revived from the 1980s onwards. Beratha also saw these instruments as a compositional resource for exploring new ideas, specifically by opening up the possibility to explore ancient Balinese modes in new compositions. Thus, while the twentieth century saw a preference for five-tone tunings, since the 1980s, and with increasing intensity in the past two decades, there has been a return to seven-tone tunings—though with vastly altered interpretations and freedoms (Vitale 2002).

Alit saw Salukat as the next logical step in a trend towards the return of seven-tone tunings; he was frustrated by the limitations of the semarandana instruments more than a decade prior to Salukat's inception.

"I already had a plan to make a new gamelan—I was planning this when I was in college. Even around 1990, when I was in Semara Ratih I already had a plan. When I saw a gamelan semarandana—this is 7 (points to the upper octave) and this is 5 (the



Figure 2. Range-pitch comparison of the gangsa [metallophone instruments] in the Balinese gamelan ensembles that preceeded Salukat. Shading indicates keys added from previous instruments.

^{1.} Experimenting with instrument design and tuning has become a fairly commonplace activity among Balinese composers. Wayan Beratha's semarandana (see McGraw 2000) could be seen as the beginning of this, followed by Wayan Sinti's Manikasanti and Siwa Nada. More recently, and likely inspired by Salukat, are Wayan Sudirana's Gamelan Yuganada, Wayan Arik Wirawan's Gamelan Pesel, and Putu Septa's Nata Swara, to name but a few. (See McGraw 2013: 147-150 for a brief discussion of the ideologies at play.) Empirical organological studies of these experiments are few and far between, something the present study aims to respond to.

lower octave). So, when I played it just struck me: why is [the lower octave] 5? I understand because Pak [Wayan] Beratha at that time, he wanted to combine kebyar and semar pegulingan so that when the students play sendratari [at festivals and *competitions], one gamelan is enough, because* usually there would be three types of gamelan! Kebyar, Gong gede and Semar pegulingan; with Semarandana you can just bring one ... But to me, I'm thinking, okay, I want these bars here (gestures to extra keys in the lower octave). I was the first to add more notes in the low [register]; in Çudamani, I put lower notes on the reong. Because when I composed Pengastungkara, it was hard for me to find modes in the left hand of the lower player. When I composed Geregel also." Alit, p.c, Aug 2019.²

This precedent is what spurred him to create the first two iterations of Gamelan Salukat. The first tuning in 2006 was modelled on Çudamani's semarandana instruments in terms of absolute pitch height as well as relative intervallic content, the only new elements being the insertion of two extra keys in the lower octave (see Fig. 2) and a special ombak, described below. To convey the modal and scalar adjustments, I provide a chart (Fig. 1) for understanding the Balinese solfege symbols as I use them throughout this article and as they are conventionally used in Balinese notation. In keeping with the long tradition of cipher notation in Javanese and Balinese music, dots above and below are added to disambiguate octaves: a dot below indicates the lower octave, a dot above indicates the higher octave.

With the addition of the two extra keys in the lower octave, Alit could more easily compose melodies in modes apart from *selisir*, the mode associated strongly with kebyar, and to which the lower octave of semarandana gangsa are restricted. The melodic contours would be much less affected by the need to "fold over" (jump down or up an octave) when the melody exceeds the one octave range of *saih pitu* (essentially equivalent to Javanese pelog) on semarandana. On semarandana instruments, this is possible only to a limited extent in modes which share most pitches with selisir-for example sunaren, which has 4 out of 5 pitches in common with selisir. He could now compose in all seven modes with as much melodic freedom as composing in selisir on kebyar instruments. Figure 3 demonstrates these possibilities by showing the Balinese modes as named by Alit, with the scale degrees (and therefore ding-dong solfege) shifted appropriately. In Alit's notation, he indicates the mode at the start of a section, communicating which key in the parent scale has become

ding (scale degree 1), or where he wants to use all seven keys freely, he writes saih pitu, and uses the full seven-tone solfege, as indicated in the faded grey on the top instrument illustration below.

Alit's pitch range expansions, however, did not apply only to the gangsa. He also expanded the range of all keyed instruments, the reong, and even the gong—Alit's most dramatic alterations relative to other experiments in seven-tone instrumental design. Figure 4 shows the instrument configuration of the Salukat ensemble as used in the first two tunings (not showing suling, ceng-ceng or kentuk). There are seven gongs, which Alit puts to melodic effect. For example, in



Fig. 3. Modes possible on Gamelan Salukat's 14-*key instruments in the first two ensemble designs (2006–2016). Shaded keys show the different locations of ding [scale degree 1 of each mode].*

^{2. &}quot;Geregel" (1999) and "Pengastungkara" (2000) are two innovative seven-tone pieces Alit composed for Çudamani in the late '90s. They have been analyzed by Wayne Vitale (2002) and Andrew McGraw (2005) respectively.

Gamelan Salukat









Figure 4. The instruments of Gamelan Salukat in the first two tunings, with drumming configuration for "Genetik" (2012). Western pitches represent only approximate intervallic relationships, as precise Hertz measurements are difficult enough to measure from recordings with the beating effects of the paired tuning, and nearly impossible with Alit's four-part ombak system.

"Genetik" he creates slow moving melodies that seem to assume a contrapuntal function, often creating a stronger sense of anticipation toward the return of the deepest gong. The pokok instruments each have four keys more than their usual semarandana counterparts, and by starting the jublag on a note other than ding (as is usual for kebyar and semarandana jegogan and jublag), together these instruments encompass an entire extra octave. In *Genetik* (2012), Alit puts this extra range to use in creating two-part melodies that traverse the entire range of these instruments, as I have analysed elsewhere (Smith 2019).

Apart from the extended range of Salukat's early instruments, the other new feature is Alit's use of ombak. Ombak refers to the distinctively Balinese paired tuning system, in which unisons are comprised of two partners, the slightly higher pengisep and the slightly lower pengumbang, which produce interference beats when sounded together, typically at an average rate of about eight beats per second. This tuning system is ubiquitous in Bali, used for many ensembles: gender wayang, angklung, gong kebyar, semar pegulingan, semarandana and even bamboo instruments such as rindik and jegog. Ombak speeds, also called geteran (Indonesian and Balinese for "vibration," also used by Alit to mean frequency), usually range from 6-10Hz; factors such as repertoire, regional style, and personal taste determine the exact speed (see Vitale and Sethares 2020 and 2021 for comprehensive studies of ombak, and other tuning information).

Alit's innovative vision for his new set of instruments was particularly focused on ombak. He harnessed ombak as a creative element in two ways: (1) rather than using a singular geteran created by the pengumbang-pengisep pair, Alit's instruments generate three primary geteran-slow, medium, and fast—through a quartet of differently tuned gangsa, with the pengumbang designated as the lowest pitched instrument; (2) the total bandwidth exceeds the normative 6–10Hz range in both directions, with speeds ranging from 2 to 16Hz (see Fig. 5). Compositionally, Alit could pair off any two of these four, resulting in a large number of different available ombak speeds based on the various possible combinations, and when the quartet is played simultaneously a dense wash of different vibrations can be felt. The opening of Alit's 2008 composition "Salju" explores the different geteran speeds available using the above configuration of tunings.

The first tuning can be heard in the four compositions (including 'Salju') on Salukat's first album 'Gamelan Evolusi', released in 2010. Following this recording, Alit decided to retune the Salukat instruments. Newly forged bronze requires several tunings early in its life, as it approaches intonational stability; but Alit took the opportunity to tweak aspects of the paired tuning system's structure rather than just touch up or restore the existing tuning. In this second tuning, the interval sizes and scale remain the same as in Figure 6, but with reduced total geteran range for greater clarity in full ensemble textures.



Figure 5. Four-part ombak (which generates 3 different geteran speeds) in the gangsa of Gamelan Salukat. Ombak speeds have been estimated based on spectral analysis of the CD recordings, which only allows for limited accuracy. As far as I know, Alit's instrument combinations always include gangsa 1.



Figure 6. The third tuning of Gamelan Salukat. On the gangsa, the fifth key of the rendah scale matches the first key of the tinggih scale. (The second reong in the rendah tuning was in storage at the time I measured the instruments, so I was unable to check the precise tuning.) Colors match those in Tenzer 2018. Number above each key shows the cents deviation from the western pitch. Number below is the frequency in Hertz.

The second tuning can be heard on Salukat's second album "Genetic/Land is Talking", released on CD in 2015.

After this modest adjustment, Alit went a step further in 2016, melting down the keys and starting afresh. Tunings 1 and 2 derive their intervallic pattern from saih pitu. This third tuning is a much more radical 11-tone pitch collection, comprised of two 7-tone scales that share three pitches. The two scales are referred to as *rendah* [low] and *tinggih* [high] because scale 1 has a lower pitch range throughout the instruments than scale 2. These two 7-tone scales are no longer derivative of saih pitu and have interval patterns (see Tenzer 2018 for an audio excerpt and analysis) unlike anything else I have heard in Bali, except for the more recent design of Wayan Sudirana's Gamelan Yuganada, which is likely inspired by Alit and has yet to be studied. Alit told me that if Balinese scales might generally be described as *jejeg* [upright], then Salukat's scale is *miring* [slanted]. Alit actually refers to this scale as "saih miring." One salient feature of these new scales is the presence of several linear intervals approximating a minor 3rd, as a result of which, to my ears, the rendah scale resembles harmonic minor, and some tetrachordal extractions of both scales resemble the Middle Eastern *Jins Hijaz* (akin to the upper tetrachord of harmonic minor).

In this 11-tone system, four of the gangsa are tuned to one of these scales, while the remaining four are tuned to the other scale. Additionally, there are two reong, each tuned to one of the two 7-tone scales, which, when required to be played simultaneously, have a special two-level *plawah* [instrument frame] that allows the players to access pitches from both scales. Further experimenting with ombak, Alit tuned the scale such that each note of the scales used a different geteran when played with the counterpart in its pair, rather than the usual consistent speed throughout the registers (a hypothetical example: pitch one has 5Hz ombak, pitch two has 8Hz). Figure 6 shows precise tuning measurement made in 2019. When I conducted these measurements, Alit admitted that the instruments required tuning as they had deviated slightly from their ideal due to the rapid tuning change expected of freshly forged bronze; and while the scale was mostly clear, the most marked deviation was the geteran ombak inconsistencies between instruments, which were not how Alit intended them.

Alit retains the expanded range of the jegogan and jublag, both with eleven keys as in the previous iterations, now with the new tuning. However, these instruments no longer have exact pairs. Instead, to create ombak, the jegogan must play in unison with the matching jublag player in their scale (which has a different range), rather than the other jegogan, which is tuned to a different scale. This radical third tuning can be heard in Alit's pieces "Ngejuk Memedi" (2016; released on the 2020 album *when i OPEN MY DOOR*) and "Siklus" (2019), and also in my composition "Waringin" (2018).

In 2020, Alit reworked his tuning a fourth time. On May 6, 2020, he released an intriguing Facebook post mentioning a project called "Salukat reborn," accompanied by a photo of gamelan builder Pande Wayan Juniarta (Yande) retuning Salukat's keys. Owing to the pandemic, I was not able to visit and understand this next iteration, although from video excerpts I am fairly sure that this fourth tuning is an adjustment and refinement of the third tuning (Fig. 6), with the addition of an extra key at the bottom of the instruments (to make three scale degree 1s), requiring new plawah to accommodate the extra length. I am intrigued to hear how Alit uses this new tuning in his recent composition "Likad" (2021).

Compositional Implications

The scales of the third and fourth tunings are configured in such a way as to automatically generate vertical intervals. In kebyar and other genres, a common method of melodic embellishment is where the sangsih musicians play *ngempat*, literally meaning to play four scale/mode degrees higher than the core melodic note wherever possible given the range restrictions on kebyar or semaradana instruments. The intervals generated through this technique are known as *kempyung*. Salukat's gangsa design, however, is such



Figure 7. Kotekan section in my 2018 composition "Waringin" with kempyung in both gangsa parts simultaneously, generating extra "harmony." Red indicates polos parts, blue indicates sangsih parts. Numbers indicate scale degrees (see Fig. 8 for configuration of scales on Salukat's instruments; the lowest note is scale degree 2). Note that while the scale degrees are identical for rendah and tinggih, the actual pitches are different.

that if one plays the same key (e.g. both the lowest keys on gangsa rendah and gangsa tinggih), the scale configuration will automatically generate kempyung-like intervals without the need for the musicians to play four keys higher.

The vertical intervallic potential for this design becomes apparent when envisaging, for example, the sangsih musicians in each half of the ensemble also playing ngempat, which would generate four pitches, two sets of these kempyung intervals simultaneously. Rich combinatorial possibilities arise, without the need to create and teach unconventional figuration-the idiomatic kotekan patterns that the musicians already know can be used to produce fresh, new intervals. In this way, the instruments are central to Alit's compositional goals: by designing instruments with a range difference (a relatively minor change made by simply beginning on a different note), he opens up a world of possibilities for exploring new vertical combinations (contained within the tuning), but without sacrificing familiar elements of the Balinese kotekan idiom, which can be taught to the musicians easily by using the usual oral methods. For example, in my composition "Waringin" (2018), I used the common kotekan figuration style kotekan empat—the two parts rhythmically coincide on the note four keys higher in this section's mode (see Fig. 7). These parts were idiomatic for the musicians, and as I was teaching the polos part, the sangsih musicians figured out the complementary parts. The musicians playing instruments tuned to the other scale did not need additional instruction, and exiting new combinations were easily accomplished.

In Javanese gamelan pedagogy and practice, it is common to instruct using key numbers and use notation. In Bali, the *ding-dong-deng-dung-dang* solfege system is the preferred communication strategy. Given the unconventional tuning, however, Alit said that using ding-dong solfege felt strange to the musicians, despite the fact that it is a moveable system that can be used for different modes, different tunings, and different gamelan (e.g. gamelan gambang). For the musicians, this tuning apparently exceeded a threshold of familiarity, so Alit now notates his music for Salukat using numbers. Calling out key numbers was also the method I used to teach the musicians my piece, a process I discuss in more detail in a previous article (Smith 2020).

Frame Design

Alit's frequent experiments with tuning and instrument range/layout resulted in a set of entirely unadorned, boxy plawah with no carving or lacquer. (He built a new set of these purely functional plawah to accommodate the extra key of the fourth tuning.) However, when Salukat performs they use another set of plawah also designed by Alit. The two important aspects of these plawah are height and decoration. The height of the gangsa is noticeably shorter than a conventional kebyar or semarandana set. Alit says this design choice was a practical one: It makes the instruments easier to play sitting cross-legged, and more compact for transporting stacked on top of each other. They are also decidedly less ornate than the usual plawah designs with their elaborate gold-leaf, red paint, and carvings of auspicious symbols and characters like Bhoma (a fanged face who deters evil, also seen in temple architecture). Instead, they feature small square insets, which on close inspection are flowers (Fig. 8). I interpret their squareness (an unnatural shape for a flower) as being symbolic of Alit's decision to control aspects of the instrument tuning, transgressing traditional designs and reforming them in the ways discussed above. Additionally, each gangsa has a unique, modernist, asymmetrical, and





Figure 8. Salukat's gangsa section, showing the special plawah design for the gangsas. Note that the front of each instrument case has a different arrangement of squares and square flowers. Right: Detail of the square flowers on the plawah. Note the blank squares that act as spacers to maintain the equidistance of the squares. Photo: Oscar Smith.

intentionally unpredictable configuration of these flowers. This shows Alit's attention to detail in relation to every aspect of these instruments. Apparently, the plawah builder refused to do this because it was too much work, and so Alit, being capable, personally carved each and every flower and inset them into the frame as he desired.

Conclusion

Alit is a fascinating composer, dedicated to forging a new path for Balinese gamelan music using his skills, knowledge, and worldly imagination. He strategically adopts or rejects aspects of tradition in ways that—taken together—innovate without eschewing everything that is notionally "Balinese." He uses his new instruments to open up new sound worlds, while maintaining certain aspects of Balinese musicianship, most importantly oral learning.

There is a creative feedback loop between Alit's compositional ambitions and his instrument designs: his compositional ideas inform his instrument designs; simultaneously, his compositions are a product of his instrument designs, which in turn spawn new ideas and are central to the musical materials and processes he works with (see Smith 2019 for examples).

The various iterations of his instrument designs reflect the development of his goals as a composer: to seek sounds increasingly distant from prior Balinese tunings and melodies, the next step in a long tradition of near-constant change. Dewa Alit's ground-breaking approach to composition and instrument building has continually inspired many other composers, both Balinese and non-Balinese alike. Undoubtedly, he will continue to surprise us all. ●

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Recordings

The website for Dewa Alit and Gamelan Salukat: <u>https://www.dewaalitsalukat.com/</u>

Videos

Wayne Vitale on "Geregel" (Alit 1999; semarandana).

Pete Steele on "Caru Wara" (Alit 2006; gong kebyar).

Oscar Smith on "Genetic" (Alit 2012; Salukat second tuning).

- <u>Michael Tenzer on "Ngejuk Memedi"</u> (Alit 2016; Salukat third tuning).
- <u>"Waringin" by Oscar Smith</u> (Smith 2018; Salukat third tuning).

Listen to Alit's music, including all pieces mentioned here: <u>https://dewaalit.bandcamp.com/</u>