SURFING MEDICINE

THE JOURNAL OF THE SURFER'S MEDICAL ASSOCIATION

Issue #8, Spring 1992

The 1992 Directory Issue

Also Featuring Original Research, Shark and G-Land Attacks!

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Cover:

Upper L to R - SMA, June 1987, Nadi, Fiji, en route to Tavarua for 2nd conference, photo by Sato; SMA, October 1987, North Shore Conference, photo by Sato; SMA, February 1990, Pavones, Costa Rica, photo by Mark Renneker;

Center photo - Nabila lagoon, 6th Tavarua conference, March 1991, photo by Mark Renneker;

Lower L to R -SMA 1st Southern Hemisphere Conference, July 1989, Gnaraloo, Western Australia, photo by Steve Shapiro; First SMA Big Flat conference, October 1988, photo by Mark Renneker; 6th Tavarua conference, March 91, photo by Mark Renneker.

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EDITOR'S NOTES

What an extraordinary association we have in the Surfer's Medical Association! Bound by our interests in surfing and health, we are docs and non-docs, old and young, men and women, hotties and grems, hardcores and inlanders, Seppos and Aussies, and all conceivable shades and permutations thereof.

So this, then, is the issue of the journal of the Surfer's Medical Association devoted to us: the Directory Issue. Tony Peckham, in transition from SMA consultant to civilian life, has held true to the SMA Kahuna tradition and, with the help of Paula and Ward Smith, has kept up the membership data base and directory. It appears in this issue as an insert, which can be removed if you're into those sorts of things.

There are a number of other highlights in this issue. Prominent is an exclusive piece by Eric Larsen, the surfer who survived a shark attack last summer in Santa Cruz. Also, you'll find a number of original research articles, which we should all feel quite proud to have in our journal. And then there are the opportunities - the upcoming SMA conferences. For those of you who haven't yet partaken of these unique combinations of surfing and learning, boy, you're really missing it!

Mark Renneker

Journal Editor: Mark Renneker

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L to R: Bruce Hoffman (S. African G.P.), Mark Gillett (Australian G.P.), Wayan (camp manager), Gerald Saunders (Kauai), Steve Oliveira (California dentist), Martin Dunn (Australian surf coach), John Jones (Oahu dentist & surf photographer), Mark Walsh (Australian dentist), Mike Dinardo (California real estate), Jerry Green (Kauai), Anton (carpenter), Mike Nova (California derm-para), Simon Leslie (Australian G.P.), Bill Heick (the world), Dawn (California girl), Darryl (California boy), Andrew Irwin (Australian ortho), Willie (Australia), Scott Smith (California engineer). Photo by Simon Leslie

The First Annual G-Land SMA Conference, September 1991

By Simon Leslie, M.B., Stanwell Park, NSW

Grajagan, Java, met all expectations, providing ideal conditions for the inaugural SMA Indo conference. Perfect weather, outstanding and hassle free hospitality, luxurious accommodation, a friendly crew and almost perfect waves guaranteed that a G-Land conference will be a regular event on the SMA calender.

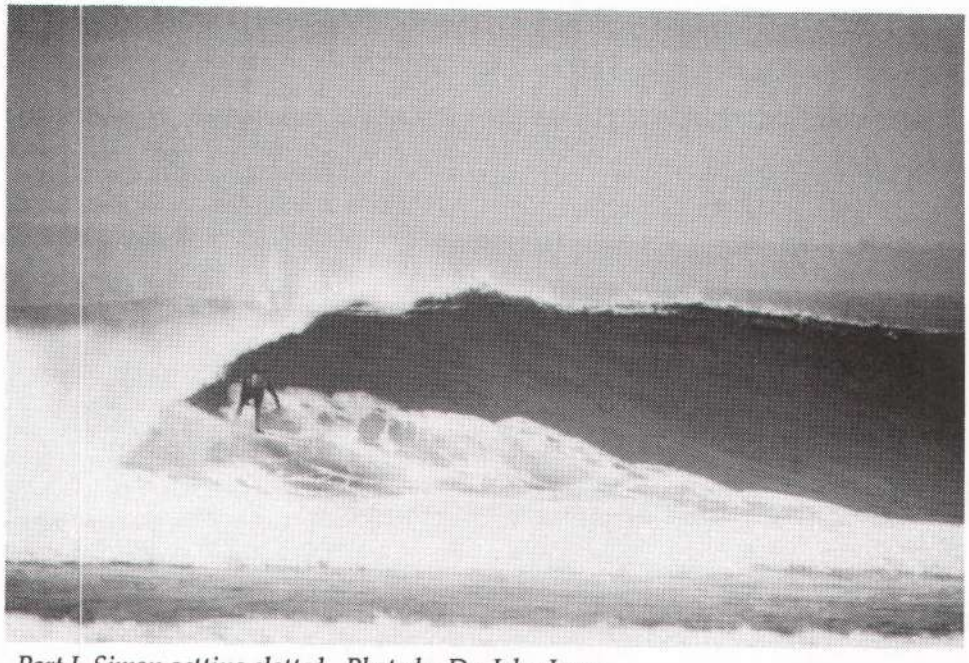
INTRODUCTION

Sunday morning in Australia saw a 5 a.m. departure to Bali by the East Coast crew of Mark Gillett (ER Doc), Simon Leslie (Family and Sports Medicine) and Martin Dunn (Professional Surf Coach). The remainder of the Australian crew, Andrew Irwin (Sports Medicine), Graham "Willie" Muncy (surfboard manufacturer) and Mark Walsh (dentist) had departed earlier in the week, obviously feeling the need to acclimatize to the Indo barrels before facing the challenges of G-Land.

Sadness at leaving families was quickly replaced by the anticipation of great adventure, new friendships and left-hand barrels. Martin appeared strangely subdued in the face of his first overseas trip, having not yet revealed his morbid fear of flying. Surf coach training and his knowledge of pre-heat psych-up allowed him to control his mounting anxiety. Living dangerously like all good emergency physicians, Mark arrived in the departure lounge with less than five minutes to spare. Before long we were in Bali.

The luxury of the Santika Beach Hotel in Kuta Beach, Bali, was a bit over the top but we lapped it up in anticipation of the physical deprivations yet to come. Pre-dawn the next day revealed who was serious about surfing as the intrepid trio paddled out front to Kuta Reef to be, by an hour and a half, the first in the line-up. Small but neat waves whet our appetites.

After booking in at the Surf Travel Company offices to pay our conference dues, Mades Restaurant in Kuta was the venue for lunch. While discussing Martin's participation in the conference we were overheard by Mark Walsh who by chance was sitting right next to us. Talk of trauma in the tropics clicked his idle mind back into gear and he flashed that we must be the guys he was looking for. Back at the Santika, we met the US contingent. Friendships were renewed with veteran SMA conference goers Mikele Nova, a dermatopathologist, and Darryl Genis, a lawyer. Fresh from a much talked about divorce, Darryl, a latter day Torrance playboy, had brought along his new love, Dawn. Whilst in Nias, Darryl had arranged surgery for a young boy with a knee complaint by writing a letter to the local health authority with the help of an English/Indonesian dictionary. This illustrates that even a lawyer can be trained as an effective barefoot doctor and that there are means other than hands-on medicine



Part I, Simon getting slotted. Photo by Dr. John Jones

for a caring travelling surfer to contribute to the health of indigenous populations in remote areas. Bill Heick, world surf traveller, and responsible for making the contacts that allowed the conference to get off the ground introduced the rest of the innocents: Canadian family physician Bruce Hoffman, Scott Smith, electrical engineer on the NASA space station project here to enlighten us on the possibilities of surfing at zero G, Michael Dinardo, LA real estate mogul who had come along to make sure we didn't leave civilization completely behind, and dentists Steve Oliveira and John "Doc" Jones.

MIDNIGHT EXPRESS

Five minibuses, our transports to G-Land, arrived at the motel at 11:00 p.m. that night, four equipped with beds. Having jumped on at Bobby's place to ensure himself a bed, Darryl provided a clear example of the ethics of the legal profession. From previous experience he had been under the impression that only one minibus would be a sleeper. Those less alert and nimble, i.e. Martin, Willie, Andrew, Steve and John, sat upright for the next six punishing hours while the rest of us slept in blissful ignorance. Most of the journey was apparently spent at high speed on the wrong side of the road dodging heavy transport vehicles. After crossing on the vehicular ferry from Bali to Java, we finally arrived at 4:00 a.m. (Tuesday 24th September 1991) at the entrance to the national park near Grajagan village. Subjected to intensive mosquito attacks and stifling heat, we waited until dawn for a rudimentary breakfast of coffee and biscuits. Boards and surfers were then loaded onto the G-Land Express, a twin 115HP cruiser, for a forty minute trip via a river mouth bar, then across Grajagan bay to the camp.

On arrival, amped up as we were, the surf appeared as disappointingly small as the height of the platforms on which the tents were erected. I had assumed that we were to be out of the reach of marauding tigers but instead we were only a foot off the ground, barely safe from a twelve foot set. The departing crew filled us in on the details of the long left point that is called G-Land. Kongs, the first section, is apparently so named because you need King Kong balls to surf it when it's big, but is the place to surf on the smallest of swells. Even when flat, the peaks are still head-high. Money Trees, in line with the trees in which the first tree huts for paying guests were built, is the start of the main wave and has an outside bommie that starts to feather when the waves reach 8 feet. Down the line is Launching Pads, where you either line yourself up for an insane barrel or wimp out and go into orbit when you flick off the back of the wave. Further down the line is Speed Reef which works only on the biggest of swells. The place where Tom Carroll was filmed on those awesome waves, Speed Reef, has only one way out: the back door (unless of course you'd like to attempt riding onto the sucked dry reef in front of you).

During the previous week, the surf had only maxed at six feet. By the law of averages, a big swell was expected to arrive. The experienced Indo surfers were saying it would arrive with the full moon, which was soon to come. [Ed: Bobby Radiasa, the G-Land camp organizer, specifically chose this time period for the SMA; just before and during the full moon he feels has the greatest likelihood for great waves.] Keen

Part II, Simon says, "Aw, I had it made easy." Photo by Dr. John Jones

to dispel traditional surfing lore, some of our northern hemisphere members made outrageous claims that swell size has nothing to do with the phases of the moon.

Surrounded by dense jungle, we were told of a wild boar that was seen to race out of the forest onto the reef, pursued by a tiger. It then swam out through the break at Money Trees, spent the night out in the water, and later attempted to climb onto a surfer's board. Adding to the aura of the place, the air was clouded by fallout from the recent eruption of Mt. Pinatubo in the Philippines and only 25km away another active volcano, Mt. Batu, was developing an ever-increasing bulge on its flank, and was expected to blow at any time.

The stage was set. Nature had extended its challenge and laid down the gauntlet. Would we survive? This is what evolution had primed us for. We had come to face death, to conquer and to thrive on the challenge. For the next two weeks we would take crap from no one.

FIRST SURF

Our first surf was in head-high Kongs. Nice peaks and long walls cleared the fatigue from our brains and prepared us for my opening address, concerning the ideals, aims and past achievements of the SMA. Introductions followed and then for most it was early to bed to catch up on much needed sleep.

That day we had experienced a taste of G-Land magic. Nyoman, the camp manager, and Bobby had prepared for our arrival, having set up a special tented annex on the beach with rows of seats and a projector and screen. The food was excellent and the service, which included table serving and daily tent cleaning was outstanding and could not have been delivered by a more pleasant group of Mades. Fresh ocean fish, fruit-salad, ice cream and good old Aussie porridge were just a few examples of the fare. Each evening before dinner we were treated to appetizers while watching video film of the day's surf. An unlimited supply of beverages was provided, all drinking water being bottled.

Wednesday, we awoke to good six foot waves with Money Trees going off. By midday we had the place wired. High

Homeless guys downtown? Nope, Dr. Mike Nova and Mike Dinardo at G-Land. Photo by Dr. John Jones

tide with the wind up produced the best conditions. Coming squarer onto the reef than usual, the waves were super fast, producing some insane speed trips and great barrels. Bruce Hoffman, fresh from the central plains of Saskatchewan, Canada, was making the best of it, creating memories that will serve to sustain him through the long, cold Canadian winter. Martin Dunn adopted the professional approach, fully assessing the set before going out and surfing intensely with a radical backhand attack for 45-60 minute sessions. Darryl Genis, surfed out from two weeks at Nias, spent most of the day in the tent with young Dawn. Some of us doubted his priorities, but subsequent revelations provided some explanation for his behavior. Mark Walsh, dentist from Sydney, slotted into some long ones on his big Farrelly gun. Although over-gunned at six foot, his choice of weapon was soon to be vindicated. Fellow dentist from Honolulu, Doc Jones, photographer and father of two Hawaiian State Junior Surf Champions displayed the talent endowed in his genes. Andrew Irwin and Willie decried the need for booties but avoided reef hopping all the same, choosing only to slot into the high tide barrels. Willie, a long time defender of surf ethics, proved invaluable as an interpreter and for controlling some of the in the water excesses of the non-SMA surfers. [Ed: Bobby cleared the camp for the SMA, but a few stragglers remained.]

GET MEDICAL

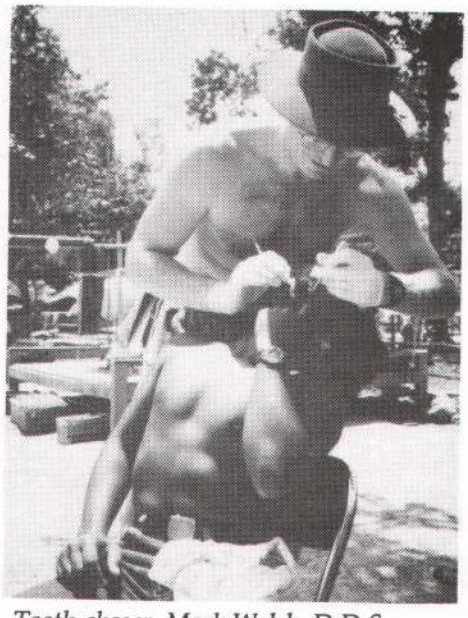
On Wednesday, I presented a seminar on head injuries starting with two case presentations of surfers who had suffered penetrating brain injuries [in this issue of "Surfing Medicine"]. The seminar concluded with a presentation of research performed by Trent Borserio and Terry Wall of the Department of Chemical Engineering University of Newcastle, Australia, regarding the "Impact Reduction by Nose-Guards on

The biomechanics of a nighttime SMA seminar. Photo by Simon Leslie

Surfboards" [also in this issue of "Surfing Medicine"].

Thursday and Friday produced small but quality 2-4' waves. Many of the conferees took the opportunity to field test the effectiveness of various sun protection measures (caps, sunglasses, sunscreen, lycra) and safety devices (helmets). It was good to see that several surfers not associated with the SMA were using some or all of these devices to protect themselves in the water. Witnessing G-Land surfers with conjunctival ultra-violet burns and being aware of the horrendous potential for injury in big reef surf reinforced the obvious: that it is not just common sense but simple survival that is necessitating their use.

Thursday's impromptu seminar on malaria involved several seasoned Indo adventurers and produced some fascinating insights into malaria prevention. It was surprising how many surfers do not take drug prophylaxis. Understandable concern about toxicities of antimalarials when they are taken for many consecutive months and a knowledge that they many only suppress the disease have led to a sensible focus on mosquito avoidance with the use of repellents, clothing, nets and coils. These aids are especially important when one considers that mosquitoes also transmit dengue, yellow fever and Japanese encephalitis. Toxicity of DEET, the most effective repellent was also of concern and many had opted for "natural repellents" and homeopathic remedies of questionable effectiveness. One family with a young child who had already suffered a bout of malaria were trusting in homeopathy alone, using no other measures. Despite the claim to use mosquito bite avoidance measures it was my observation that most people made no attempt to cover up at sunset. Fortunately, a severe drought had lead to smaller numbers of mosquitoes. It appeared to be a common belief that because we were in a remote area, none of the mosquitoes would be infected with malaria, despite the fact that Javanese fishermen regularly walked past the camp. This supposition may be relevant in truly remote areas but I would not feel secure knowing that with suitable winds an infected anopheles mosquito may range over 100km in a day. It is important to be aware, too, that the local staff of surf travel camps may act as a reservoir of infection. One of the G-Land staff told me that he suffers with



Tooth-chaser, Mark Walsh, D.D.S. Photo by Dr. John Jones

regular bouts of fever which respond to chloroquine. It is probable that he is chronically infected with vivax malaria, modified by his own partial immunity. Despite the risk of drugs and chemicals, one has to counter this with the risk of almost certain death if cerebral (falciform) malaria is contracted. For long term travel in malaria infested areas (in which two thirds of the world's population lives), it is most appropriate to concentrate on mosquito avoidance (as in all situations) and to have available a treatment dose [Fansidar] in the event of fever. It is important not to be complacent about malaria, as every seasoned Indo traveller has a horror story about someone contracting the disease.

Friday's highlight was the first of Martin Dunn's lectures. A full-time professional surf coach (supported by his wife), Martin was able to introduce physics to the SMA with an erudite discussion of the forces involved with surfing. In addition to the intrinsic forces generated by surfers' muscles, gravity (causing both acceleration and deceleration), buoyant force, centripetal, centrifugal, wave energy and hydrodynamic drag forces all need to be considered when one studies the biomechanics of surfing. No doubt it is the need to master all these forces that makes surfing such a challenging and difficult sport to learn, and perhaps in no other sport does the athlete contend with more forces. A video assisted presentation followed with an analysis of surfers' movement and motor patterns. Correct techniques for various maneuvers were shown with guidelines to improve technique. Phrases such as "squat 'til you spot" were the buzz words for the rest of the conference and even Gerald, a seasoned Hawaiian big-wave rider was seen to throw his arms in the air to gain more height on the foam.

Concluding a very interesting seminar was a discussion on the use of imaging techniques to improve surfing. The use of mental imagery before sport is a well-recognized technique both to improve motor skill and prepare psychologically for an event. Martin has found that once in the water, surfers have difficulty in focussing on the specific task at hand and he has developed a product called RIP STIX to help resolve this problem. These are small stickers showing sequential illustrations of a surfer performing each of the basic maneuvers together with important cue words that emphasize the main position or motion undertaken by the surfer during each stage of the maneuver. Designed to be stuck on the deck of the board, they provide effective visual reinforcement of correct technique.

ECO-MISCREANTS

By Saturday morning and a third day of 4' surf the crew was starting to get restless. G-Land was teasing but not providing us with the relief we desired. Those lucky enough to go out before dusk on the rising tide were treated to some nice six-foot sets; an omen of things to come. Having told us that a big swell was to hit that day, even Nyoman was anxious and arranged a board sacrifice after sunset. Included in the offerings was a Peter McCabe Indo gun. Huey couldn't have asked for more. Somewhat skeptical of this pagan California ritual (yes, we were dancing around the flames) and troubled by the environmental consequences, most of us watched from the background (secretly hoping it would work).

The excitement of the sacrifice over, Mikele Nova and Clayton's husband from La Jolla, updated us on pigmented skin disorders. His private laboratory processes up to 300 skin specimens a day and he was able (with the use of conferees as subjects) to present a very useful

Darryl Genis, tired of Nias rights, enjoying the less malarial lefts of G-Land. Photo by Dr. John Jones

and practical workshop on the differential diagnosis and management of pigmented skin lesions. Fortunately, no melanomas were found but perhaps a few naevi requiring excisional biopsy. Nothing beats such talks in reinforcing one's sun avoidance behavior.

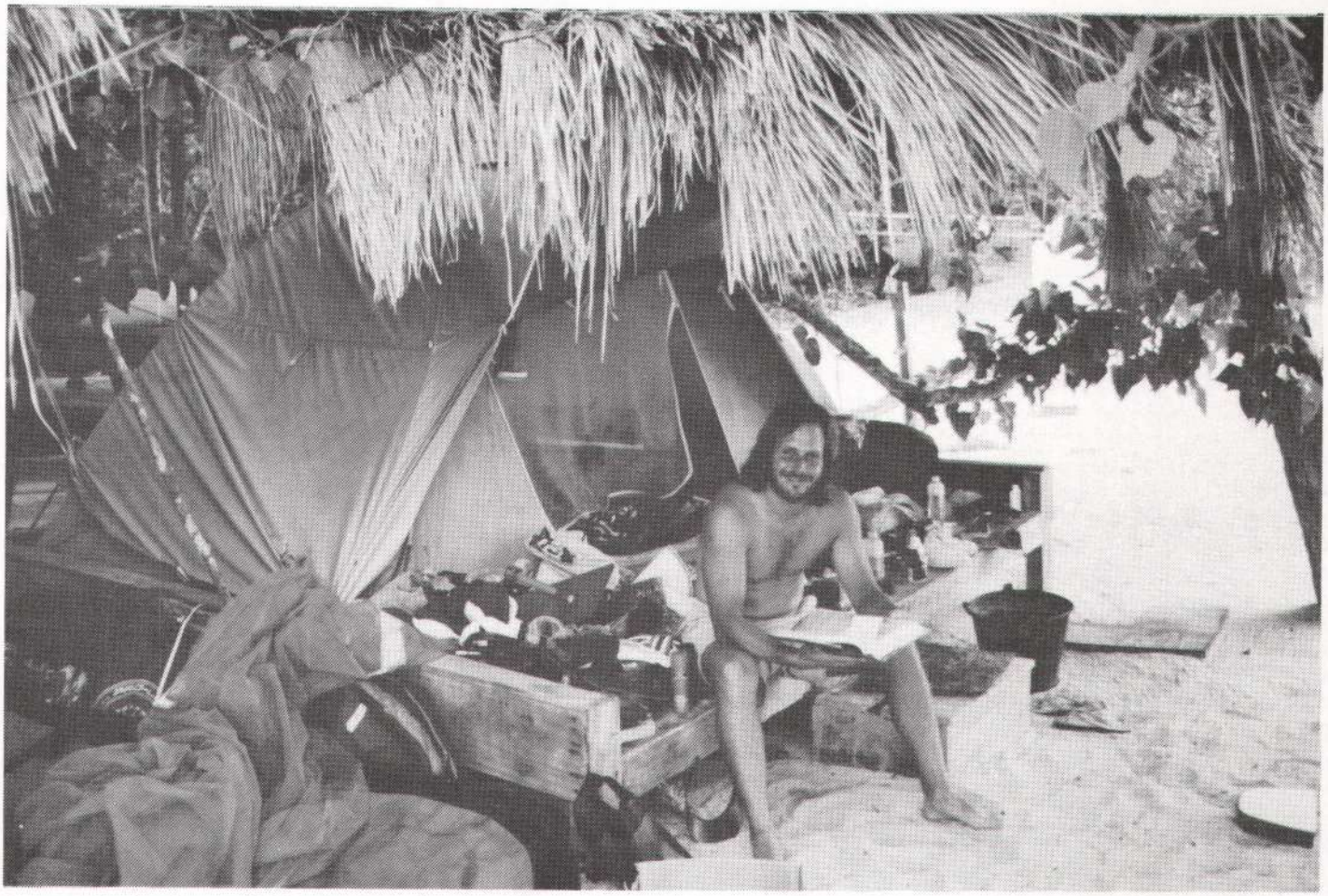
We were woken on Sunday by the sound of thundering waves and a solid eight-foot swell grinding down through Launching Pads and onto Speedies. Burning boards rather than phases of the moon had been proven to produce a new swell. By midmorning, when high tide, a light offshore and the new swell came together we were treated to some of the most visually perfect waves that I have ever seen. I don't know whether Doc Jones had spat on the bonfire the previous evening but on his first wave he popped a fin out of his board and within half an hour snapped a second board, a 7'11" gun. While paddling out after an insane 300 metre long wave, I witnessed Gerry catch the wave of the conference. Sliding backside into an impossible three times overhead section he came off the bottom with a horrible under the lip slash just as the wave pitched. Although I was looking straight into the barrel, he was so deep that it was too dark to see him. After what seemed like an eternity and just as I was starting to pray for his survival, he blasted out through what was by then only a three foot opening at the end of the barrel. I couldn't stop hooting. Like all good SMA trips, you can get almost as much enjoyment out of your friends' waves as your own.

TOWARDS G-LAND / SMA STAFFING

Bobby and Nyoman attended the evening seminar on provision of health care in remote surfing locations. The important issues discussed included the provision and contents of a first aid center and dispensary, the likely injuries and illnesses to be confronted and their management, the problems of emergency evacuation/transportation, communications, injury prevention, Indonesian government regulations and medico-legal complications for doctors operating outside of their place of registration. In the case of Grajagan camp, Bobby offered to provide free accommodation for one night in Kuta plus transport and accommodation/food in G-Land for any doctor and his/her partner prepared to provide health care to people and staff staying in the camp.

A small medical center will be constructed as part of the rebuilding of the camp during the off-season and will be initially stocked with resuscitation and other equipment financed by the camp. The cost of pharmaceuticals, dressings and maintenance will be recouped from each guest in the form of a levy for the provision of medical services or possibly for a fee for service charge. The fact that the doctor will not directly receive these fees may circumvent some of the potential legal complications. Transport next year will be by fast boat for Kuta (3 hours) rather than overland and this will allow faster evacuation (weather permitting). At present no radio communications are available, however Bobby intends to arrange this. A roster will need to be drawn up to cover the camp for next year. I have agreed to manage this roster and expressions of interest and preferred dates can be sent to me [see sidebar]. Each individual should check with his or her medical indemnity organization and will require an official proof of registra-

Willie setting up his death tube. Photo by Dr. John Jones



Darryl Genis, a happy SMA camper. Photo by Simon Leslie

tion in their home country, and a formal letter of introduction from the SMA. They should maintain records at the camp of his/her care and recommend and arrange for additional equipment or pharmaceuticals as experience dictates. Darryl Genis has agreed to research and advise us on the medico-legal aspects in both Indonesia and the USA. A list of the contents of the medical center will be available to each doctor before travel so that they can bring extra equipment as they feel necessary.

We awoke on Monday to an even bigger swell, with sets breaking out on the bommie, some pushing 10'. With a couple of the guys leaving the next day, we somehow managed to get everyone together for the group photo session on the beach. A measure of the size of the waves was the keenness of most of the guys to check out the other breaks of Twenty Twenties (20 minutes walk there, 20 minutes back) and Tiger Tracks. Those who went enjoyed good head-high waves but the real action was out on the main reef. There's nothing like surviving being pitched by the lip while struggling to paddle down a big wave on a 6'10" board (I'll be taking a 7'10" next time) to remove some of one's fear.

Those who felt a little underfit for the rigors of the surf that day were quite attentive at Martin's evening lecture on the training of an elite surfer. The principles of physical, psychological, technical and tactical preparation were reviewed and training principles with micro- and macro-cycles and the difficulties of their adaptation to the surfer competing on the world tour were covered. It is obvious now that only those committed to a fully professional approach can expect success. Strict attention to training programs, diet, adequate rest and psychological preparation are essential, and, as with other sports, the need for a coach to assist with these aspects is becoming increasingly recognized.

Tuesday was a solid six foot and everyone was carving. Doc Jones was back out on his gun, repaired by the in-house glassing team. Mark Gillett, Steve and Michael were picking off waves that they will remember as some of their all-time best. Helmets were the order of the day at low tide at Speedies. The in-water highlight of the day was Bob unknowingly dropping in on Gerald and fading him back into a horrible pit. Normally such a gentleman, it was funny to see him beside himself with remorse at the act he had committed.

BIOMECHANICAL MEN

After another sumptuous evening meal, Andrew Irwin presented a fascinating talk on the biomechanics and mechanisms of surfing injuries. Commencing with an outline of the biomechanics of surfing, he was able to provide a useful framework to describe the movements of a board in terms of roll, pitch and yaw as a starting point for

analyzing the forces acting on a surfer. Rotation of the body upon relatively fixed lower limbs is one of the major causes of intrinsic injuries. He stressed the importance of ascertaining the mechanism of an injury in making a diagnosis. The valgus stance [knee bent out] with foot pronation puts at risk many important structures including the medial ligament, medial meniscus and anterior cruciate, and increases the tendency for the patella to sublux. This stance is most pronounced during a forehand bottom turn and a backhand re-entry. From Andrew's experience, spondylolysis [stress fracture of the pars interarticularis] is not an uncommon problem and arises principally from violent rotations of the trunk during backhand maneuvers. It requires a high index of suspicion to diagnose and bone scanning to confirm. Neck pain in surfers commonly results from overuse of the extensor muscles or facet joint subluxation which can be helped by mobilization or manipulation. Deltoid ankle ligament strains and fractured distal fibulae are surprisingly common in surfers. In those surfers presenting with groin pain it is not uncommon for the front leg in a forehand turn to be affected by a pectineus strain. Adolescent surfers may present with knee pain and in those with Osgood Schlatters disease [swelling below the knee]. The lay back maneuver is particularly likely to aggravate symptoms and should be avoided. Shoulder complaints may arise from extrinsic forces such as when the inside arm is caught in the wall of the wave while tuberiding, causing an external rotation in abduction strain and subsequent dislocation or shoulder instability. A discussion of the importance of assessing shoulder girdle muscle strength, length and flexibility in those with the subacromial impingement syndrome (where muscle imbalance is a common predisposing factor), concluded an excellent presentation.

THE PENULTIMATE DAY

Wednesday, the penultimate day of the conference, provided more perfect eight-foot surf. The guys who went down to Tiger Tracks actually saw fresh tiger tracks in the sand near the break. After seeing such graphic evidence so close at hand, there was more than a little trepidation as we set off for our late evening walk back through the jungle. The monsoon rainforest is quite beautiful and full of birds and monkey colonies, but somehow it is not quite as tranquil as the rainforests back home when one considers what may be slowly stalking you through the thickets of vine and bamboo. Giant cycads and the Gegang palm "Corypha elata" with its fan-shaped leaves up to six meters in length were prominent. This palm is unique in that it flowers only once before dying, producing a giant branching inflorescence (a good example of which was visible up the beach from Kongs).

Tuesday evening saw the final conference presentation by Mark Walsh, Steve Oliveiri and Doc Jones on the differential diagnosis of dental pain and the variety of dental problems that may confront the travelling surfer. The importance of a preventive dental check up before travel was stressed. It would appear that most significant dental problems would require return to trained dental practitioners for adequate management. Replacing an avulsed tooth immediately back in its socket before a blood clot forms is perhaps the most important first aid measure.

Bags and boards were hurriedly packed before bed. The demands of the tide required that we be transferred across the reef to the transport boat early the next morning. Thursday, our day of departure, dawned with a 10' swell which apparently held for the next four days. Most of us had never seen a place with such consistently big swell. Having to leave so early precluded a surf but we were to have fun getting out across the reef with about 50% of us getting wet on the way through. On the way back across the bar at the river entrance, the captain spent some time judging the sets before charging it, only to run out of gas in the impact zone. Fortunately his crew were quick enough to change tanks before the next set arrived. It was remarkable that we, with our twin outboards, were having trouble when the local fishermen were cruising across the bar with their Chinese style junks.

TOWARDS THE FUTURE

After leaving the Grajagan reserve it was chock-a-block humanity all the way back to the ferry to Bali, something we hadn't noticed on the way over at night (but not surprising, considering Java is the most densely populated island on Earth).

During our stay in Grajagan, we were disappointed that we did not have the opportunity to visit the local village (45 minute boat ride or 7 hour walk away) to make an assessment of the locals' health care needs. But we had been advised that in this highly regulated country it was very important to go through the proper channels to seek permission first, something that we had not been able to arrange in the short time that we had to plan this conference. Unlike in Fiji, there is very little political power and decision making at the village level.

None of our crew were injured while in Grajagan, the only problems being staph infections in two guys who had cut themselves at other breaks before coming to G-Land. Ciprofloxacin definitely proved itself as the drug of choice for the septic leg. Not to be disappointed by the lack of trauma (maybe it only happens when Dr. Geoff's around), Mark Gillett and I had an opportunity to use the skill later to reduce a dislocated shoulder without analgesia at Uluwatu.

A reunion dinner that night in Kuta, a free drink and black G-Land tee shirt marked the end of an excellent conference. Grajagan had certainly set for us a new reference point against which SMA conferences and waves can be judged. With our knowledge of the best tides and time for swell, we have booked the camp for a 1992 conference from August 30 to September 9, so order your new gun, mark the date on your calender and register your interest with SMA Central. See you there!

NEW COMBINED SMA PHONE/FAX NUMBER (408) 684-0916

Doctors Wanted to Staff Grajagan Surf Camp - Java, Indonesia April - October, 1992

BENEFITS:

Free food and accommodation for doctor and significant other. Medical equipment provided. One night's accommodation in Kuta provided on arrival in Bali. Transport via boat from Kuta (3 hours).

REQUIREMENTS:

Minimum of one week's stay in Grajagan. Proof of registration as a medical practitioner. Transport to Kuta, Bali. Ability to provide acute care for trauma, drowning, malaria, etc. Provide own medical indemnity insurance.

DATES OF TRAVEL TO GRAJAGAN:

Travel must be on these days. Ideal length of stay would be 12 days but may be any multiple of 6 days.

May	2	8	14	20	26
June	1	7	13	19	25
July	1	7	13	19	25
August	6	12	18	24	30
September	5	11	17	23	29
October	5	11	17	23	29

CONTACT:

Simon Leslie, 63 The Drive, Stanwell Park NSW, Australia 2508
Phone: (042) 941716

Provide name, address, phone/fax number, preferred dates, alternative possible dates, name of significant other.

ORIGINAL ARTICLES

SHARK ATTACK

by Eric Larsen, San Jose, California

ED: Last year, everyone - surfers and nonsurfers alike - heard about the shark attacks on surfers that occurred along on a narrow stretch of coast just north of Santa Cruz. Two attacks took place: the first, and the more severe, was on Eric Larsen on July 1, 1991; the second was on John Ferreira on October 8. What so fascinated the press, who prominently carried both stories for days, was how each surfer fought off the shark and saved his own life. Needless to say, there was a lot of hype and stereotyping about "crazy" surfers. Soon after his attack, Eric Larsen matter of factly joined the SMA; we wouldn't have taken notice had his name not so recently been in the news. And a little while later, the following manuscript arrived, unsolicited, for consideration for publication in our journal. We are proud that Eric chose the SMA as the one publication he trusted enough to carry his first-hand story.

The purpose of this paper is to record my memories and impressions of when I was attacked by a shark, on July 1, 1991. My goal is to get closure on the incident and wrap it up.

DAWN PATROL

It was a Monday and I was on leave of absence from my job. My brother Nick and I got up around 5:30 a.m. and dawn patrolled about 10 miles north of Santa Cruz, near the town of Davenport. It was already light when we were suiting up: full-length wetsuits, booties, and web-fingered gloves.

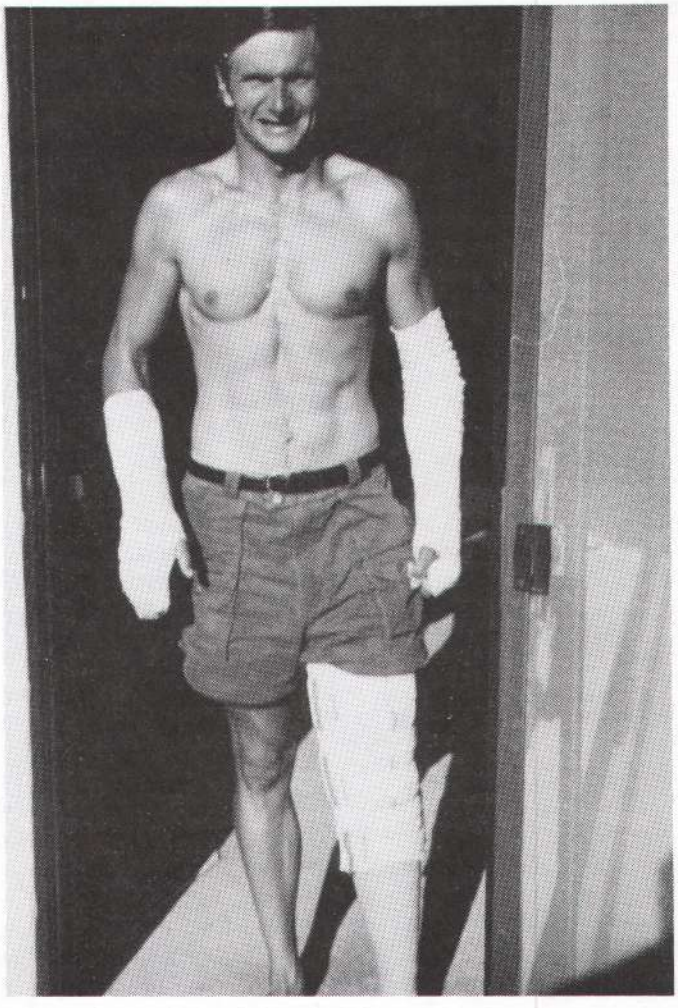
I was on my short board, a 7' Taylor tri-fin, and Nick was riding my 8'2" Agua, also a tri-fin, but with a longboard shape. We spent some time observing the surf and had a quick talk about how to enter and exit the surf zone, and where we would position ourselves to wait for the waves. We stretched and checked our leashes. I always try to put my leash on in the same way in case I should ever need to remove it in an emergency. I discussed this with Nick and we practiced unleashing. We timed a couple of sets, and then hit the water at 7:20 a.m.

We bobbed around for a while waiting for waves. Conditions were not good. We were on the outside trying to ride the rights. Nick caught a couple of waves which he rode on his chest. I only stood up one time, and didn't get a very good ride. I had not been surfing much lately due to canoe commitments and I was not surfing well, especially on my short board. After a while, Nick indicated he was not feeling well due to taking in salt water while being held under by waves. Nick went in around 9 a.m. and I planned to follow him after catching just "one more wave."

About 20 minutes later, I was sitting on my board, probably facing north, looking over my left shoulder for the next wave. My legs were dangling and my wrists were in the water as well. I felt some apprehension about being out there alone. We had seen other guys out earlier, but they had gone in. I was not too worried, since the surf was small and I had surfed the area many times before, including one time totally alone.

THE ATTACK

About one second before the attack, I had the feeling that I was in the presence of a very large marine animal. I felt a strange quality to the water in that it seemed to be swirling a little and I felt like I was being spun around. I remember hoping that an elephant seal or whale had come up under me. Elephant seals are common in the area and breed about 5 miles north, at Ano Nuevo. A mature male elephant seal can weigh up to 6,000 pounds and be 20 feet long. I had also



The author, July 9, 1991. Photo by Rae Larsen

previously surfed with grey whales and dolphins nearby.

I felt a clamping force on my left leg and looked down to see the shark's jaws on my leg. The shark had come up between my legs, under my board, and clamped onto my left leg. My left knee was pointing into his mouth, and his teeth were biting in just above the ankle and about 6 inches below my buttocks. I looked down at the jaws and gum line. I remember a distinct visual image of large triangular white teeth, and a very red gum line.

I remember my first thoughts being "How can this be happening? Shark attacks are very unlikely!" Then I concluded that I needed to deal with the situation somehow, because it was happening to me, unlikely or not. The shark was motionless for a few seconds and lacking any better ideas, I tried to pry him off my leg by placing my left hand on his top jaw, and the right hand on his bottom jaw. This was futile due to not being able to get much mechanical leverage and the strength of the shark's bite. At this point, I should have hit the shark on the snout with my left hand.

The shark's mouth opened up slightly and I was able to extricate my leg. I think the shark flicked his tail and came at me. At this point I think I was pushed off my board into the water, but both my hands and arms remained in his mouth. My left arm was in up to the elbow, my right arm up to mid-forearm. My impression was of a fairly large cavern inside his mouth.

I was still near the surface, sort of thrashing around, and I remember a lot of bubbles. I was able to pull my right arm out, and I used my fist and forearm it to hit the shark with a hammer blow. I was very pumped up with adrenaline, and hit him with such force that my muscles were sore and tight later. The effectiveness of my strike was limited by the difficulty of winding up and hitting underwater.

But the shark released my other arm, and I remember thinking that I was coming out of this maybe OK. My next recollection is of a violent pulling on my leash, which was attached to my uninjured right leg. The shark was somehow entangled in my leash and pulled me under for a few seconds. The sensation was very violent. It was like being hooked to a ski boat. I came free and got to the surface. I got a fast breath and got right onto my board in one motion. On the first attempt, I happened to hit almost exactly the right spot on my board, and I started to paddle in.

SELF-RESCUE

I remember trying to stay calm and focus on paddling as efficiently as I could, thinking that everything had to go right from this point on if I was going to make it. I was surprised at being able to paddle almost normally, even though my arms were so ripped up. Fortunately, my arms' paddling muscles - the flexor muscles and tendons - were relatively intact. It was mainly the extensor muscles that were damaged.

I remember looking down at my left forearm and noticing yellowish fatty tissue. I remembered a shark seminar I'd once attended, in which the instructor mentioned that sharks were supposedly attracted to yellow color. I surmised that this is because seals have a lot of fat and it might be yellowish, like mine. I also observed blood trailing off my arms. I remember looking over my shoulder for an oncoming fin.

I was about 150 yards offshore at the time of the attack. About two-thirds of the way in, I was able to catch a small wave and ride it in on my belly. I got to the shore and picked my board up and carried it over some small rocks. I set it down and looked at it quickly to check for dings or bites. I remember thinking that I should probably not worry too much about it. I started to feel weak, so I sat down and looked at my arms. I could see blood spurting out near my left elbow. I clamped the wound closed with my right hand and elevated the left arm. I was feeling very weak and at this point the thought occurred to me that I might die soon.

The beach was empty and I was below a cliff, around the corner from some beach houses. Nick was up at the truck by then, over a mile away and out of sight. I knew that if I stayed where I was nobody would see me for at least a half-hour, perhaps longer. I concluded that I was going to have to walk up the beach to the houses or to where Nick could see me. I got up and began walking.

Important events in my life began passing before my eyes, like a movie projected at 100 times normal speed. I tried to motivate myself by thinking about how I had gotten myself through long distance canoe races.

Walking was difficult due to the fact that the shark had transected (completely cut in half) the quadriceps lateralis muscle in my left leg. This is one of the main walking muscles. I knew that crawling was out of the question because I didn't want to get sand into the wounds on my arms. I lost energy at least once and had to sit down. I did not want to pass out, because then I would have released the grip on my left arm wounds, and a lot more bleeding would have occurred.

MOBILIZING HELP

As I neared the houses I began yelling "HELP" and "SOS" as loud as I could. Someone come out of a house, and I yelled to him. I was very anxious by now. I told him to call 911 right away. It turned out he was a surfer, too, 16-year-old Ben Burdette.

Ben's mother, Michell Tummino, came out with some towels. She told me she didn't know much first aid, so I instructed her in how to apply pressure to my brachial artery, using the towels to put direct pressure on the bleeding wounds. I had her elevate my good leg which would send more blood towards my abdomen and heart. She asked me what I did for a living and I told her that I was a programmer on leave of absence, and that "real surfers don't have real jobs."

I asked for someone to get Nick, and soon he arrived, and saw that I was pretty cut up. I told him I was glad that he was there. At this time, the paramedics and emergency response people started showing up.

The blood pressure they got on me was 50 (systolic) over 30 (diastolic), which is quite low, indicating that my blood loss had been severe and I was in shock. They gave me oxygen, started IVs on both arms, and used MAST trousers, which go around both legs and inflate and compress your legs to force more blood into your circulation. I felt a lot better as soon as they went on. Nick kept the oxygen mask pushed down on my fact, otherwise it didn't feel like I was getting enough.

The Army had a Huey helicopter ready to land and everybody put on goggles to protect their eyes from blowing sand. At the time we took off, it was unclear to me (and Nick) where we were going. We landed at Dominican Hospital in Santa Cruz.

EMERGENCY RESPONSE ORGANIZATIONS

Five separate emergency response organizations came to be involved:

Davenport Fire and Rescue
California Department of Forestry
Santa Cruz Paramedics
US Army 237th Medical Detachment Helicopter Crew
Stanford Life Flight Helicopter Crew

I learned later that the Army guys happened to be in their helicopter doing a check when they got the call, and they just slammed the doors shut and took off. This resulted in a very fast response. I think that the elapsed time between the 911 call and when I was in the air was only 45 minutes. This is fast, given that Davenport is fairly remote. It is also good that a helicopter was available, due to the 4th of July holiday traffic.

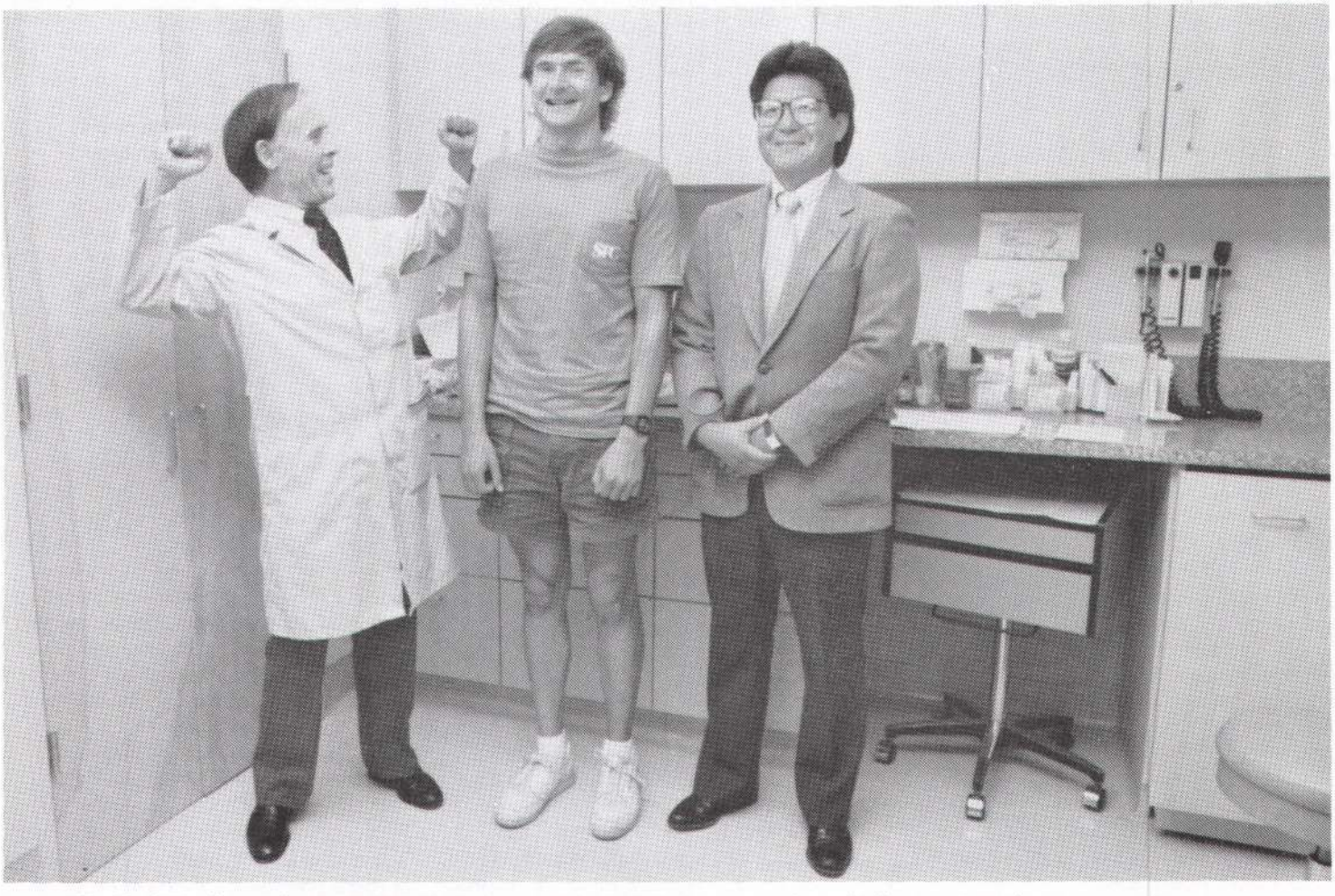
I am told that the Stanford Life Flight helicopter was unable to land on the sand, so the Army guys landed close and picked me up. They had a winch that could have been used to lift me up, as well as the capability to put a medic in a wet suit directly into the water. The Army unit that provides this service (free of charge) will be relocating within the next year or so, and at that time it is unclear how these vital services will be performed.

The Davenport Fire and Rescue guys were great. I went to a picnic they held later on in the summer. They told me that some years they perform up to 15 cliff rescues, and that their specialty is rescuing people that fall off the cliffs near Davenport. While I was at the picnic, a rescue call came in and they all suited up and went to rescue a woman that had fallen off a cliff to the north.

IN THE HOSPITAL

A lot of x-rays were taken in the emergency room. While I was being moved and positioned, I felt a lot of pain. Two E.R. guys helped by holding my arms while I was being repositioned. While waiting for surgery, I became cold, I guess due to having lost so much blood. They turned on warming lamps and I started to feel a lot better, but they were starting to really perspire. They were local surfers, and I thought it was so good that they were willing to hang in there and give me some good moral support even though it had to be very uncomfortable and hot under the lights.

I don't remember much about the surgery, because I was under general anesthetic. They told me later that I took 350 sutures internally, and 135 staples externally to close 30 inches of wounds. I



Dr. Fred Tomlinson (arm repairman), Eric Larsen (repaired), Dr. Ron Kobayashi (leg repairman). Photo by Ted Benhari

received 3 units of blood. The doctors decided not to give me more blood so as to reduce the risk of hepatitis and AIDS. I was placed on iron pills, and told to eat hamburgers and drink orange juice. That's my normal diet anyway.

The surgeon that worked on my arms, Dr. Tomlinson, had treated three shark bite patients before. He had been a doctor in a military station at Tomales Bay, and he had a fast, precise and accurate operating method. One move he made that was pretty good was when he removed a drain (a section of tubing installed to allow fluids to drain from the repaired wound), and observed that it didn't look quite normal. He made a short exploration and found that a piece of it that had broken off inside my arm. Left unfound, it would have caused complications later. This is a case where expertise and experience proved invaluable. A less experienced surgeon might have missed it.

I had another doctor who worked on my leg. His name was Dr. Ron Kobayashi. He was very good, too. He is a longboard surfer. The nurses in ICU indicated that my two doctors were the best in the area.

POST-OPERATIVE PERIOD

My first memory after surgery is of waking up in intensive care and talking to my nurse. I think her name was Tracy. I told her the shark story. We spent a lot of time that first night trying to get a grain of sand out of my eye. Dr. Tomlinson was able to remove it in about 27 seconds the next morning. I took this as additional evidence of why sure-handed surgeons deserve to make big bucks.

Tracy asked if I wanted to watch TV. I remember seeing a clip advertising the National Geographic special which showed a shark clamped on a diver's arm. I changed the channel!

The worst pain and problems were with starting to urinate; I had a lot of problems. They'd pulled out the Foley catheter that had been inserted into my penis for surgery, but I had trouble getting my urine to start. It was hard with relaxing with all the nurses fluttering around. A local surfer, general practitioner, and inventor of "Pro (Ear) Plugs," Dr. Robert Scott, was visiting me, and he was able to apply a sort of relaxation/hypnosis technique which allowed me to urinate over 1000 ccs - about a quart! Even in the ICU with all the high technology equipment, there is still no substitute for the human touch. Dr. Scott's daughter is married to Scott Rogers, another shark attack victim. Scott's board is in the Santa Cruz Museum with an 18" diameter bite mark in it.

REHABILITATION

I got pretty good care when I was transferred to the normal part of the hospital. One of the best things was having a massage. I was able to sleep peacefully for about 3 hours after this. I received physical therapy from a guy who had been with the Navy SEAL teams. It was good working with him. He'd motivate me to get out of bed and walk up and down the hall with my walker.

I distinctly remember the first time I was cleared to walk unsupervised with my walker. And, when I was able to brush my teeth for the first time it took about 20 mintues. Each part - getting the brush, then the toothpaste, brushing, and rinsing - were separate operations. It felt good to make small steps towards being self-sufficient.

It was hot the week I was in the hospital, but not too bad in Santa Cruz. The sun would beat in the windows in the late afternoon, and I would roll my wheelchair out to a deck area to get some sun and fresh air. I would lift my casts over my head to let the blood drain out, then hold them down to let the blood drain in. It felt good to hold my arms up in the cool evening air.

I saw some very sick and unhealthy looking old people in that hospital, and I hope I die a quick and merciful death before I get like that.

My impression of the outpatient physical therapy process is that a lot of emphasis is placed on measurement to provide economic justification for treatment to the insurance company. It might be done a lot more cheaply on a "just do it" basis. The problem is that it is very expensive, and you need a lot of it. Doctors make you survive and live, therapists make you healthy and normal. A doctor is someone you see for 15 minutes at a time, a physical therapist you see for an hour, three times a week

I enjoyed PT, and I had a very good physical therapist, Susan Happe. She knew a lot of things. I was in physical therapy for about 6 weeks.

LAND SHARKS

I observe from my experience that medicine is a process driven by economics. Hospital environments are "event driven" in that typically there is a need for slightly more care than there are care providers. The implication is that if you understand what is going on, you are going to get better care, and things are less likely to slip between the cracks.

As of December 5, 1991 (over 150 days after the actual incident), more than $5,000 of medical bills remain unpaid by my insurance company. This is due to their inability or unwillingness to get their act together and actually pay the bills. Dealing with the insurance company has been frustrating due to their tendency to not respond quickly and to lose track of information. At least I could hit the shark. The insurance company seems to be a big amorphous mass of incompetence. The total cost of medical care and physical therapy was over $30,000.

The attack happened on Monday, but the real feeding frenzy took place on Wednesday when the hospital finally allowed a press conference. There were about 50 journalists with TV and still cameras. I was completely encircled. I think it went well. One newspaper account described how I "calmly described the attack." Given the drugs I was on at the time for pain, I would have been very calm about just about anything.

I conclude from my media experience that a person has the attention of the press as long as they are saying something perceived to be a good story. I thought I might be able to use the fact that I was in the spotlight to give some attention to environmental issues such as offshore oil drilling on the Northern California coast, or overfishing of sharks, or mindless killing of sharks by "sport" fishermen.

AMAZING STORIES

The press did not in general carry these stories. They were basically only interested in the attack itself. Possibly the worst press was a TV show called "A Current Affair" which had an interview

with me interspersed with footage of a simulated shark attack. This footage portrayed sharks as mindless, blood-thirsty killing machines. One of the shark researchers I talked to indicated that he always got upset when he saw things like this in the media, because the sharks are not actually showing natural behavior. They are showing artificial behavior in the presence of bait.

I spent over 6 hours with the crew from "A Current Affair," and the segment was cut down to about 10 minutes. Another example of press problems was the tendency of the press to write articles in the first person. This happened twice. One was a writer who interviewd me by phone in the hospital, and then submitted the story to the "National Enquirer." The Enquirer offered to pay me $250 for the story but I refused unless substantial changes were made. The story was subsequently killed.

Another incident concerned a free lance writer for a magazine called "Guideposts." While I was on the phone with this person discussing plans for an interview, I indicated that I wanted to be paid for the interview. This was because I was getting tired of the press at this point. The writer indicated that I could be paid $600 and we agreed on a time for the interview. She called back 30 minutes later and indicated that it would be $100. I sort of let this slide at the time, but it seemed like questionable procedure. After the interview (2 hours), it became apparent that the money would only arrive if the article were published by the magazine.

What she finally wrote was fairly sensational, and in the first person. The title was "A Big Fish Story." She provided me with a draft, and I penciled in a number of changes and corrections. The title was changed. The writer (to her credit) made all the changes and re-submitted the story. The publisher determined that the story was not appropriate for his magazine due to the fact that the revised version did not have enough religious content. So, a lot of time was wasted on this.

In the entire course of the incident, I did not receive any money from the press, or for endorsments. I did get two free wet suits. One was from O'Neill, and the other from Hotline. O'Neill gave me a T-shirt, some booties, gloves, and a new leash. I agreed to appear in an ad for Rip Grip, and received some free product in return. The ad should be fairly humorous, since the essence of it is that the whole thing is a publicity stunt by a low-budget company.

On Thursday, October 3, the "San Jose Mercury News" carried a front page article with my picture. The headline read "Shark-bite victim rides publicity wave." A quote next to my picture read: "I would consider the whole thing to be ... a positive experience." The quote is credited to a "Greg Larsen."

This article contained a number of errors, distortions, and inaccuracies. It got me into trouble with my girlfriend because of a line which said:"Ex-girlfriends called, and anonymous women still phone in the middle of the night with obscene propositions — propositions Larsen said his girlfriend of five years tries to ignore."

During the interview, I indicated that my girlfriend had specifically requested to not be included in the press coverage. This was acknowledged by the reporter. The article was particularly offensive because I gave it on the basis that the article would talk about the press coverage I got, and might expose how it had not been very well done.

The fundamental lesson is that a person has very little control over what appears in the press, and once you talk to a reporter, you are taking your chances. The standard of truth and accuracy of press coverage is not the same as that of the engineering world. What is discussed in the interview and what appears in the article may be very different in emphasis. Facts can be presented in a very slanted way.

As a result of all the publicity, I got a lot of letters and phone calls from people I had never met before. A number of people called who had been in terrible accidents and recovered. A woman called who had been attacked by a bear. A number of people wrote in with religious messages. I got one photo from a model. One woman wrote me a number of very nice letters because she thought I looked attractive on TV.

WHY ME?

Although I didn't spend much time thinking about it at the time of the attack, I am fairly certain that the shark was a Great White. This is based on the similarity of the shark's appearance to photos I have seen since the attack, the characteristic bite pattern , and the fact that Great Whites have been observed and captured in the area before. After the attack, I viewed a preserved 14-foot Great White in a refrigerated case at the Steinhart Aquarium, in San Francisco. It was considerably smaller than the one that bit me. I'm six feet tall, weigh 180 lbs., and have fairly large legs. My entire left leg was in the shark's mouth, bent at the knee; the 14-foot shark's mouth could not have accommodated this.

An important question is: Why did the shark choose to bite me, at that time and place, when shark attacks are statistically rare? I was given 75 as the number of shark attacks on the West Coast since records-keeping began in 1926. It is reported that an estimated 80% of all shark attack victims survive, and in 50% of cases there was no significant loss of tissue by the victim. (Note that I didn't lose much if any tissue, but I lost a lot of blood.) About two-thirds of shark attack victims are classified as having "major" injuries.

Years go by when no shark attacks occur. The exact reason for an attack is something that can never be completely known, but a number of theories arise.

I observed seals various times that morning. It may have been the same seal, seen multiple times. About 30-45 minutes prior to the attack, a seal came close by and I slapped the water with my web-fingered glove. This simulates the sound of a fish tail slapping the water and will occasionally draw a seal up close to investigate. The sound was unexpectedly loud, and may have attracted the shark, since they are reputed to have very good hearing in the low frequency range.

A boat was seen not too far offshore. This boat left after the emergency response happened. It is suspected that the boat may have been chumming with fish entrails in hopes of attracting a shark. This has never been substantiated.

The underside of my surfboard is pure white. It may have looked like the white underbelly of something delicious. I was also wearing a wetsuit with black sections on the legs, and black booties with white bottoms. This coloration may have mimicked that of a seal.

I was alone in the water. This may have caused the shark to proceed, when he might have been deterred with more surfers in the water.

I vaguely recall someone saying that at that particular time of year, the elephant seal babies are taking their first swims at Ano Nuevo. It is possible that extra sharks might be in the area to gobble these seal morsels. I am not really sure about this.

One of the shark researchers I talked to mentioned that in a shark attack on an elephant seal, the shark will sometimes bite, and then back off, to wait for the animal to be so weakened from bleeding that they can be taken easier. The fact that I got right onto my board and paddled out of there may have been significant.

Also, seal bones are rather porous and crunchable, while human bones are dense and hard. When the shark bit into me, he left striations (tooth marks) on my bones. Encountering my tougher bones may have given him a clue that I was not a seal and that I would be hard to digest.

PRECAUTIONS

A number of precautions have been suggested by the experts for avoiding shark attacks:

- Don't enter waters known to be frequented by large sharks.
- Don't swim, surf, or dive alone.
- Avoid murky water, or water with sand churned up.
- Don't go too far offshore, or near channels or dropoffs.
- Don't go in the water near seal colonies.
- Avoid the water at dawn, dusk, or at night.
- Short surfboards are worse than longboards, since they look like a small seal from below.

Note that I was in violation of all these precautions.

As a result of my earlier experiences in Montana on the Ski Patrol, I modified my attitude towards taking risks in the outdoors. When I first started patrolling, I thought that taking more risks meant that you were "advancing" in your efforts. That is, a person who was more experienced was a person who was in a position to take more and bigger risks.

As a result of watching and listening to the professional ski patrolmen, I concluded that this was a false perception, and that the people who were really in the know did things in such a way that they could do them essentially the same way, every day, day in and day out with very minimal risk. That is, they did what might be a risky activity (avalanche control, rescue, etc.) in such a way that it was safe and routine.

SURVIVAL LESSONS

I thing that four factors were important for my survival:

1) The emergency response and medical system works very well in the Monterey Bay/Santa Cruz area. Had this happened in Mexico, things might have been different.

2) I was in good physical condition. I had been paddling outrigger canoes almost every day for the two months prior to the incident, and I had been running a lot. This was important in my ability to paddle in and hike up the beach, even though I had lost a lot of blood.

3) I was in good mental condition. I was relaxed and unstressed due to having been on leave of absence from my job. Because I was relatively comfortable in the water from surfing and swimming a lot, I didn't totally panic, even when the shark pulled me underwater when he was hooked in the leash.

4) I had good basic knowledge of First Aid. I had learned this as part of my experience on the Bridger Bowl Ski Patrol. I had a (now expired) Advanced First Aid and CPR certification. I never expected I would need to use it on myself.

One other thing I think about is that the shark bit me, but didn't eat me, or bite off big chunks even though he could have. It might be more accurate to categorize what happened to me as a couple of bites, rather than an attack. In retrospect, the shark was almost gentle, or at least as gentle as he (or she) could have been with his teeth. Once he concluded that I was not a seal, he swam off and left me alone. Humans should similarly give sharks some slack by not killing them for sport or unnecessarily. I think sharks are an important part of the natural environment. Any animal that big and that strong deserves respect.

CONCLUSIONS

I have concluded that every day is important. Life is short, and every day is a chance to do something meaningful and important. This can be surfing or writing a new operating system for a computer. But in any case, it is too short to spend a lot of time on things that are stupid or don't lead to anything else. Sitting in traffic and working on engineering projects that get discarded are two of the things that I hope to avoid in the future.

Basically, I think this incident resulted in a reinforcement of previous attitudes, rather than any new revelations. Life is deterministic, and a person has a lot of control over what happens. There is a need to be prepared, and be tough. There is no way to be totally prepared for all eventualities. The best you can do is to be as ready as possible, and then go out and do it.

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Severe Head Injuries in Surfers

Three Case Studies

By Simon Leslie, M.B., Stanwell Park, New South Wales

Approximately 50% of injuries to a surfer are to the head and most of these are due to contact with the surfer's own board. It is not surprising in view of the hardness of a surfboard and its sharp nose and fins that some of these injuries are serious.

Three examples of serious head injuries in surfers in the Illawarra region of NSW Australia are presented and discussed. Principles of the management of head-injured surfers are shown with particular reference to remote area pre-hospital management.

CASE 1.

A 15-year-old male surfer returned to the beach after completing his heat in an interschool short-board surfing competition. Waves were in the 2-3' range with light onshore winds. It was noticed by a fellow surfer that the subject had blood on the right side of his head and on close inspection a 2 cm laceration was noted over the temporal region. He had no memory of being struck by his surfboard, but on examination was alert and oriented with no focal neurological signs. To the physician in attendance, the wound appeared superficial and was closed with simple sutures.

The surfer subsequently went to a different beach to compete in a semi-final. Approximately eight hours after the initial injury, he developed headache and nausea. On review in an emergency department, he was again found to be alert and oriented with no focal signs. His skull x-ray revealed a depressed skull fracture of the right temporal bone. Over the next four hours the headache worsened with the onset of vomiting and confusion. A CT scan demonstrated an extradural haematoma that required surgical evacuation with ligation (tying off) of a lacerated middle meningeal artery. Recovery was uneventful and the subject has since been able to return to surfing.

11-year-old, status post right frontal lobe brain laceration by a surfboard.

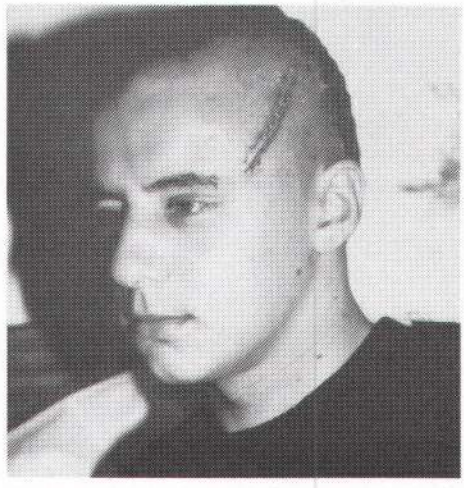
CASE 2.

An 11-year-old male surfer was paddling out after catching a wave in 3' offshore conditions. Witnesses described him being struck on the right side of the head by a board being ridden at moderate speed on a right hand breaking wave. The offending board was seen to be abruptly stopped by the impact and the subject was thrown off his board with immediate loss of consciousness. After rescue by a lifeguard, who happened to be on the beach, he was found to be apnoeic (not breathing) with a carotid pulse palpable. Artificial respiration with mouth-to-mouth resuscitation was commenced on the beach with subsequent establishment of spontaneous respiration, followed by recovery of consciousness over a period of ten minutes. A 20 x 30 mm piece of fibreglass was noted to be protruding from the right forehead near the hair line. When assessed in hospital the subject was alert and oriented with no memory of the accident. No neurological abnormality was detectable.

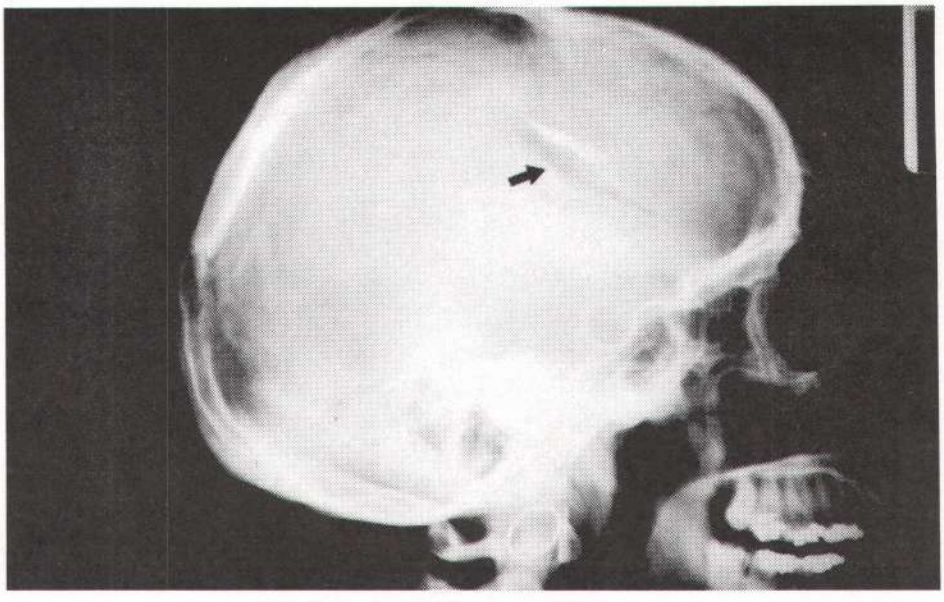
Subsequent exploration of the wound in the operating room revealed that the nose of the surfboard had penetrated the skull, breaking off inside the subject's head. A section of the right frontal lobe was lacerated to a depth of 40 mm The wedge shaped nose piece had allowed easy penetration but prevented removal. A bone flap containing the nose section was removed and the injured brain debrided (cleaned up). With broad spectrum antibiotic cover, there were no post-operative complications. The bone flap was stored and subsequently replaced five months later. The surfer was allowed to ride a boogie board with helmet protection after 3 months and his normal board after 12 months. No neurological abnormality nor behavioral change has since been detectable and recovery appears complete.

CASE 3.

A 21-year-old male surfboard rider in 4' surf riding a thruster fell from the lip while attempting a vertical backhand flickout on a closeout. As he hit the base of the wave the tail of his board struck him on the vertex of his head. After surfacing from the wipeout the subject noted that one of the side fins of his board was impaled in his head and it was only with great difficulty that it was able to be removed with a lever-like action. The surfer was able to paddle into shore to seek the assistance of a fellow surfer. Local pressure controlled the bleeding from his 6 cm scalp wound, which was subsequently closed by a



21-year-old, status post left temporo-parietal lobe brain laceration by a surfboard.



Arrow points to area of skull penetrated by the surfboard skeg.

family physician. In view of a large haematoma, headache and mild nausea, the subject was referred to a local hospital for observation. Neurological examination revealed no abnormality other than a questionable degree of finger agnosia (sensory disturbance). Skull x-ray showed a 6 cm foil-shaped defect in the skull (see photo) consistent with penetration by a surfboard fin. CT scan showed a haemorrhagic brain laceration extending through the left temporo-parietal lobe almost to the midline. Subsequent examination of the surfboard showed a blood line two-thirds of the way to the base of the fin and the subject's fiance described removing pieces of white brain-like substance from the fin after the accident.

After adequate debridement, the wound healed under ampicillin and flucloxacillin antibiotic coverage. Recovery was complicated by a focal seizure on the right side. For several days the patient was drowsy and had a slowly resolving headache and nausea. Phenytoin (Dilantin) was continued for six months post trauma with no recurrence of seizures 2 months after cessation. The subject has no detectable deficit and has been able to return to surfing protected by a helmet.

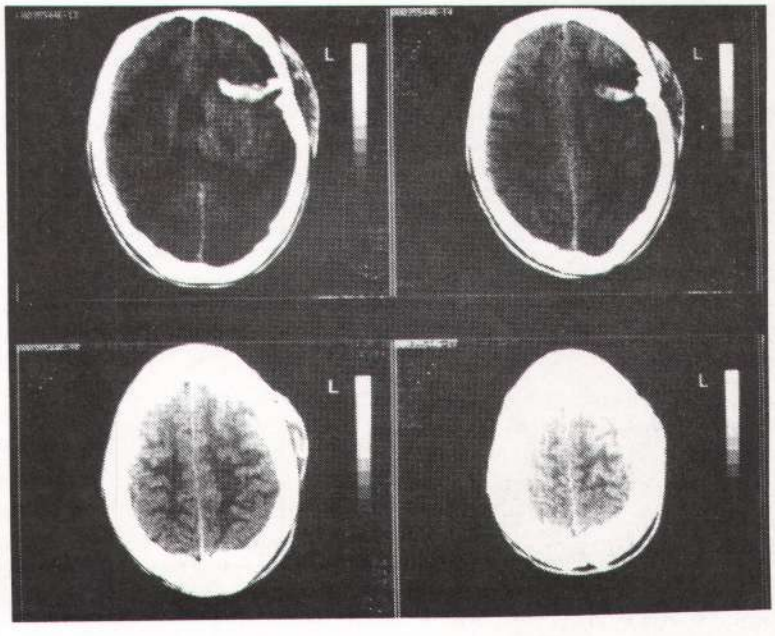
DISCUSSION

These three cases illustrate the potential head injuries, both closed and penetrating, that can occur with surfboard riding. In two of the three cases, death was prevented by appropriate intervention and, amazingly, in all three, full recovery took place.

In view of the sharp surfaces on surfboards, all head injuries involving the cranial vault secondary to contact with a surfboard must be considered penetrating injuries until proven otherwise. No matter how trivial they may appear, extra care must be taken with those that may involve the middle meningeal artery. Skull x-ray is indicated in all cases and if history, symptoms or signs suggest brain injury, CT or MRI should be performed and urgent neurosurgical opinion obtained.

Epilepsy is a real risk after a penetrating head injury. After recovery, surfers must be warned that they should not surf alone for at least two years after the injury. They should ensure that their surfing companion is aware of the possibility of a convulsion and has the ability to provide first aid. Extra care must be taken with decisions to continue or withdraw anti-convulsant medication, as the potential hazard of a convulsion is much greater if it occurs in the water.

Prevention is obviously the key to head injuries and almost certainly a helmet would have prevented all three of the above injuries. It is obvious that the use of helmets should be encouraged and not only in big surf where, in fact, there is probably a lower risk of collision with a surfboard. Each of the cases presented occurred in small surf. Helmets recommended for surfing should be manufactured to researched standards with respect to both shock absorption and penetration resistance if they are to be effective. Board design can be modified without affecting function particularly with respect to the nose shape. Borserio and Wall's research shows how effective nose-guards can be.



Computed tomography scan showing hemorrhagic laceration of the left brain, nearly to the midline.

Assessment and Management of a Head-Injured Surfer with Depressed Level of Consciousness

by Simon Leslie, M.B.

- Head trauma in surfers is unlikely to be associated with other major trauma to the thorax or abdomen. However, in the event of associated exsanguinating haemorrhage or life-threatening visceral injury the principles of head injury management must take second priority to lifesaving resuscitation of the patient using the principles of airway, breathing and circulation (ABC).

- If the head injury is severe or if its mechanism is such that the cervical spine may also have been injured then one must assume there is an unstable cervical spine fracture until proven otherwise. This essentially entails immobilization of the cervical spine until adequate x-rays are taken and reviewed. Immobilization can be achieved with cervical collar, sandbags or taping the head down. Suction should be used to help prevent aspiration in the event of vomiting. If the patient needs to be turned to the side he should be log-rolled with the neck in traction.

- In an unconscious patient with head injury, consider that the depressed level of consciousness may be secondary to a reversible cause for coma such as post-ictal state, hypoglycaemia or drug effect that may in fact have lead to the trauma.

- Assess the head injured patient in objective, reproducible and well-understood terms with the use of the Glasgow Coma Scale (see table) and record at intervals to assess improvement or deterioration.

- Complete a basic but thorough neurological examination which includes the coma scale assessment but also pupil size and response to light, reflexes, anal sphincter tone and examination of the nose and ears for blood and/or cerebrospinal fluid.

- Secure the airway by jaw thrust, oropharygeal airway or endotracheal intubation. Take care to protect the neck during intubation. Cricothyroidotomy should be undertaken of the airway can not be established by other means due to facial trauma. Insert a nasogastric tube to reduce aspiration risk.

- Take measures to reduce intracranial pressure. Adequate oxygenation, hyperventilation, mannitol, (steroids), and diuretics. If the latter are used, a urethral (Foley) catheter must be inserted.

- Transport to appropriate hospital-based care as soon as possible.

INDICATIONS FOR TRANSPORTING HEAD-INJURED PATIENTS FROM REMOTE SURF CAMPS.

- Any person with witnessed loss of consciousness or post-traumatic amnesia.

- Any patient with suspected skull fracture or penetrating injury. This must include all surfers with cranial vault trauma due to contact with a board.

- Any person with persistent or progressive symptoms (see table).

SIGNIFICANT POST-HEAD INJURY SYMPTOMS

- Increasingly severe headache not relieved by simple analgesics.
- Change in behavior or personality.
- Increasing drowsiness or inability to arouse from sleep. Check every two hours.
- Vomiting more than three times.
- Unequal pupils.
- Convulsions focal or generalized.
- Weakness or incoordination of limbs or gait.

GLASGOW COMA SCALE

Eye Opening	Talking	Motor	Score
Does not open eyes	Makes no noise	No motor response to pain	1
Opens eyes with pain	Moans, makes unintelligible sounds	Extensor response (decerebrate – stretches limbs out)	2
Opens eyes with loud verbal command	Talks, but nonsensical	Flexor response (decorticate – bends limbs)	3
Opens eyes on own	Seems confused, disoriented	Moves part of body but does not remove noxious stimulus	4
	Carries on conversation	Pushes away noxious stimulus	5
	Alert & oriented	Follows simple motor commands	6

Surfboard Riding Injuries in Wollongong, Australia

Belinda McGee, Department of Nursing, Wollongong University, NSW Australia

ABSTRACT

Information regarding frequency of surfing injuries and safety precautions was obtained from 18 surfers via a questionnaire. The majority of injuries occurred to the head and lower limbs. The overall injury rate was approximately one injury for every 380 hours of surfing. Only 37% of these injuries required medical attention. It was noted that despite an awareness of safety precautions they were often not put into practice. Possible ways to reduce injury rates are discussed.

METHODS

The study was conducted in the Wollongong region on the South Coast of New South Wales, Australia, during August 1990. The majority of subjects frequently surf North Wollongong beach. Eighteen members of the Wollongong Christian Boardriders Club completed a three-part questionnaire consisting of thirteen questions which ascertained age, sex and surfing experience, injuries sustained, and safety precautions utilized (available on request).

RESULTS

Thirteen participants were male and five female. Ages varied from 14 to 27 with the average age being 21. An early article by Kennedy and Vanderfield (1976) observed that the majority of surfers are within a similar (14-25) age group.

Most of the subjects went surfing about 1-2 times per week, although it ranged from every day to 1-2 times per month. On average, surfers spent 2 hours in the water at each surfing session. It was found that the less frequently a person surfs, the longer they spend in the water with each session and vice versa.

As with any sport, learning and abiding by the rules is an important process which increases the enjoyment of the sport, enhances the quality of the time spent surfing and lessens the risk of injury to the surfer and adjacent water users. The majority of surfers learned the rules of surfing by observing the reactions of other surfers to their behavior during the learning phase but also from friends (Table 1). They are, however, learned quickly, as awareness of them is important in earning respect from other surfers.

Eleven out of 18 suffered a laceration which required suture. Of these, 10 went to an emergency department and 1 to a local doctor for treatment. The body part affected and the cause of the injury are recorded in Table 2 and 3, respectively.

Fourteen out of 18 sustained a laceration that did not require suturing. Only one of these injuries was reviewed in an emergency department, with the remainder being managed by basic wound care and dressings or no treatment at all. Sprains and strains occurred in 8 out of 18. Only two of these injuries were brought to the attention of a medical officer. Other injuries such as severe bruising, damaged teeth, nosebleeds and cramps were suffered by 8 subjects. Only one of these required medical attention, with the remainder being treated with basic first aid.

The most common injuries were to the lower limb with the commonest cause being the fin or tail of either the surfer's own board or another's board. None of the injuries were severe enough to require hospitalization. Of a total of 41 injuries, only 15 (37%) were brought to the attention of a medical officer and of these 11 (73%) were lacerations requiring suture. The total number of hours surfed by the participants in this study was at least 15,500 hours. The incident rate of memorable injuries for the group is quite low at 1 injury for every 380 hours of surfing or one/190 surfing sessions. The reported injuries do not include the minor abrasions that can occur when surfing.

The actual measures surfers take to protect themselves from injury and ill health are shown in Tables 4 and 5. Table 6 indicates surfers' awareness of appropriate precautions (irrespective of whether they are utilized). It is interesting to note that awareness of appropriate precautions has not necessarily resulted in their utilization. Precautions taken against UV exposure (Table 7) reveals the high dependence on sun screens versus

TABLE 1

SOURCES UTILISED BY SUBJECTS TO LEARN THE RULES OF SURFING

SOURCE	NUMBER OF SUBJECTS
Observation of other surfers	14
Friends and relatives	14
Magazines	4
Video tapes	4
Parents	1
School	1
Surf school	1
Surfrider club	1

TABLE 2

LACERATIONS REQUIRING SUTURE

BODY PART INVOLVED	NUMBER OF SUBJECTS
Leg / Foot	6
Head / Face / Neck	5
Arm / Hand	1

the use of physical measures to avoid exposure.

Table 8 reveals the subjects' attitudes to improvement in surfboard design. The majority felt that little could be done to alter surfboard design to lessen injury and there was a fatalistic acceptance of the idea that, if a board is going to hit you, it will. Many appeared to have adopted the attitude that there is an inherent risk of injury in surfing and that it was not worth compromising surfboard performance to reduce that risk.

DISCUSSION

This survey in its design has been unable to ascertain the degree to which surfers make an assessment of risk in each surfing situation as a means of protection from injury. Many surfers may avoid exposing themselves to the risk of injury by avoiding surfing situations in which they could not physically meet the demands made upon them. For example, a physically unfit surfer is unlikely to paddle out into five meter high surf. It is likely that each surfer has a subconsciously defined domain of surf size and conditions (derived from past experiences) to which he/she will expose him/herself, thus greatly reducing the risk of personal injury. This study also does not address the extent to which this risk assessment is overridden (with adverse consequences) by the effect of peer pressure.

Individual surfing style will influence a surfer's risk of injury. An aggressive powerful surfer will possibly be more prone to injury than a laid back surfer. Water pollution is a potential health hazard for surfers and increasingly this must be taken into account in choosing where one decides to surf.

Ways a surfer can minimize the risk of injury have been listed in "Australia's Surfing Life" (vol 15, p. 24). These include:

1. Improving technical proficiency on a board
2. Surfing at less crowded times and in less crowded situations
3. Attempting to maintain control of your board and being aware of its position relative to yourself.
4. Remaining down until the legrope slackens
5. Protecting the eyes and face when wiping out
6. Riding a board with blunted nose and fins
7. Not dropping in and avoiding those who do

TABLE 3

LACERATIONS REQUIRING SUTURE

CAUSATION

CAUSE OF LACERATION	NUMBER OF SUBJECTS
Fin / Tail	6
Nose	2
Rocks / Sand	1
Other	1

TABLE 4

PRECAUTIONS TAKEN BEFORE SURFING

PRECAUTION	NUMBER OF SUBJECTS
Note wave, wind, weather, rocks	18
Muscle streaching	4
Sunscreen / Wetsuit	3

TABLE 5

PRECAUTIONS TAKEN TO IMPROVE BOARD SAFTY

PRECAUTION	NUMBER OF SUBJECTS
Check legroap	7
Check for dings	6
Check wax	4
Reduce sharpness of fins	2
Nose gard	2

Dr. Simon Leslie, Australian President of the Surfer's Medical Association (personal communication), suggests the need for physical fitness, protective devices such as helmets, a knowledge of first aid, surfer education and stretching before a surf as further measures to prevent injury. Perhaps the most important safety measure the surfer can take is to know his/her own limitations and not push him/herself beyond them.

Draper, Pyne, Thompson and Fricker (1987) mention that crowding plays a role in surfing injuries. With the popularity of surfing increasing, crowding is occurring and contributing to a higher number of injuries. This has become a major concern to beachside municipal councils in Australia after a local council was recently found negligent by allowing a bather to be injured by a surfboard on a patrolled beach.

Surfboard design is an important issue when discussing the safety of surfing. Swift (1975) states that a surfboard hurled at the head of a surfer is a lethal object. There are many varying opinions about what can or should be done to improve safety. Millard, cited by Lowdon (1984) suggested that blunting sharp edges would make little difference to performance but a great difference in cutting ability. Lowdon, Pateman and Pitman (1983) believe some safety modifications to surfboards may be necessary and possible without affecting board performance. Board manufacturers have been aware of this and have made boards with blunter fins and rounder noses. Silicon rubber nose guards have been introduced and are popular in decreasing the risk of personal injury. Kennedy, Kennedy and Vanderfield (1981) differ in opinion, saying that the few severe injuries which occur make surfing a relatively risk-free sport and no changes in design should be made. Legrope safety has been debated but most surfers believe that the advantages outweigh the disadvantages and virtually all boards are fitted with legropes.

RECOMMENDATIONS

To improve the safety of surfing, the known aspects of surfing safety should be promoted and encouraged. As this study has illustrated, it is not sufficient to just inform surfers of the necessary safety precautions that are required. Positive

steps must be made to ensure their implementation. All surfers should have an understanding of risk assessment and be competent in basic first aid and resuscitation. A surfing accident or shark attack can take place at any time and has the potential to be fatal. Any surfer could be faced with an emergency and thus should be competent to deal with it. This is especially true as surfers begin to surf more isolated spots where help and medical care are not close by.

The Surf Survival Award of the Surf Life Saving Association of Australia, which is taught in Australian schools, goes a long way towards addressing this need. The course work for this award covers environmental and marine hazards, specific skills to avoid injury such as how to enter and exit the water from rocks, wetsuits, wiping out, effects of drugs and alcohol on surfing, wave types, weather patterns and rescue, resuscitation and first aid. Unfortunately, this program does not reach all surfers. Surf safety education could achieve greater penetration if a surf safety program was structured by a national surfing body and distributed for use by boardriders associations and clubs. It would be important to encourage surfers to attend by involving professional surfers, minimizing costs and using central and convenient venues.

Board manufacturers are showing more concern for safety and are providing the option of safer boards, but greater efforts need to be made to influence surfers into ordering such boards.

Research to determine particular problem areas in each region should be encouraged and could be coordinated by the boardrider association of each state and conducted by each regional boardriders association in their designated area. This information could then be distributed to surfers.

CONCLUSION

For the participants of this survey, surfing has been a relatively safe sport with few serious injuries occurring. The subjects surveyed appear to have a good understanding of safety principles but tend to apply them less than favorably. It is important to continue promoting surfing safety to further decrease the risk of ill health to surfers.

TABLE 6

AWARENESS OF NECESSARY SAFETY PRECAUTIONS

PRECAUTION	NUMBER OF SUBJECTS
Note environmental conditions	11
Obey rules of surfing	11
Don't surf alone	11
Be aware of other surfers	11
Be aware of own limitations	11
Ensure board is safe	9
Muscle Stretching	4
Knowledge of first aid & rescue	4
Self protection when wiping out	3
Nil / not sure	2

TABLE 7

PRECAUTIONS TAKEN BY SURFERS TO PREVENT SKIN CANCER

PRECAUTION	NUMBER OF SUBJECTS
Sunscreen / Zinc	16
Hat	5
Wetsuit	5
T-shirt / Rash vest	2
Avoiding middle of the day	2
Awareness of time in the sun	2
Nil	1

TABLE 8

FUTURE IMPROVEMENTS IN SURFBOARD DESIGN THAT COULD IMPROVE SAFETY

IMPROVEMENT	NUMBER OF SUBJECTS
Not sure	12
Rounder nose	3
Blunter Fins	1
Stronger boards	3

BIBLIOGRAPHY

AUSTRALIA'S SURFING LIFE, 15:24, 1987.

DRAPER J, PYNE D, THOMPSON K, FRICKER P. Injury occurrence in surfboard and surf ski paddlers. Australian Journal of Science and Medicine in Sports, 19:20, 1987.

GOLD J. Surfboard riding injuries. Medical Journal of Australia, 1:56, 1984.

KENNEDY M, VANDERFIELD F. Medical aspects of surfcraft usage. Medical Journal of Australia, 2:707, 1976.

KENNEDY M, VANDERFIELD F, KENNEDY J. Sport: assessing the risk. Medical Journal of Australia, 2:253, 1977.

KENNEDY M, KENNEDY J, VANDERFIELD G. Surfboard riding injuries. Medical Journal of Australia, 1:562, 1984.

LOWDON B. Somotype of international surfboard riders. Australian Journal of Sports Medicine, 12:34, 1980.

LOWDON B, PATEMAN A, PITMAN A. Surfboard riding injuries. Medical Journal of Australia, December, 6:13, 1983.

LOWDON B. Surfboard riding injuries. Medical Journal of Australia, 1:562, 1984.

NAYLOR R. Surfboard injuries. Medical Journal of Australia, 2:154, 1981.

SWIFT S. Surfers' knots. Australian Journal of Sports Medicine, 1:30, 1985.

YOUNG N. Surfing fundamentals. Palm Beach Press, 1985.

Impact Reduction by Nose-Guards on Surfboards

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ABSTRACT

A reproducible experiment was designed to simulate the impact of the nose of a surfboard on a flat surface, with the direct measurement of the velocity prior to impact and the acceleration during impact. The impact force and its duration was calculated directly from the measured acceleration.

For the extreme case for the impact of a steel nose onto a steel surface, the guards reduce the impact force by up to 80%, for softer surfaces the reduction is not as great, but is certainly significant. The four commercial guards examined had similar efficiencies, but it is clear that further reductions can be readily attained by an adjustment of the shapes of nose and guard.

INTRODUCTION

Nose-guards are used on surfboards in order to:

- protect the board for damage, and
- reduce the severity of injury to a surfer who is struck by the nose of the board.

The second issue is addressed in this study by the use of an experiment to compare the forces when a nose impacts a flat surface, with and without a guard. Four commercial guards were compared:

- the Hawaiian Nose Guard
- the Protector tip, by pro-surf
- the Hooter nose guard
- the Hot Tips guard

The first two are moulded silicone rubber guards, the second two are moulded plastic.

EXPERIMENTAL DESIGN

A test rig was designed to simulate the impact between a surfboard nose and a flat surface, with instruments to measure the variation of the force during the time of the impact.

Figure 1 illustrates the arrangement.

The steel nose was mounted on a trolley which rolled on an inverted angle iron and was driven by a chord attached via a pulley system to a dropping mass. The dropping mass was stopped as it hit the floor prior to impaction of the nose.

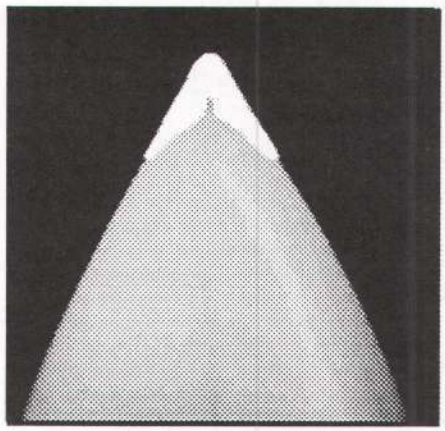
A sensor, called an accelometer, was located in the nose and gave an electrical signal when the trolley changed its velocity (or, in other words, it accelerated). The signal was recorded during the impact event on a storage cathode ray oscilloscope (CRO).

As force (F) is directly related to acceleration (a) by F=ma, a knowledge of the trolley mass (m) of 0.735 kg allows the estimation of the impact force. The force transmitted to the impact surface is the same as that estimated from the technique.

The velocity of the trolley was also measured by the time taken by it to pass two light sensitive diodes located just prior to impact. This system also triggered the CRO to commence recording the output from the accelometer.

TRENDS IN THE OUTPUTS

Illustrative traces of acceleration with time are given on Figures 2 and 3. For the trace with no guard, the acceleration corresponding to the maximum force and the duration are noted. For the same velocity of the trolley at impact, the



Example of the Hawaiian Nose-Gard.

traces for the noses covered with guards are seen to have a lower maximum force and a greater duration of impact. These two trends are expected as the areas under the curves should be the same if the velocity on impact (of 1.45ms-1) is similar for all experiments.

RESULTS FOR THE REDUCTION OF THE MAXIMUM IMPACT FORCE

The reduction of the impact force due to a nose guard depends on the impact surface. Three surfaces were therefore considered:

- a steel surface, which results in the greatest force and also the greatest reduction.
- a composite surface where the steel surface is covered with layers of wood and rubber.

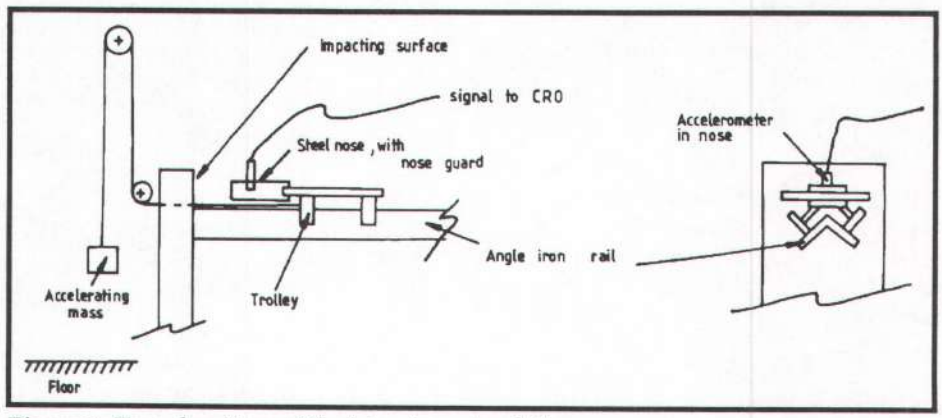


Figure 1: Two elevations of the laboratory simulation.

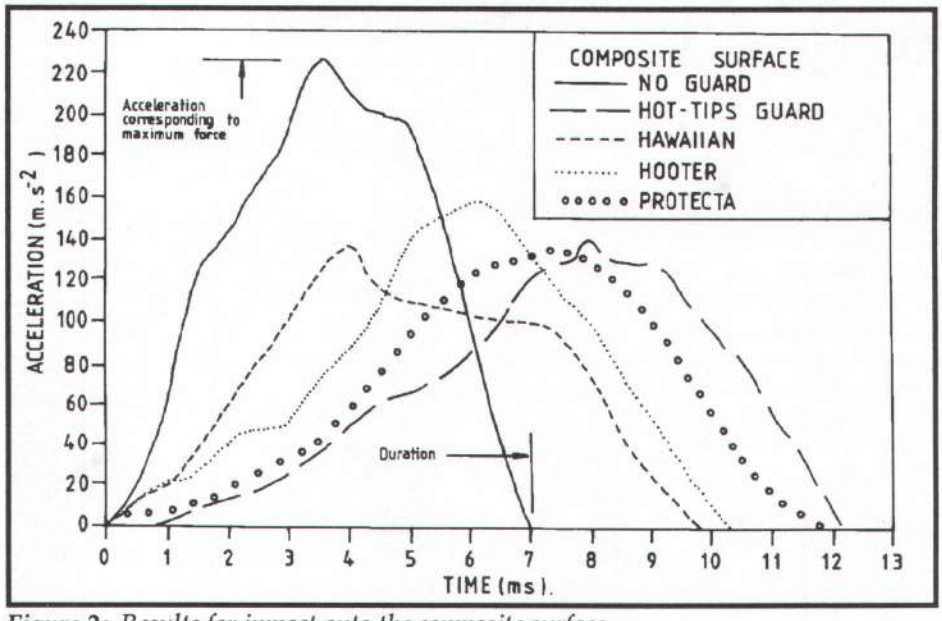


Figure 2: Results for impact onto the composite surface.

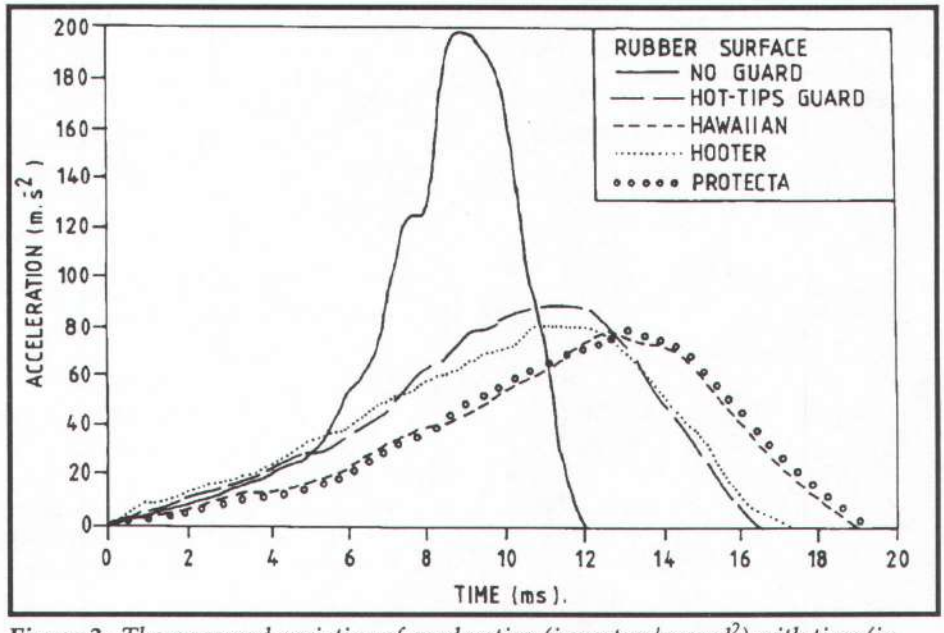


Figure 3: The measured variation of acceleration (in meters/second^2) with time (in milliseconds) for impact onto the rubber surface and the nose with and without guards.

	Steel impact surface			Composite covered surface			Rubber covered surface		
	Max force,N	Force duration, ms	% impact* reduction	N	ms	% impact* reduction	N	ms	% impact* reduction
No guard	2387	2.8	-	663	12.0	-	751	7.0	-
Hooter guard (P)	531	4.4	77.7	281	17.0	57.6	531	10.1	29.2
Hot tips (P)	498	10.2	79.1	298	17.0	55.1	477	12.1	36.4
Protector (S)	693	9.2	71.0**	268	19.1	59.6	454	11.5	39.5
Hawaiian (S)	604	9.5	74.7**	264	18.8	60.1	458	9.7	38.9

***Table:** Impact reduction results for the nose-guards at a constant impact velocity of 1.45ms-1. a=Acceleration, in meters per square second (m.s-2) m=Mass, in kilograms (kg) v=Velocity, in meters per second (m.s-1) F=Force, in Newtons (N) *Reduction in maximum force compared to experiment without guard. ** Guards split during these experiments. P - plastic; S - silicone rubber*

- a rubber (13mm thick) covered steel surface which results in the lowest force and also the least reduction due to the guard.

The Table gives the results for the three surfaces. For the steel impact surface a reduction of force of up to 79.1% was found. So severe was the impact that the two guards constructed of silicone split during this experiment. For the other (softer) impact surfaces substantial reductions in force were also measured, the least being 29.2%.

From the Table, the effectiveness of the guards was related to the impact surface. On the three surfaces studied the most effective guards were Hot Tips for the steel surface, Hawaiian for the composite surface and Protector guards for the rubber surface. The relative effectiveness is also expected to depend on the impact velocity, which was not varied in the present study.

CONCLUSION

No one particular commercial nose-guard is superior, except for at high impact forces, where rubber guards showed a slight advantage.

The reduction of the force on impact is related to the thickness and properties of soft matter separating the hard surfaces. The reduction of this force by nose-guards by up to 80% when compared to the extreme situation of steel impacting onto steel is, however, quite impressive. For the other surfaces examined here, which may have some approximation to a skin or skin-muscle covered bone, the force was also substantially reduced by guards. It is clear that further reductions can be readily attained by an adjustment of the shape of the surfboard nose and the nose-guard.

The relevance of the measured forces to injury was outside the scope of the present engineering study, but we would be very interested to know of such data.

SURF DOCS: THE LATEST

INTRODUCTION

Not all SMA members regularly read Surfer magazine, so in each issue of the Journal we include interim Surf Docs letters. These are the original articles as submitted to Surfer, before the occasional hack-down for space, style, and editorial reasons.

The surf industry continues to be in a slump. However, the ever popular Surf Docs continues to survive, albeit not in every issue of Surfer, and with sometimes dramatically reduced space.

We've gone to covering a single subject in each issue (i.e., replying to one letter). While we bemoan the freedom we had to reply to multiple letters in a single issue, or, when warranted, to provide comprehensive coverage for one subject, the new format has forced us to be more concise, and to choose our subjects more carefully. We'll be dealing less with surf medicine esoterica, and try to zero in on more common stuff: surfer's ear, surfer's back/knee/shoulder problems, sun-related skin problems, surfer's eye problems, etc.

You'll find that the boilerplate of SMA contributors is rarely in our Surfer column these days. This is to save space for the actual column (i.e., more words, more education for the readers, more pay to the SMA from Surfer). But in at least one issue of Surfer per year we'll try to be sure to credit every SMA member who has contributed or offered their time and energy.

Many of you responded to the offer in the last issue of Surfing Medicine to become a Surf Docs contributor. If we haven't yet called on you, it's probably because we haven't yet received a letter that was up your alley. Here's the boilerplate we'll be using in an upcoming issue of Surfer. Thanks on behalf of surfers everywhere to everyone of you!

Dear Surf Docs column provided through the volunteer efforts of The Surfer's Medical Association. Edited and written by Mark Renneker, MD, and Kevin Starr, MD., Family Practice, San Fran., CA. Consultants: Kim Bodkin, MS, Sports Med., Montara, CA; Geoff Booth, MB, Physical and Rehab. Med., Newcastle, Aust.; Mark Bracker, MD, Wilderness and Sports Med., San Diego, CA; Chris Carver, MD, Neurosurgery, Salinas, CA; Robert Chatfield, DC, Chiro. , Santa Cruz, CA; John Cherry, MD, Gen. Surgery, La Jolla, CA; J. Grant Davis, MD, ENT, Santa Barbara, CA; James DiMarchi, MD, OB-GYN, Wash. DC; Dan Dworsky, MD, Internal Medicine, San Diego, CA; Randy Fulton, DC, Chiropractic, El Toro, CA; Shale Gordan, MD, Cardiology, Hermosa Beach, CA; Helmuth Jones, MD, Ortho. , Chico, CA; Alex Kaliakin, DC, Chiro., Santa Monica, CA; Robert Lawson, M.D., Environmental Health, Simi Valley, CA; Geoff Loman, MD, Gen. Med., Ventura, CA; Paul Manchester, M.D., Environmental Health, San Fran., CA; Ricardo Mandojana, MD, Dermatology, Knoxville, Tenn; Gary Groth Marnat, PhD, Health Psychology, Perth, Aust; Tom McLaughlin, PT, Physical Therapy, Duarte, CA; David McWaters, PharmD, Medications, San Fran., CA; Richard Miller, PhD, Psychology, Malibu, CA; Anthony Moore, MD, Esoteric Medicine, La Jolla, CA; F. Ray Nickel, MD, Ortho., Ventura, CA; Andrew Nathanson, MD, Emergency/Marine Medicine, LA, CA; Mikele Nova, MD, PhD, Dermatopathology, La Jolla, CA; George Orbelian, Design Safety, San Fran., CA; Rym Partridge, DDS, Dentistry, Santa Cruz, CA; William Petersen, OD, Optometry, Dana Point, CA; Greg Raymond, MS, Environ. Health, San Fran., CA: Margaret Ripley, MD, Ortho, Jacksonville, FL; William Rosenblatt, Ed.D., Psychology, Loch Arbour, NJ; Mike Rowbotham, MD, Neurology, San Fran., CA; Ross Rudolph, MD, Plastic Surgery, La Jolla, CA; Robert Scott, MD, Surfer's Ear, Santa Cruz, CA; Daniel Sooy, MD, ENT, Santa Rosa, CA; Craig Swenson, MD, Ortho., La Jolla, CA; Craig Wilson, MD, Preventive Medicine, Brockwood, England; Ethan Wilson, MD, Emergency Medicine, Corvalis, Oregon.

STD'S AND PREGNANCY

Dear Surf Docs,

I'm 17 and all I can think about anymore is sex and surfing. I'm worried about getting a disease or getting some girl pregnant, but I'm getting confusing information. Write back quick, man, I'm gonna explode!

Horny and Worried in Santa Cruz

Dear Horny,

Your concerns are right on and this gives the Surfer's Medical Association a chance to sound off to all surfing teens. Sexually transmitted diseases—or STD's (we used to call them VD, venereal diseases)—and unplanned teenage pregnancies are on the increase in a big way. A "just say no" approach to teenage sex hasn't worked; neither has beating around the bush when it comes to sex education. We think young surfers can make intelligent and responsible decisions about sex. Like anyone else, they need the facts.

STD's are passed from person to person by sexual contact: penis to vagina, mouth to penis, or mouth to vagina. It's almost impossible to spread STD's by kissing alone. Here are the major STD's you need to know about:

HERPES: Painful sores on penis and vagina that come and go, sometimes for life. Drugs (acyclovir) may help, but there is no cure. Rarely serious enough to put anyone in the hospital, but active sores can make lying on your board a tricky experience.

GONORRHEA: Nasty yellow goo from penis or vagina ("the drip"), burns when you pee. Curable with antibiotics. Rarely fatal, but can put you in the hospital if not treated promptly.

SYPHILIS: More common than people think. Usually starts with a single painless sore on penis or vagina, can progress through all kinds of symptoms to insanity and death. Curable with antibiotics.

GENITAL WARTS: The number one STD on college campuses. Painless, small (1/8" to 1/4"), broccoli-like growths on or near the penis and vagina. Associated with cancer years later. Easy to remove when small; big ones can be a real bitch.

CHLAMYDIA: The word no one can remember or spell. A mysto disease; sometimes there are no symptoms at all. Usually gonorrhea-like symptoms in men; often fever and belly pain in women. Can put you in the hospital;

especially serious in women where it can make it impossible to ever have a baby. Cured by antibiotics.

AIDS: AIDS kills. No cure.

Now, before you sign up for life in a monastery, realize that there is such a thing as safe sex. Anything that prevents direct contact of the penis with the vagina prevents the spread of the germs that cause STD's.

Some—though not all—of the things that prevent pregnancy also help prevent STD's. Here's the lowdown on currently available birth control methods, looking at how well they work and how well they protect you from STD's.

ABSTINENCE: Requires both man and woman to participate. Foolproof birth control; foolproof STD protection. We've heard that there are surfers using this method; we just don't know any of them personally...

CONDOMS AND FOAM: Men and women. Almost foolproof birth control; almost foolproof STD protection. Blocks direct contact with STD germs, kills anything that gets through.

CONDOMS ALONE: Risky. Condoms can tear, especially if longingly carried around in a back pocket for a long time.

FOAM ALONE: Woman only. Lousy birth control; lousy STD protection. Better than nothing.

THE PILL: Woman only. Foolproof birth control; NO STD PROTECTION. Has to be prescribed by a doctor; be sure to ask about safety and side effects.

IUD'S: Woman only. Foolproof birth control; NO STD PROTECTION. Must be inserted by a doctor; again, ask about safety and side effects.

DIAPHRAGMS AND CERVICAL CAPS: Woman only. Almost foolproof birth control; lousy STD protection. Must be fitted by a doctor. Kind of a hassle, some people think teens are too immature or impulsive to use this method. We think that's nonsense.

INJECTIONS AND IMPLANTS: Woman only. Foolproof birth control; NO STD PROTECTION. Not widely available now, may be the wave of the future. Must get through a doctor; ask about safety and side effects.

The main function of these methods is to prevent pregnancy: one sure way to lose lots of surfing time is to become a teen mother or father. Pick a method of birth control that really works; adding a condom if need be will provide good STD protection. If you're too young to find a reliable method of birth control, then you're too young to have sex.

No method of birth control works unless you use it right. If you don't have a doctor that you trust, the best place for teens to get birth control and information is at clinics like Planned Parenthood. For college students the best place is usually the student health service. These places are usually cheap and care is confidential: in California, it's illegal for them to talk to anyone about your care without your permission.

Whatever method you choose, do it right away—half of all pregnant teens get that way within six months of the first time they have sex. Getting an STD now could make your life miserable down the line. Until you find a good method of birth control, you should approach sex the same way you approach cold-water surfing: the wetsuit stays on until the excitement is over.

[submitted 5/10/91; published Sept. 91]

Surfer's Ear Update

Dear Surf Docs:

I have surfer's ear. My doctor has told me that I have 95-100% closure of the ear canal. In the recent past I have had to stay out of the water to prevent further infections. I am reluctant to be drilled since seeing a friend go through so much pain and discomfort from the operation. He had to have his ear partially cut off and folded forward to access his ear canal. Ech!!

Lately I have seen so many new techniques involving laser technology that I'm hoping to wait until the operation can be made less painful and less intrusive. Am I whistling in the wind? should I act as soon as possible? Will my hearing suffer further damage if I wait? I'm living in New Hampshire for two years—could this period of time out of the water improve the situation? I noticed that when I quit knee paddling, my surf knots eventually improved.

Concerned,
Chris.

Dear Chris,

Surfer's ear is still the number one topic of letters to the Surf Docs. We drilled our Surfer's Medical Association ear specialists for the latest work on surfer's ear. Here's the scoop for 1991:

WHAT IT IS: Surfer's ear is when lumps of bone (bony exostoses) form under the skin of the ear canal. As the lumps get bigger, they can trap water, earwax, sand, and dead skin next to the ear drum.

CAUSES: The bony exostoses are thought to be caused by repeated irritation of the ear canal by a combination of water, wind, and perhaps wave agitation. The skin of the ear canal is paper-thin: it's the only place on the body where the bone lies under the skin without an insulating layer of fat or muscle. Probably for this reason, surfer's ear develops more quickly in cold conditions. There also seem to be hereditary factors: in the same conditions, some surfers rapidly develop bony exostoses, while others go years with little or no growth.

SYMPTOMS: Symptoms generally begin with greater than 50% ear canal closure and include stuffed-up ears and ear infections; later with 80-100% closure, there can be hearing loss and ringing of the ears (tinnitus). Surfer's ear does not have any permanent effect on hearing or balance, because it does not affect the delicate structures of the inner ear behind the eardrum.

PREVENTION: For most surfers, using earplugs—along with a neoprene hood in colder waters—will prevent surfer's ear. Doc's Proplugs @ are still the best for most surfers. Regular (one to two year) ear exams are a good idea to see how your efforts at prevention are working.

REVERSIBILITY: Surf knots are essentially big calluses; leave them alone and they'll go away. Surfer's ear is bone and most ear specialists say that bony exostoses don't go away. Your ears will seem better if you move inland for a couple of years, but as soon as you start surfing again, you'll be back to the doctor.

PUTTING OFF TREATMENT: If you've stopped the progression of surfer's ear, either by effective use of plugs and hood or by (God forbid) not surfing, then you can put off the surgery without doing any harm. If, on the other hand, you wait while your ears are getting worse, you may need more extensive surgery, with more time out of the water.

If your surfer's ear is stable (not getting bigger), you can postpone or even avoid surgery by: 1) using alcohol/boric acid drops to evaporate water from the canal after surfing 2) gently drying the canal after a surf with a blow dryer, and 3) getting your ears cleaned regularly by an ear specialist.

NEW TREATMENTS: The surgery for surfer's ear is safe and effective; perhaps it's for that reason that there isn't much experimentation going on. We haven't heard of any natural or holistic methods of treating surfer's ear, and there isn't much in the way of new technology either. Some orthopedists (bone docs) have been working with lasers, but the lasers generate a lot of heat and tend to ricochet, which could be disastrous in the tiny spaces of the ear canal.

It looks as though, in 1991, we're stuck with surgery as the only effective treatment for advanced surfer's ear.

SURFER'S EAR SURGERY

TECHNIQUE: The skin of the ear canal is cut with a scalpel and peeled back. Bony growths are then removed using fine drills and burrs, and the skin is sewn back in place. Some surgeons prefer to get into the canal from behind, cutting the back of the outer ear and folding it forward to give better access. This come-from-behind approach can allow for more complete removal of bone and quicker healing time because of better skin repair. The ear is easily sewn back in place, but is more painful for the first couple of days than with a straight-into-the-ear canal technique.

COST: covered by most medical insurance plans, the surgery costs $3,500 to $5,000 per ear. Of that, $1,200-2,000 is the surgeon's fees, $1,000-1,500 is for anesthesia, and $500-1,500 covers operating room/hospital charges.

TIME: Surgery takes from one to two hours, depending on the surgeon and how advanced the bony exostoses are.

PAIN: Roughly comparable to having your wisdom teeth out.

ANESTHESIA: General anesthesia (i.e. being totally out) is almost always used, but it's possible to do it with local anesthesia and sedating drugs.

TIME OUT OF THE SURF: You have to wait until the skin heals over or risk a major infection; the usual minimum is three to four weeks, although some lucky souls have been back in the line-up within two weeks.

ONE EAR AT A TIME VERSUS BOTH: Most surgeons like to do one ear at a time, partly to ensure that you have one intact ear at all times and partly because it is demanding, tedious surgery. For the first week after surgery, your ear is packed with bandaging material and you are essentially deaf in that ear. If your surgeon is up for doing both ears at once and you're willing to be deaf for a week, then go for it.

COMPLICATIONS: With a good surgeon, this is a safe operation. As with any surgery, there is a risk of bleeding or infection, but our specialists report that both are unusual. There is an important nerve—the facial nerve—that runs in the bone of the canal and there have been cases where it got cut. However, it is now possible to use special monitors that will be triggered if the nerve is touched—ask your surgeon.

It's worth the effort to find a surgeon who is really good at surfer's ear surgery. The easiest way is to ask other surfers who've had the surgery. If that draws a blank, call the American Board of Otolaryngology and Head and Neck Surgery (703-836-4444) for the names of surgeons in your area who are qualified to do the operation. Ask them how many of the operations they've done: if they can't recall doing any, keep shopping.

[submitted 6/25/91; published Nov. 1991]

The Bile Thing (G.E. Reflux)

Dear Surf Docs,

My problem is simple, but painful. Whenever I get up for an early-morning session, I don't eat any breakfast. I do this because if I paddle out minutes after I eat, I constantly belch and nearly vomit throughout the session. If I don't eat, I lack energy and then suffer from severe stomach cramps after I get out of the water and eat. It seems odd, but I get these cramps after I eat. Can you suggest an energy source before I surf that won't upset my stomach? I've considered one of those powdered drinks you see in health food stores, but I don't know if that's a solution. I don't suffer from any stomach disorders, and this seems only to occur after lengthy sessions.

Todd,
New Jersey

Dear Todd,

Many surfers have had the sublime experience of barfing up doughnuts, granola and the rest of their breakfast while struggling to get outside in the predawn light. The problems you're experiencing are all too common in surfers and have more to do with lying prone on a surfboard than any physical ailment. Paddling with your back arched and abdominal muscles straining puts enormous pressure on the belly, often forcing stomach contents up where they don't belong. Some of the symptoms, like belching and burping up food, are just annoying, but heartburn (also called acid indigestion) can lead to bleeding and difficulty swallowing.

The problem lies in the way the stomach works. The stomach is a muscular bag that holds your food for a while after you eat, grinding it with muscular contractions and releasing it bit by bit into the small intestine. The stomach also produces industrial-strength acid to help digest proteins.

At the top of the stomach—and the bottom of the esophagus—is a ring of muscle called the lower esophageal sphincter (LES). The LES relaxes when you swallow; the rest of the time it clamps down to keep stomach contents from going up the wrong way. High pressure in the stomach (like when you're lying on your belly) or a weak LES can lead to food and acid sloshing back up into the esophagus.

If this happens when your stomach isn't producing a lot of acid, you just get belches and burps, perhaps a bit of breakfast recycling. If there is a lot of acid, the result is a painful chemical burn of the esophagus, a condition so common we've begun calling it "surfer's esophagitis." Repeated esophagitis can lead to bleeding ulcers and scarring of the esophagus, both of which are had to fix.

It is possible to surf without all the barfing and burning. You've got to eat before a go-out, so here are some tips to keep food and acid below the LES where they belong:

DON'T SURF ON A FULL STOMACH. Once food passes into the small intestine, it can't come back up. It takes from one to three hours for your stomach to empty completely, so try to eat at least an hour—not minutes—before going out. Liquids pass through quickly, so powdered mixes might be a good idea. Use carbohydrate-based mixes like Carbo-Plex or Carbo Fuel and try mixing at half-strength. One of our nutritionists also recommends puffed-grain cereals with nonfat milk as a solid food that also passes through quickly.

KEEP A TIGHT SPHINCTER. Certain foods tend to relax the LES and should be avoided before a surf, including coffee (regular and decaff), caffeinated tea, carbonated drinks, citrus

fruits (skip the OJ), chocolate (sorry) and fatty foods. Smoking (a bad idea anyway) also relaxes the LES, as do alcohol and various prescription drugs.

LET GRAVITY HELP. Just keeping things vertical will help keep food going in the right direction. Spend as much time as you can sitting on your board instead of lying on it.

MINIMIZE OR NEUTRALIZE THE ACID. Chances are you're going to have some leakage through your LES when you surf. High-protein food stimulates the stomach to make acid, so stick with carbohydrates prior to surfing. Acid-neutralizing substances, like antacids, can prevent symptoms. Try taking a big dose (two tablespoons of liquid, five or six tablets) a half-hour before surfing. Waiting until you're in pain doesn't prevent the damage to your esophagus.

If you're still having trouble after doing all that we've suggested, it's time to see a doctor. You may have a hiatal hernia or a medical condition causing over-production of acid. Feel free to barf on any doctor who tells you the only way to solve the problem is to stop surfing. There are many prescription drugs (cimetidine, ranitidine, famotidine, etc.) that should work, so keep pushing until you find a solution.

[submitted 11/91; published Feb. 1992 issue]

Knee Injured-ACL

Dear Surf Docs,

I'm beached and bummed with a bad knee. Playing basketball a few months ago, a guy collided with me and I felt something snap in my knee. I could sort of walk afterward, but my knee felt wobbly. It still hurt after resting it a couple of days, so I went to the emergency room, where the doc said he thought I had a torn ligament. He wanted to send me to a specialist to be sure. That guy, an orthopedist, said I had torn the anterior cruciate ligament (he seemed pretty sure, although I couldn't afford to get the hideously expensive scan to prove it). He recommended surgery to repair the ligament, but I didn't have the bucks, so he helped me get set up in a strengthening program I could do myself.

Well, I've been doing the exercises and I know I'm getting stronger, but my knee still feels unstable. I want to surf full-on, but I'm afraid I'll wipe out my knee and I remember the (non-surfer) orthopedist telling me that without the surgery I could have trouble with my knee down the line. As I try to save my pennies, I have one big question: do I need the surgery to be able to surf full-on? The hell with basketball, etc., I just want to surf.

Stranded in
San Diego.

Dear Stranded,

Most surfers with knee injuries didn't get that way from surfing. Knee injuries are uncommon in surfing, but when it's flat, surfers find their way onto basketball courts, ski slopes, softball fields, and other knee-wrecking locales. Surfing is relatively easy on knees: your foot isn't locked onto the surfboard, and water is much more forgiving on impact than some clutz in a basketball game.

The knee's ligaments and tendons are vulnerable to forces bending the knee in directions it wasn't designed to go. The anterior and posterior cruciate ligaments form a side-ways "X" inside the knee joint and keep the tibia (shin bone) from sliding forward or backward on the femur (thigh bone). The anterior cruciate ligament (ACL) is one of the most frequently injured parts of the knee—the ACL is injured thirty times more often than the posterior cruciate ligament. The ACL may tear if the knee is twisted on a planted foot—as in cleats or bindings—or in side-on collisions. The story with ACL tears is often like yours: a sound or sensation of something giving way, then a knee that will bear weight but feels weird and unstable.

Anterior cruciate tears are a drag, because the ACL doesn't heal by itself. You have to get it surgically repaired or do without it. With an unrepaired ACL tear, your knee is prone to re-injury and each injury leaves your knee more unstable. It's a vicious cycle, and can lead in time to a permanently stiff, arthritic knee.

Whether you can get by and still surf without the surgery depends on the stability of your knee, your age, and your style of surfing. If the rest of your knee is stable you may be able to surf without problems. Most orthopedists say that younger athletes should get the ACL repaired, because they tend to have very good results and have years of strenuous activity ahead. Finally, if you're a soul surfer instead of a thrasher, your unrepaired ACL may not give you trouble.

In the hands of a good surgeon, ACL repair surgery usually turns out well and most people can go back to full activity. The surgeon takes a piece of tendon from the front of the knee, threads it back up where the ACL used to be, and puts in screws to hold it in place. The operation is done arthroscopically, using high-tech fiberoptic scopes and requires only a couple of small incisions through the skin. Usually you go home the same day.

The surgery is expensive: figure about $10,000, including surgeon's fees, anesthesia and hospital costs, and necessary physical therapy. This is yet another case of why we recommend all surfers get health insurance. Surgery also means four or five months of healing before the repair is strong enough to surf on, although you can start paddling after a couple of weeks.

For most young surfers who want to surf full-on, ACL repair is the way to go. But, since you don't have the bucks and you're not anxious to get back to basketball and other knee-nasty sports, here are some suggestions to get you back in the water:

1) Go back to your orthopedist or physical therapist and ask how stable your knee is after all the exercises you've been doing.

2) If they think your knee is relatively stable, surf gingerly on it. Give yourself weeks—not days—to gradually work back to your old style. If it hurts, back off. If your knee seems to be getting worse, go back to your doctor. Keep doing strengthening exercises.

3) You can try using a knee brace, but there is no reliable evidence that they help prevent re-injury in surfing or other sports. However, we know some surfers who swear by them.

4) Do everything you can to get health insurance. Beware, though: some plans won't cover you for pre-existing conditions.

5) If your income is low enough, you may be able to get your surgery done for free at a public hospital.

6) Fear not, lots of surfers have had torn ACL's and returned to full-on surfing.

[submitted 8/91; published April 1992]

LETTERS

Real Men

Dear SMA,

Congratulations on the recent issue of "Surfing Medicine," the Journal of the Surfer's Medical Association, the one with the article about the San Francisco outbreak of sickness in surfers. The entire issue was great!

However, I would like to make a slight comparison to when "real men" surfed daily in San Francisco, in raw sewage, with no pussy wetsuits or leashes, and potential lifeguard facilities beyond one's own ability to survive. We built resistance to every disease just by surfing in that raw shit. Actually, it was so thick at times that it helped to keep our bodies warm, and if that did not work then we could always take a long piss into our bathing suits, savoring the hot tub-like environment for a few seconds. Nowadays they even have Levi's that zip instead of button up. Try buttoning pants after a 5 hour session in 44 degree water. It used to take hours before any of us knew that we had testicles, except for the uncomfortable choking in one's throat until they returned to where they belonged. We were raised thinking that the pungent smell of hydrogen sulfide, urine, feces, dead animals and a few bait fish fragrances thrown in was the wonderful smell of the ocean. We savored it.

Penicillin was just coming into conservative use by some of the more radical doctors. No tetracycline, crystacillin, anti-bacterial agents as we know them now, and if you got a virus, which I am not even sure had been isolated at that time, you were on your own. You could compress, lance, soak in Epsom salts, pray, threaten the doctor, but essentially you were in the hands of your resistance build ups. From that came the "real men" of the 40s and 50s. Fortunately, most of you carry the genes from these "real men," passed on through staunch heredity.

Most of us had AIDS about 3 times a year, but dismissed it as a severe cold, survived, and didn't even stay out of the water with a fever of 104 degrees F. Hell, the cold water lowered the temperature in about 10 minutes and by the time you swam to the beach after your 50th wipe out you felt great, ready to go out and drink and make love all night.

So, aside from the fact that you are surfing better than we ever did, doing things on waves that we only fantasized, exploring untouched Northern California spots filled with White Sharks, riding 25 foot waves with 30 foot leashes, you're still a bunch of pussy sissies.

Congratulations again on a great issue.

Aloha,
Fred Van Dyke, Kailua, HI.

And now "Elevator Surfing"

Dear SMA,

I would like to bring to the attention of the Surfer's Medical Association a brief article from a recent edition of the "New York Times" which reports the death of an eleven-year-old Bronx boy engaged in an activity called by its participants "elevator surfing."

Children in inner-city New York

Fred Vam Dyke, Waimea Bay, in the pre-pussy days of Real Men.

(and elsewhere?) ride the roofs or undercarriages of elevators in tall buildings. They are seeking fun or the thrill of frightening adults riding within the elevator car. No doubt — not stated in the article — some of the inspiration comes from urban action movies where good guys and bad guys employ the outsides of elevators for vertical transportation. The kids' primary motivation for the activity as stated in the article is boredom.

Why should this brief notice be of interest to the SMA? I can think of two reasons. First, do we want the word "surfing" connected to such a dangerous activity? Do we have any choice? Second, might this activity be construed as a call to action for the SMA? Heretofore the SMA has been involved in laudable efforts to provide care to underserved populations around the world close to good surf breaks, call attention to environmental depredation of places surfers enjoy, and shed light on the prevention and treatment of ailments surfers are heir to. But what of the poor unfortunate youth of this country for whom "surfing" is probably no more than an abstract concept with connotations of thrilling risk-taking behavior? Might not real surfing and not "elevator surfing" be promoted as a healthy outlet and self-esteem building activity for inner-city youth?

Obstacles are obvious. Not everyone lives near a surf break or even near water. Even if they do, the surf (at least on the East Coast) is fickle and getting there not always easy. Also, surfing is a fairly equipment intensive and expensive hobby.

But so what. I think close to 70% of the population in this country lives within 100 miles of the coast. Tax-funded buses move sports teams to distant neighborhoods. Community equipment, especially for an activity that might allow for infrequent participation, can give the opportunity to participate to many.

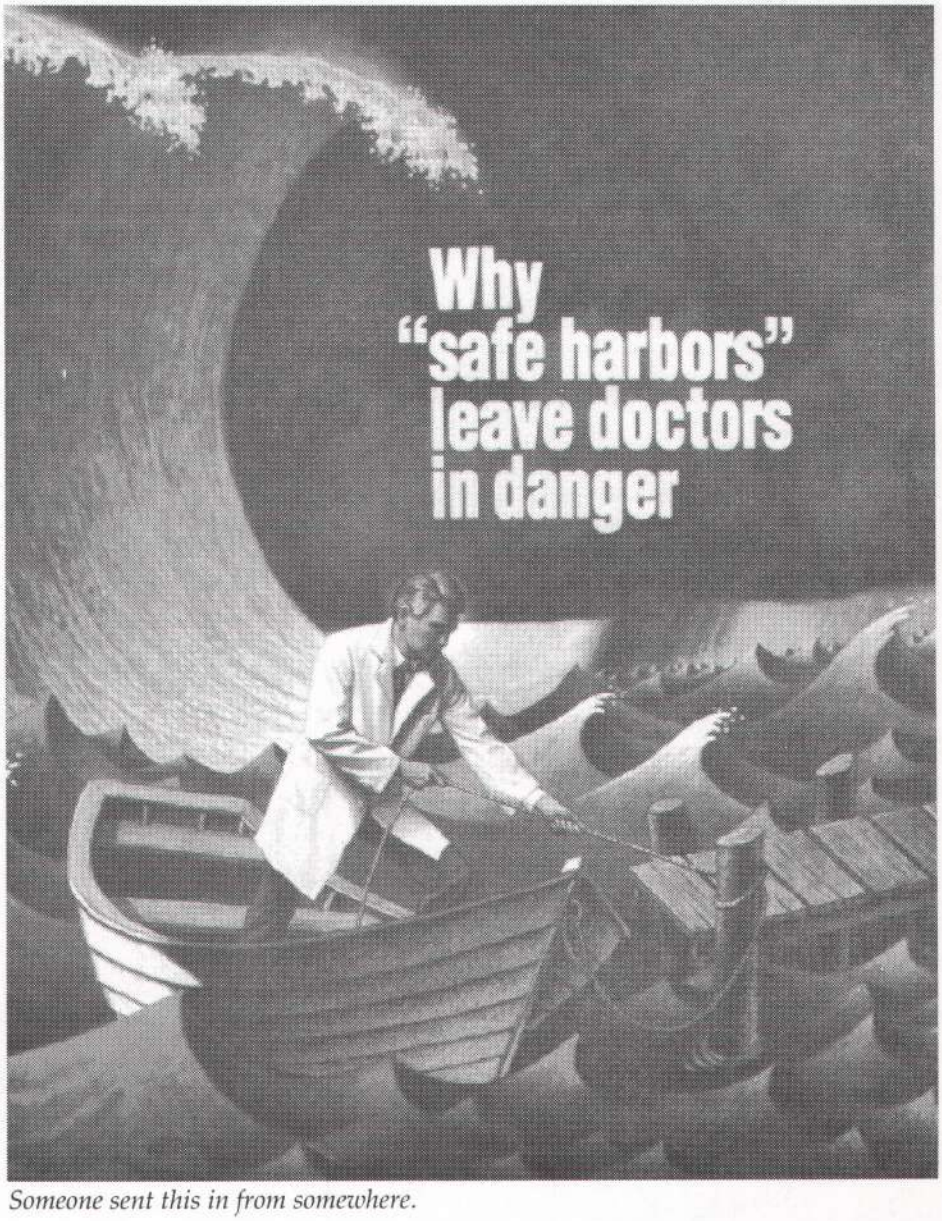
These are just thoughts. No doubt others who care about surfing and the well-being of children will be stimulated to thought, too, by the awareness of this dangerous activity — riding the outsides of elevators — linked to surfing.

Randy Rockney, M.D.
Memorial Hospital, Rhode Island
(401) 722-6000

Helmets, Asthma and Future Employment

Dear SMA,

I enjoyed the article *Protect Your Melon* in the January *Surfer*. Since my field of study is biomechanics, trauma and methods of trauma prevention are of special interest to me. I would like to comment on the section of the article regarding the Gath Helmet in which it states that, "However, the interior of the helmet showed some crush damage to the foam cells. In other words, thickness of the foam cells appeared insufficient to protect your head from such a blow." This may not actually be true. In fact some helmets are intentionally designed to undergo crushing of the foam lining in order to absorb the energy of the blow. Ideally, the foam will undergo what is called a "square wave crush" in order to absorb a maximum amount of energy which would otherwise be transmitted to the head. Of course this is a "single use only" type of protection; after the foam is crushed the helmet must be replaced. The physics involved is similar to the crush of the front end of a car in a head-on collision which protects the passengers by absorbing some of the energy of the impact (as seen in Volvo advertisements). If anyone in SMA has some further interest in this topic I suggest a couple of references: (1) Huston, R.L., Perrone, N. Perspective in Biomechanics, H. Reul et al. (editors), pp. 531 - 572, and (2) Huston, R.L., Sears, J. 1979 Biomechanics symposium, ASME, Van Buskirk (editor), pp. 227 - 229.



Someone sent this in from somewhere.

Another topic which I would like to share with SMA is on surfing and asthma. As a lifelong surfer and swimmer, a bioengineer and an asthmatic, I have come up with a theory as to why surfing and swimming are ideal sports for asthmatics. I have found from personal experience, and it has been reported in the literature, that surfing and especially swimming tend not to trigger exercise-induced asthma while at the same time they increase stamina, endurance, and cardio-vascular fitness. My theory as to why surfing and swimming tend not to trigger an asthma attack has three points:

1. High humidity, low allergen environment. Both surfing and swimming take place in a high humidity environment. This helps prevent drying out of the airways thus helping to prevent an irritant triggered attack. The ocean air tends to be low in dust and pollen (except during Santa Ana [Santana] winds in So. Cal.), thus reducing the allergy pathway for triggering an attack.

2. Controlled breathing. Swimming requires regular and controlled breathing. With some practice this can carry over to surfing. Controlled deep breaths and complete expirations tend to reduce exercise-induced asthma.

3. Horizontal body position. The horizontal body position of both surfing and swimming reduces the hydrostatic blood pressure difference in the lungs thus reducing regional ventilation-to-perfusion ratio inequality, thereby increasing the gas exchange efficiency of the lungs.

Finally, I am glad to announce that I am expecting to complete my Ph.D. dissertation on *The Mechanical Properties of the Pulmonary Arteries and Parenchyma*, in June of 1992. I am currently in the process of seeking out my future employment. I am interested in becoming scientifically involved in a creative research and development group; taking an active role in solving engineering problems, especially related to bioengineering and medicine. I am hoping that perhaps someone in SMA can help me in my pursuit of future employment if they or someone they know is looking for someone with my qualifications and interests.

Jack C. Debes
Dept. Applied Mechanics and Engineering, University of California San Diego, (619) 534-4272

An Open Call for Nut Cases

Dear SMA,

This letter is to introduce myself as a new member of the Surfer's Medical Association. As a therapist, I work closely with orthopedic surgeons and function as a research assistant for Dr. Raymond Koch in the Eureka Orthopaedic Medical Group. We are involved in a variety of research projects, both through Humboldt State University and in the private practice setting.

In my fifteen years of surfing experience, I have become aware of a variety of surfing injuries. However, there is one specific injury that seems to occur with regularity, but is not frequently discussed. This deals with the area of genitourinary trauma and specifically testicular contusions.

For the above reason, I would appreciate your mentioning my area of research interest in your journal. This would allow people with such injuries to communicate with me. I could then contact them by mail or phone to derive the appropriate history and follow-up needed for this study. I am interested in being able to collect this data and present it at an SMA meeting.

I am also aware that Dr. Koch, with whom I work closely, has other research interests in the surfing field and if you feel it is appropriate to be able to request case reports from the surfing population through your magazine, please inform me so I can relay this message to him.

Thank you very much for your assistance and attention to this on-going problem.

Ms. Aldine Pollock
Eureka Orthopaedic
2826 Harris St.
Eureka, CA 95501
(707) 443-8066

Ron's World

Dear SMA,

Bravo on latest SMA journal. Lots of good eco-information. I hope I've had a small influence on the swift and growing environmental concern of the SMA, but I hope the road doesn't lead the SMA to be too environmental, too responsible, or too mainstream - after all, I originally was attracted to the SMA because of the eccentric nature of its radical, underground, surfer-hippie organizational personality.

For example, the Surfrider Foundation is way too mainstream and conservative for me, and their journal is of little interest to me, however important their work may be. Their efforts are very important and much appreciated, but I'd hate to see the cultural heritage of the SMA endangered by linking up too closely with other groups or efforts that may alter its identity.

Maybe later I'll write a guest editorial on "The Cultural Heritage of the SMA," for possible inclusion in the next SMA journal.

Later,
The Bush Doctor,
Ron Bockhold,
North Miami Beach, Florida

[Editor: Ron, great, we're looking forward to your editorial. However, we are concerned about this new job you've apparently taken on, as George Bush's doctor.]

New Combined SMA Phone/Fax Number (408) 684-0916

Surfing Medicine: Our Stake in the Rainforest

From a reprint by the *Rainforest Alliance*, recommended for publication to the SMA by Ron Bockhold

To most doctors caught up in the jungle of daily life at a city hospital, tropical rainforests seem far removed from modern medicine. However, 25% of all prescription drugs contain a plant-derived active ingredient, and there are 18 drugs currently used in the United States that are obtained directly from tropical forest plants. These include: *Vincristine, Vinblastine, Quinine, Quinidine, D-Tubocurarine, Pilocarpine, Atropine, Scopolomine, L-Dopa, Reserpine.* These drugs only scratch the surface of the rainforests' medicinal potential, but at the present rate of destruction tropical rainforests will be entirely gone by early next century.

Why should physicians care? In the past decade we have witnessed a resurgence of interest in exploring the medicinal uses of the rainforest. This interest has been sparked by improvements in natural product screening techniques, the limitations of chemical synthesis, the continuing challenge of diseases such as cancer and AIDS, and the growing awareness that the rainforests are disappearing at a rapid rate. Although they cover only 7% of the planet's land surface, rainforests house nearly half of all species and more than two-thirds of the plant species; only 1% of this tremendous gene pool has been explored even superficially for its medicinal value. As thousands of plants and animals become extinct each year, compounds developed over millions of years of complex co-evolution are lost. Because of the dense gene pool and highly competitive environment that exists within the rainforests, this loss represents some of the most unique—and potentially valuable—DNA on Earth.

Vanishing cures. To effectively combat disease today and in the future, physicians must recognize the importance of maintaining the source of both proven and potential drugs. Many known plant-derived drugs either cannot be synthesized or can be harvested in an environmentally sound manner at a much lower cost. As the rainforest is destroyed for timber and agricultural interests, the supply of known medicinal plants is depleted and the cures of the future are lost.

It is currently estimated that 80% of the world's population depends upon traditional plant-based medicines as its primary source of health care; many of these remedies originate in the rapidly vanishing rainforests. As indigenous cultures are wiped out by deforestation, knowledge of traditional remedies for ailments ranging from fungal infections to impotence is lost forever. Most of these treatments have never been studied by western medicine. In the northwest Amazon alone at least 2000 plant species are used as medicines or poisons. One new drug company, Shaman Pharmaceuticals, has used local leads to isolate a new antiviral drug which should begin clinical trials in the United States before the end of 1991.

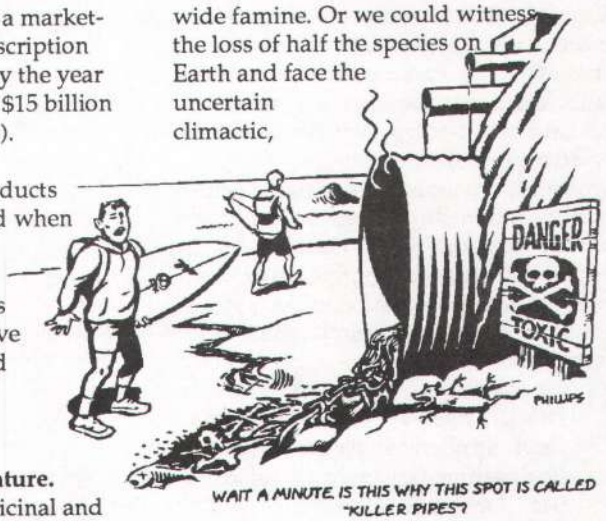
Economic Potential. While the destruction of the world's rainforests represents a potential loss of new drugs that is incalculable in terms of human health, the economic loss is more clear. The worldwide retail market value of plant-based drugs was $8 billion in 1980; this amount was generated by only 40 species. Based on the estimate that 5 in 10,000 plants tested will yield a marketable product, 25 potential prescription pharmaceuticals will be lost by the year 2000, at an estimated value of $15 billion in 1980 dollars (Pirncipe, 1985).

When plants or plant products are harvested sustainably, and when "genetic property rights" are recognized, desperately impoverished local economies are also bolstered and incentive is provided for less-developed nations to protect their rainforests.

Researchers return to Nature. Despite this tremendous medicinal and economic potential, 99% of rainforest plant species remain unstudied. Beginning in the 1930s, drug companies turned to synthetics and molecular modeling for their drug development programs, but the limitations of chemical synthesis—both imaginative and scientific—are now becoming clear. Following the lead of the National Cancer Institute, many of the major pharmaceutical companies have recently modernized their natural product screening programs and are now using this new technology to search for solutions to cancer and viral diseases. This return to natural products is well-founded; there are an estimated 1400 tropical plant species that may be useful in fighting cancer. *Psoralea corylifolia* and *Castospermum australe* are among the plants that currently show promise in combating AIDS.

Racing the clock. The rainforests must survive for these research projects to succeed. The present rate of destruction—80,000 square miles per year—will eliminate tropical rainforests long before screening programs can identify and test a significant number of their remaining plant species.

A medical student today will be practicing medicine for the next 40 or 50 years. This could be a time of tremendous medical discovery, marking the solutions to cancer, AIDS, and worldwide famine. Or we could witness the loss of half the species on Earth and face the uncertain climactic,



WAIT A MINUTE. IS THIS WHY THIS SPOT IS CALLED "KILLER PIPES"?

agricultural, and health conditions that may follow with a diminshed arsenal of scientific raw material. As caretakers of our own species, physicians must recognize the complex physical and evolutionary bonds that tie us to the 30 million others that inhabit the Earth. Aside from the ethical considerations recognizing the inherent right of each of the species to exist, doctors also have a vested interest in maintaining genetic diversity to insure the health of human beings.

Cut for timber and agriculture, the rainforests offer short-term economic benefit for a few special interest groups. Left standing and utilized for their unique medicinal plants, rainforests are a valuable resource for both the countries that house them and the entire planet—we are dependent upon them today just as our future may depend on them tomorrow.

What can physicians do? 1) Encourage your professional society to address this issue in committee, and pass a resolution in support of tropical forest conservation.

2) Write to the pharmacology department at your medical school, hospital or university. Find out if they conduct research in natural products, and support efforts to research the medicinal potential of tropical forests.

3) Distribute information to you patients about the rainforest origins of prescribed drugs. Write to the Rainforest Alliance for brochures and posters to place in your waiting room and office. (Please enclose $5 for shipping and handling).

4) Write and publish articles about the connection between modern medicine and rainforest plants in trade journals or newsletters. Let the reader know how they can become involved in rainforest conservation.

5) Visit a rainforest. Select a trip that will feature information on medicinal species. Write to the Rainforest Alliance for information about accredited travel seminars and other trips for doctors.

6) Become a spokesperson for tropical forest conservation. Learn more about the rainforests and their pharmaceutical potential by writing to the Rainforest Alliance for more information.

7) Support the Rainforest Alliance's Periwinkle Project. *For more information write to Sarah Laird, Project Director, the Rainforest Alliance, 270 Lafayette Street, New York, NY 10012.*

A Call for Unorthodoxy

by Ron Bockhold, North Miami Beach, Florida

Consider the following quote from Dr. Halfdan Mahler, Director General of the World Health Organization: "We in W.H.O. pledged ourselves to an ambitious target: to provide health for all by the year 2000. This ambitious goal is now, quite simply, beyond the scope of the present health care systems and personnel trained in modern medicine. Since it is unlikely that the least developed countries can even dream of having enough of the orthodox type of personnel, it is clear that unorthodox solutions must be sought. Let *us not be in any doubt: modern medicine has a great deal still to learn from the collector of herbs. And already a number of Ministries of Health, in the developing countries especially, are carefully analysing the potions and decoctions used by traditional healers to determine whether their active ingredients have healing powers that 'science' has overlooked."*

The Director General is calling for unorthodox solutions for health care in the third world. What organization could be better prepared to participate in unorthodox activity than the SMA? This challenge sets the stage for a series of seminars to be known as the "Bush Doctor Series," which I would be happy to give at a future SMA Fiji Conference. Let me know of your interest.

Seminar 1. The Bush Doctor. Calling all Bush Doctors, Herbalists, Medicine Men, Shamans, Traditional Healers and those who wanna be. Join us for a trip into the dark, murky, touchy-feelly world of medicinal plants and alternative medicine. As a Bush Doctor intern you will help explore the case for a humanistic and rational approach to plant-based medicine to appreciate the need to incorporate traditional medical techniques into modern health care systems of developing nations so that "Health for All" might be achieved by the year 2000.

Symposium 2. The Secrets of Fijian Medicine. Don't miss this one, as the veil of secrecy will finally be lifted and the world of Traditional Fijian Medicine will be explored. Traditional Fijian healers will be invited to attend. The use of plants purported to have healing qualities has a long and respectable tradition that goes far back into Fijian history. Since plant medicines are still officially considered witch doctoring and remain illegal, the location of this symposium will remain secret to protect the anonymity of the attendees. WAI NI MATE VAKA VITI.

Field Trip 3. The Fijian Pharmacopoeia Expedition. A century ago botanists were folk heroes. They traveled to the frontiers of the Earth, machete in one hand, plant press in the other and then plunged into the dark, unknown jungles and returned with fantastic specimens of plants and tales of deep forest tribes who could identify hundreds of plants and the many uses for each. Now it's your turn to participate in a trans-island field trip to identify and collect specimens used in traditional Fijian medicine and learn of their use.

Workshop 4. The Jungle Pharmacy. A workshop to help construct a village nursery for the production of plants and tree seedlings of historical, medical and nutritional value, and to reforest the barren hills around Nabila village. Bring your garden tools for this one to help restore an enchanted Fijian forest.

Interested? Write to me:
Ron Bockhold, 255 Atlantic Island, North Miami Beach, Florida 33160
(305) 945-7783

UPCOMING CONFERENCES

3rd Southern Hemisphere SMA Conference
Grajagan, Java, 30th August to 9th September 1992

For this second G-Land conference the SMA has exclusive booking on the entire camp for the best 10-day period of the season. Tides, wind and swell probability have all been taken into account. G-Land never goes flat and has the best down the line left-handers in the world. Food, service and hospitality is second to none. Since the last conference, the camp has been completely rebuilt with small huts and transportation should be by fast boat in three hours directly from Kuta to the camp (eliminating the drama of the overnight saga). The things we do for SMA members!

The theme again will be surf camp and travel medicine. G-Land is the first surf camp that the SMA will be staffing full time and we need to consolidate our experiences in provision of medicine both to the travelling surfer and to the indigenous populations. Fiji has been our training ground but is barely Third World compared to the malaria and tiger infested remoteness of Grajagan.

Going to G-Land is a full-on adventure and to share it with a diverse group of like-minded colleagues will be an experience that you will never forget. See this issue for details of our first conference.

All those who are interested, please contact Simon Leslie, 63 The Drive, Stanwell Park 2508 NSW Australia. Phone: 42-941716; Fax: 42-941082 (dial 011 6142 from the U.S.) as soon as possible, as we are required to pay a hefty deposit to secure the camp. We plan to have 30 places available and partners are welcome. (G-Land can handle 30 surfers with ease). Contributions to the academic content of the conference are hoped for from each participant and early submission of brief abstracts would be desirable to facilitate conference planning. Non-health professional SMA members, worry not; we will work with you to figure out a topic or presentation that's up your alley.

Topics could include:

- Travel Medicine
- Tropical Medicine
- Surf injuries and their management in remote areas (can include case histories presented by non-doctor SMA members).
- Early management of severe trauma
- Problems of and solutions to medical evacuation in the tropics
- Biomechanics of surfing and its relevance to injury and injury prevention
- Ecological consequences of surf camp development and measures for control
- Medical, legal and political consequences of health care interventions in foreign countries.

Conference costs are exclusive of airfare to Denpasar, Bali, but inclusive of Bali G-Land transport, food, accommodation and surf while in Grajagan. All interested parties will be sent full details on receipt of their expressions of interest.

CONFERENCE COST:

$750.00 single; $1400 couple plus a conference fee of $250.00 per person. The conference fee, which will be fully refunded if for some reason the conference does not go ahead, should be forwarded to the above address no later than 15th June both to secure your place and to secure our place in G-Land. Places will be filled on a first-come, first-served basis — so be early! Group airline bookings will be made to reduce costs. Call or fax quick!

Lovely G-Land, no one out (as we'll have it). Photo by Dr. John Jones

UPCOMING CONFERENCES
CONTINUED

Big Flat, November 8-14, 1992 (tentative dates)

The last SMA conference at Big Flat, in early November of last year, was such a wonderful time for everyone who attended that it was unanimously decided to do it again this year. Cost, size, and logistics will be covered in the next journal, as will the recently held conference. In the meanwhile, though, drop a line to SMA Central to get your name on the list of those who are interested. SMA, PO Box 1210, Aptos, Ca. 95001-1210.

Todos Santos, Baja, early December (dates not set yet)

Again, Mark Bracker's charm held sway with Todos; there was incredible surf and great meetings at the December 1991 conference. Details in the next journal. Meantime, though, you can get ahold of Mark if you want to tempt yourself for this coming December. Ask about the video! Mark Bracker, M.D., 5334 Westknoll Dr., San Diego, CA 92109 (619) 270-7569.

Tavarua 1993, March 13-27 (tentative dates)

The recently completed March, 1992, Tavarua conference was one of the best ever: an outstanding group, Nabila amazing as always, and exceptional waves, with "Restaurants" going off for six days straight! The full story will be in the next issue of this journal. But for those who need to plan far ahead, March 13-27, 1993, are the tentative dates for next year's SMA Tavarua conference. Drop a line to SMA Central if you think you'll be wanting to come. Include the $250 conference fee if you want to secure a spot. Further details will be sent out later in the year.

UPDATES

Nabau is Thriving!

The last issue of the Journal updated you on the progress of Nabau, the Fijian boy that Paul Georghiou helped bring to America for life-saving heart surgery. The dispatch from SMA members just returning from Tavarua is that Nabau has grown half-a-foot, can run and play like a normal boy, and is smiling more than ever. Paul has committed to writing up the incredible story for the next Journal.

Nabila Still Smokeless

Nabila Village has passed the two year mark in having quit smoking. They've gained fame in Fiji for their accomplishment, and in the Fijian papers and radio are called "the healthiest village in Fiji," something they are understandably proud of. Simon Leslie, Gary Groth Marnat, and Mark Renneker have written a draft of an article about it. Upon completion, they plan on submitting it to a medical journal, such as Lancet, one with worldwide distribution. As the tobacco industry is blitzing the Third World with shameless advertising for their healthless products, we need to do everything we can to combat them, worldwide.

SMA Todos Santos Video

A really quite expert, full-length video was made of the recently held SMA Todos Santos conference. If you've ever wondered what the place really breaks and looks like, check it out. More impressive than the double and triple overhead surf are the boards that washed in and were decimated on the rocks. And then there are the donkeys, chickens, goats, and surfers from Newport that wander in and out of the various scenes. Classic. $20 and it's yours. Send check (covers costs only) to Mark Bracker (in his name), 5334 Westknoll Dr. , San Diego, CA 92109.

Managing Editor Needed

Mark Renneker would appreciate help in putting together future SMA journals. He's happy to continue serving as a volunteer as the Editor, but all the shlepping back and forth to the layout and printing place, plus chasing down photos and rewrites, plus line, copy, and photo editing - it's all getting a little old. What's needed is a competent, literate but irreverent, word processing/desktop smart, San Francisco-based individual to be a Managing Editor. It would entail putting together two issues a year. The salary would be negotiable (either per hour or per issue). If you know someone who might be interested, have them call Mark at (415) 664-7027.

Collected Surf Medicine Works, Volume 3

How many more excuses can there be for the delay in publishing this? Well, maybe with a Managing Editor to handle some of the journal work, Mark will finally finish it up. For those who ordered it, hang on, it's coming... Meanwhile, Volume 1 has sold out (more to be printed), and Volume 2 is nearly ready for reprinting. Order yours soon.

MEMBERSHIP INFORMATION

Memberships are for one year unless otherwise specified, and include a decal, membership directory, a journal every 6-8 months, and invites to all SMA conferences. Membership is a way of both joining and contributing to the SMA. Choose your category accordingly.

Life Member: Totally Committed and has some bucks — pay once and you belong forever. $500

Charter Member: Wants to be a Heavy Local in the organization. $100

Health Professional Member: the Surf Doc Membership — for those who spent too much time going to school and now want to surf more. $50

Professional Member: for non-health professionals with real jobs. $50

Barefoot Doctor Member: the Surfer's Membership — for surfers interested in learning how to take better care of themselves and others. $20

Gremmies Member: for beginning or young surfers. $10

Silver Surfer Member: for the elders of our sport (over 60) No charge.

Corporate Sponsor: philanthropy has its costs...$500 and up.

Corporate Guilt Member: for those who have exploited surfing for personal gain — you know who you are, now pay up. $1000

The John Cherry "I Won't Join Anything" Membership: for the truly hard-core non-joiner. $109.95

Life's A Beach Member: for wealthy patrons who believe the surfer's lifestyle should be supported to the max. $100

Illegal Member: $100 cash or equivalent. Anonymity guaranteed (unless Nancy Reagan wants to know).

Surf Parent Member: for those who want to see Johnny come home in one piece. $30

Surf Family Membership: the family that surfs together, stays together. $30 ($60 if any family member puts a degree down after their name).

Surf Widow Membership: for spousal equivalents of surfers — the SMA can help! $10

I'll Join Anything Member: for non-surfers who think it would be cool to join a surfing medical association. $19.95

Join Now, Pay Later Member: send us your hard-luck story. $0

Organizational Member: let's trade memberships to keep each other up-to-date. $0

Surf Professional Member: for career surfers — you endorse us, we endorse you. (the SMA supports pro surfing). $0, and maybe an occasional favor.

Hodad: interested in joining, hasn't paddled out yet.

Shoulder-hopper: those who drop-in on the SMA without paying their dues.

Snake: a flagrant, chronic shoulder-hopper (always promising to pay their dues)

After-Life Membership: for Life Members, a chance to surf in the hereafter — the SMA will do everything possible to see that your organs are donated to surfers, and we'll provide a lovely surfboard tombstone for your grave. $1000

T-shirts: $15.00@, M-L-XL, include SASE (8 oz.@, 9 x 12 in. envelope)
Decals: $2.00@, include SASE (1/2 oz.@, 7 x 10 in. envelope)
Wall Diplomas: $5.00@, include SASE (1/2oz., 9 x 12 in. envelope)

TO RENEW: When did you first join, or last renew? Was it a one-year membership? Figure it out (reminders abound). Consider Life Membership to simplify things in the future.

TO JOIN: Choose your membership category, fill out this form, make out a check payable to the Surfer's Medical Association (in U.S. dollars), and mail to: Surfer's Medical Association, P.O. Box 1210, Aptos, CA 95001-1210. Phone/FAX (408) 684-0916. Be patient if you don't hear back from us right away (especially if the surf is good).

PLEASE SEND US THIS INFORMATION

copy or Xerox if you don't want to disfigure your journal

Date _____

New Member ◯ Renewal ◯

Name _____

Address _____

City/State _____

Zip _____ Country _____

Work phone _____

Home phone _____

Membership Category _____

Amount [Fees as of Sept. 1st, 1991] $ _____
Non U.S. Members add $10

Type of surfer (stand-up, boogie, etc.) _____

Years surfing experience _____

Present number of go-outs per month _____

Your worst surfing injury _____

_____

_____

Type of work/specialty _____

Job title/Academic position _____

What about the SMA stokes you the most _____

_____

_____

Name/address of a surfing buddy(s) who you think would appreciate being invited to join the Surfer's Medical Association:

_____

_____

THE NON-HOLIDAY SEASON IS COMING!

Give YOURSELF and others SMA GIFTS!!
(And be donating to the SMA at the same time!!!)

T-Shirts

High-quality (Hanes), colorful SMA logo on back and front pocket, short-sleeve in bone color only. Medium - Large - Extra Large, include self-addressed, stamped envelope (they weigh about 8 oz. each, and one will easily fit into a 9 x 12 in. envelope). Classic gifts. The medium is fairly small, and reasonably fits children and smaller adults. $15.00 each.

Number of shirts: _____

Size(s): _____

$ Enclosed: _____

Must include SASE.

SMA MEMBERSHIPS

A fantastic gift - join someone up to the SMA (or renew or upgrade your membership). See the listing of membership categories on the reverse of this page, and complete the membership form. Indicate if a gift membership on the membership form (don't worry if you don't have all the relevant information; just put the name, address, and type of membership - we'll have them fill in the rest later).

Decals

Torquoise-blue SMA logo on white mylar, about 5 x 6 in., perfect for surfboards, car bumpers, windows, notebooks, and office doors. Include self-addressed, stamped envelope (1/2 oz. each, 7 x 10 in. envelope so they won't have to be folded). $2.00 each.

Number of decals: _____

$ Enclosed: _____

Must include SASE

Wall Diplomas

To place alongside your other diplomas, whether from high school or medical school, this signed, slightly surf-motif'ed diploma officially confers upon whomever you indicate "the rights and privileges thereto pertaining to membership" in the Surfer's Medical Association. Get it framed, and give it as a gift! Include self-addressed, stamped envelope (1/2 oz., 9 x 12 inch envelope, so they won't have to be folded). $5.00 per diploma. Diploma in what name(s):

_____

_____

Number of diplomas: _____

$ enclosed: _____

Must include SASE

Books: The Collected Surf Medicine Works

Volumes 1, 2, and 3

Each volume is about 300 pages, in a 3-ring binder with **Collected Surf Medicine Works** on the spine. They will look handsome on any bookshelf, and be a powerful reference and educational tool. Each volume costs $35.00, plus $2.40 postage (first class, U.S.), or $18.00 foreign (if air mail) or calculate sea-mail foreign postage costs for two pounds per volume. Or, order all three volumes for $100 and the SMA will throw in the postage for free (if U.S.). Vols. 1 & 2 ready for delivery. Vol. 3 still in press.

Volume 1: World Literature on Surfing and Medicine — $35 each # _____

Volume 2: The Complete Dr. Geoff and Dear Surf Docs — $35 each # _____

Volume 3: Handbook of Surf Medicine - (underground edition – still in print, but will be sent when ready) — $35 each # _____

Complete set of all 3 volumes — $100 # sets _____

Postage amt. $ _____

Total amount $ _____

SURFING MEDICINE: A Pier-Reviewed Journal

Here's your chance to add a significant publication to your resume: consider making a submission to the Journal of the Surfer's Medical Association. Send us your surfing related case reports, research, proposals for upcoming trips or projects, stories, and anything else you feel is relevant to surfing and medicine.

Rules for Submission:

1. Send material in early -- at least two months before the next issue.
2. Include pertinent references.
3. We'll love you forever if you put your material on a Mac disc, using Microsoft Word.
4. Include any graphics and photos (especially surf pics, particularly if they are of you).
5. Proof-read your stuff a couple of times -- have your kids correct your spelling and punctuation.
6. We'll publish anything sent in that looks good and passes peer-pier review (we pass it around to SMA members and other derelicts hanging out under the pier; if it meets their rigorous standards, it's in).

Instructions

Follow the above instructions per item ordered, and make your check out to the SMA.

Mail to:
Surfer's Medical Assocation
P.O. Box 1210
Aptos, CA 95001-1210

These items are only available to SMA members.

Total amount enclosed
(all of above) $ _____

Surfer's Medical Association
P.O. Box 1210
Aptos, CA 95001-1210 USA

Bulk Rate
U.S. Postage
PAID
So. San Francisco,CA
Permit No. 655