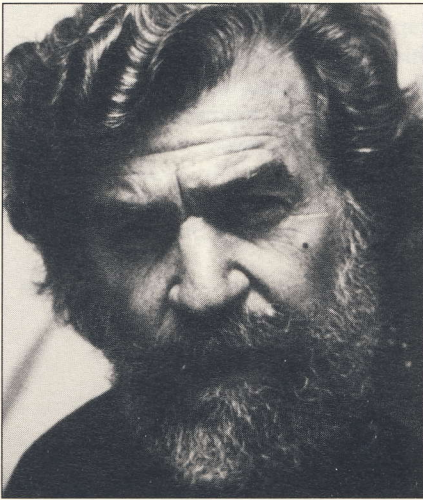


The States of Awareness in Anaesthesia In 1965 - Bernard Levinson



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Curriculum Vitae

Dr Bernard Levinson a qualified MBChB in 1951 from the University of the Witwatersrand. He was a Resident Anaesthetist for a year at St Stephan's Hospital, Chelsea, in 1953 and Specialised in Psychiatry in 1959.

Summary

Even under deep anaesthesia patients can sense the anxiety of the doctors, can hear and feel what is going on in theatre. Some experiments were done where the brain waves of anaesthetised patients were monitored and afterwards their observations and feelings were explored under hypnosis. The findings strongly indicate that patients never stop listening.

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This is the text of a lecture given by Dr Bernard Levinson at the first Congress on "States of Awareness in General Anaesthesia" in Glasgow, Scotland, 1989.

"There is no such entity as consciousness: We are from moment to moment differently conscious"

Hughlings Jackson (1931)

Looking back at the year I spent as Resident Anaesthetist in a Chelsea hospital - what stands out most clearly for me was the enormous anxiety and distress I experienced. The year was 1953. It is the year of the Coronation. Hilary has just climbed Mount Everest and I have made the astounding discovery that every time there is a crisis in the operating theatre, a current of anxiety flows between the surgeon and myself via the patient. It did not seem to matter where the crisis began or in which direction it flowed, it always involved the three of us. Now this

does not sound like a monumental discovery. But this was the bewildering anguish of my entire anaesthetic career! Mostly the anxiety began with me. It then involved the surgeon. He had to come to my rescue or struggle with a patient profoundly unrelaxed. Being a registrar in training, frequently enough the crisis began at his end of the table. On those occasions I could almost watch the anxiety creep along the patient's body to my end of the operation. We were a spectacular team ...

It was many years later, in 1965, practising as a psychiatrist, that I had a glimmer of understanding.¹ I had been impressed with the work of David Cheek, a gynaecologist, from California. Like him, I had encountered patients who recalled traumatic events during their operations. Like him, I was using hypnosis in the course of my psychotherapy and this recall was always during a hypnotic session. And like him, I was curious. Was this a fantasy or did it really happen? We had an endless correspondence.

I remember Louie. He was an asthmatic. I was obsessed in those days trying to understand the body's language. Was his breathing an expression of some deep psychic distress? I was using hypnosis to explore his life, and to my astonishment he took me back to an operation he had undergone years earlier. He heard the surgeon say:

"Look at that lung. Have you ever seen anything as black as that?"

I knew the surgeon - and he actually remembered saying those very words.

At that time I was sharing a patient

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with a plastic surgeon. This was a young woman who had a serious car accident. I was helping Peggy overcome her fear of driving. He was about to repair her multiple facial injuries. I knew she was a good hypnotic subject. I suggested that we play music during the operation, and later in my rooms I would hypnotise her and ask what we played. She had a cyst in her mouth. The surgeon began the operation by removing this cyst. He put his finger in her mouth and suddenly exclaimed:

"Good gracious - this may not be a simple cyst - it may be a cancer."

The pulse fluttered and raced. I knew then it was unnecessary to play music. We had given the experiment a dynamic authenticity. I scribbled the words - 'Reassure her please!' He removed the cyst and said:

"On second thoughts - it is only a simple cyst."

The anaesthetist had used pentothal, gas, oxygen and fluothane for this procedure and was confident that the patient was normally anaesthetised when the cyst was removed.

A current of anxiety between the surgeon and anaesthetist via the patient

I saw Peggy in my rooms a month later. She had already seen the laboratory report and knew that the cyst was in fact non malignant. Under hypnosis she repeated his identical words. Even the expletive 'good gracious'. With some urging she also recalled his reassurance but said to

me while still hypnotised that she didn't believe him ...

I reassured her as much as I could. I explained the original plan and how that became irrelevant after the announcement on her cyst. She understood it all. We continued with therapy and she recovered her confidence in driving. Two years later she developed a uterine cancer and died. I don't know how to understand that. To link this to our experiment would be an appalling thought.

On the basis of this experience, I set about creating a controlled study. There were many factors that had to be monitored and as far as possible controlled. I was offered an operation list at a dental school. The same anaesthetist and surgeon would perform all the operations.

I chose the first ten patients who were hypnotisable. They had to enter a trance easily. They had to achieve a depth of trance compatible with the ability to hallucinate sounds, smells and tactile sensations. Like walking on a beach hearing the sound of waves and feeling the sand under one's bare feet. They also had to regress easily in time. I asked each prospective patient to go back to a happy occasion when they were children. Most of them relived birthdays with a great deal of intimate detail. These were all memories that had been forgotten. At the end of these testing trance states, the patient had to awake with complete amnesia for that hypnotic session. This was a further confirmation that a uniform depth of trance was achieved.

Of course, the patients had to agree to be subjects. They agreed to have a head halter with electroencephalo-

graphic leads placed on their heads. This would be set in place prior to the operation and was to be worn throughout. Each patient was told that their brain waves would be recorded during their operation and that hypnosis would be used after the operation to explore their feelings.

Some patients recalled verbatim everything the anaesthetist said during the operation

This screening was performed the night before the operation. Those selected were followed into theatre the very next morning.

The anaesthetic had to be uniform. Thiopentone, nitrous oxide, and ether were used to anaesthetise all the patients. A six channel electroencephalograph was fixed about the patients' head before they entered the theatre. When the EEG consisted entirely of irregular slow waves of high voltage (a particular deep level of anaesthesia described as Courtin third level. He describes seven levels. The fourth level is evidence of deep cerebral depression with electrical inactivity. We were just short of that ...) The anaesthetist was signalled that the experiment could begin. By that time the anaesthetist was in a near state of panic. He had never taken his patients as deep as that. Throughout the deepening of the anaesthesia he would cast anxious glances in my direction imploring me with his eyes to get on with the experiment. I wondered if his anxiety would be picked up by the patient and if they would respond to this in some

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physical way. Shades of that year at St Stephan's Hospital, Chelsea ...

The crisis created by us had to be carefully designed. It had to be urgent enough to hold the patient's attention. Cheek had pointed out that his patients ignored the banter and the jokes, but latched onto any remark that appeared life threatening. It had to be self limiting. There was

The belief that patients cannot hear during their operation runs very deep

no way we could consider leaving the patient with an unresolved trauma in the belief that this might be resolved some time later under hypnosis. I felt the suggested trauma had to be resolved right there and then, even if this allowed the awareness of the incident to be seemingly 'forgotten' some time later. As though the patient was saying to himself - 'If it was resolved it could not be that important'. I was not prepared to do this. When the depth of anaesthesia was achieved I signalled to the anaesthetist. His words were urgent and totally appropriate to the crisis on hand. Not difficult for him. By then he was more than appropriately anxious. He spoke to the surgeon - reading the following script:

"Stop the operation. I don't like the patient's colour. His/her lips are too blue. I'm going to give a little oxygen."

At this point he pumped the rebreathing bag for a few moments and finally announced:

"There, that's better now. You can carry on with the operation."

The entire ward and theatre staff were warned not to discuss any of the events in the theatre with the patients. I must say there was an air of incredulity amongst both the medical and nursing staff. The belief that patients cannot hear during their operation runs deep. It is an essential belief, like the belief that the patient no longer experiences pain. This belief allows the staff to comfortably get on with the job at hand. They were resistant to the thought that the patient might be totally aware of all that was happening. I could see that that was an extremely uncomfortable thought ... In the silence that followed my signal to begin the experiment, I was aware that the entire theatre staff was suddenly intently listening. Perhaps looking for some outward sign that the patient had heard; and finding none, were reassured ...

Each of the subjects was seen one month after his discharge from the hospital. They were rehypnotised and the operation was reviewed in detail.

Of the ten patients, four recalled verbatim everything the anaesthetist said. They knew who was talking, where he was standing, and described the urgency of the moment. They understood the crisis and described feeling relieved when the operation continued.

Four patients had partial recall. They knew who was talking. They could recall a snatch of a word. They became extremely anxious. Some burst out of the trance and were reluctant to be rehypnotised. One woman said she felt she was spinning. Each time the circle passed the anaesthetist, she could make out a word. Before she could make any real sense out of his words, she spun out

again in a circle. She reacted with an alarm reaction in all six channels of the EEG the moment the theatre plunged into silence. This preceded the anaesthetist's words since everyone saw me lift my hand in signal. There was a silence - all eyes on the anaesthetist - and then he delivered his urgent speech. This patient responded to the silence and continued her alarm reaction for many minutes after he stopped his monologue. One young motor mechanic said that the Inferior Dental Artery was cut. I asked him how he knew that. He immediately said that the surgeon had just said that to the assistant. (I corroborated this with the surgeon). He was so wrapped up in this event, that the awesome suggestion of the anaesthetist was lost in what seemed like a general panic. There was more EEG response in this group than in the first four.

There were strange responses that I couldn't understand. One patient described experiencing his arms and hands pinned at his side partly under his body. Another described the feeling of blood welling up in his mouth.

We never stop hearing

The final two patients could not recall any of the events. They were both identical in their response. It was not as though they were re-living the operation, screening the words spoken and then decided there was nothing unusual to report. They both blocked out the entire operation. They could not be persuaded to look into that darkness.

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On reviewing the neural pathway of auditory impulses, it is interesting to note that unlike all other sensory systems, the auditory pathway has an extra relay. Some fibres cross as the auditory division of the eighth nerve enters the brain between the pons and the medulla. They then cross again higher up at the inferior colliculus. Since it would appear to be the ascending activating influence of the brain stem reticular system that is most impaired by anaesthetics, auditory fibres by and large escape this chemical blanket and continue to transmit sound. We never stop hearing.

The babe in the uterus listens to the mother's heart beat. This becomes so profoundly bonded that the child will forever be soothed by any movement or sound that imitates a 72 beats a minute rhythm. The brain not only listens but endlessly censors sound. You may be in bed asleep with your wife at your side. The bus passes and neither of you wake. Babe stirs and with its first-almost cry - mother awakes and you sleep on. The phone clicks announcing it is about to ring and you wake to answer it while your wife sleeps on. An unfamiliar creak outside the bedroom door - and you both wake. The brain filtering and

Patients can hear even during coma

then deciding what sounds are important and should be responded to and what can be safely ignored. The same censoring seems to exist during anaesthesia.

There is evidence that patients can

hear during coma. It is now becoming commonplace for loved ones to sit with these patients talking to them, touching them and holding them. The reward is a flicker of an eyelid or finger. Patients are listening all the time.

The last experiment I conducted in this area was far simpler and extraordinarily dynamic. I was given a cat by the SPCA. This stray cat was about to be destroyed. With the help of a veterinary surgeon, we implanted the electrodes of an electroencephalograph into the cat's skull. The surgeon proceeded to anaesthetise the cat. The anaesthetic was pushed until the cat died. When the EEG was totally flat in all leads, I dragged a dog into the laboratory. The dog aware of the cat barked frantically and the cat responded dramatically in an alarm reaction in all the EEG channels!

It would seem then that the highly complicated pathway for hearing adroitly misses the areas thought to be most influenced by the anaesthetic agent and as a consequence allows a full realisation of the events during the operation. A patient may have amnesia for a particular trauma, but this cannot mean that the patient has not suffered. It would be impossible to guess how many patients have been influenced as far as their future personalities and behaviour are concerned by a trauma introduced during anaesthesia and retained in the subconscious mind.

At the time of doing these experiments, I discussed my findings with surgeons and anaesthetists. Some of them smiled indulgently and said they knew all about this. The patients were clearly not 'properly' anaesthetised. When they gave an

anaesthetic it never happened . . . Some of the surgeons suggested mandatory ear-plugs for all patients. A few said that they only played music and only spoke if it was necessary. Not one ever thought this might be a unique moment for powerful positive suggestions. I once taxed an anaesthetist with this. I remember his answer vividly.

"Come on", he said, "I'd look a proper fool talking away to the patient while he was asleep. I'd be a laughing stock . . ."

This was 1965. I could get this reply today. Since the introduction of

An anaesthetised patient provides a unique opportunity for powerful positive suggestions

anaesthesia, the operative moment has always been considered a prime teaching experience. The patient appears no longer a part of the event and we are free to talk openly, to discuss pathology and prognosis. This is deeply embedded as part of our surgical history. This has become the unquestioned ethos of the practice of anaesthesia.

There are factors that may make this insight unacceptable to anaesthetists and surgeons. There is the problem of hypnosis.

Still today the subject conjures up the stage and an uneasy amalgam of the mystique and the occult. As I describe the use of hypnosis in the experiment I feel my 'scientific' listeners switch off. One could by-pass the use of hypnosis

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completely. If the surgeon stopped the operation, turned to the patient, and in a loud commanding voice said -

"When I approach your bed in the ward tomorrow morning - you will place your right hand on your head. It is very important that you do that. I will expect you to do that!"

The bizarre weirdness of the request could just get through and the bemused patients sitting up with their hands on their heads could be adequate testimony of this state of awareness. If we are to explore a trauma imitating closely the type of minor crisis experienced daily in operating theatres, this material would hide in the subconscious mind available only with a hypnotic procedure. Hypnosis is only a tool.

Then there is a subtle complicating factor involving the personalities of anaesthetists and surgeons. By and large these are highly skilled doers in

We must always be aware that the patient is always listening

our profession. They are scientists steeped in mechanics and biochemistry. They are active skilled technicians. They often have difficulty in relating to the patient - to the whole intimate emotional psyche-active patient - in the waking state. How could they do this while the patient is 'asleep'? The apparent absence of the patient while they work is a relief.

We must now be aware that the patient is always listening. Perhaps

the terror of the moment, the fear of an alteration of his body image, the anguished dread of the possible presence of that ancient thief, cancer, may make the patient even more intensely alert. Factors such as the patient's personality, previous experience, type of operation, the site of the operative procedure may all play a role in intensifying the patient's need to hear every word the surgical team utter.

And what a moment for reassurance! Looking back at that dark year I

spent as an anaesthetist, if I could have understood the obvious dynamics, it would have been so simple. All I had to do was to lean forward and in a calm comfortable voice, say to the patient -


"Everything's alright. The operation will soon be over. Everything has gone according to plan. The surgeon is satisfied that the operation is going along smoothly. When you wake in the ward you will have little pain. It will be easy to have a bowel action and to pass water. You are very relaxed now and



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