

Zeitschrift: Acta Tropica
Herausgeber: Schweizerisches Tropeninstitut (Basel)
Band: 4 (1947)
Heft: 2

Artikel: A strange Balinese method of inducing sleep : with some notes about balyans
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DOI: <https://doi.org/10.5169/seals-310081>

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A Strange Balinese Method of Inducing Sleep

(with some notes about balyans).

By E. SCHLAGER and THEO MEIER¹.

(Received 14th July, 1947.)

Before the war there were only about half a dozen University-trained doctors practising medicine in Bali and the situation to-day is probably unchanged. This number is astonishingly small for a population of more than a million people. The majority of the Balinese, when they are ill, still consult the *balyan*, or medicine-man, about whom WECK has published a descriptive, detailed monograph.

According to Balinese belief, disease is caused by a disturbance in the "magical equilibrium" of a person, which makes his body "impure". The gods—who can reside only in "pure" and "harmonious" humans—abandon such an *impure* body and leave it to the demons. This upset of *magical equilibrium* may occur by the commission of sin, by the failure to proffer offerings, or by falling victim to a sorcerer or witch. The aim of therapy, therefore, is to exorcise the evil spirits responsible for the disease and to restore the "purity" of the body. This is accomplished by methods applied, singly, to the individual or, collectively, to the whole community.

Methods applying to the individual alone consist, usually, in the administration or application of medicinal drinks or herbs, in sprinkling the patient with *tirta* (holy water), or, sometimes, in giving *tirta* to the patient to drink. This holy water is obtained from either the *pedanda* (Hindu high-priest) or the *pemangku* (popular priest).

Some "magic" methods consist of the administration of water or herbs on which a *mantra* (spell) is cast, water or herbs serving as a *serana* (vehicle) for the mantras. Some *balyans* have a considerable knowledge of medicinal herbs. However, it is difficult to evaluate their usefulness because the use of any one medicine for any one indication is unfamiliar to the Balinese. As soon as one particular herb is used for a particular disease its use almost im-

¹ The material for this publication was collected before and during the war. One of the authors (Th. M.) has been living in Bali since 1936, the other (E. S.) was there several times since 1937 and throughout the Japanese occupation.

mediately becomes generalized, being used by most medicine-men for the treatment of a great variety of ailments. Roughly, medicines are classified according to their "warm" or "cold" properties; thus, feverish diseases are treated with medicaments having "cold" properties while diseases accompanied by shivering are treated with drugs having "warm" properties.

When a Balinese goes to a *balyan* he is usually accompanied by his wife or children, who help him carry the doctor's fee. This consists of fruit, vegetables, rice, and a chicken or duck and is given to the *balyan* before the consultation. In each course of treatment offerings play an important role, and are generally made to *Durga*, the Hindu goddess of death and disease. In the eyes of the people, the knowledge and experience of the *balyan* do not count as much as his "*kesaktian*" or supernatural power. *Kesaktian* is believed to be possessed by balyans, priests, princes and even white foreigners. It is for this reason that Europeans are commonly asked for medical help which they are able to render, according to the Balinese, because of their *kesaktian*.

A boy whom we sent to the Government Clinic for the treatment of a skin disease came back discouraged and disheartened because, as he related, he was treated by the nurse and not even touched by the doctor. (Physical contact is necessary to allow passing over of *kesaktian*.) Therefore, the *kesaktian* of the doctor could not "pass into his body" and, thus, the boy had no belief in the treatment rendered him.

During the Japanese occupation, medical supplies were completely stopped and many Balinese came to ask our assistance. Most of them had tropical ulcers, some of which were as large as a fist. When there was nothing with which to treat them, we accidentally discovered that copper sulphate was still being sold on the bazaar. We tried this with the hope that the astringent and bactericidal effect of this chemical would be sufficient to control the ulcers. After thorough cleansing, wet compresses of a dilute copper sulphate solution were applied to the ulcers. These were changed frequently. We treated several hundred cases in this manner without a single failure. The ulcers took anywhere from three days to six weeks to close up. Successful treatment was attributed by the patients not only to the use of the copper sulphate but even more to our possession of *kesaktian*. If requested to buy copper sulphate on the bazaar or prepare their own solution and to apply it, they often refused to do so and insisted on being treated by us, even if they had to walk many miles. The results of our copper sulphate treatment confirmed the natives' belief in our *kesaktian*—and only by their personal contact with it could they hope for successful treatment.

When a disease becomes epidemic in a village, the territory is regarded as *panas*, or "hot". Such a designation means that the area is in a state of "ritual impurity"—and it is then necessary for the gods to forsake the village, leaving it to the evil spirits. When this occurs, a collective ritual purification is made in order that the village may become *tis*, or "cool", again. In such instances

ritual exorcistic ceremonies and dances are performed, the best known being the *Barong Dance* and the *Tjalonarang Play* (see De Zoete and Spies for a description of these dances). In these plays, "white" magic forces are pitted against "black" magic forces. From this symbolic fight between the two opposite principles



The Balinese method of inducing sleep is carried out with the patient sitting in front of the *balyan mapon*. In this illustration the patient has already become unconscious and the *balyan* is slowly releasing his pressure on the carotid triangles.

the Balinese—according to the "Law of Sympathy" (FRASER)—expect an analogous actuality to take place—the symbolic defeat of the "black" magic forces resulting in the expulsion of the demons from the village. The "white" magic forces are symbolized by the Barong in the *Barong Dance* or by the eremite *Mpu Bharada* in the *Tjalonarang Play*, and the "black" magic forces are symbolized by the witch *Rangda Tjalonarang*.

Another favourite method of exorcism consists in the performance of *Sanghyang* dances. In these dances the deities are invited to come down to earth and to take possession of selected young girls or boys. These mediums thereby go into a trance and then dance to Gamelang music or singing, or to the *ketjak*-chorus, a succession of intricately interwoven spoken rhythms. The demons are expelled by these dances of the deities and the ritual purity of the village is restored.

Besides the balyans mentioned above, the *balyan mapon*, or masseurs, also play an important role in medical care. Massage is very common in Bali, even in daily life. Balinese like to have their legs and feet massaged to facilitate falling asleep; a kneading-massage with a calmative effect, which we also have experienced, is generally employed. Leg-massage is employed in cases of fatigue, pain during disease and especially during labour. Every Balinese knows the fundamental principles of massage, but there are also specialized masseurs (*balyan mapon*). These masseurs practise muscle or nerve massage, both of which are quite painful. In fact, balyans even regard pain as a sign of the effectiveness of their procedure. WECK mentions the extraordinary knowledge of massage possessed by the *balyan lung*, or specialist in bone fractures. There are masseurs who also are able to interrupt pregnancy. As a curiosity, the treatment of *bebainan* (hysterics) by massage may also be mentioned here. According to the Balinese, people with hysterics are *pentjari*, i.e. possessed of an evil spirit, which is called *bebai**. This manifests itself by crying and confusion. Mass hysteria occurred almost epidemically in our village and in surrounding mountain villages on "evil magic" days, such as the *kadjeng-kliwon* which comes* every fifteenth day. On this day all ghosts are unchained and witchery and black magic are rampant. In our village we had a *balyan* who specialized in the treatment of people who became *pentjari*. His method of treatment was, in a way, logical: he massaged the spirit of the disease into the arm and from there he pushed it further and further into the hand, into the finger tip and, finally, forced the spirit to leave its victim due to the influence of the painful massage employed. Sometimes the evil spirit may speak through the mouth of the delirious patient and say, for example, "I am now going into the neighbouring house to enter Ni Remiog". And then, as a matter of fact, Ni Remiog becomes

* Weck uses the expression *bebahi* for a mummified foetus which invests its owner with magic powers. This practice is not however commonly known, and the name *bebai* (or *bebahi*) is popularly used to denote a spirit, which imitates the sound made by ducklings and is held to be responsible for producing hysterics.

pentjari. At least, so says the *balyan mapon*. The Balinese differentiate *pentjari* from a "healthy" trance. According to them, *pentjari* is a pathological state which befalls only diseased individuals, whereas a trance occurs only in normal, healthy, strong individuals during temple ceremonies and dances. In fact, health is even regarded as a fundamental condition for a state of trance since, according to Balinese belief, gods could not choose diseased people for their temporary residence.

The strangest massage, however, is the one utilized to produce sleep. Old Balinese and balyans repeatedly spoke to us about it as a method which nowadays is known only to a few and is not at all without its dangers. Luckily, we found in Bona (Gianjar District) a *balyan mapon* who was familiar with this technique. He demonstrated it to us on one of his pupils and then had him carry out the technique on another young Balinese (see illustration). Sleep is induced by exerting bilateral pressure on the carotid triangles. This pressure is exerted for about two minutes and produces almost immediate unconsciousness which, upon release of the pressure, passes into an apparently natural sleep (slow respiration, slow pulse rate). According to the *balyans*, sleep may last for several hours. In the case demonstrated to us, awakening was accomplished after about five minutes by downward massage of the carotid region.

We learned very little concerning the uses of this method. We were told that this technique is indicated to relieve headache; that after awakening, pains disappear completely and the patient feels agreeably relaxed. A *balyan* of Iseh thought that this technique made it possible "to make the brain empty so that it can purify itself". A *balyan* of Lebu, who was very familiar with this method, stated that this technique "takes the work and order out of the nerves so that they can rearrange themselves in the correct order on awakening". The *balyan mapon* of Bona mentioned above, attributed the most importance to the relaxation and the stimulating effect produced by the massage of the blood vessels. According to the balyans this method is not described in the medical lontar literature of Bali, but is based on tradition.

One of us (E. S.) asked that this method be performed on himself and experienced visual disturbances after about half a minute of fairly strong pressure, immediately followed by the impression of being strangled and on the point of fainting. However, at this moment the co-author (Th. M.) interrupted the procedure because of his concern at its astonishingly prompt effect.

The following observations may throw some light on the mechanism of this method.

It was known even to ARISTOTLE that "persons become insensible if the veins on the throat are compressed" (*quibus in collo venae apprehenduntur insensibiles fiunt*). In more recent times, CZERMAK observed that pressure exerted on the throat produces stimulation of the vagus which results in a slowing-down of the pulse rate together with a decrease in blood pressure. This made it possible to use this technique to relieve attacks of paroxysmal tachycardia. In addition, compression of the carotids to control epileptic fits has been recommended by PARRY, LEWIS, ROMBERG and TROUSSEAU (cited by HABERDA). Such compression may produce scotoma, vertigo, unconsciousness, and limp, lax musculature.

Before HERING clarified the functions of the carotid sinus, the effects of Czermak's method were thought to be the direct result of pressure on the vagus nerves. To-day we know that this stimulation of the vagus nerve is produced secondarily by a reflex which has its origin in the presso-sensitive region of the carotid sinus. The usual effects are slow pulse and respiration, with low blood pressure and temporary asystole. Among the variations of the response to carotid sinus stimulation pointed out by WEISS and BAKER, the cerebral form is of special interest because it has the closest relation to the Balinese method of inducing sleep. The cerebral phenomena consist chiefly of temporary unconsciousness or syncope, convulsive movements, or numbness and paraesthesias. WEISS and BAKER attribute this to local vasoconstriction due to impulses arising from the carotid sinus. However, LENNOX, GIBBS and GIBBS failed to find any evidence of cerebral anoxia, and attribute the unconsciousness and other direct cerebral phenomena to a purely neural inhibition which they liken to catalepsy and reflex epilepsy.

Probably the same mechanism acts in suicide by strangulation while in a standing, sitting or lying position. It is not necessary, even, that the neck be encircled or that the whole body be suspended (see REUTER, p. 336). The weight of the head applying pressure to the carotid region as it rests against the rope or sling suffices to produce unconsciousness and, finally, death. In this case, however, the effect of carotid stimulation is probably augmented by mechanical inhibition of the circulation through the jugular veins and, with more intense strangulation, even through the carotids.

The carotid sinus test used in scientific medicine is also not a harmless procedure. Heart block of considerable duration may result (HOLZMANN), or a thrombotic process with occlusion of the cerebral arteries may occur, especially in arteriosclerotic and

hypertensive patients, resulting in permanent hemiplegia (ZEMAN and SIEGAL) or even death (MARMOR and SAPIRSTEIN). As a measure of precaution, carotid sinus pressure is commonly applied unilaterally only, with but slight pressure at first which is increased only if the effect fails to appear (HOLZMANN).

The Balinese method of inducing sleep by pressure on the carotid triangles, described in this paper, is an interesting analogue of the carotid sinus stimulation used in scientific medicine. In the latter, also, unconsciousness may occur as a cerebral response to the carotid sinus reflex. Unconsciousness and slowing of the pulse rate and of the respiration are to be explained in the Balinese method partly as effects transferred from the presso-sensitive region of the carotids by a reflex mechanism, partly as the result of a mechanical inhibition of blood passage through the jugular veins and the carotids.

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Zusammenfassung.

Die hier beschriebene balische Methode der Einschläferung durch Druck auf das Trigonum caroticum beiderseits ist ein interessantes Analogon zum Czermak-Heringschen Carotissinus-Druckversuch, der in der wissenschaftlichen Medizin verwendet wird. Auch beim letzteren kann Bewußlosigkeit — als eine zerebrale Reaktionsform des Carotissinus-Reflexes — auftreten. Bei der balischen Methode können Bewußlosigkeit sowie Verlangsamung der Pulsfrequenz und Atmung teils als Wirkungen erklärt werden, die von den presso-sensiblen Zonen der Carotisgabelung durch einen Reflexmechanismus auf die Gehirngefäße und den Vagus übertragen werden, teils als Resultat mechanischer Drosselung der Blutpassage in den Jugularvenen und den Carotiden.

Résumé.

La méthode balinaise pour provoquer le sommeil par pression bilatérale sur la région du trigone carotidien, décrite dans ce travail, présente une analogie intéressante avec la stimulation du sinus carotidien utilisée en médecine scientifique. Là aussi peut se produire une inconscience qui est une réponse cérébrale au réflexe sino-carotidien. Dans la méthode balinaise, l'inconscience et le ralentissement du pouls et de la respiration peuvent s'expliquer d'une part comme des effets ayant leur origine dans la région pressosensible des carotides, et d'autre part comme le résultat d'une inhibition plus ou moins forte de la circulation jugulaire et carotidienne.
